Platte River Power Authority

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Board of directors

March 31, 2022

Power market update

Melie Vincent, chief operating officer

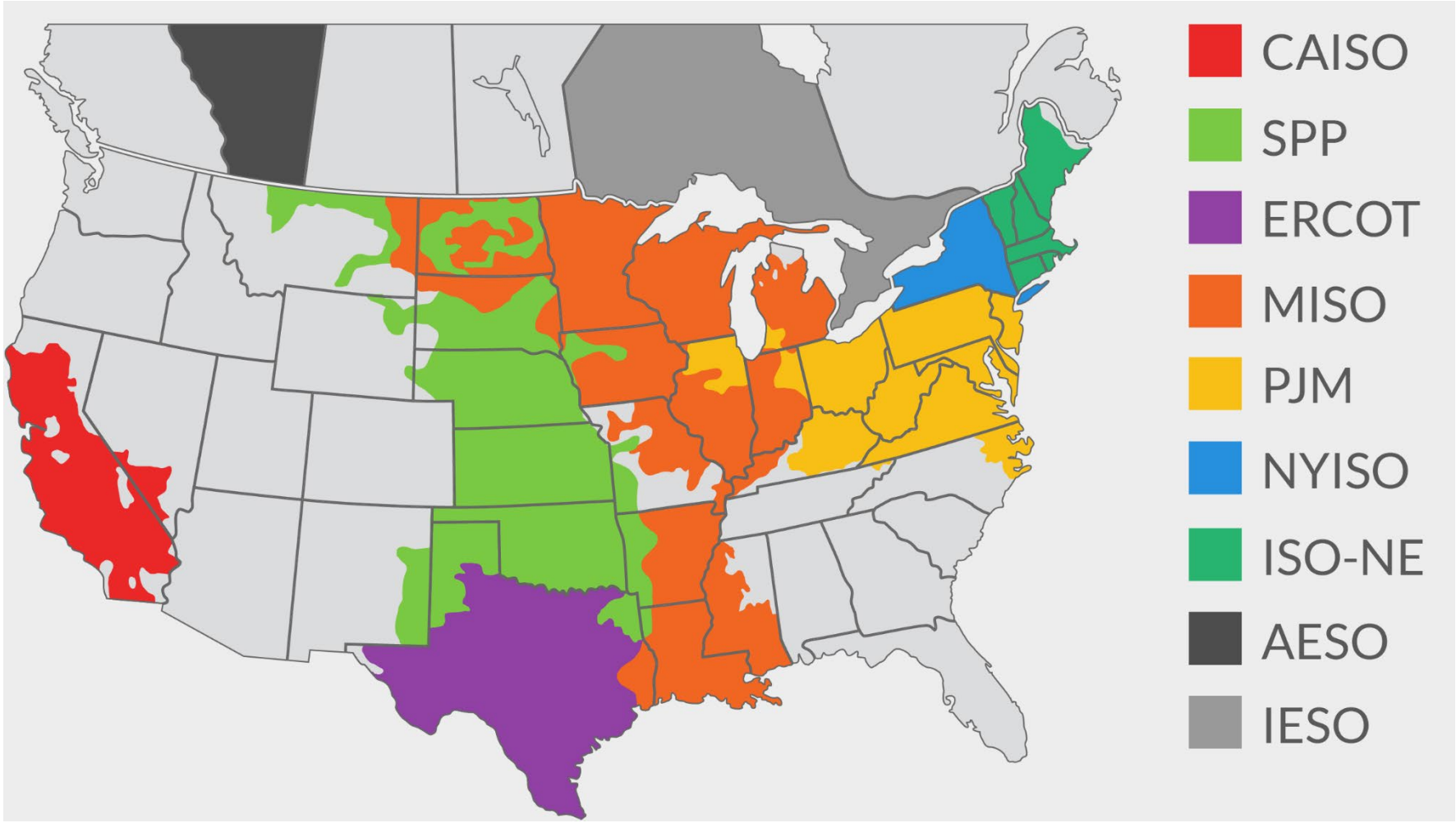
Agenda

- What is an organized energy market?
- Benefits of a power market
- Market options
- Southwest Power Pool Western Energy Imbalance Service (SPP WEIS) implementation
- Summary

Traditional power system versus organized market

Traditional power system	Organized energy market
Utility generates and sells power to end customer	Utility generates and sells power to market
Utility commits and dispatches least-cost power from resource portfolio	Market dispatches and commits least-cost power from across the footprint
Utility serves load from own resource portfolio	Utility serves load with power purchased from market
Each utility carries a reserve margin to ensure reliability	Market defines and enforces reserve margin for each utility
Utility plans and builds transmission for own needs	Market facilitates regional transmission planning

Wholesale Electric Power Markets 2021



Why Platte River is joining a market

Reliability

- Increases transmission investment
- Improves transmission system performance
- Ensures resource adequacy
- Incentivizes resource attributes that increase system reliability (i.e., black start, fast ramp)

Financial sustainability

- Dispatch and commitment of least-cost resources
- Reduction in transmission costs
- Optimizes supply of ancillary services
- Congestion hedging
- Monetizes excess capacity

