

# MARKETS



# DEVELOPMENT BRIEFING



*Working together to responsibly and economically  
keep the lights on today and in the future.*



SouthwestPowerPool



SPPorg



southwest-power-pool



Southwest Power Pool  
**WESTERN  
ENERGY  
SERVICES**

# AGENDA

- Status of Markets+
- Markets+ Hot Topics
  - Market+ Benefits
  - Renewable Integration
  - GHG Design
  - Seams
  - Governance
- Q&A

# STATUS OF MARKETS+

# MARKETS+ IS ON TRACK TO BEGIN PHASE 2 IN 2025

# MARKETS+ STATUS UPDATE

- Tariff status at FERC
  - Requested Nov. 20 order from FERC
- Funding party discussions and contracts
  - SPP requesting Dec. 16 signing deadline
  - Decision to fund can be separate from decision to participate
- Stakeholder agreements for non-funding parties will be distributed after funding party agreements are complete.

# MARKETS+ HOT TOPICS

# MARKET BENEFITS

# MARKET CHOICES INVOLVE MULTIPLE CONSIDERATIONS



# CONSIDERATIONS FOR MARKET CHOICE

What are the anticipated production cost savings?

Markets+ brings the centralized unit commitment and dispatch design that creates production cost savings.

How do the revenue and cost allocation policies of the market design affect the potential distribution of the modeled benefits?

Markets+ cost/revenue policies formed out of balanced governance.

What are the roles and responsibilities of the market operator, balancing authorities, and transmission providers within the market design?

Markets+ design is intentional about consistency across roles

What market design elements may provide value to a specific type of entity or customer within the market?

Markets+ has fast-start pricing, uniform congestion rent, uniform settlements

How does the governance address or modify a policy within the market design?

Markets+ governance is independent, fair and transparent

# PRODUCTION COST MODELS (8760 STUDIES)

- Simulates all hours, not just peak hours
  - 8760 hours in non-leap year
- Basic security constrained unit commitment and economic dispatch simulation
  - Enables basic simulation of energy markets
- Can be helpful for simple comparisons or “what if” scenarios

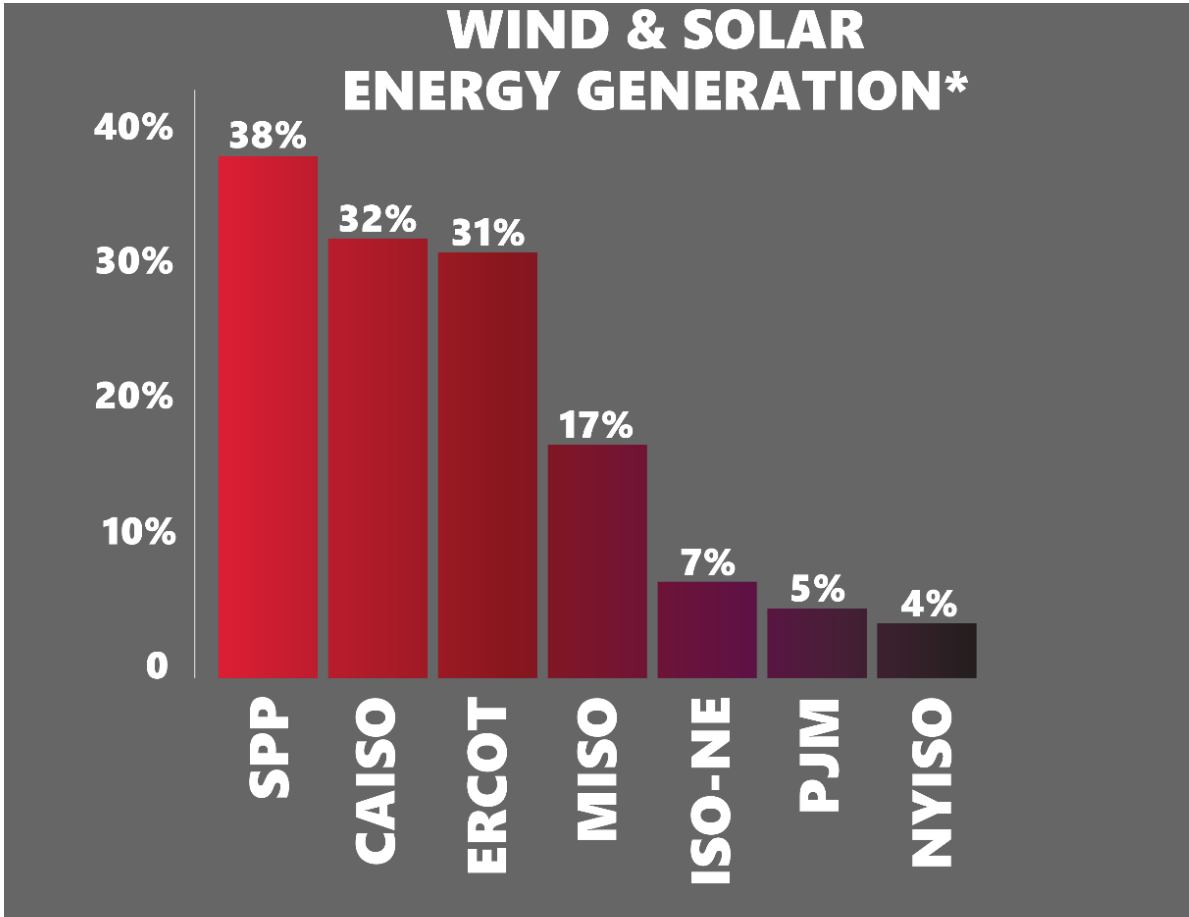
**Not a panacea to the unique and complex decisions of western stakeholders’ market choice**

