

# MARKETS



December 1, 2021

*Webinar will begin at*

9:00 a.m.MST / 8:00 a.m. PST



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keep the lights on today and in the future.*



SouthwestPowerPool



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Southwest Power Pool  
**WESTERN  
ENERGY  
SERVICES**

# INTRODUCTION

BRUCE REW

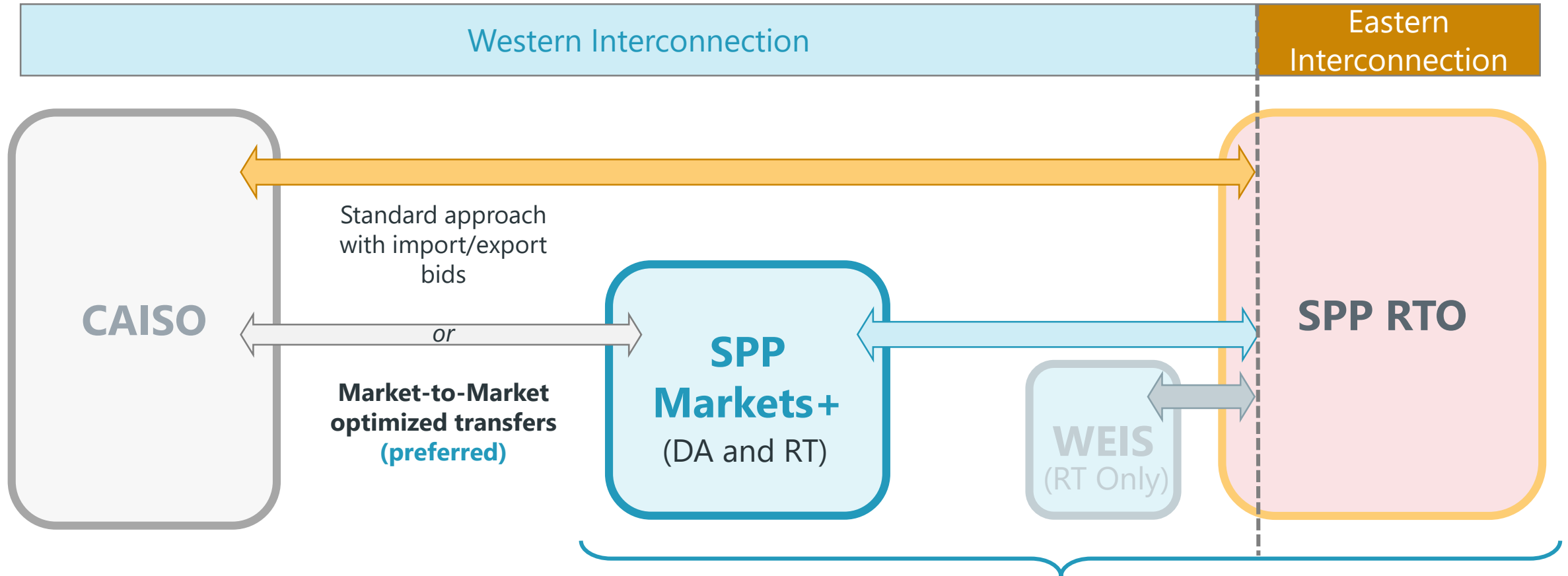
SENIOR VP OF OPERATIONS

# TODAY'S AGENDA

- Market Design Approach
- Market Products and Price Formation
- Transmission Availability
- Congestion Rent Allocation
- Market Monitor and Oversight
- Next Steps