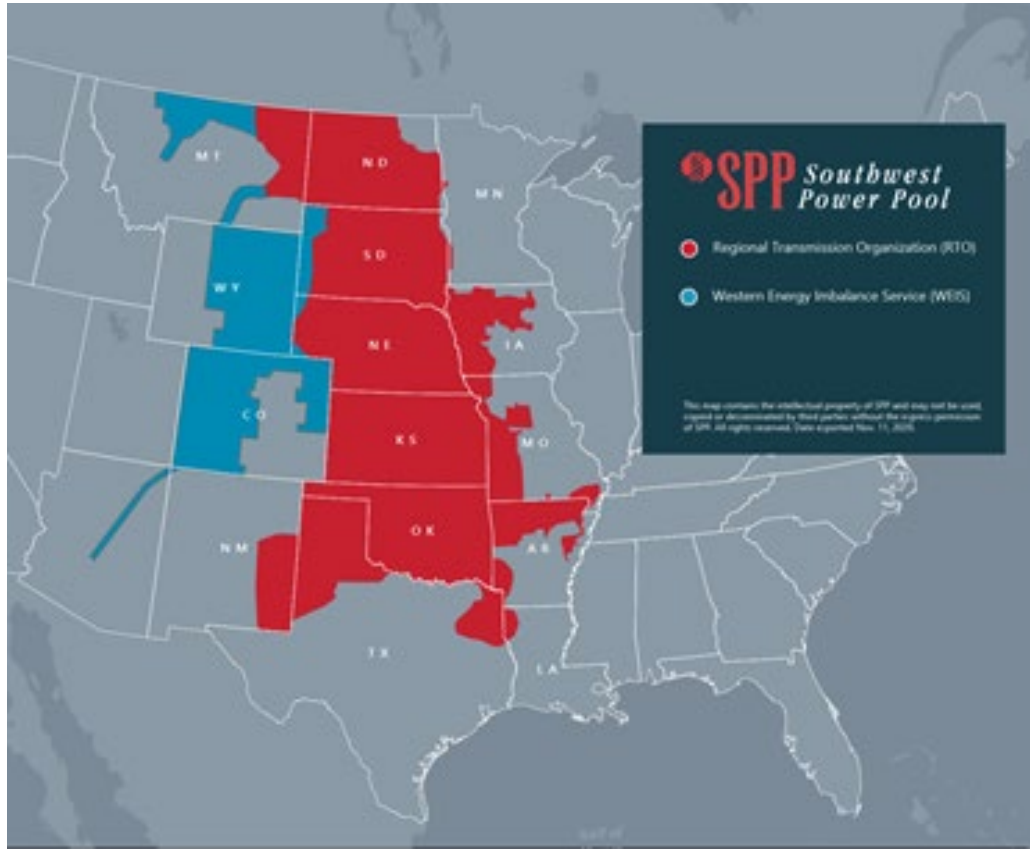
Integration of renewables

- Larger footprint increases reliability of renewable energy
- Geographic diversity allows participants to lean on each other
- Regional transmission planning allows renewable power to be delivered to load pockets

Market options

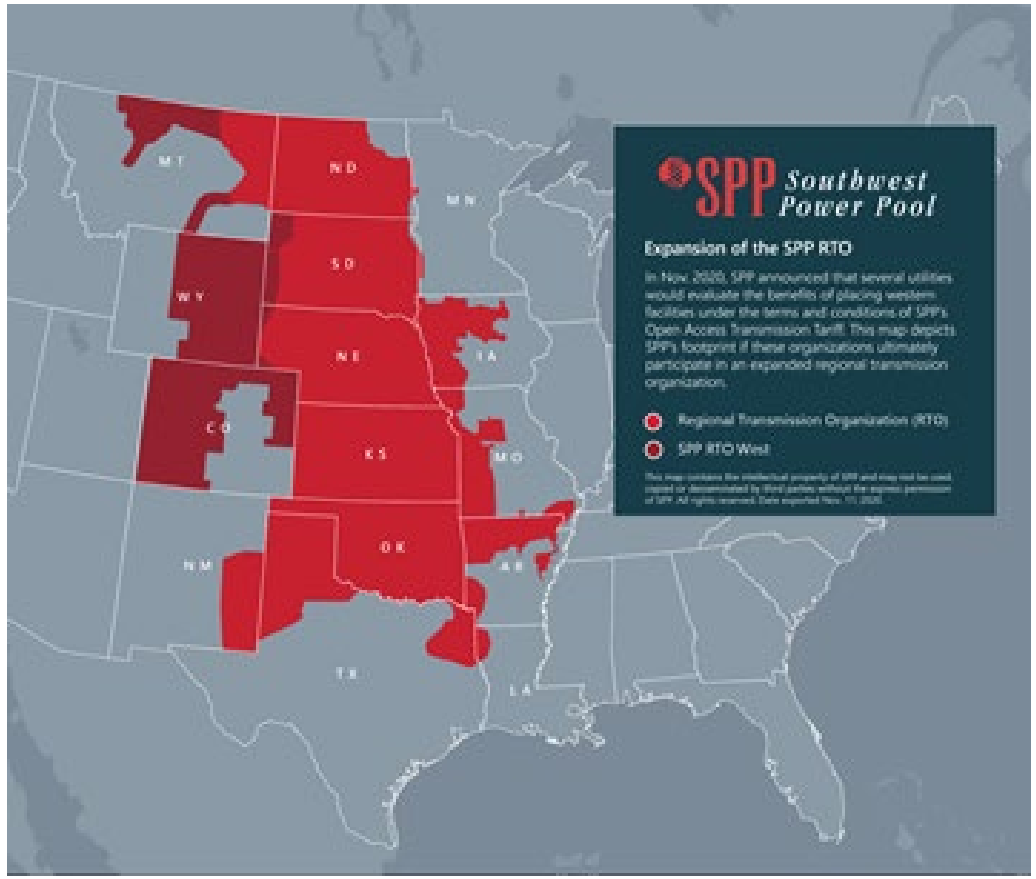
- SPP Western Energy Imbalance System
- SPP Regional Transmission Organization (RTO) West
- SPP Markets+
- Western Markets Exploratory Group (WMEG)

SPP WEIS



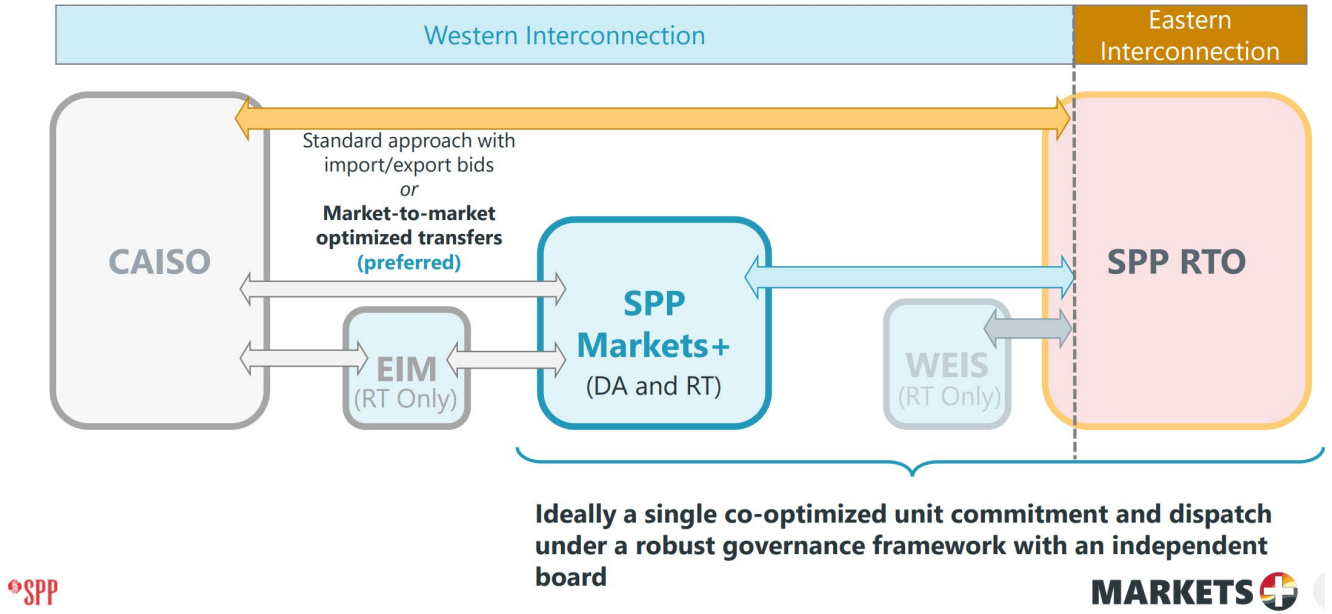
- Market to balance generation and load in real-time
- Initial go-live February 2021
  - Basin Electric
  - Deseret Power
  - Municipal Energy Agency of Nebraska
  - Tri-State G&T
  - WAPA
  - Wyoming Municipal Power
- August 2022: Colorado Springs
- April 2023: Platte River, PSCo and Black Hills