# PRODUCTION COST MODELS - CHALLENGES

- Represent a single “What If” snapshot
  - Results must always be interpreted in consideration of inputs and input assumptions
- Generally frustrating or ineffective tool to simulate compounded impacts of:
  - System variability or uncertainty
  - Stressed system conditions
    - Transmission Loading
    - Capacity surplus or shortage
- Ineffective at quantifying benefits of fully independent governance or the unique design elements of Market+

# RENEWABLE INTEGRATION

# SPP IS A LEADER IN RENEWABLE INTEGRATION



# SPP LEADS IN RENEWABLE INTEGRATION

Markets+ will utilize the same foundational market design as the SPP Integrated Marketplace, which facilitates this significant integration of renewables.

**408**  
million

metric tons of CO2 displaced by wind in SPP's footprint since 2014

**30%**

reduction of overall CO2 emissions in SPP's footprint since launch of Integrated Marketplace in 2014

**90%**

renewable penetration record set by SPP in March 2022.

*\*based on 2022 wind and solar data collected from FERC report and RTO/ISO websites*

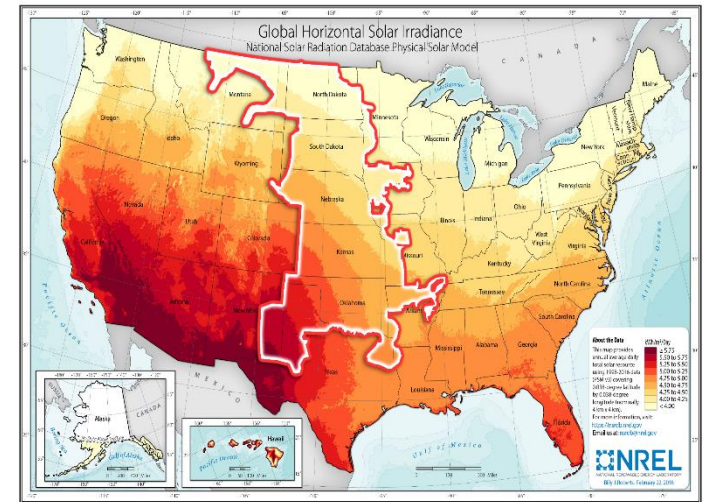
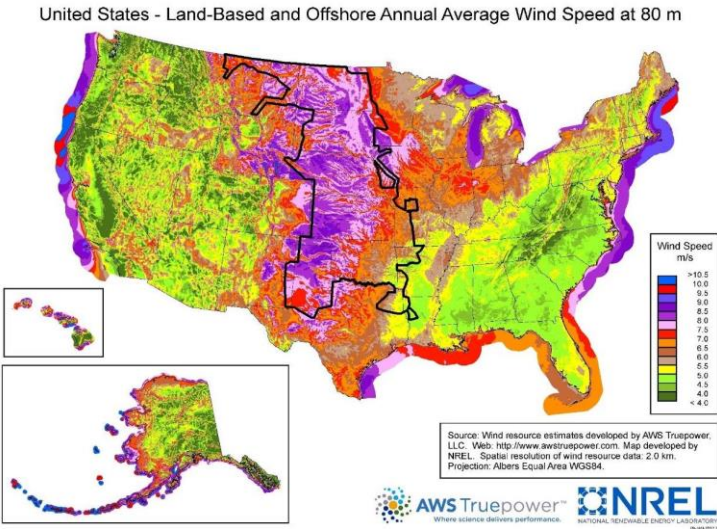
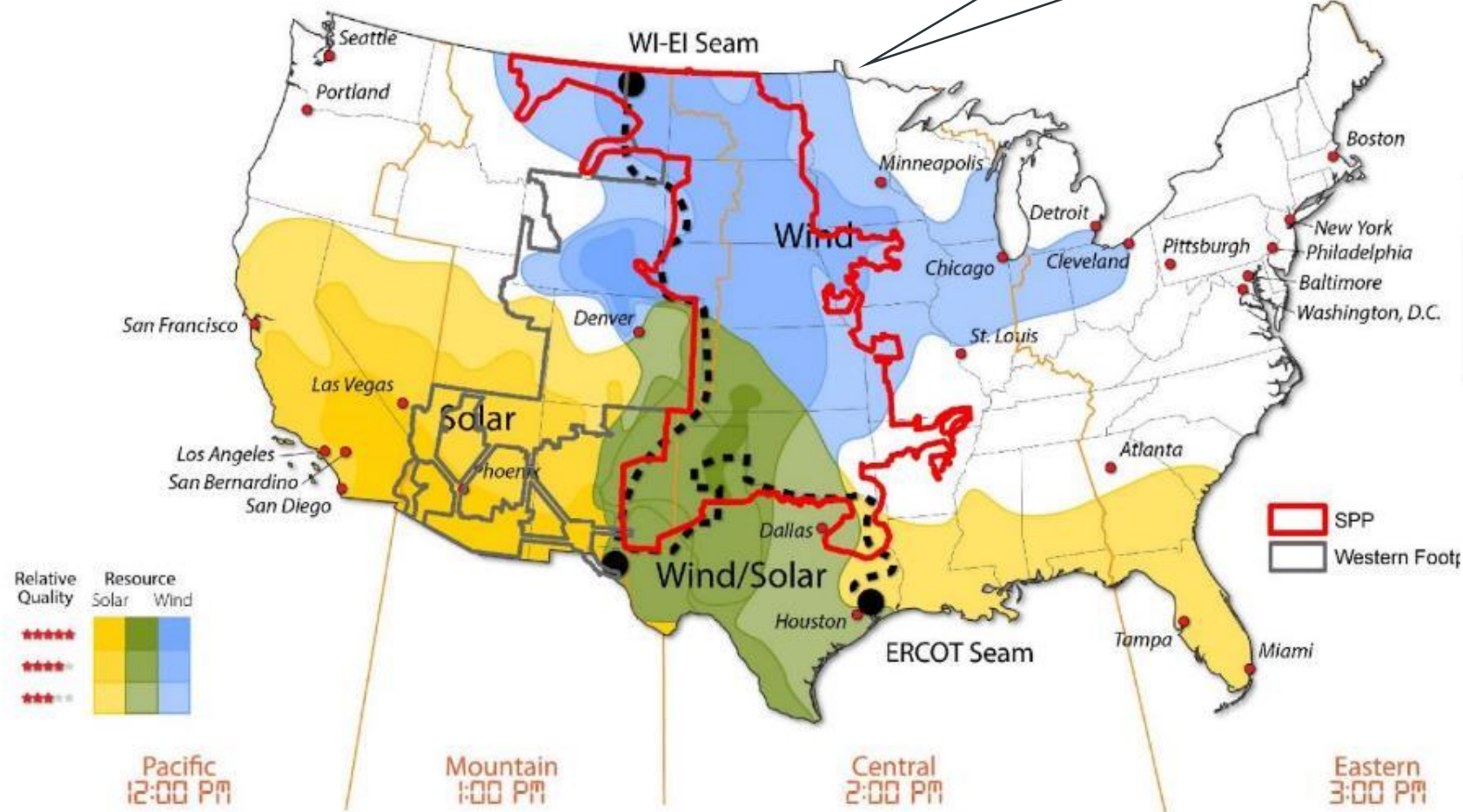
# INSTALLED WIND CAPACITY