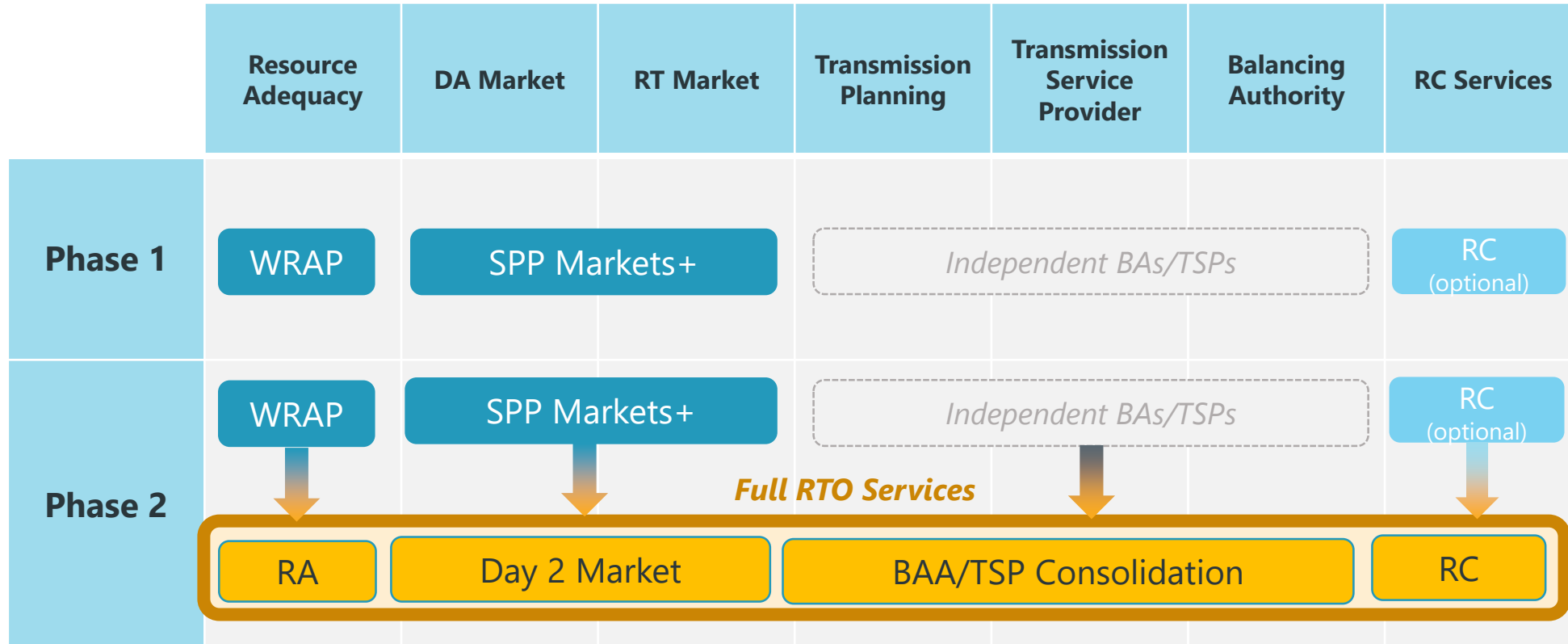


# WESTERN MARKETS ROADMAP



Ideally a single co-optimized unit commitment and dispatch under a robust governance framework with an independent board

# INCREMENTAL POSSIBILITIES



Entities can **choose** whether and when to move into full RTO mode

# QUESTIONS?

INTRODUCTION TO MARKETS+

# MARKET DESIGN APPROACH FOR MARKETS+

PHILIP BRUICH  
DIRECTOR, MARKETS

# SPP MARKET EXPERIENCE TIMELINE

## SPP Energy Imbalance Service (EIS) market in Eastern Interconnect:

- Five-minute EIS market
- Day-ahead (DA) & hour-ahead supply adequacy calculation

2007

## SPP Integrated Marketplace (IM) & Forward Congestion Market (TCR):

- Hourly fully co-optimized DA unit commitment, energy & operating reserve market
- Five-minute fully co-optimized real time energy and operating reserve market
- Consolidated 16 legacy balancing authorities into one SPP balancing authority