SPP RTO West



- Balance generation and load in real-time (RT)
- Day-ahead (DA) market with financial obligation
- DA and RT unit commitment
- Co-optimization of energy and ancillary services
- Regional transmission planning
- Congestion hedging
- Original SPP WEIS members estimated go-live in 2025

SPP Markets+



- DA and RT markets with unit commitment and dispatch
- Resource adequacy
- “Hurdle-free” transmission service
- Seams management
- Under construction
  - Market product offering not final
  - Unknown implementation date
  - No current participant commitments

WMEG

Western Markets Exploratory Group

BALANCING AREA MEMBERS

- Arizona Public Service (AZPS)
- Idaho Power Company (IPCO)
- Los Angeles Department of Water & Power (LDWP)
- NV Energy (NEVP)
- Pacificorp (PACW)
- Portland General Electric (PGE)
- Public Service Company of Colorado (PSCO)
- Public Service Company of New Mexico (PNM)
- Puget Sound Energy (PSEI)
- Salt River Project (SRP)
- Seattle City Light (SCL)
- Tucson Electric Power (TECP)

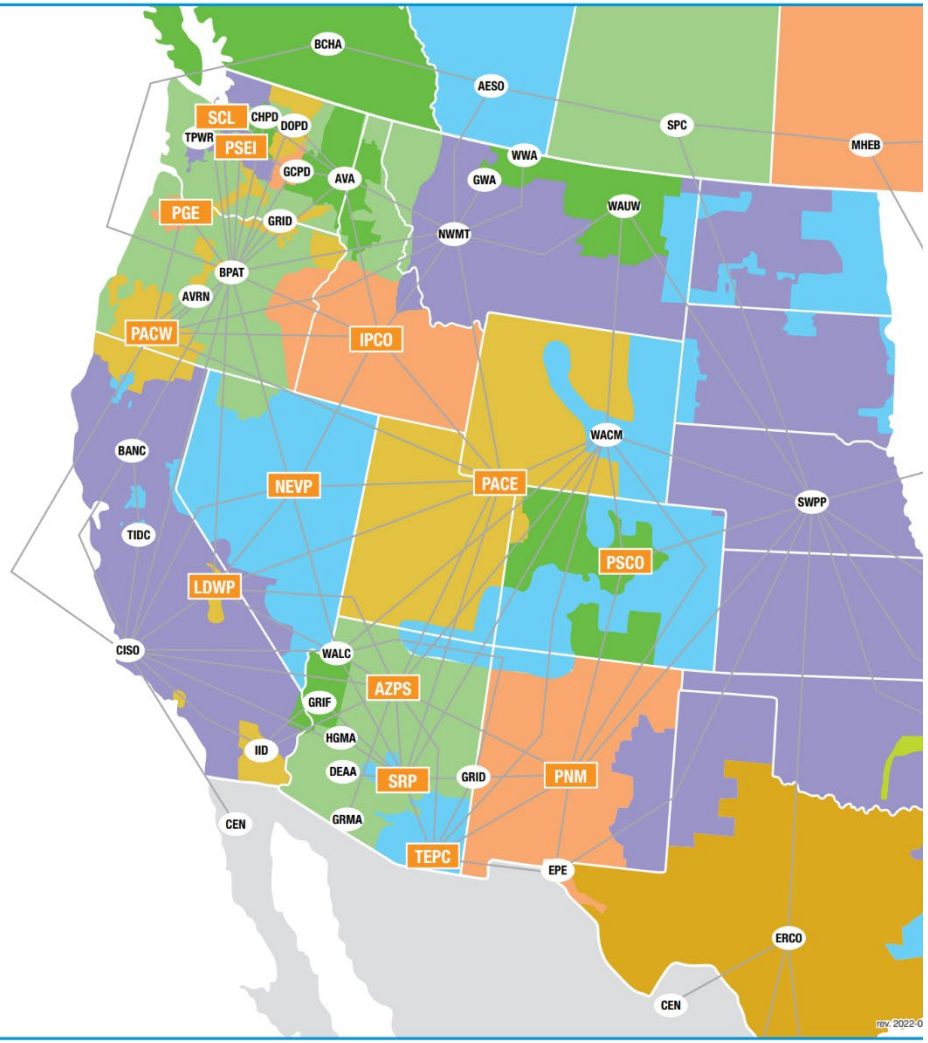
NON-BALANCING AREA MEMBERS

- Black Hills Energy*
- Platte River Power Authority*

**Within Public Service Company of Colorado (PSCO) balancing area*

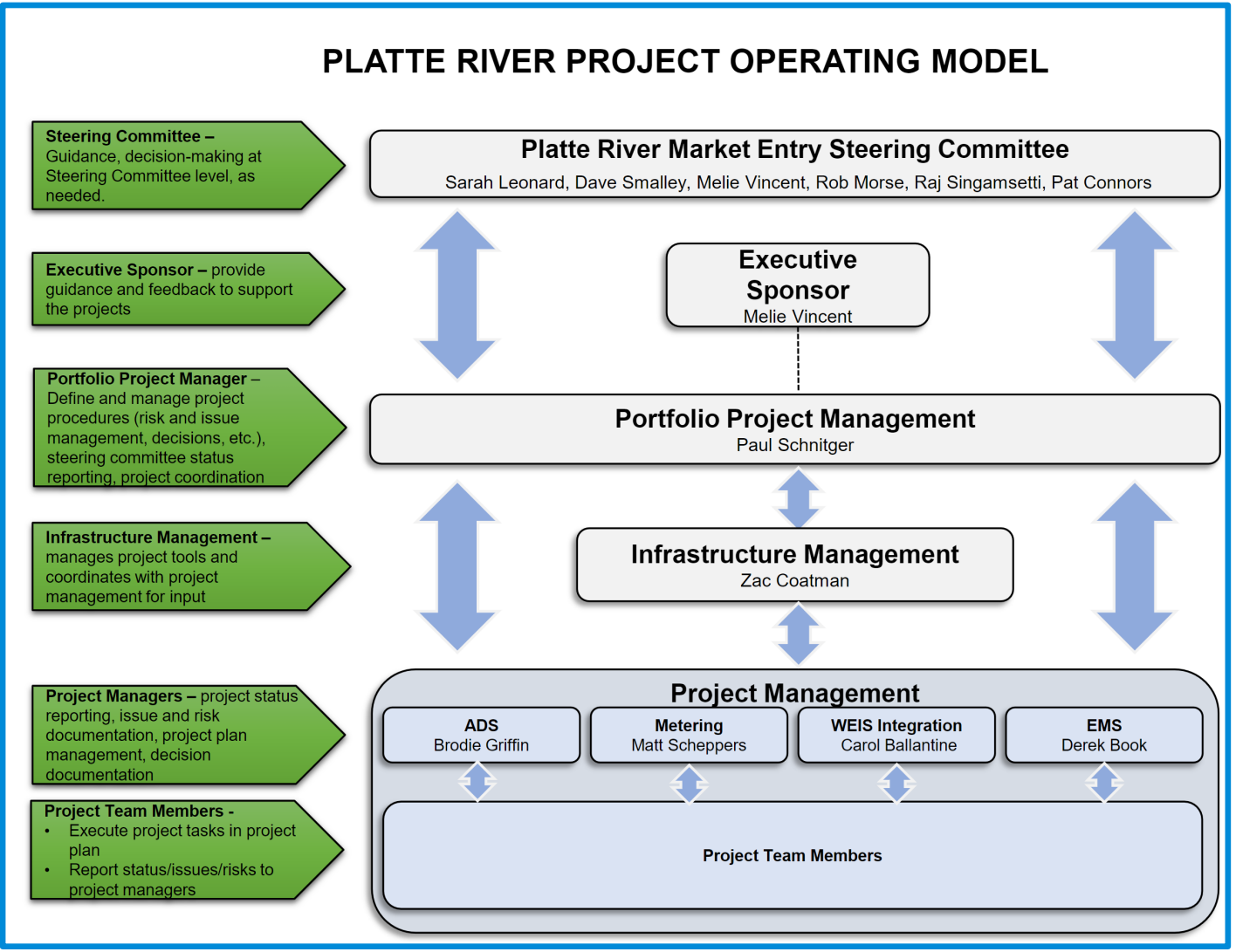
Entity Balancing Authority Area

NVEnergy