Wind capacity increased dramatically between 2001-2023



# LEVERAGING DIVERSITY

Resource mix and time zone diversity can be leveraged across a larger footprint.

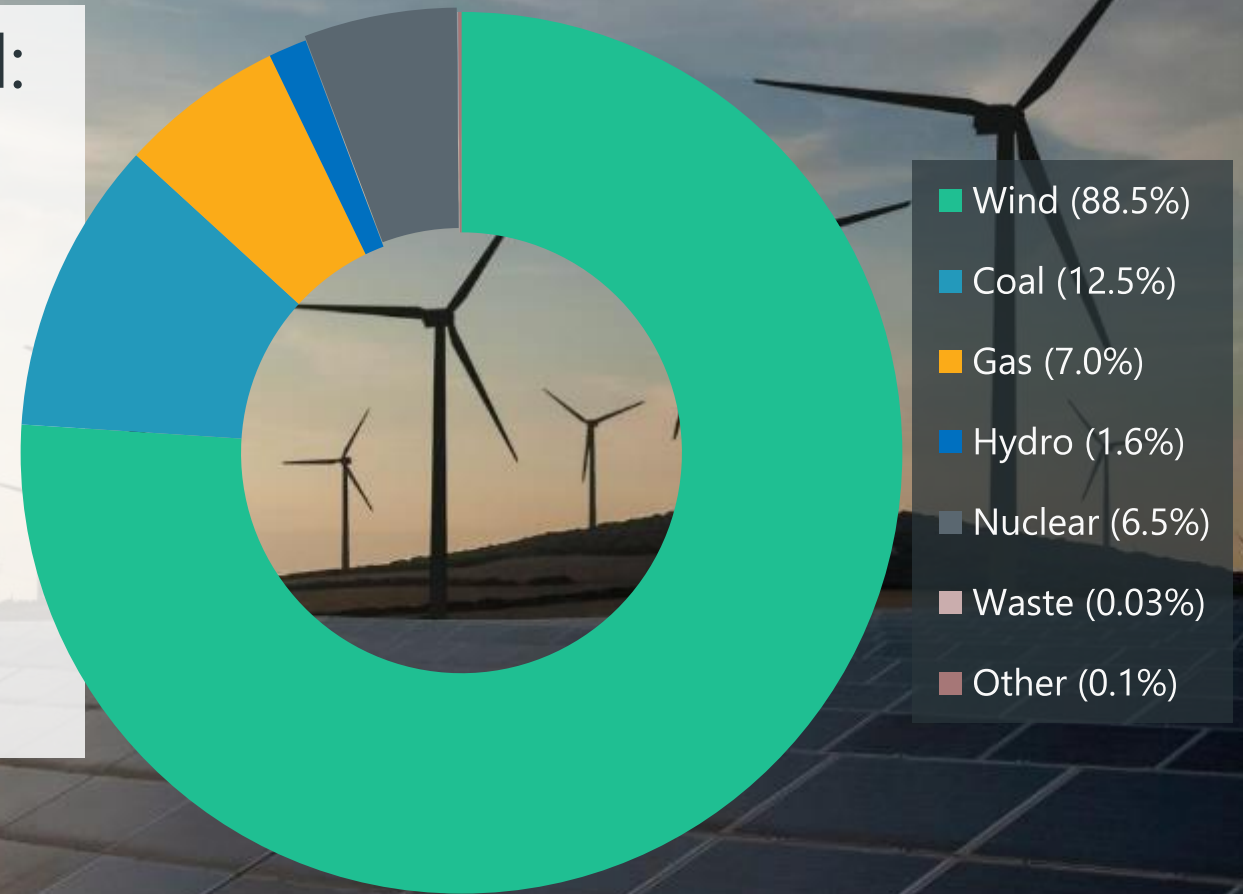


\*Areas not shaded have annual average wind speeds less than 7.0 m/s and solar production less than 4.75 kWh/m2/day (from NREL data)



