



Platte River
Power Authority

Estes Park • Fort Collins • Longmont • Loveland

Board of directors

Mar. 25, 2021



Distributed energy resources strategy committee

March 25, 2021



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DER strategy goals

- A vision shared by Platte River and the owner communities for DER integration
- Guiding principles and approaches for integrating DER through coordinated evaluation and planning, operations and customer programs
- A framework that considers benefits and costs of DER across the electric system
- A coordinated approach to securing customer and system data
- Improved outcomes for DER integration

Stakeholder engagements

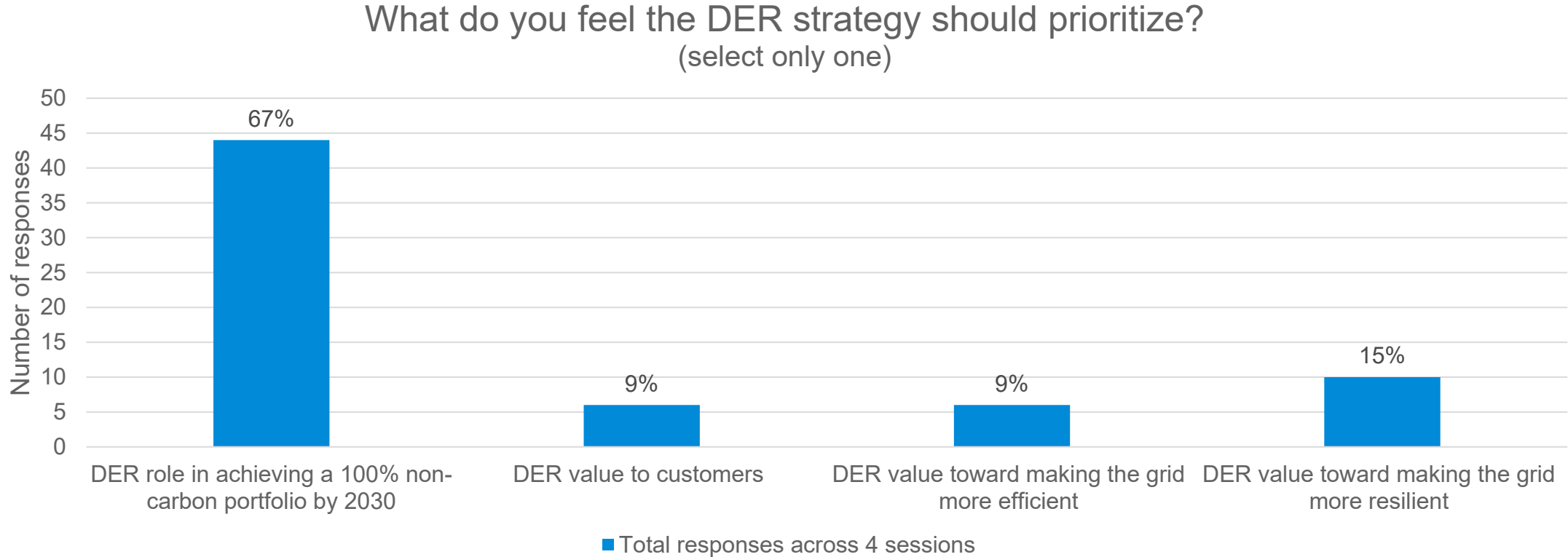
Second engagement – completed Jan. 26 through Feb. 2

- Four interactive, virtual sessions
 - 150 people registered, 90 attended
- Agenda (90 minutes)
 - Introduction to the DER strategy committee and work completed to date
 - Interactive session to gather input from stakeholders
 - Stakeholder questions for DER committee