- Coalition of Western utilities (see map)
- Unknown market construct
- Unknown implementation date

WEIS implementation



- Staff focused on joining WEIS
- Hardware requirements
  - Automatic dispatch system
  - Metering at each CT
- Software requirements
  - Market interface
  - Energy management system
  - Market settlements
- Market regulatory activity

Summary

- Joining a market is a crucial step in achieving the goals of Platte River's Resource Diversification Plan
- Staff has a project plan for integration into the WEIS market in April 2023
- Platte River continues to evaluate options for long-term market solutions to be implemented no sooner than 2025

Questions

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March 31, 2022

Solar RFP response summary

Pat Connors, director of power markets

2030 resource capacity (MW) required to meet resource diversification policy

Resources	Nameplate (MW)		
	Resources needed in 2030	Resources under contract	Additions needed
Hydro	91	91	0
Rawhide Unit 1	0	280	-280
Craig units 1 and 2	0	151	-151
Rawhide CTs	492	388	104
Solar	455	205	250
Wind	485	285	200
Storage (four-hour)	301	1	300
Total	**1824**	**1401**	**423**

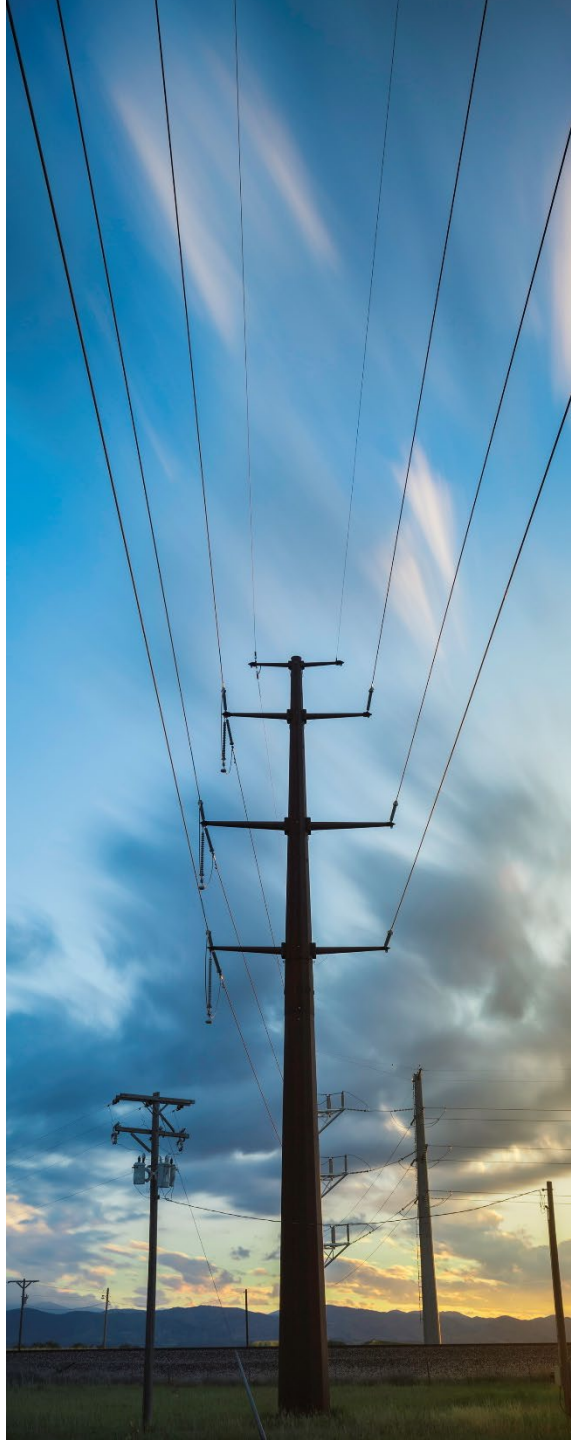
2030 resource energy (MWh) required to meet resource diversification policy