# RENEWABLE PENETRATION

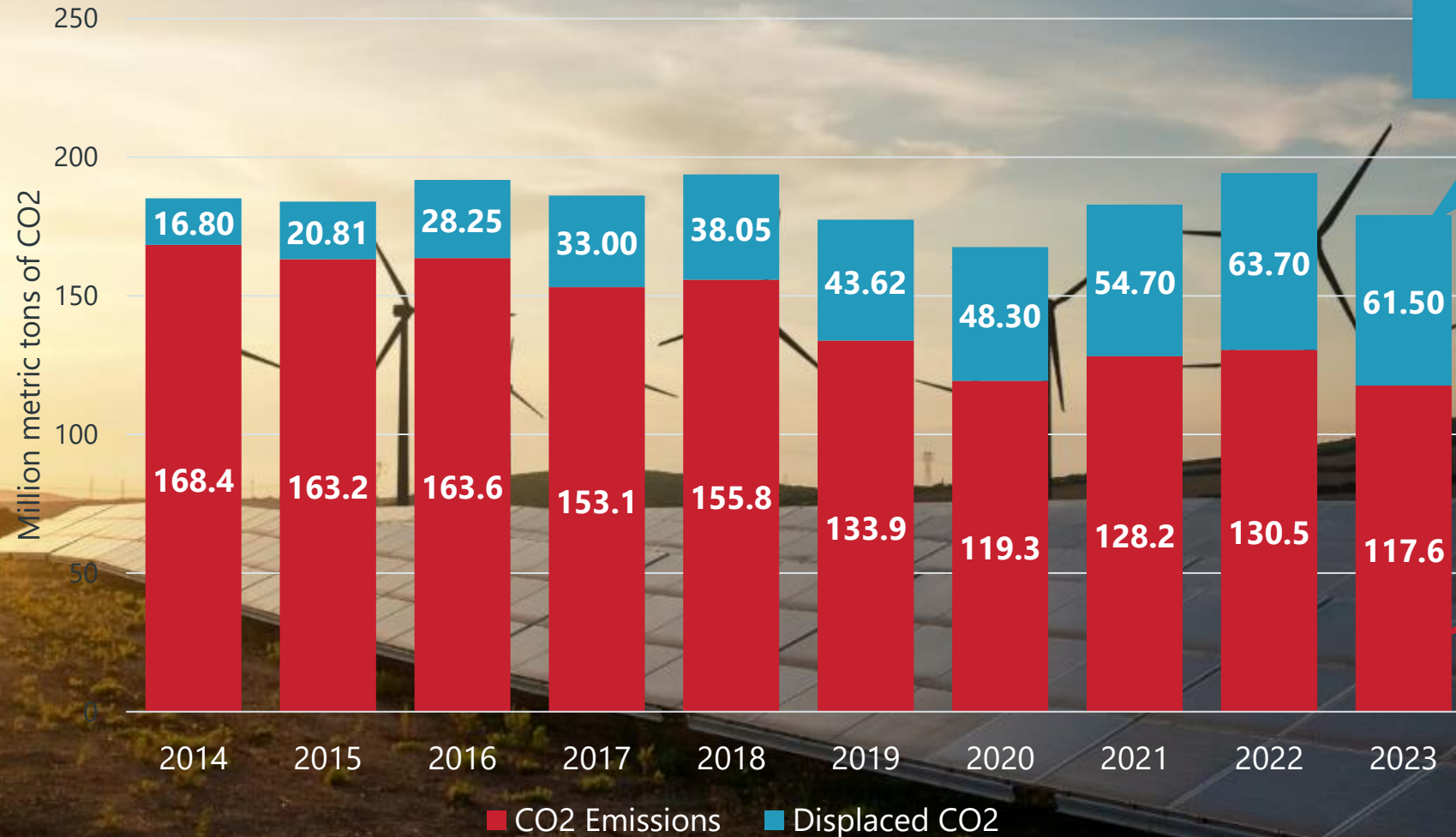
- Renewable penetration record: **90.2%** of load
  - 2:42 a.m. on 3/29/22
  - **22,351 MW** of 24,787 MW of load served by renewables
  - **90.17%** of total generation at that time was renewables



Percentages of pie chart add up to more than 100% because SPP served neighbors at the time.

