

Note: This is the primary document used during the focus groups. Participants worked through page 2-3 for an hour, and then discussed the questions on the back page.

Background

Platte River Power Authority is a not-for-profit wholesale electricity generation and transmission provider. Its three core pillars of operation are to safely deliver reliable, environmentally responsible and financially sustainable energy and services to its owner communities of Estes Park, Fort Collins, Longmont and Loveland, Colorado, for delivery to their utility customers.

Current status

Approximately 30% of the energy Platte River delivers to its owner communities comes from noncarbon resources including hydro, solar and wind power. Approximately 65% comes from coal-fired generation and 5% from market purchases and natural gas.

Platte River will soon add 225 MW of new wind capacity and 22 MW of new solar (with battery storage). After completion of these projects in late 2020, approximately 50% of the energy delivered to the owner communities will come from noncarbon resources. Additionally, Platte River is considering the addition of another 100-150 MW of solar by 2023, which will raise the share of noncarbon energy delivered to the owner communities to 60%. By the end of 2025, the Craig coal-fired Unit 1 will be retired and discussions concerning the life of Craig Unit 2 are currently taking place.

Integrated resource plan

In late 2018, Platte River Power Authority's Board of Directors approved the Resource Diversification Policy to pursue a 100% noncarbon energy mix by 2030, one of the most aggressive of its kind in the nation. Platte River is taking steps toward this goal while maintaining its three core pillars. Achieving this goal depends on a variety of factors, summarized as follows:

- Joining an organized regional market
- Energy storage (battery) technology improvement with cost decline
- Transmission/distribution grid system investments and integration
- Distributed generation performance improvement
- Advanced grid management systems
- Rate structures to facilitate objectives

Beyond 2023, Platte River must decide how it will move forward. Each of the following energy mix options have been developed as part of its 2020 Integrated Resource Plan (IRP).

Unlike broad, theoretical studies that use one-size-fits-all assumptions, Platte River's IRP uses sophisticated modeling of Platte River's unique resources, available technologies and specific constraints, all studied by industry experts using the best industry practices to develop Platte River's resource mix options for the future. The resource mix options offered incorporate forecasted capital, operational, fuel and environmental costs, including a carbon tax.

How should Platte River Power Authority pursue a noncarbon energy future?

Portfolio option 1	Portfolio option 2
Continuity	No coal-fired generation by 2030
<p>Platte River will continue its current business practices to add noncarbon energy resources on an economical basis, maintain strong system reliability and retire coal-fired resources when advantageous to the owner communities.</p>	<p>Platte River will retire all coal-fired generation early, add more noncarbon generation than with Option 1 and use natural gas-fired generation as needed to maintain electrical system reliability. Should technology advance more rapidly, greater carbon reduction would be possible.</p>
Results/impact	
<ul style="list-style-type: none"> • 2030 noncarbon energy delivered: 60+% • 2035 noncarbon energy delivered: 65% • Annual wholesale rate increase: 2.2% (2021-2030) – cumulative increase of 24.3% • Annual inflation rate (assumed): 2% • System reliability: 99.99% 	<ul style="list-style-type: none"> • 2030 noncarbon energy delivered: 90+% • 2035 noncarbon energy delivered: 95% • Annual wholesale rate increase: 2.6% (2021-2030) – cumulative increase of 29.3% • Annual inflation rate (assumed): 2% • System reliability: 99.99%
What would be done	
<ul style="list-style-type: none"> • Add noncarbon resources and storage • Growth of roof-top solar expected • Use existing coal and gas plants past 2030 • Adjust strategy based on industry/technology improvements • Craig units 1 and 2 retired in 2025 and 2028, respectively • Retire Rawhide Unit 1 after 2040 	<ul style="list-style-type: none"> • Add more noncarbon resources and storage • Growth of roof-top solar expected • Use new and existing gas-fired generation past 2030 for electric reliability • Craig units 1 and 2 retired in 2025 and 2028, respectively • Rawhide Unit 1 retired by 2030
Key supporting arguments	
<ul style="list-style-type: none"> • 99.99% system reliability maintained • Sales from Rawhide Unit 1 could displace older, dirtier coal plants in the region • Wholesale electric rates would rise at a rate very close to assumed inflation rate 	<ul style="list-style-type: none"> • 99.99% system reliability maintained • 90-95% carbon reduction, placing Platte River among the leading noncarbon utilities in the nation • Wholesale electric rates should remain competitive
Concerns/tradeoffs	
<ul style="list-style-type: none"> • Will not achieve 100% noncarbon objective by 2030 • Coal-fired generation not retired 	<ul style="list-style-type: none"> • Will not achieve 100% noncarbon objective by 2030 • Additional gas generation added to maintain system reliability