Resources	Energy (MWh)		
	2030	2022	Change
Hydro	458,172	458,172	0
Rawhide and Craig units	0	2,704,723	-2,704,723
Peaking units/CTs	296,467	7,671	288,796
Solar	1,206,742	114,478	1,092,264
Wind	1,834,571	929,164	905,407
Market purchases	175,386	31,873	143,513
Surplus sales	-449,033	-1,290,313	841,280
Total	**3,522,305**	**2,955,768**	**566,537**

Request for proposals (RFP) - introduction

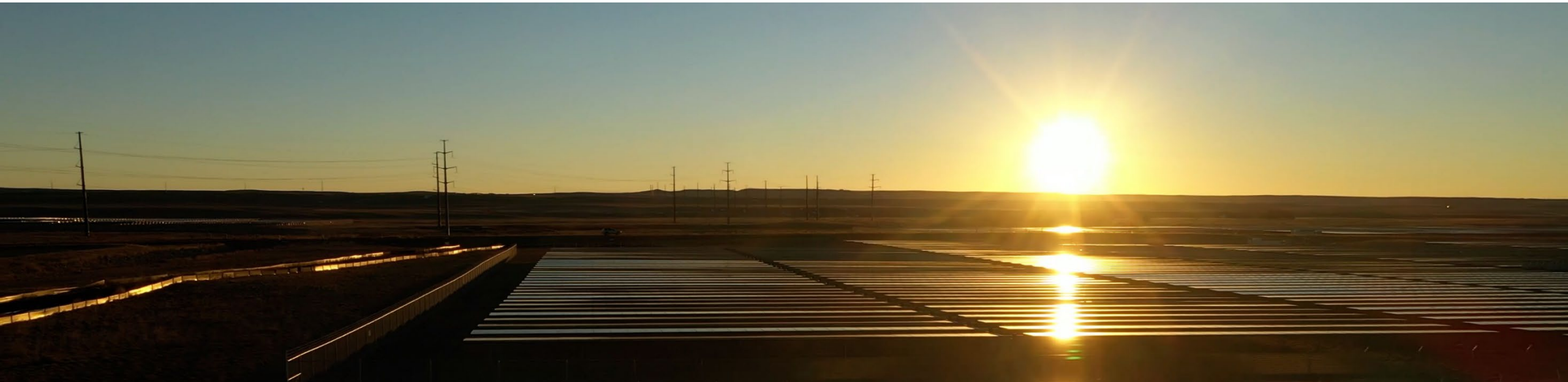
Platte River is seeking photovoltaic solar and battery storage that meet the following requirements

- Located near Platte River owned transmission line or substation
  - Up to 100-125 MW of solar
  - With or without up to a maximum of 100 MWh of storage
- Located near an owner community distribution line or substation
  - Up to 25 MW of stand-alone distributed solar
  - With or without storage



Solar RFP responses

- 25 companies submitted at least one bid
- 39 different bids located at unique project sites
- 84 total bids



Solar RFP responses (cont'd)

Bid types		Bid locations by continental divide		Bid terms		
Solar only	Solar and storage	East slope	West slope	15 year	20 year	25 year
36%	64%	74%	26%	17%	46%	37%

Summary of solar bids

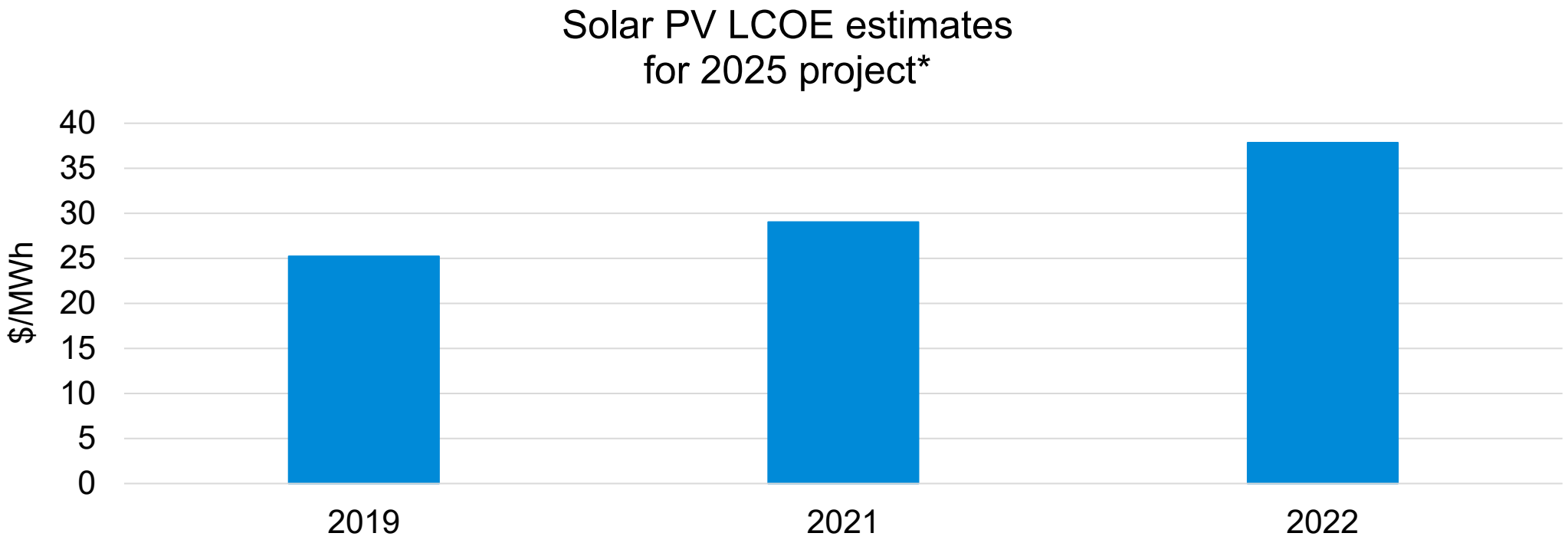
Bid locations by county

Larimer	Weld	Moffat	Rio Blanco	Boulder	Other
35%	24%	12%	6%	4%	20%

Solar bid amounts

Less than 25 MW	Between 25 MW–100MW	Greater than 100 MW
21%	21%	58%

Increase in solar prices



* 2019 and 2021 levelized cost of electricity (LCOE) values are from a February 2021 EIA report. 2022 LCOE value based on current projections

Solar takeaways

- Strong response – three times the amount received from 2019 RFP
- Trend is toward longer-term purchase power agreements (PPAs)
- Lead times have increased due to supply chain disruptions
- Solar prices have risen 50% since 2019
- Results could increase further as we analyze interconnection costs and buildability