Penetration of Load by Fuel Type

# CO2 REDUCTION IN IN THE RTO (IN MILLIONS OF METRIC TONS)



408 million metric tons of CO2 have been displaced by wind in total since 2014

Overall CO2 emissions in SPP's footprint have fallen 30% since Integrated Marketplace launch in 2014

# GHG DESIGN

# MARKETS+ GHG DESIGN ACCOMMODATES MULTI- STATE DIVERSITY

# GHG OVERVIEW

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The SPP RTO achieves significant clean energy penetration through strategic transmission planning and optimized operational and market models.

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For the RTO and Markets+ regions, SPP and its stakeholders developed adaptive design elements and mechanisms that effectively address differing state-specific goals.

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The comprehensive framework to accommodate the diverse needs of participants was developed through a collaborative stakeholder process involving utilities, public interest groups and state regulatory agencies.

## SPP Markets+

- ✓ GHG Pricing Design
- ✓ GHG Tracking and Reporting Services

# GHG STATE PROGRAMS

A cap-and-invest or cap-and-trade program is a market-driven solution that sets a limit on overall carbon emissions on covered sources

Entities subject to the program must obtain allowances equal to their covered greenhouse gas emissions

Allowances are purchased through quarterly auctions hosted by a state regulatory program - can also be bought and sold in a secondary market

# GHG PRICING PROGRAM DESIGN OVERVIEW

Designed for states and zones with carbon pricing programs

Includes the cost of emissions as part of the market optimization that translates as \$/MWh

Resource participation includes resources internal to the GHG Zone and Specified Source Resources which are external to a GHG Zone

Settlement associated with emission costs for attributions to GHG Zones is reflected at a Marginal GHG Price

# GHG TRACKING AND REPORTING

- For states without a carbon pricing program but have GHG reduction targets
- GHG allocations for use in the report do not impact economics or dispatch inside the zone
- After-the-fact tracking and reporting of the emissions and energy consumed for each Reporting Entity





# GHG TRACKING AND REPORTING APPROVAL

- West's first regional GHG tracking and reporting approach approved by the Markets+ Greenhouse Gas Task Force on September 26<sup>th</sup>, 2024.

**MARKETS** 



**GHG Protocols for  
Markets+ receive  
100% approval**

# SEAMS

# MARKETS+ HELPS EXISTING SEAMS

# SEAMS VS INTEROPERABILITY

## Seams

(neighbors performing same function)

- Balancing authority-(BA)-to-BA
- Transmission service provider-(TSP)-to-TSP
- Market-to-market (neighboring markets)
- Greenhouse Gas (GHG) area-to-GHG area
- Reliability coordinator (RC)-to-RC
- Transmission operations planner (TOP)-to-TOP

