Welcome

2024 Integrated Resource Plan
Community listening session

Energy leaders since 1973
In the event of an emergency

Fire/evacuation

- Follow your Platte River contact to the designated assembly area
- Primary exit is the north door

Shelter in place

- Interior hallways, bathrooms
Agenda

• Overview
• Presentation
• Break
• Community input process and remarks
• Closing remarks
Community input process

- Meeting purpose
- What we hope to accomplish today

Submit input
- Index cards
- PollEv.com/PRPA
- Join by text: send “prpa” to 22333

Optional card formatting
- Name, city of residence, organization (if applicable)
IRP community engagement process

Stay informed
• prpa.org/2024irp

Submit additional questions and request community presentations
• 2024irp@prpa.org
About Platte River Power Authority

Platte River Power Authority is a not-for-profit, community-owned public power utility that generates and delivers safe, reliable, environmentally responsible and financially sustainable energy and services to Estes Park, Fort Collins, Longmont and Loveland, Colorado, for delivery to their utility customers.

At a glance

- **Headquarters**: Fort Collins, Colorado
- **General manager/CEO**: Jason Frisbie
- **Began operations**: 1973
- **Employees**: 297
- **Peak demand**: 707 MW on July 28, 2021
- **2023 projected deliveries of energy**: 5,174,234 MWh
- **2023 projected deliveries of energy to owner communities**: 3,301,376 MWh
- **Transmission system**: Equipment in 27 substations, 263 miles of wholly owned and operated high-voltage lines and 522 miles of high-voltage lines jointly owned with other utilities.
Foundational pillars

Platte River is committed to decarbonizing our resource portfolio without compromising our three pillars:

• Reliability
• Environmental responsibility
• Financial sustainability
Opening remarks

Raj Singam Setti, chief transition and integration officer
Resource Diversification Policy

Passed by Platte River’s Board of Directors in 2018

Purpose
To provide guidance for resource planning, portfolio diversification and carbon reduction.

Goal
To support owner community clean energy goals, we will proactively work towards a 100% noncarbon resource mix by 2030 while maintaining our foundational pillars of providing reliable, environmentally responsible and financially sustainable energy and services.

Accomplished
• An organized regional market must exist with Platte River as an active participant

In progress
• Transmission and distribution infrastructure investment must be increased
• Transmission and distribution delivery systems must be more fully integrated
• Improved distributed generation resource performance
• Technology and capabilities of grid management systems must advance and improve
• Advanced capabilities and use of active end user management systems
• Generation, transmission and distribution rate structures must facilitate systems integration

Awaiting technology
• Battery storage performance must mature and the costs must decline
• Utilization of storage solutions to include thermal, heat, water and end user available storage
Progress since 2018

The 2024 IRP builds on the 2020 IRP and resource planning and modeling that occurred in 2021 and 2022

- 225 MW of Roundhouse wind
- Announcement to retire coal resources
- Developed a distributed energy resources strategy
- Filed 2020 IRP
- 22 MW Rawhide Prairie Solar with 2 MWh battery
- 150 MW Black Hollow Solar power purchase agreement
- Additional solar and anergy storage RFPs
- Filed Clean Energy Plan with the state of Colorado, which requires all electric utilities to achieve 80% carbon reduction by 2030
- Entry into Southwest Power Pool Western Energy Imbalance Service market
2018 system total

- 24.8% noncarbon resources

2023 budget system total

- 33.3% noncarbon resources

- 56.8% Coal
- 22.7% Wind
- 8.4% Hydropower
- 7.4% Solar
- 2.5% Other purchases
- 2.2% Natural gas

Includes renewable energy credit allocations to carbon resources.

Due to drought conditions, not all hydropower may be considered noncarbon.
2023 budget system total

- 33.3% noncarbon resources
- 66.7% dispatchable resources

2030 projected system total

- 88.4% noncarbon resources
- 11.6% dispatchable resources

Includes renewable energy credit allocations to carbon resources.

Due to drought conditions, not all hydropower may be considered noncarbon.
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2024 IRP timeline and process

Masood Ahmad, resource planning manager
What is an IRP

- IRP is a planning process which integrates customer demand and resources (DERs) with utility resources to provide reliable, economical and environmentally desirable electricity to customers.
- Typically developed for the next 10-20 years and updated every few years.
- IRP assists with preparing for industry changes including:
  - Technological progress
  - Consumer preferences
  - Regulatory mandates
- Required by Western Area Power Administration (WAPA) every five years.
- WAPA requires a short-term action plan and an annual follow up on plan execution.
  - Last IRP was submitted in 2020.
Timeline

Community engagement
- Ongoing public engagement in collaboration with owner communities

Resource planning
- Pre-IRP studies
- Load forecasting
- Other inputs, assumptions
- IRP modeling
- Portfolio development
- Reliability assessment with renewables and DER integration
- Review results
- Board presentation
- IRP document development
IRP modeling process

**Input assumptions**
- Load forecast
- DER potential
- Power price forecast
- Resource cost forecast
- Extreme weather models
- Renewable profiles

**Portfolio development**
- Resource mix
  - Renewable
  - New technology
- Least cost
- Carbon reduction
- Reserve margins

**Reliability testing**
- Portfolio testing with
  - Dark calms (low supply)
  - Extreme weather (high demand)
  - Different wind/solar profiles

Plexos model
Studies

Complex modeling of an uncertain future

- Extreme weather modeling
- Load forecast, customer load contributions/flexibility
- Market prices, volatility and congestion
- Required reserve margin and ELCC
- Beneficial electrification assessment

Technology evaluation

- Emerging technology screening
  - Cost curves
  - Time to maturity
- Dispatchable technology evaluation
  - High flexibility
  - Low carbon
  - Proven technology
- Distributed energy resource assessment
  - Customer adoption rate
  - Usage profiles
Integration of renewable resources
Currently planned renewable supplies
Renewable integration challenges

- Renewable intermittency
  - Day to day operation
  - Extreme weather operation
- Ensuring reliability in all weather conditions
- Serving load with intermittent renewable generation will require:
  - Energy storage
  - DERs and flexible load
  - Dispatchable generation
Renewable intermittency challenges

**Hourly (Summer 2030 forecast)**

**Extreme weather (Valentine’s week 2021)**
Trends in renewable costs

Solar

Wind

$/MWh

2020 2023

75% 80%
Technology evaluation and implementation
Currently available technology:
- four-hour storage (short duration storage)
- Major use cases include clipping daily peaks (charge and discharge within 24 hours)

**Opportunities**

**Challenges**

- Technology is not viable for long duration storage strategy
  - Primary challenge in decarbonization
  - Example: adopting this technology for 24 hours of storage would cost $3 billion and more than double rates (2020 IRP portfolio 3)
Future technology

Opportunities

• Exploring and possibly piloting technologies
  • Hydrogen
  • Carbon sequestration
  • Renewable fuels

• Will adopt when commercially and economically viable

Challenges

• Time to maturity
• Cost
Summary

• Modeling is a complex and challenging process
• Next steps: modeling, reviewing studies, engaging industry experts
• Your input tonight is appreciated
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Key takeaways

Raj Singam Setti
Key takeaways

• Clean energy transition
• Reliability
• Emerging technologies
Listening session break
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Concluding remarks

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