Battery storage RFP responses

- 20 companies submitted bids
- 31 different bids located at unique project sites
- One stand-alone bid
- 62 total bids

Battery storage RFP responses (cont'd)

Bid locations by continental divide

East slope	West slope
75%	25%

Bid locations by county

Larimer	Weld	Moffat	Rio Blanco	Boulder	Other
24%	31%	13%	6%	5%	21%

Distribution of battery storage amount

Less than 50 MWh	Between 50 MWh–100 MWh	Greater than 100 MWh
18%	62%	20%

Battery storage takeaways

- Battery chemistry
  - Li Ion
  - Li Iron Phosphate
  - Li Nickel Cadmium Magnesium
  - Fe Air Flow
- Battery storage prices in line with Platte River's Integrated Resource Plan portfolio 2 estimates
- Cost per MWh of storage projects do not appear to benefit for economies of scale
- Roundtrip efficiency ranges from 80%-88%*
- Limited to a single charge/discharge cycle per day
  - Unable to fully follow load or intermittency of renewable resources
  - Unavailable after full charge/discharge cycle for the remainder of day

*Roundtrip efficiency is the amount of energy discharged as a percentage of energy required for full charge

Next steps

- Develop a short list of three to five bidders of the larger solar and storage projects
- Develop a short list of three to five bidders of the smaller solar and storage projects
- Select the bids that provide the best value based on price, location, buildability and long-term viability
- Determine financial impact of preferred projects
- Develop and negotiate term sheets of preferred projects
- Negotiate and finalize PPAs

Questions

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Board of directors

March 31, 2022

Board work session follow up

Jason Frisbie, general manager/CEO

Sarah Leonard, general counsel

Agenda

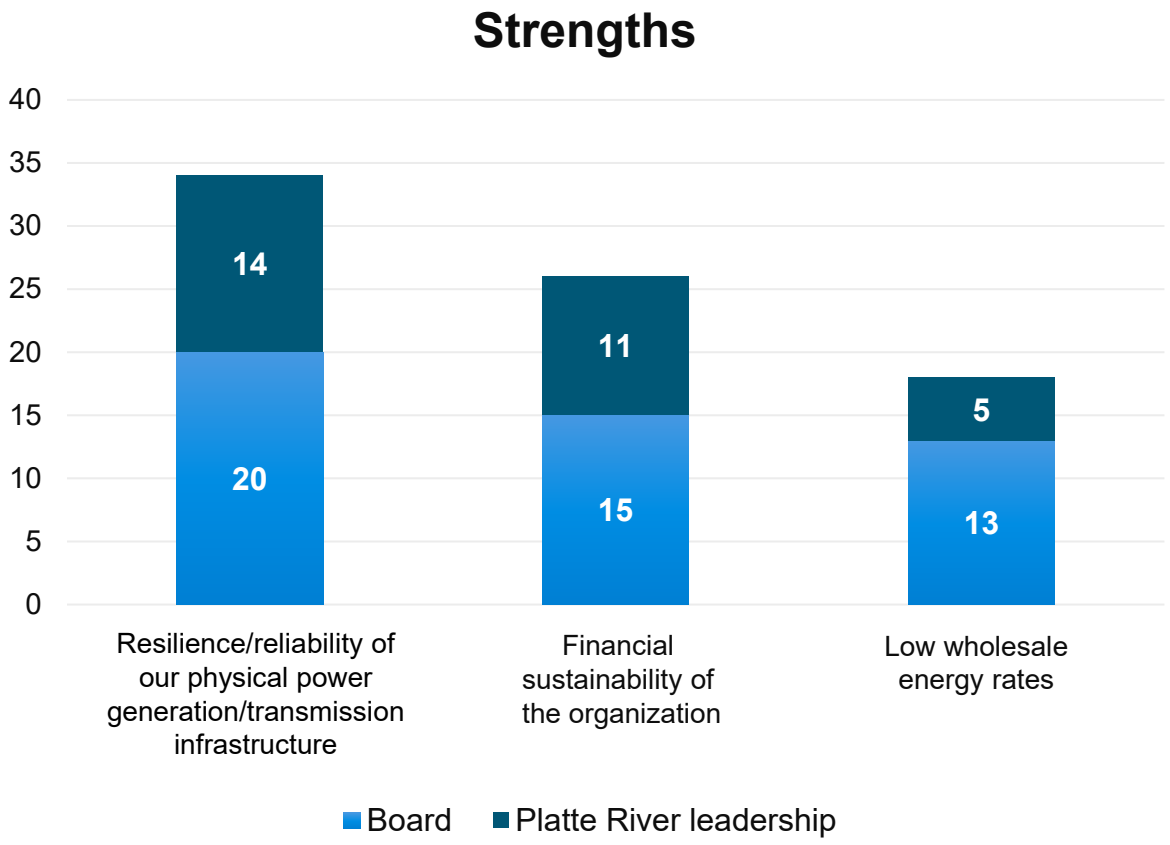
- SWOT results
- Roles and responsibilities
- Potential goals
- Next steps for strategic plan
- Parallel action plan