Third engagement – currently planning for mid April

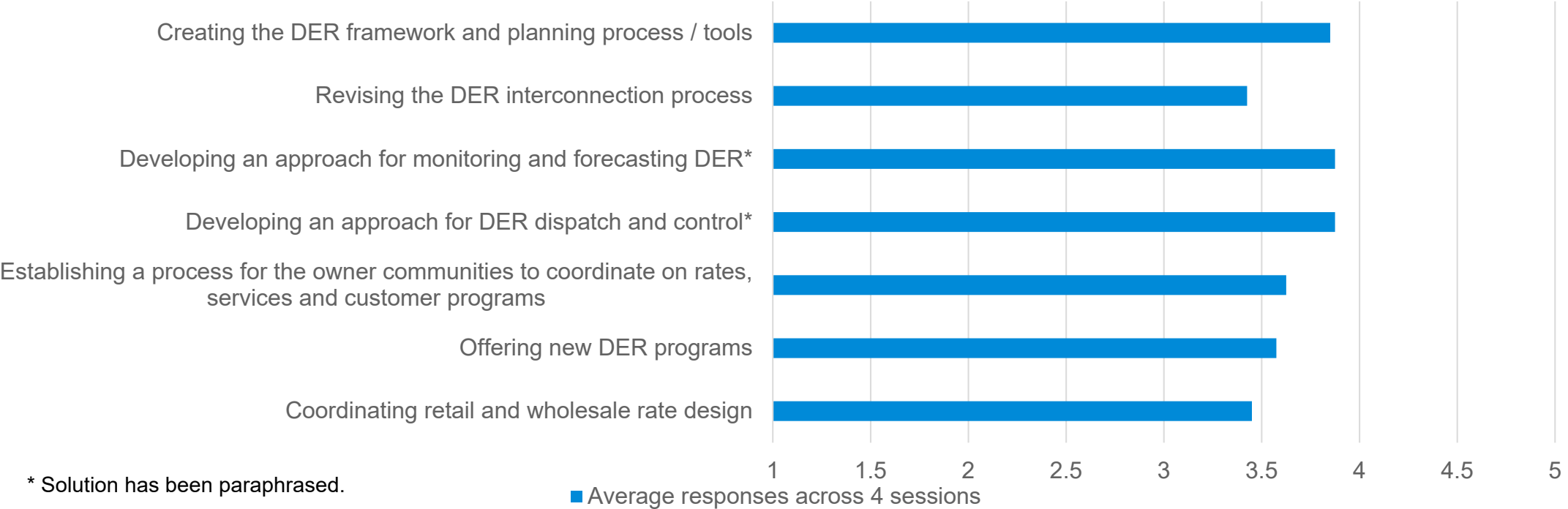
Fourth engagement – targeting June timeframe, near completion of strategy

Stakeholder input – priorities for the strategy



Stakeholder input – relative importance of solutions

What is the level of importance of addressing each of the initial DER strategy solutions created by the DER Committee?
(1 – not important to 5 – very important)



* Solution has been paraphrased.

DER integration in a high-DER future

DER strategy subcommittees

DER integration involves coordination across five utilities and a variety of areas and functions
Each subcommittee included staff from owner communities and Platte River

Subcommittees / areas of coordination			
	Planning and evaluation	Operations	Customer programs
Functions	<ul style="list-style-type: none">• Integrated resources planning• Transmission and distribution planning• Load and DER forecasting• DER interconnection requirements	<ul style="list-style-type: none">• Load forecasting and generation dispatch• DER visibility and operational forecasting• DER control and dispatch	<ul style="list-style-type: none">• DER programs• Wholesale and retail rates

DER subcommittee gap assessment and solutions

Gap assessment process (completed)

- Assess current state
- Determine future state
- Identify gaps

Develop solutions / charters (ongoing)

- Scope and deliverables
- Staffing and resources
- Draft processes
- Timing, sequencing and prioritization
- Industry best / emerging practices

Solution implementation can begin as the strategy is completed

Gap assessment and solution example

Customer programs area

Identified gaps and need for improved coordination

- Between owner communities and Platte River
- Between departments: customer programs, planning, operations and rates

Proposed solutions

- Form ongoing customer program group
- Establish and implement processes for proposing, evaluating and implementing programs
- Evaluate interactions between DER programs and wholesale, retail rates
- Begin developing pilots and programs

DER evaluation framework

A common structure for evaluating DER initiatives (development ongoing)

DER initiative examples

- Policy, process, program, tariff/rate, incentive or technology investment

Two step approach

- Qualitative screening
 - Does the initiative contribute to owner community and Platte River goals?
 - Is initiative consistent with DER strategy vision and guiding principles?
- Quantitative model
 - Considers benefits and costs of DER initiatives from perspectives of Platte River, owner communities, host customer and society

Informed by the *2020 National Standard Practice Manual for Benefit-Cost Analysis of DERs*

Next steps

Continue strategy development

- Gap closure solutions
- DER evaluation framework

Continue stakeholder engagement

- 3rd engagement – mid April
- 4th engagement – June

Complete strategy – June



Questions and discussion



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Strategic planning and goals

Agenda

- Strategic planning - Alyssa Clemsen Roberts, chief strategy officer
- Goals - Jason Frisbie, general manager/CEO