2014

## SPP Western Energy Imbalance Service (WEIS) market launch in Western Interconnect:

- Five-minute EIS market
- DA and hour-ahead supply adequacy calculations

2021



# SPP'S OPEN, TRANSPARENT & INCLUSIVE APPROACH

- Goals always:
  - Ensure reliable operation of the bulk electric system
  - Ensure efficient operation of the market driving towards a least-cost solution
  - Provide accurate price signals that:
    - Reflect market conditions
    - Encourage investment
    - Incent performance



# MARKET DESIGN: STAKEHOLDER OWNERSHIP

- Core structure begins with stakeholder working group:
  - Responsible for maintaining and enhancing governing documents that establish the market design, market products and market participation rules
  - Meet twice monthly during startup phase
  - Transition to monthly after design is complete
- Meetings are facilitated by SPP staff
  - Partnership between stakeholders and SPP
  - SPP staff provides guidance, expertise & research
  - SPP staff does not get a vote



# MARKET DESIGN: STAKEHOLDER OWNERSHIP

- 360 degree information transfer between SPP and the stakeholders
- SPP staff, stakeholders, Market Monitoring Unit and other stakeholders bring new issues/concerns/changes
- Research is done by all parties: If the issue is large enough, a sub-group may be formed for more concentrated research and discussion
- Ultimately results in a revision request to change a certain aspect of the market



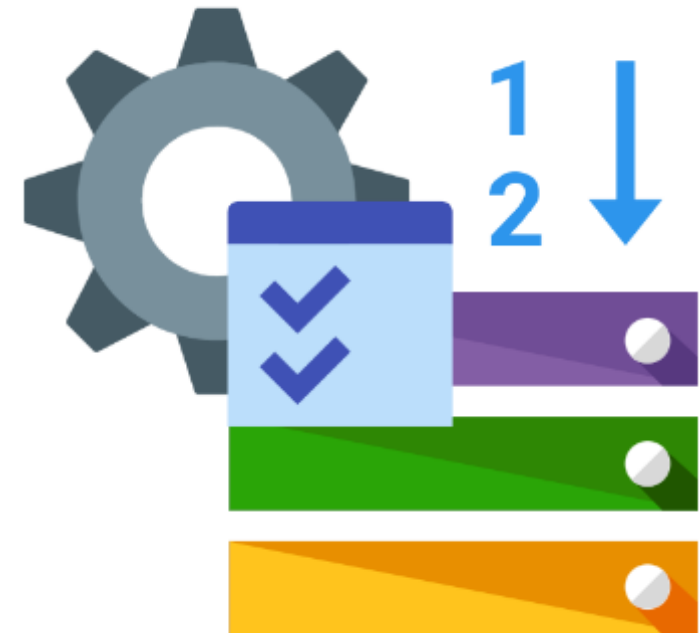
# MARKET DESIGN: KEY QUESTIONS

- What issue/feature is ultimately being addressed?
- What solutions exist?
- Is there precedence set in another market that we can learn from?
- Are there regulatory hurdles to implementation (FERC, states, etc.)?
- How can we minimize implementation costs/performance impacts/changes to participant systems while maximizing the value the change provides to the market?