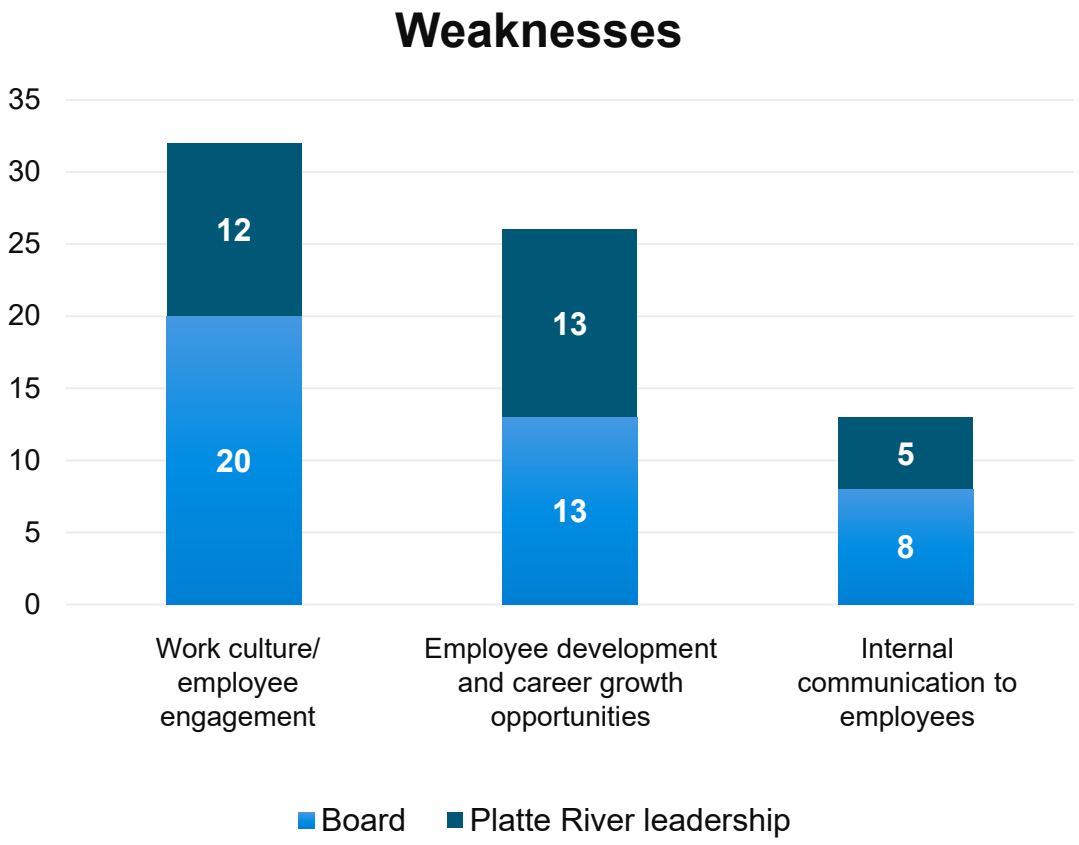
Planning outcomes

- Board/Platte River management relationship
- Customers
- City staff
- Platte River staff

SWOT results

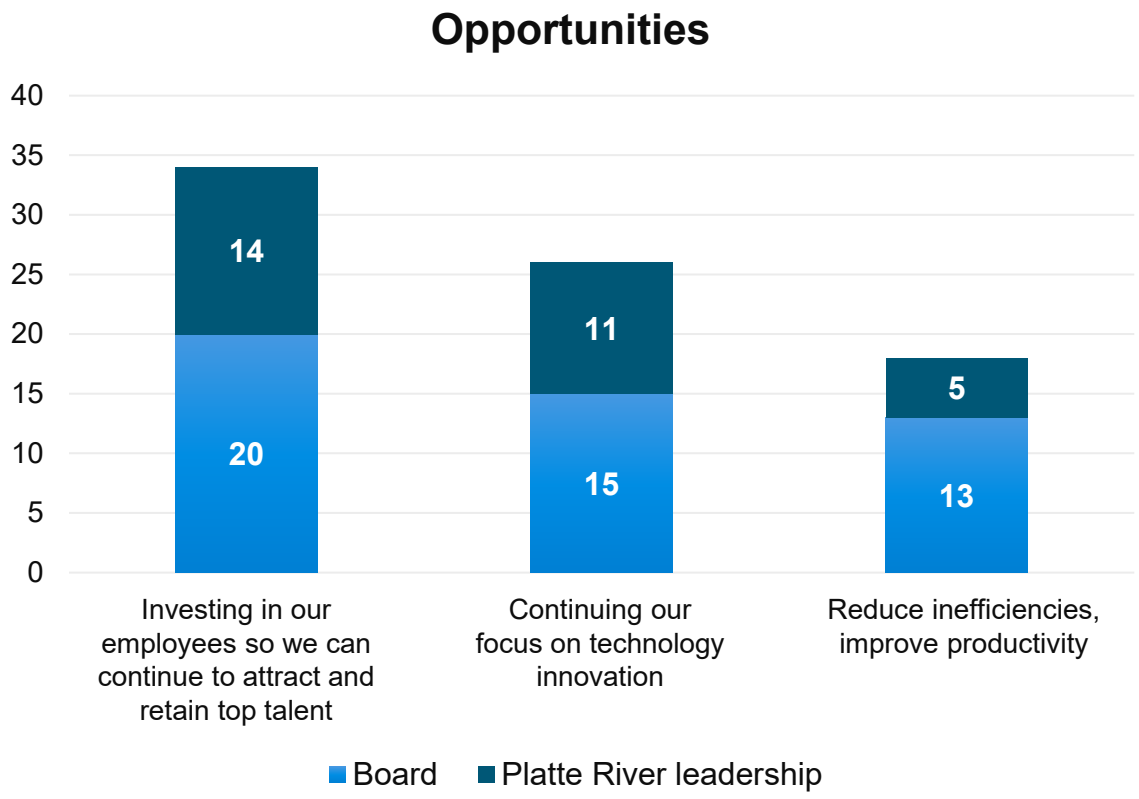
Platte River board and leadership in alignment