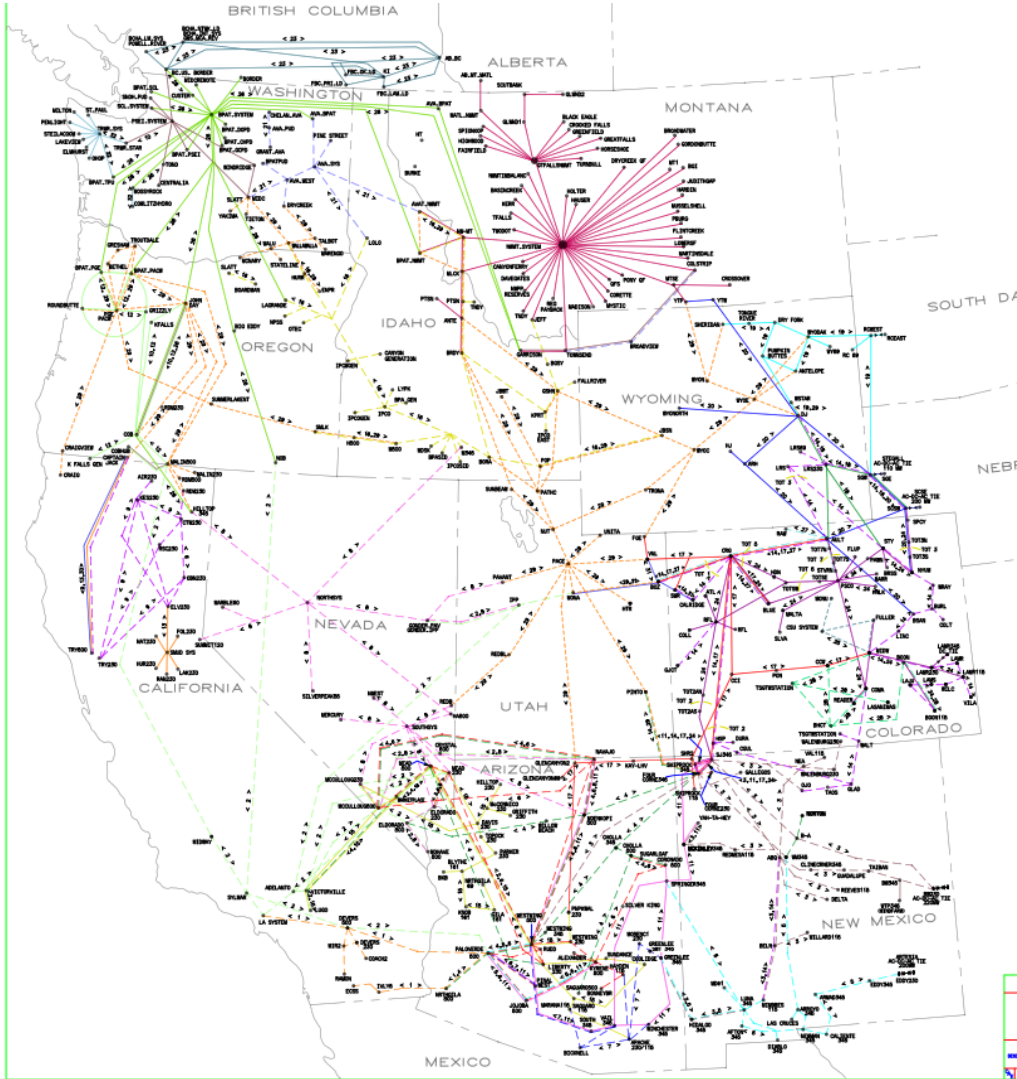
## Interoperability

(Coordination/interaction with other programs or entities)

- BA-to-TSP OATTs
- Western Resource Adequacy Program
- Unscheduled Flow Mitigation Plan

# EXISTING SEAMS IN THE WEST: TSPs AND BAs

## TSPs

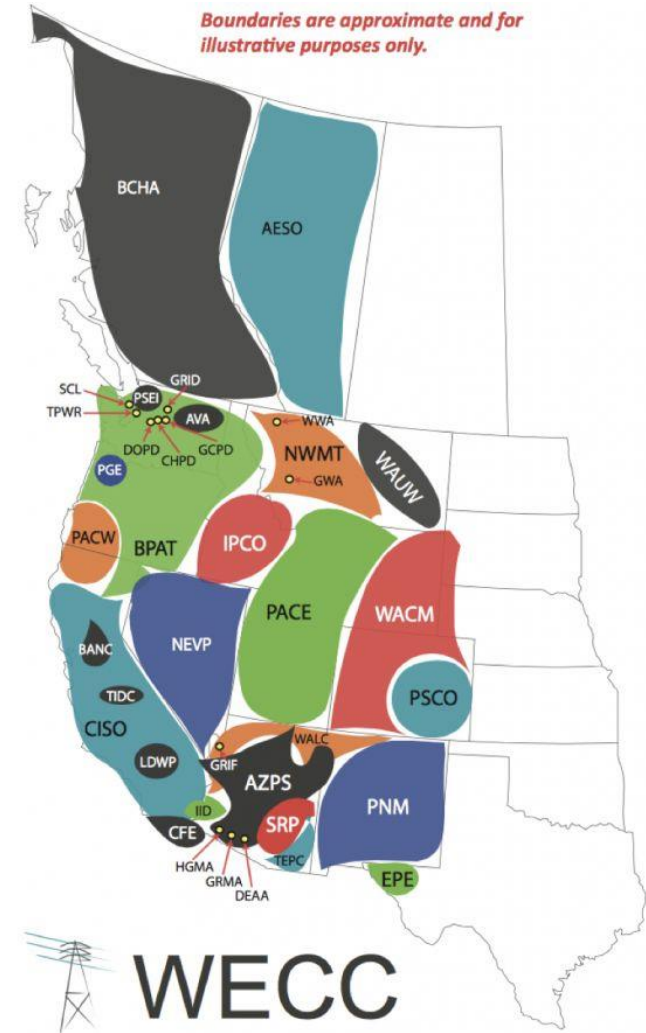


## LEGEND

- |                 |     |
|-----------------|-----|
| 1. IID          | --- |
| 2. LDWP         | --- |
| 3. PNM          | --- |
| 4. AZPS         | --- |
| 5. EPE          | --- |
| 6. SRP          | --- |
| 7. SWTC         | --- |
| 8. NEVP         | --- |
| 9. WASN         | --- |
| 10. PSEI        | --- |
| 11. TEPCC       | --- |
| 12. PGE         | --- |
| 13. SMD1        | --- |
| 14. TSGT        | --- |
| 15. WALC        | --- |
| 16. IPCO        | --- |
| 17. CRCM (WACM) | --- |
| 18. BEPW (WACM) | --- |
| 19. BHBE        | --- |
| 20. LAPT (WACM) | --- |
| 21. AVAT        | --- |
| 22. NWMT        | --- |
| 23. BCHA        | --- |
| 24. PSCO        | --- |
| 25. CSU         | --- |
| 26. BPAT        | --- |
| 27. PRPA        | --- |
| 28. BHCT        | --- |
| 29. PPW         | --- |
| 30. TANC        | --- |
| 31. DGT         | --- |
| 32. TPWR        | --- |
| 33. WITP        | --- |

## BAs

*Boundaries are approximate and for illustrative purposes only.*



Source: Western Electricity Coordinating Council

# HOW DOES ONE MARKET IN THE WEST ELIMINATE SEAMS?

- It doesn't. Neither EDAM nor Markets+ eliminates seams.
- As long as more than 1 BA and TSP exist, seams will exist.
- EDAM and Markets+ propose to add markets on top of existing seams.
- Markets+ is intentional about reducing the impact of **existing** seams in its approach to market commitment and dispatch.