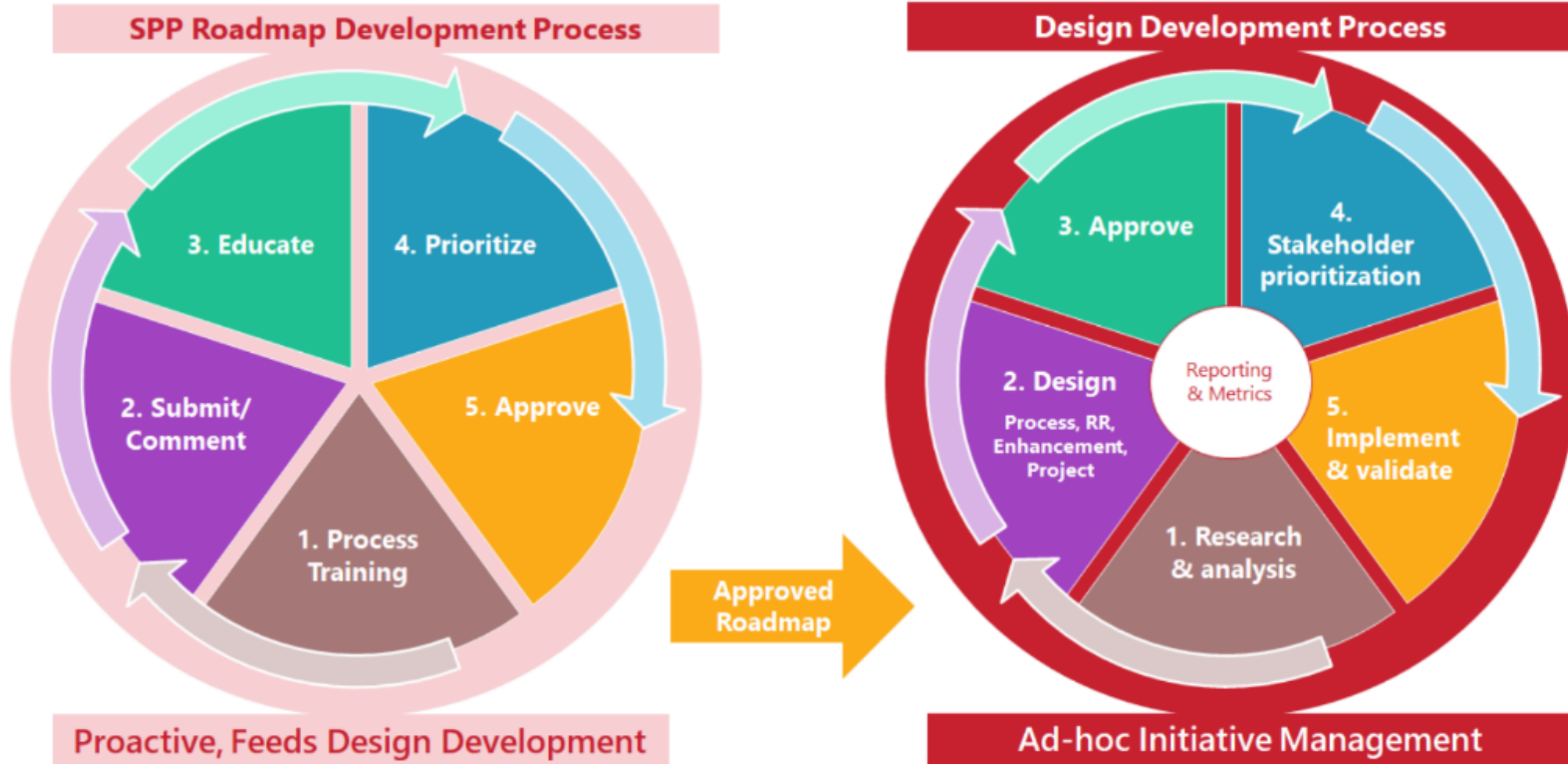
# STAKEHOLDER PRIORITIZATION

- Stakeholders in SPP provide input on the prioritization of all phases of an enhancement
  - Inform design/research and implementation
  - SPP anticipates a similar process for Markets+
- SPP stakeholder prioritization is a collaborative process:
  - Enhancements to the market system, public data, etc. are prioritized by SPP and stakeholders
  - SPP conducts open meetings where stakeholders and staff discuss adjusting implementation priority
- SPP Roadmap is where future, prospective enhancements are prioritized by the stakeholders



# Comprehensive and Strategic Approach to Organizational Initiative Management

## SPP'S ROADMAP PROCESS



Each initiative follows a process of design, approval, prioritization and implementation