Strategic planning

Timeline of strategic planning process

April

- Two new board members from Fort Collins
- Issue RFI

October

- Select strategic planning consultant
- Vendor selection

January

- Kick off
- Bring back to board timeline for strategic planning events (work sessions-drafts)

July

- One new board member from Loveland
- Issue RFP for strategic planning consultant

November

One new board member from Longmont

Strategic planning

- Kickoff meeting
- Board surveys
- Board work sessions
- White paper with draft version
- Presentation
- Board approval
- Stakeholder communication



Goals

Current IRP milestones

2021

DER strategy completed

2023

150 MW of solar added

2025

77 MW of Craig Unit 1 retired

2029

- 100 MW of energy storage added*
- 100 MW of wind added*
- 280 MW of Rawhide Unit 1 retired

2022

Entry into WEIM

2024

Second IRP completed

2028

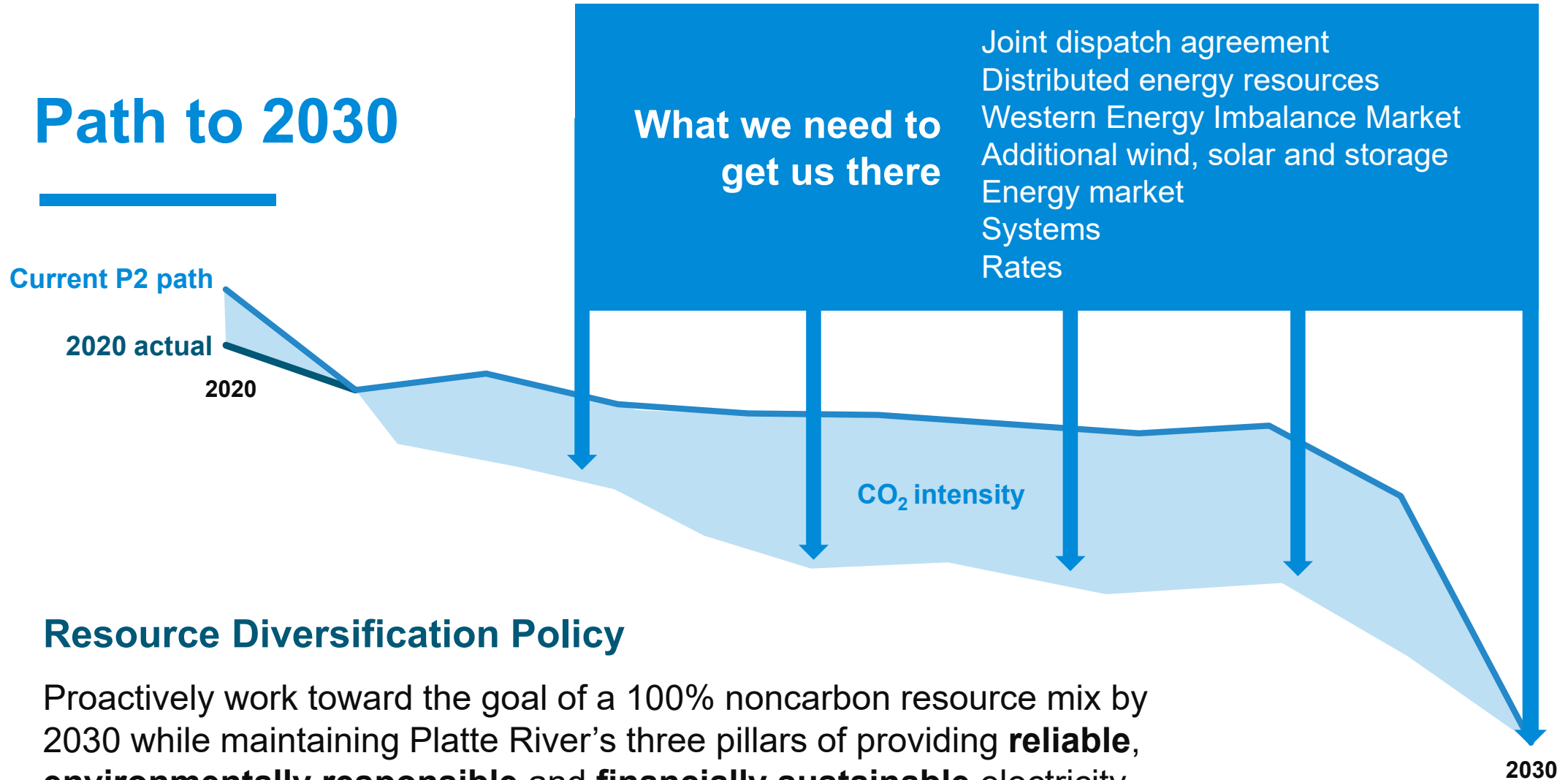
- 74 MW of Craig Unit 2 retired
- **Third IRP completed**