How should Platte River Power Authority pursue a noncarbon energy future?	
Portfolio option 3	Portfolio option 4
100% noncarbon generation by 2030	Integrated utilities
Platte River will retire all fossil fuel generation and replace it with significant amounts of noncarbon resources and battery storage. Even with significant additions and market purchases, Platte River could not guarantee electrical system reliability due to the intermittent nature of noncarbon sources.	Rapid technology advances are assumed, which will foster a more seamless integration between the transmission and distribution systems, leading to significant growth in electric vehicles and rooftop solar, while maintaining electric system reliability. Rawhide Unit 1 would economically retire by 2035 due to lower cost noncarbon resources.
Results/impact	
<ul style="list-style-type: none"> 2030 noncarbon energy delivered: 100% 2035 noncarbon energy delivered: 100% Annual wholesale rate increase: 8.7% (2021-2030) – cumulative increase of 130.3% Annual inflation rate (assumed): 2% System reliability: Unknown 	<ul style="list-style-type: none"> 2030 noncarbon energy delivered: 65+% 2036 noncarbon energy delivered: 90% Annual wholesale rate increase: 2.8% (2021-2030) – cumulative increase of 31.8% Annual inflation rate (assumed): 2% System reliability: 99.99%
What would be done	
<ul style="list-style-type: none"> Add many more noncarbon resources and energy storage than energy demand (to cover intermittency of solar and wind resources) Growth of roof-top solar expected Significant investment needed to reduce reliability risk Greater market dependence needed for reliability Retire all coal and gas generation by 2030 	<ul style="list-style-type: none"> Assumes rapid technology development Economically add renewables and storage Much higher roof-top solar, EV adoption More system integration and distribution system investment Craig units 1 and 2 retired in 2025 and 2028, respectively Retire Rawhide Unit 1 by 2035 due to lower cost noncarbon resources
Key supporting arguments	
<ul style="list-style-type: none"> 100% noncarbon goal reached by 2030 Places Platte River among the leading noncarbon utilities in the nation 	<ul style="list-style-type: none"> 99.99% system reliability maintained Sales from Rawhide Unit 1 could displace older, dirtier coal plants in the region Wholesale electric rates should remain competitive 90% noncarbon energy delivered by 2036, more aggressive than most U.S. utilities
Concerns/tradeoffs	
<ul style="list-style-type: none"> Wholesale rates could rise 8+% annually starting in 2021 System reliability cannot be guaranteed even with significant investments Higher market reliance = higher risk Much more renewable capacity and battery storage needed 	<ul style="list-style-type: none"> Will not achieve 100% noncarbon mix by 2030 Wholesale rates may rise slightly more than options 1 or 2 Coal not retired until the end of 2035 Technology may not advance as rapidly as expected

IRP focus group questions to consider and discuss

General questions

1. How important is a 100% noncarbon energy mix?
2. How important is reliable electric service?
3. How important are low electrical rates?
 - As you consider prioritizing and balancing these three pillars, what suggestions do you have?

In-depth questions to explore

Considering the four potential energy mix options:

- Should Platte River assume and rely heavily on technology advances or be more cautious? What happens if technology does not advance as rapidly as needed or has unintended consequences?
- Are the noncarbon energy mix differences between Option 2 and 3 worth the significant added cost and risks to service reliability? Would you be willing to accept maintaining some natural gas-based options, primarily to serve as backup to ensure reliability? (Currently, natural gas is about one third of PRPA's effective capacity but only 1% of actual production because it is mainly used as a backup only when needed. This backup function will become more important as we rely more on renewable resources).
- To what extent should we consider the broader regional market and our potential ability to produce energy more efficiently with our energy options than our neighbors? Do we focus only on our specific mix or, if we can produce energy more efficiently and with less environmental impact than neighbors, should we leverage these tools for broader regional gains?