# QUESTIONS?

MARKET DESIGN APPROACH

# MARKET PRODUCTS AND PRICE FORMATION

GARY CATE

MANAGER, MARKET DESIGN



# HIGH-LEVEL GOALS FOR EFFICIENT MARKETS

- Maintain **reliable operation** of the bulk electric system
- Ensure **efficient operation** of the market by minimizing the total production cost
- Provide **accurate price** signals



# GOAL: RELIABLE OPERATION

- Sophisticated, robust network model
- Flow-based transmission constraints
- Centralized unit commitment & dispatch
- Diverse resource offer parameters
  - Appropriately reflect market impacts of the current and future resource mix
  - Ramp rates, startup/shutdown times, mins/maxes, etc.
- Reliability-based market products to account for grid deviations
  - Flexibility/reserve products



# GOAL: EFFICIENT OPERATION

- Market should minimize the total production cost
- Market should generally produce savings relative to level of participation
- Market should benefit both the buyer and seller



# GOAL: ACCURATE PRICE SIGNALS

- Reflect market conditions
- Encourage investment
- Incent performance
- Producers/suppliers of necessary products compensated appropriately
- Minimize out-of-market payments (uplift)



# HIGH-LEVEL PRODUCT DISCUSSION

- **Energy**

- Must be cleared in both DA and RT
- Granularity: DA (hourly), RT (five-minute)
- Virtual bidding in DA?
- Capacity procurement to protect against virtual deviations?

- **Flexible Reserve Procurement**

- DA and RT
- Short-term ramping, longer-term ramping
- SPP has developed 10-minute ramping capability and one-hour uncertainty product to deal with these deviations; open to other possibilities



# HIGH-LEVEL PRODUCT DISCUSSION

- **Reserve sharing**
  - Potential for additional optimization within the existing RSG arrangements
- **Other products?**
  - Grid is changing rapidly.
  - SPP recognizes the need to be flexible given the pace at which the grid and environmental goals are moving



# HIGH-LEVEL PRICE FORMATION PRINCIPLES

- Goal is to produce an LMP that is an accurate reflection of the needs of the grid and the cost to provide those needs
- High prices are not inherently bad, low prices are not inherently good. Accurate prices are the goal
- Price formation should consider all resources and dispatch the resources that have the attributes needed in a least-cost manner
- Price formation design decisions must be consistent with reliable and efficient market outcomes, with stakeholder input where applicable



# PRICE FORMATION KEY TOPICS

Fast Start Pricing	Scarcity Pricing	Mitigation
<ul style="list-style-type: none"> <li>Adequately reflect the true cost of peaking units in the LMP when they participate in the market.</li> <li>SPP's revised implementation for this goes live in May 2022.</li> <li>Open to discussion on whether this specific implementation would also meet Markets+ goals.</li> </ul>	<ul style="list-style-type: none"> <li>Transparently reflect the lack of supply in market prices.</li> <li>Parameters must balance diversity of willingness to pay for the product with incenting development/availability of supply to resolve the scarcity.</li> <li>SPP employs a sloping/ graduated curve for all reserve products in an attempt to balance these areas.</li> <li>Open to discussion on the specific parameters best suited for Markets+.</li> </ul>	<ol style="list-style-type: none"> <li><u>Reference level mitigation</u>: <i>Mitigate if deemed pivotal on defined paths &amp; offer price is above reference price.</i></li> <li><u>Conduct/impact mitigation</u>: <i>Mitigate if offer prices exceeds reference price by a defined threshold and has an impact on market outcomes above a defined level.</i></li> </ol> <ul style="list-style-type: none"> <li>SPP has employed both.</li> <li>We are using conduct/impact in both WEIS and RTO IM.</li> <li>Open to discussion on approach for Markets+.</li> </ul>



