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

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

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

- Staff focused on joining WEIS
  - Automatic dispatch system
  - Metering at each CT
- Hardware requirements
- 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
Board of directors

March 31, 2022
Solar RFP response summary

Pat Connors, director of power markets
### 2030 resource capacity (MW) required to meet resource diversification policy

<table>
<thead>
<tr>
<th>Resources</th>
<th>Resources needed in 2030</th>
<th>Resources under contract</th>
<th>Additions needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydro</td>
<td>91</td>
<td>91</td>
<td>0</td>
</tr>
<tr>
<td>Rawhide Unit 1</td>
<td>0</td>
<td>280</td>
<td>-280</td>
</tr>
<tr>
<td>Craig units 1 and 2</td>
<td>0</td>
<td>151</td>
<td>-151</td>
</tr>
<tr>
<td>Rawhide CTs</td>
<td>492</td>
<td>388</td>
<td>104</td>
</tr>
<tr>
<td>Solar</td>
<td>455</td>
<td>205</td>
<td>250</td>
</tr>
<tr>
<td>Wind</td>
<td>485</td>
<td>285</td>
<td>200</td>
</tr>
<tr>
<td>Storage (four-hour)</td>
<td>301</td>
<td>1</td>
<td>300</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1824</strong></td>
<td><strong>1401</strong></td>
<td><strong>423</strong></td>
</tr>
</tbody>
</table>
# 2030 resource energy (MWh) required to meet resource diversification policy

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

<table>
<thead>
<tr>
<th>Bid types</th>
<th>Bid locations by continental divide</th>
<th>Bid terms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solar only</td>
<td>Solar and storage</td>
<td></td>
</tr>
<tr>
<td>36%</td>
<td>74%</td>
<td>17%</td>
</tr>
<tr>
<td>Solar only</td>
<td>East slope</td>
<td>20 year</td>
</tr>
<tr>
<td>36%</td>
<td></td>
<td>46%</td>
</tr>
<tr>
<td>Solar and storage</td>
<td>West slope</td>
<td>25 year</td>
</tr>
<tr>
<td>64%</td>
<td>26%</td>
<td>37%</td>
</tr>
</tbody>
</table>

## Summary of solar bids

### Bid locations by county

<table>
<thead>
<tr>
<th>County</th>
<th>Larimer</th>
<th>Weld</th>
<th>Moffat</th>
<th>Rio Blanco</th>
<th>Boulder</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage</td>
<td>35%</td>
<td>24%</td>
<td>12%</td>
<td>6%</td>
<td>4%</td>
<td>20%</td>
</tr>
</tbody>
</table>

### Solar bid amounts

<table>
<thead>
<tr>
<th>Category</th>
<th>Less than 25 MW</th>
<th>Between 25 MW–100MW</th>
<th>Greater than 100 MW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage</td>
<td>21%</td>
<td>21%</td>
<td>58%</td>
</tr>
</tbody>
</table>
Increase in solar prices

Solar PV LCOE estimates for 2025 project*

* 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

<table>
<thead>
<tr>
<th></th>
<th>East slope</th>
<th>West slope</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>75%</td>
<td>25%</td>
</tr>
</tbody>
</table>

Bid locations by county

<table>
<thead>
<tr>
<th></th>
<th>Larimer</th>
<th>Weld</th>
<th>Moffat</th>
<th>Rio Blanco</th>
<th>Boulder</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>24%</td>
<td>31%</td>
<td>13%</td>
<td>6%</td>
<td>5%</td>
<td>21%</td>
</tr>
</tbody>
</table>

Distribution of battery storage amount

<table>
<thead>
<tr>
<th></th>
<th>Less than 50 MWh</th>
<th>Between 50 MWh–100 MWh</th>
<th>Greater than 100 MWh</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>18%</td>
<td>62%</td>
<td>20%</td>
</tr>
</tbody>
</table>
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
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

**Strengths**
- Resilience/reliability of our physical power generation/transmission infrastructure: Board 20, Platte River leadership 14
- Financial sustainability of the organization: Board 15, Platte River leadership 11
- Low wholesale energy rates: Board 5

**Weaknesses**
- Work culture/employee engagement: Board 20, Platte River leadership 12
- Employee development and career growth opportunities: Board 13, Platte River leadership 13
- Internal communication to employees: Board 5, Platte River leadership 8
SWOT results

Platte River board and leadership in alignment

**Opportunities**

- Investing in our employees so we can continue to attract and retain top talent: 20 (Board), 14 (Platte River leadership)
- Continuing our focus on technology innovation: 15 (Board), 11 (Platte River leadership)
- Reduce inefficiencies, improve productivity: 13 (Platte River leadership), 5 (Board)

**Threats**

- Cybersecurity threats: 18 (Board), 15 (Platte River leadership)
- Regulatory and legislative uncertainties: 16 (Platte River leadership), 10 (Board)
- National or international events and changes in policies, laws or initiatives: 12 (Board), 5 (Platte River leadership)
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

**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

**Project Kickoff**
12/22

**Management/Board Session** 1/10
SWOT and Priorities Discussion

**Staff Input**
Management Interviews, Staff Survey

**Board Input**
Board Interviews

**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

**Community Input**
Review Draft Plan

**Draft Objectives/Actions**

**Management Session** – 3/21
Objectives Review

**Draft Performance Measures**

**Draft Full Strategic Plan**

**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
## February operational results

<table>
<thead>
<tr>
<th>Category</th>
<th>February variance</th>
<th>YTD variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Owner community demand</td>
<td>6.0%</td>
<td>4.5%</td>
</tr>
<tr>
<td>Owner community energy</td>
<td>1.7%</td>
<td>1.5%</td>
</tr>
<tr>
<td>Wind generation</td>
<td>7.1%</td>
<td>5.2%</td>
</tr>
<tr>
<td>Solar generation</td>
<td>27.5%</td>
<td>1.0%</td>
</tr>
<tr>
<td>Net variable cost to serve owner community load</td>
<td>(3.4%)</td>
<td>(4.8%)</td>
</tr>
</tbody>
</table>

Variance key:  
- Favorable: >2%  
- Near budget: +/- 2%  
- Unfavorable: <2%

* Total resource variable costs plus purchased power less sales revenue
Board of directors

March 31, 2022
### February financial summary

<table>
<thead>
<tr>
<th>Category</th>
<th>February variance from budget ($ in millions)</th>
<th>Year to date variance from budget ($ in millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net income</td>
<td>$0.8</td>
<td>$1.4</td>
</tr>
<tr>
<td>Fixed obligation charge coverage</td>
<td>.43x</td>
<td>.46x</td>
</tr>
<tr>
<td>Revenues</td>
<td>$0.5</td>
<td>$0.3</td>
</tr>
<tr>
<td>Operating expenses</td>
<td>$0.9</td>
<td>$2.5</td>
</tr>
<tr>
<td>Capital additions</td>
<td>$3.7</td>
<td>$6.2</td>
</tr>
</tbody>
</table>

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