2030

- 104 MW of RICE added*
- 300 MW of solar added*
- 200 MW of energy storage added*
- 100 MW of wind added*
- 60 MW of Spring Canyon wind added back to the system

*All resources in 2029 and 2030 will require further modeling to determine timing, type and amount of resource

Path to 2030



Resource Diversification Policy

Proactively work toward the goal of a 100% noncarbon resource mix by 2030 while maintaining Platte River's three pillars of providing **reliable**, **environmentally responsible** and **financially sustainable** electricity and services.



Access to low cost, low carbon purchases have reduced baseload carbon output

Joint dispatch agreement

- Platte River, Black Hills Colorado and PSCo began operating joint dispatch agreement (JDA) in June 2017
- Expanded to include Colorado Springs Utilities in March 2020
- Each JDA participant must have sufficient resources to meet hourly load
- Adjusts dispatch of resources in PSCo balancing authority to lower overall dispatch costs through coordination of generation dispatch
- Higher-cost generation resources displaced by lower cost generation
- JDA transactions allowed Platte River to reduce its coal generation output, resulting in 560,000 fewer tons of carbon emission in 2020

Greater control of load and distributed resources will allow integration of more renewables

Distributed energy resources

- Complete coordinated distributed energy resources (DER) strategy for all five utilities in 2021
- DER planning, operations and evaluations committees will initiate pilot programs
- Evaluate DER options versus supply-side options
- Develop DER pilot programs and test appropriate level of controls
- Expand programs that provide benefit to the system and customers
- Work toward full integrated planning
- Work toward system integration and grid management/controls



Broad geographic market access will increase value of excess renewables

Western Energy Imbalance Market

- Platte River, Black Hills and PSCo plan to begin operating in the CAISO Western Energy Imbalance Market (WEIM) in 2022
- Determine optimal dispatch for resources offered into market every five minutes
- Calculate and settle prices at every point of injection or withdrawal on the transmission system for each five-minute period
- Optimally commit and decommit resources up to four and a half hours ahead of operating hour, which will improve unit commitment to serve load in a least-cost manner



Earlier resource additions than proposed in P2 will further reduce carbon emissions

Current IRP resource additions

2023

- 150 MW solar

2029

- 100 MW x four-hour storage
- 100 MW wind

2030

- 104 MW RICE/peaking
- 300 MW solar
- 100 MW wind
- 200 MW x four-hour storage
- 60 MW wind (Spring Canyon back on system)



Ensures system reliability is maintained and appropriate transmission is constructed

Energy market

Independent system operator/regional transmission organization (RTO)

- Benefits of the WEIM plus the benefits of an ancillary service market and day-ahead market
- Ancillary service market allows more resources to provide ancillary services, enabling more renewables integrated into system
- All resources must offer into day-ahead and real-time markets proving least-cost solution for all resources in region
- Day-ahead market allows least-cost resources to be committed well ahead of the operating hour resulting in lower market prices
- Day-ahead market improves reliability by ensuring appropriate and sufficient resources are committed well ahead of operating hour
- Full RTO coordinates planning and construction of sufficient transmission to keep the system reliable at reasonable cost

Systems

- Evaluate existing transmission rights with coal plant retirements
 - Potential for new renewable interconnections
 - Minimal transmission investment needed
- Evaluate more interconnections with other WEIM participants
 - Dispatch coordination with more market participants
 - Physical interconnection does not confer transmission service rights
- Expand transmission to improve access to geographically diverse resources
- Potential for significant investment in regional transmission



Wholesale rate structures

Completed rate strategy and rate design, implemented Jan. 1, 2020

Rates established to achieve Platte River's rate setting goals:

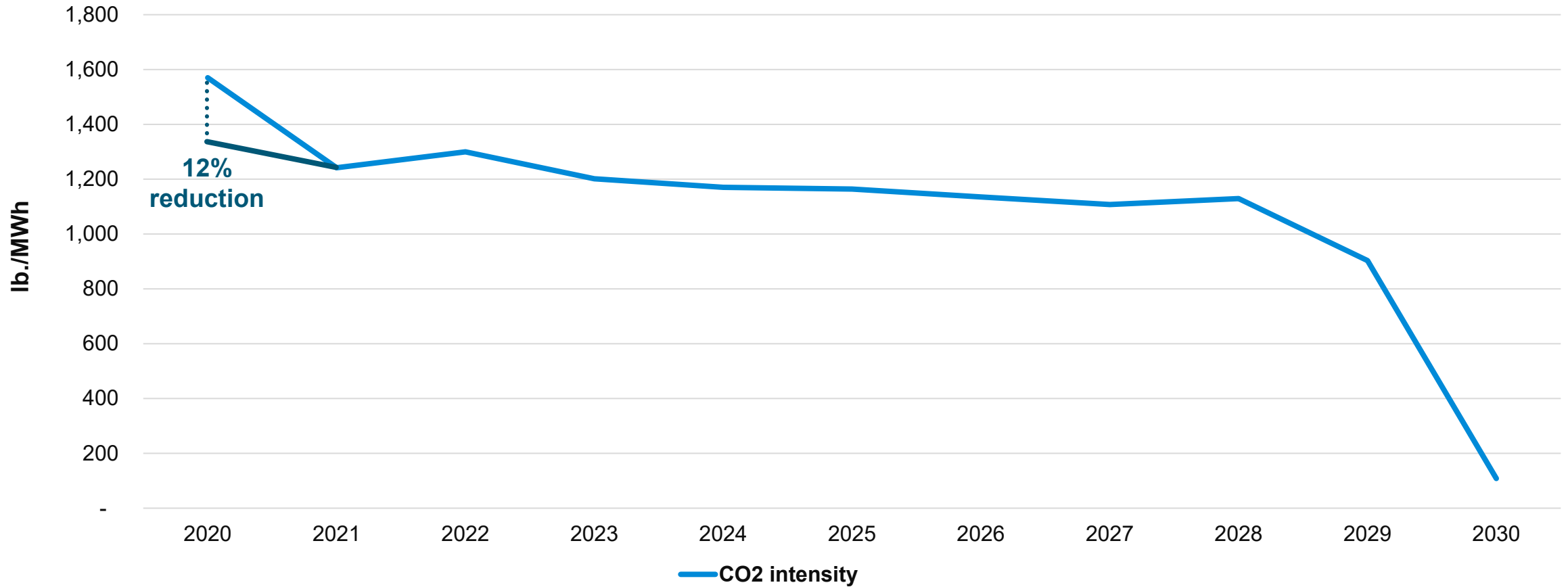
- Improve value added of Platte River in support of owner communities
- Offer a desirable portfolio of services and rates that meet owner communities' needs
- Better align wholesale pricing signals with cost of service
- Send pricing signals that result in system benefits

Work toward alternative rate structures or modifications to support:

- Distributed energy resource objectives
- Intermittent resources and storage
- Organized energy market
- Wholesale/distribution rate alignment

CO₂ intensity

Coal unit: 2,080 lb./MWh
EA gas unit: 1,540 lb./MWh
FA gas unit: 1,350 lb./MWh
RICE gas unit: 1,000 lb./MWh



Key takeaways

We continue to drive down carbon by proactively working on:

- Joint dispatch agreement
- Distributed energy resources
- Western Energy Imbalance Market
- Additional wind, solar and storage
- Energy market
- Systems
- Rates

While continuing to maintain our three pillars of **reliable**, **environmentally responsible** and **financially sustainable** energy and services.



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February operational results

Category	February variance		YTD variance	
Municipal demand	7.8%	●	3.8%	●
Municipal energy	9.2%	●	6.2%	●
Baseload generation	2.8%	●	(4.9%)	■
Wind generation	(5.6%)	■	(12.0%)	■
Solar generation	(9.5%)	■	(22.0%)	■
Surplus sales volume	(7.9%)	■	(12.0%)	■
Surplus sales price	95.2%	●	45.5%	●
Purchase volume	13.1%	■	80.9%	■
Purchase price	111.0%	■	15.6%	■
Dispatch cost	(1.1%)	◆	(1.5%)	◆

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



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Financial summary

Category	February variance from budget (\$ in millions)		Year to date variance from budget (\$ in millions)	
Net income	\$3.6	●	\$4.3	●
Fixed obligation charge coverage	1.39x	●	.87x	●
Revenues	\$3.6	●	\$2.9	●
Operating expenses	\$0.2	◆	\$1.7	●
Capital additions	\$2.8	●	\$4.0	●

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



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