# QUESTIONS?

MARKET PRODUCTS AND  
PRICE FORMATION

# TRANSMISSION AVAILABILITY IN MARKETS+

STEVE JOHNSON  
PRINCIPAL OPERATIONS SPECIALIST

# TRANSMISSION AVAILABILITY

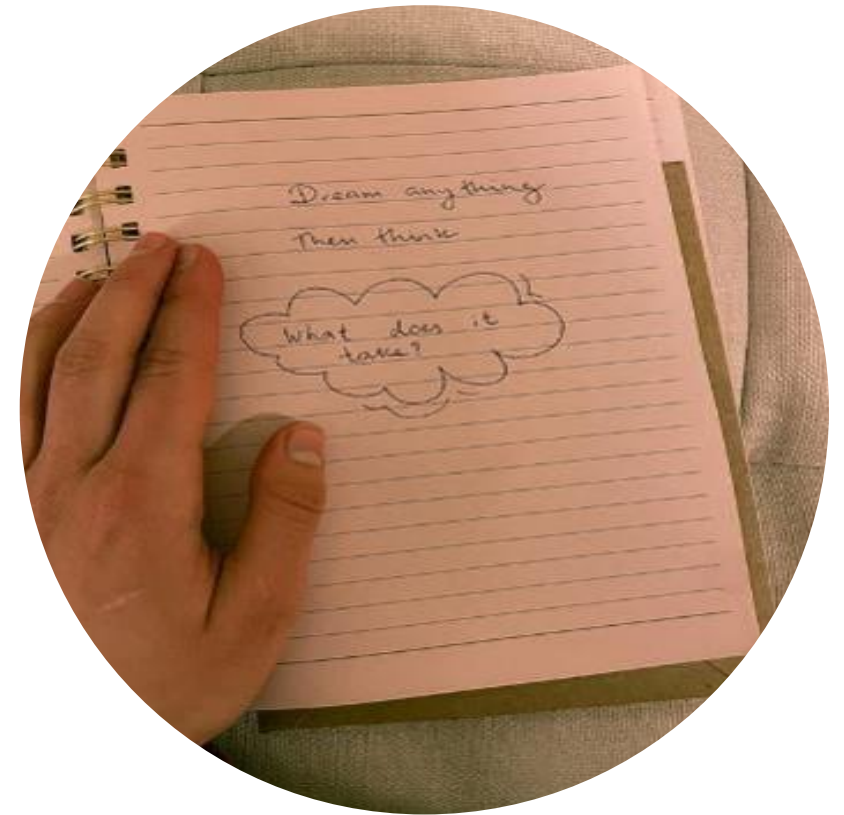
**Goal:** Maximize transmission available to Markets+ while:

- Maintaining transmission service provider (TSP) roles and responsibilities (planning, rate setting & terms of service)
- Preserving firm network and point-to-point rights
- Enabling base scheduling of energy, capacity and flexibility prior to Markets+ operating window
  - Transmission customers continue to deliver their resources to their loads
  - Respect statutory service obligations



# TRANSMISSION AVAILABILITY – INITIAL THOUGHTS

- Base scheduling prior to Markets+ operating window to include imports and exports from Markets+ footprint
- Import/export seams managed as a peer with stakeholder input on process
  - Markets+ Seams Advisory Group?



# TRANSMISSION AVAILABILITY – INITIAL THOUGHTS

- **Goal:** Hurdle-free transmission across Markets+ footprint
  - Modest demand charge to make TSPs whole for Markets+ use (to mitigate cost shifts)?
  - WestConnect pricing approach or ?
- **Export or wheeling charges**
  - Provide for appropriate transmission revenue recovery
  - Efficient and equitable outcomes with neighboring TSPs
  - Who flows and how are value and costs allocated?
  - Honor existing firm Open-Access Transmission Tariff (OATT) rights