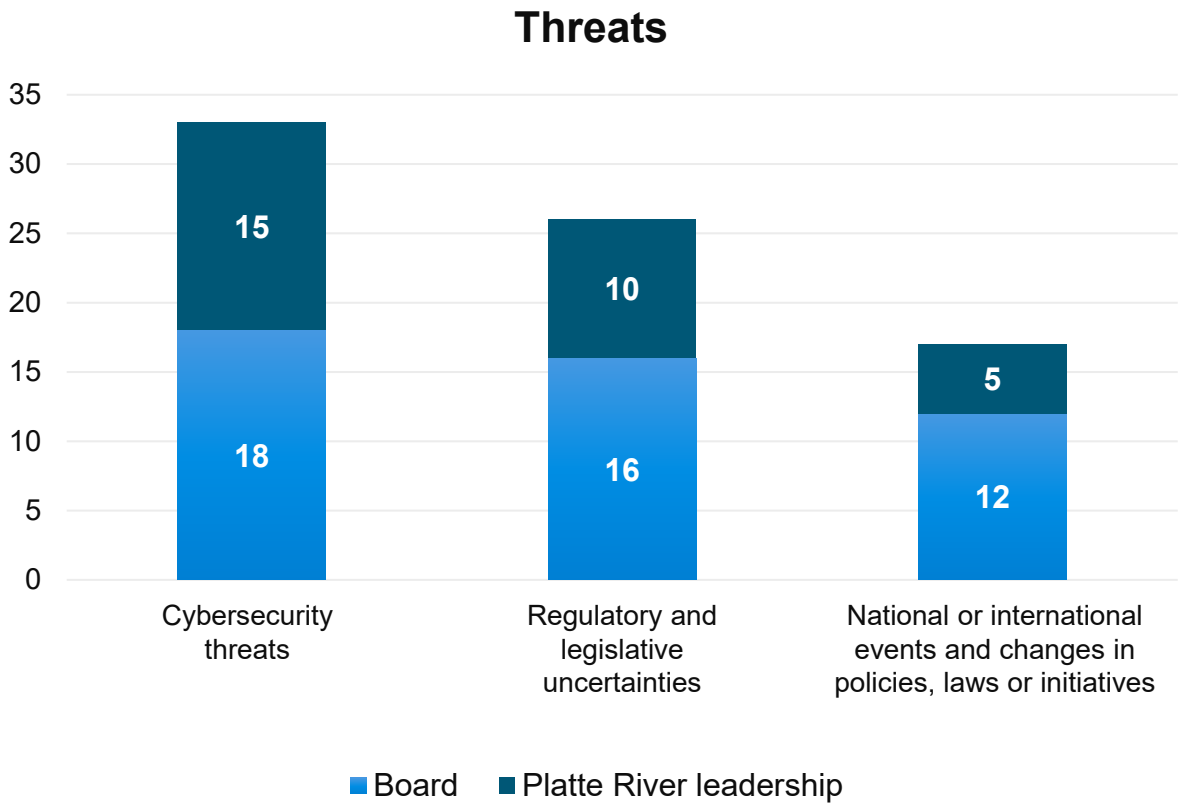




SWOT results

Platte River board and leadership in alignment





All-staff survey SWOT results

Platte River board, leadership and staff in alignment

Strengths

19% Financial stability of the organization

16% Resilience/ reliability of our physical power infrastructure

11% Low wholesale energy

Weaknesses

21% Employee development and career growth

17% Work culture/ employee engagement

13% Internal communication to employees

S W O T

Opportunities

27% Investing in our employees to attract and retain top talent

20% Continuing our focus on technology innovation

14% Reducing inefficiencies, improve productivity

Threats

16% Regulatory and legislative uncertainties

15% Cybersecurity threats

12% National or international changes in policies, laws, or initiatives

Roles and responsibilities: what vs. how

The what: board members

- Manage complexity
- Communicate the sense of urgency
- Understand gaps between current state and desired outcomes
- Sharing knowledge and insights
- Illuminate the landscape and context for changes

Roles and responsibilities: what vs. how

The how: Platte River management

- Help cities align without Platte River mediating
- Manage internal operations and make decisions for Platte River as a whole
- Regular and sustained outreach; provide information for data-driven decision making
- Define challenges
- Achieve goals

Roles and responsibilities: what vs how

The how with all four communities

Platte River staff

- Provide expertise and support
- Collaborate; allow owner communities to leverage strengths
- Facilitate accessibility; economies of scale
- Maintain positive relationships with mayors and city staff counterparts

Town/city councils

- Advocacy
- Set policy for community and how it impacts Platte River
- Know impacts of home rule vs statutory rule

Town/city staff

- Communicate with Platte River on commercial/residential policies
- Know how individual programs affect the system as a whole
- Contribute to balance between utility and elected officials

What does working together look like?

Collaboration

- Reduce 1:1 in favor of more group oriented communication, collaboration and conversations
- Board accountability
- Create stability and consistency to support future boards
- Create board policies, norms and vision
- Make sure board members receive the information they need
- Invite Platte River to the table at each owner community
- Not just cooperation – inclusion and collaboration

Potential strategic goal areas

Short-term

- Staff recruitment, retention and succession planning
- Leadership (board and management) coordination and collaboration
- DER strategy
- Transmission/distribution infrastructure
- Market entry

Mid-term

- Community engagement and communication
- Enterprise risk management
- Rate alignment
- Energy storage

Long-term

- Information and operational technology and data analytics

Next steps

Moss Adams	Board
Management	Community

DEC-JAN

- **Project Kickoff 12/22**
- **Management/ Board Session 1/10** – SWOT and Priorities Discussion
- **Staff Input** – Management Interviews, Staff Survey
- **Board Input** – Board Interviews

FEBRUARY

- **Community Input** – Review of Community Feedback for IRP
- **Board Session 2/11** – Roles and Responsibilities, SWOT Review, Priorities Discussion
- **Draft Goal Areas**
- **Management Input** – Goals, Objectives, Actions Survey

MARCH

- **Draft Objectives/ Actions**
- **Management Session – 3/21** – Objectives Review
- **Draft Performance Measures**
- **Draft Full Strategic Plan**

APRIL-MAY

- **Board Input** – Review Draft Plan
- **Management Input** – Review Draft Plan
- **Stakeholder/ Community Input** – Online Survey Input
- **Finalize Strategic Plan**

Proposed parallel action plan

- Platte River does not seek to take over any of the owner communities' distribution systems
- Platte River commits to developing two key plans in parallel by the end of 2022
  - A new strategic plan
  - A plan that identifies owner community actions Platte River believes will help all five utilities advance together toward the 2030 goal of 100% noncarbon energy
- In the nearer term (by mid-year 2022), Platte River will identify suggested "no-regrets" actions the owner communities can immediately begin moving forward to support the 2030 goal of 100% noncarbon energy

System-wide decision making

- Platte River recognizes different owner communities may have different priorities and be at different stages of policy and technical development. We believe it honors the reasons the owner communities created Platte River to:
  - Seek out solutions that deliver system-wide benefits
  - Make sure that as owner communities make critical decisions to advance their priorities, they understand how those decisions will affect the other owner communities
  - Have shared expectations that owner communities will not advance themselves at the expense of other owner communities

Transition underway

- Platte River recognized, when the board passed its Resource Diversification Policy, that “business as usual” could not deliver on the board’s vision. Since late 2018 Platte River has proactively transitioned its priorities, organizational structure and business activities to support the Resource Diversification Policy and continues to do so.

Platte River deliverables

By mid year

- Deliver a list of “no-regrets” actions owner communities can immediately begin moving forward to support the 2030 goal

By end of year

- Develop a menu of long-term owner community actions that help all five utilities advance toward the 2030 goal
- Present updated strategic plan for board approval

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February operational results

Category	February variance		YTD variance	
Owner community demand	6.0%	●	4.5%	●
Owner community energy	1.7%	◆	1.5%	◆
Wind generation	7.1%	●	5.2%	●
Solar generation	27.5%	●	1.0%	◆
Net variable cost to serve owner community load	(3.4%)	■	(4.8%)	■

Variance key: Favorable: ● >2% | Near budget: ◆ +/- 2% | Unfavorable: ■ <-2%

* Total resource variable costs plus purchased power less sales revenue

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February financial summary

Category	February variance from budget ($ in millions)	Year to date variance from budget ($ in millions)
Net income	$0.8 ●	$1.4 ●
Fixed obligation charge coverage	.43x ●	.46x ●
Revenues	$0.5 ●	$0.3 ◆
Operating expenses	$0.9 ●	$2.5 ●
Capital additions	$3.7 ●	$6.2 ●

> 2% ● Favorable | 2% to -2% ◆ At or near budget | < -2% ■ Unfavorable

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