# SPP APPROACH TO MARKETS+

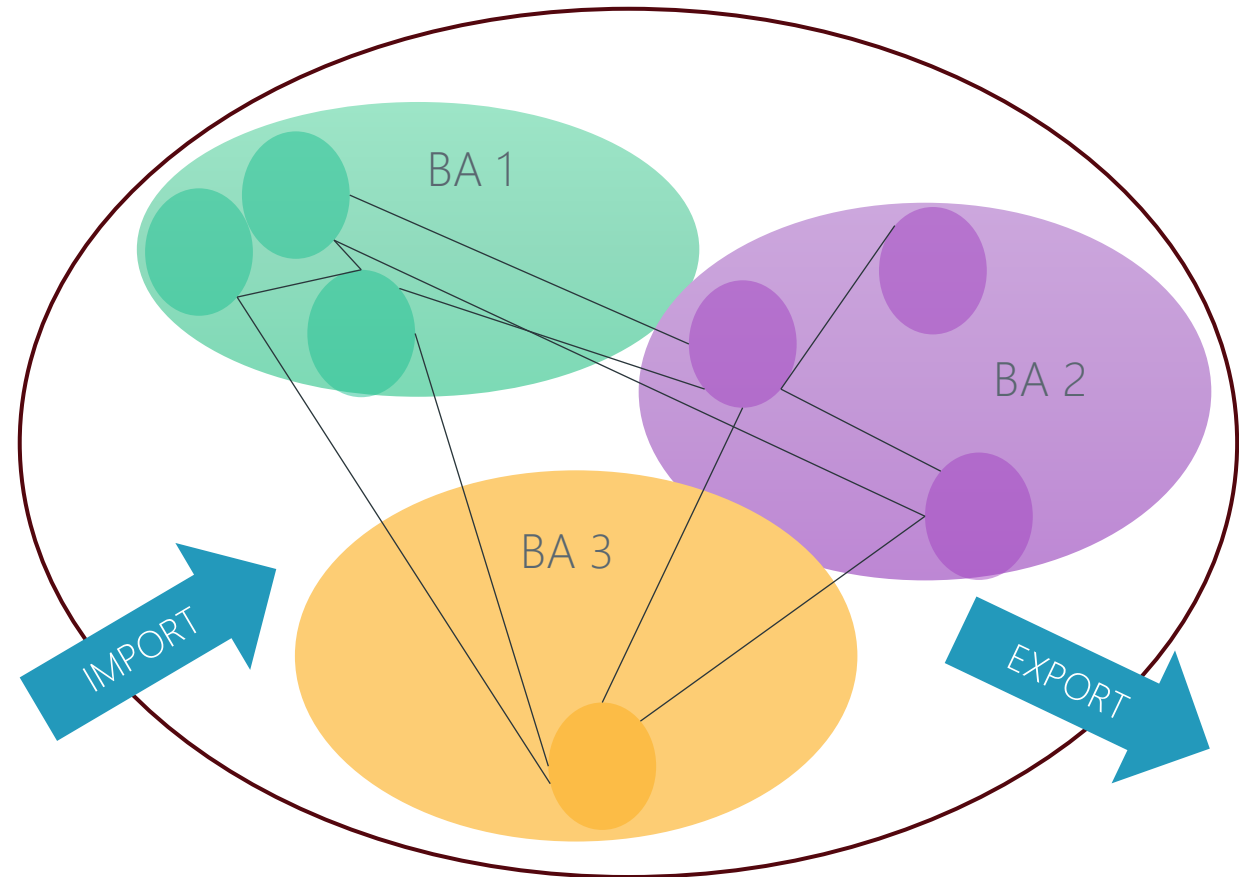
Market design developed by balanced, participant governance

SPP optimizes the dispatch across all participating BAs and TSPs using the full capability of the transmission system available to Markets+: centralized dispatch.

Reduces BA seams by optimizing the system more like an RTO/single BA area. Transfers can be full capability of the system less what is carved out for opt-outs or non-participating TSPs.

Congestion pricing is determined based on actual limitations of the system. RC and interconnection-wide congestion management methodologies apply

Imports and exports to/from the market are priced on footprint need as a whole and not individual BA areas



# MARKETS: EXISTING EQUITY ISSUES WITHIN ANY GIVEN SINGLE MARKET

- A single market reduces operational seams but does not eliminate revenue or cost allocation policy issues between market participants or types of customers.

What should the market engine include for price formation?

Who receives congestion revenue?

When should costs be shared by generation and load? Or only generation or only load?

When should the entire market share a cost or revenue versus a specific region or zone?

Who contributes to make-whole payments to generators and when?



# HOW ARE EQUITY ISSUES FOR COST ALLOCATION POLICY ADDRESSED IN ORGANIZED **MARKETS**?

- Governance and stakeholder process
  - Proposals are evaluated to establish, modify or improve allocation approaches based on lessons learned from existing market outcomes or challenges
  - Independent oversight ensures protection of equity between customer classes and types of market participants
- **Cost allocation between market participants matters:** SPP settled \$30 billion in market transactions\* in 2023.