# TRANSMISSION AVAILABILITY - INITIAL CONCEPTS

## Prior to Markets+ Day-Ahead Market

## Markets+ Operating Window Day-Ahead and Real Time Market

### Remains similar to today:

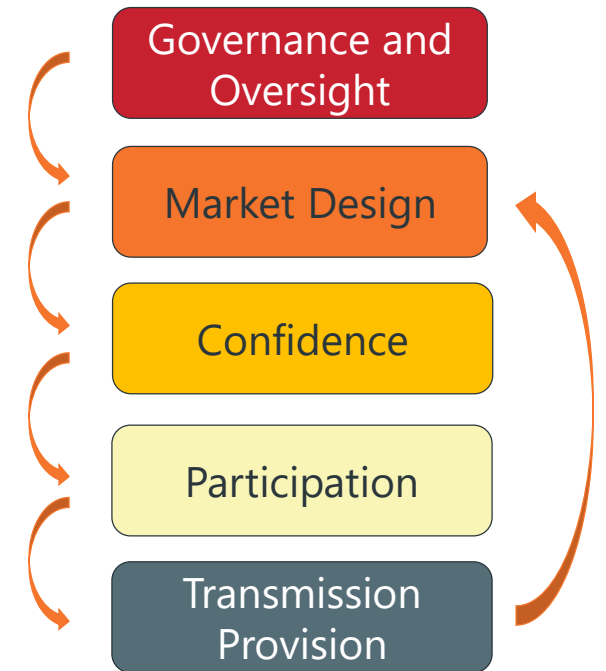
- TSP responsible for transmission planning, path or flowgate limits, etc.
- TSP defines ATRR, PTP and network rates.
- Firm OATT sales/redirects continue prior to market operating window.
- Participants may submit base schedules ahead of DA market using OATT rights.
- Participants may set aside firm transmission for other needs (e.g. balancing, reserves, etc.).
- BA role unchanged.

### DA and RT market window:

- Remaining transmission made available to Markets+.
- SCED optimization respecting TSP operational limits.
- Base schedules on firm OATT rights are respected and protected.
- Unscheduled firm OATT rights entitled to congestion rent.
- Minimize Markets+ transmission rate within footprint while recovering sufficient revenue to mitigate cost shifts.
- BA role unchanged.

# TRANSMISSION AVAILABILITY – QUESTIONS TO PONDER

- Goal: Maximize transmission available to Markets+
  - Is there an opportunity to make all unsold and unscheduled transmission capability available to Markets+?
  - Can Markets+ leverage a flow-based model to maximize available capacity?
  - Can we eliminate market hurdle rates for transmission use within the footprint?
  - Can we do this while protecting against prohibitive cost shifts and/or free rider issues?



# QUESTIONS?

TRANSMISSION AVAILABILITY



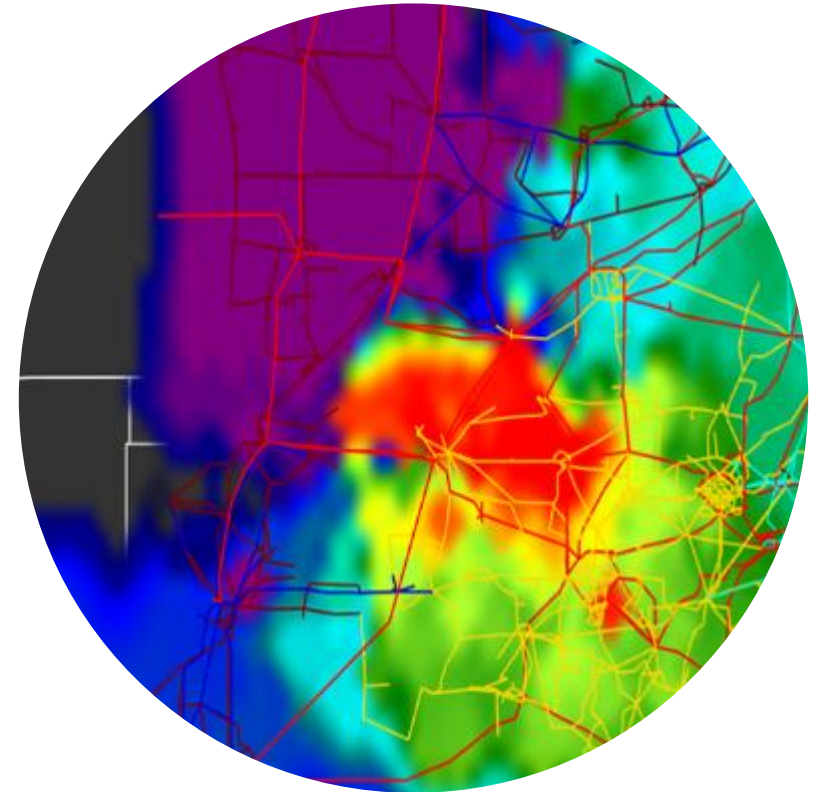
# CONGESTION RENT ALLOCATION

MICHA BAILEY

SUPERVISOR, CONGESTION HEDGING

# CONGESTION RENT ALLOCATION

- Congestion rents are collected in the day-ahead market
  - Price separation between gen and load
- Congestion allocation methodology for Markets+ to be determined by stakeholders including input from:
  - Transmission providers
  - Transmission customers
- Allocation could be based upon:
  - Firm transmission rights
  - Use of transmission in Markets+
- Allows Markets+ participants to hedge against congestion costs
- Would provide additional value to firm transmission customers and support incentives for continued investment
- Lots of work to do, including consideration of internal congestion rent and import/export congestion rent



# QUESTIONS?

CONGESTION RENT ALLOCATION

# MARKET MONITOR AND OVERSIGHT

BARBARA STROOPE  
MANAGER, DAY AHEAD MARKET

# FERC REQUIRES OVERSIGHT BY MARKET MONITOR

- FERC Order 719 allows ISO/RTO markets to be overseen by internal, external or hybrid monitor.
  - Three ISOs/RTO have an external monitor
  - Two have an internal monitor
  - One has a hybrid
- Order 719 authorizes RTO board of directors to decide on the monitor structure .
- SPP board has decided an internal form to be most appropriate for SPP's Integrated Marketplace (RTO).



# SPP'S CURRENT MARKET MONITORING APPROACH

- SPP's internal Market Monitoring Unit (MMU) reports directly to the independent board (Oversight Committee).
- MMU fully independent from SPP executives and staff.
- MMU reviews real-time/historic data and reports any issues to FERC for investigation.



# MARKET MONITORING DUTIES

- Ensuring fair, efficient markets
- Obtaining objective information about SPP's markets and services
- Assessing the behavior of market participants
- Assessing the behavior of other markets and services that impact SPP's markets
- Detecting structural problems and design flaws and expressing opinions on market design issues



# QUESTIONS?

MARKET MONITOR & OVERSIGHT



# NEXT STEPS

BRUCE REW  
SVP, OPERATIONS

# Step 1

Seek interested parties  
Information gathering



# Step 2

Distribute gathered feedback  
Develop timeline and next steps  
Complete feasibility and cost-benefit analyses



# Step 3

Conduct inclusive stakeholder process with committed parties



# Step 4

Obtain Board approval  
Seek FERC approval



# Step 5

## Launch



# MARKETS+ NEXT STEPS

- Survey will be sent to inform next steps
  - Level of interest
  - Ability to commit staff to effort
  - Hours per week available for effort
  - Topic priority ranking
  - Additional topics
- **Virtual meetings**
  - Cadence and time commitment based on survey feedback
  - Likely weekly
  - Kickoff in January



# 2022 IN-PERSON MEETINGS

- **Phoenix:** February 1-2
  - PERA Club, Tempe
- **Portland:** March 29-30
  - TBD
- **Denver:** June 1-2
  - TBD



# QUESTIONS?

# CONTACT US

If you have any questions about SPP, our Western Services or Markets+ feel free to reach out to us at [marketsplus@spp.org](mailto:marketsplus@spp.org) and we'll help you find the right person and the right information!