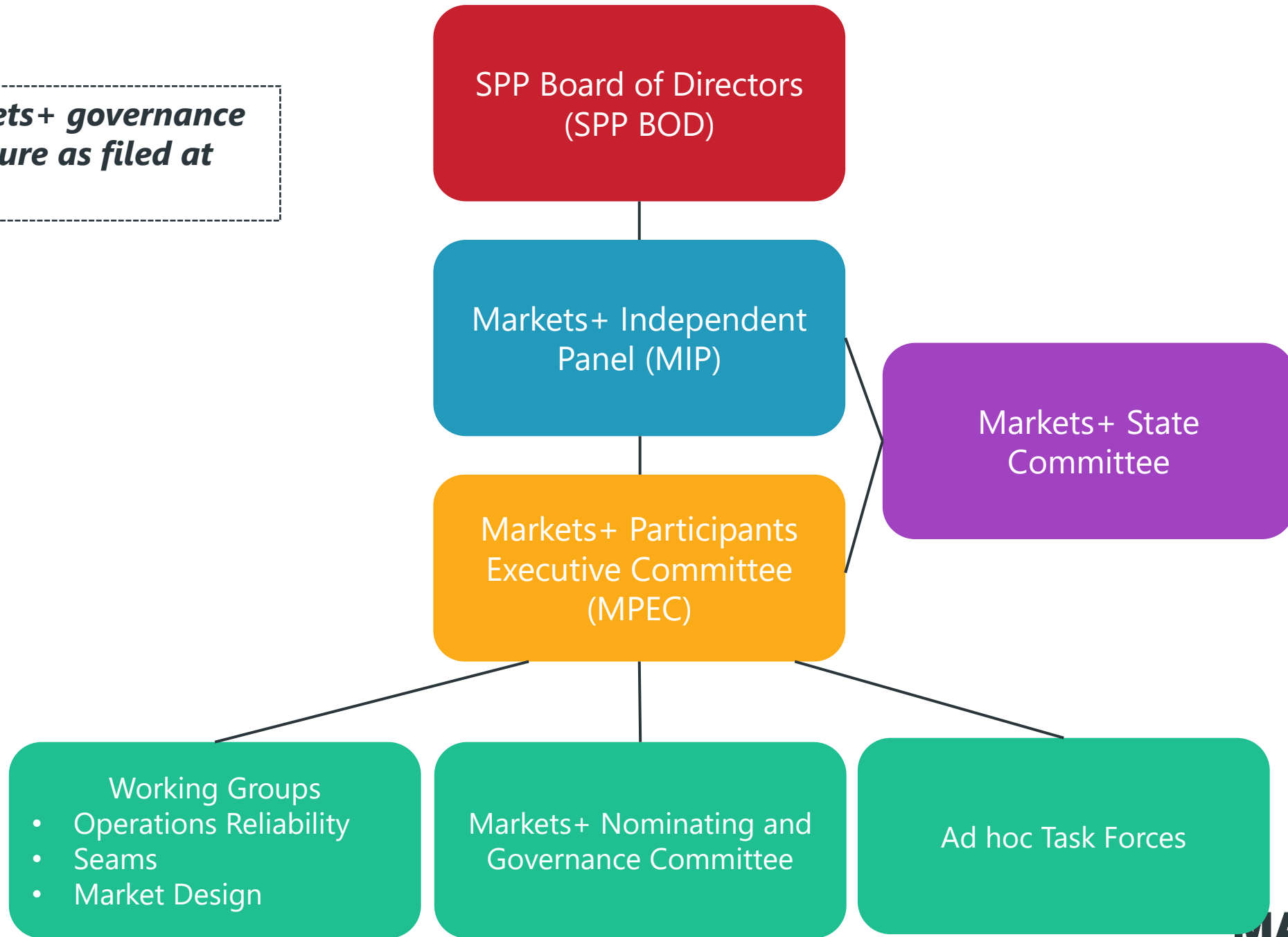
# GOVERNANCE

# MARKETS+ HAS AN INDEPENDENT AND INCLUSIVE GOVERNANCE

# MARKETS+ GOVERNANCE IS INDEPENDENT

- SPP's Board of Directors is fully independent
  - Vetted for conflicts of interests consistent with FERC approved Bylaws
  - Approves proposals that have a material adverse effect on SPP, including debt and staffing
  - Reviews appeals of MIP decisions
- Markets+ Independent Panel is fully independent
  - Same conflict of interests vetting as Board of Directors
  - Reviews and approves recommendations of tariff language for filing at FERC and cost proposals by MPEC
- Markets+ Participant Executive Committee is a full representation group
  - Approves tariff language and cost information for recommendations to MIP

**Markets+ governance structure as filed at FERC**



# TRANSPARENCY

- All meetings are posted on SPP.org along with meeting materials and meeting minutes
- All stakeholder meetings are open for anyone to attend and participate
- Voting results from each working group and/or committee are included in materials presented, along with dissenting opinions/comments
- All recommendations submitted to MIP or board (as applicable) include voting results by sector

# ADAPTIVE GOVERNANCE

- SPP's RTO strategic initiatives for 2026 includes "Adaptive Governance"
  - Corporate Governance Committee (CGC) is in the process of evaluating the effectiveness of the SPP governance model
    - Sector-based committee
  - CGC recently recommended the composition of the Strategic Planning (SPC) Committee be modified to mirror the Members Committee sector-based composition
  - Also recommended implementation of a process for sectors to nominate their representatives on the Members Committee and SPC
- **Markets+ includes a Governance Committee**
  - Currently Markets+ Interim Governance Task Force is tasked with reviewing several governance related items for Markets+ and can propose changes
  - Proposed tariff includes the Markets+ Nominating and Governance Committee, a standing governance-focused stakeholder group

# QUESTIONS