Platte River
Power Authority

Estes Park • Fort Collins • Longmont • Loveland

Board of directors

July 28, 2022

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Average wholesale rate projections

Rate pressures and reduction strategies

Discussion

- Overview
- Long-term rate pressure and rate increase scenarios
- Carbon reduction
- Change in rate projection
- Rate drivers
- Strategies to reduce rate pressure
- Recommendation

Overview

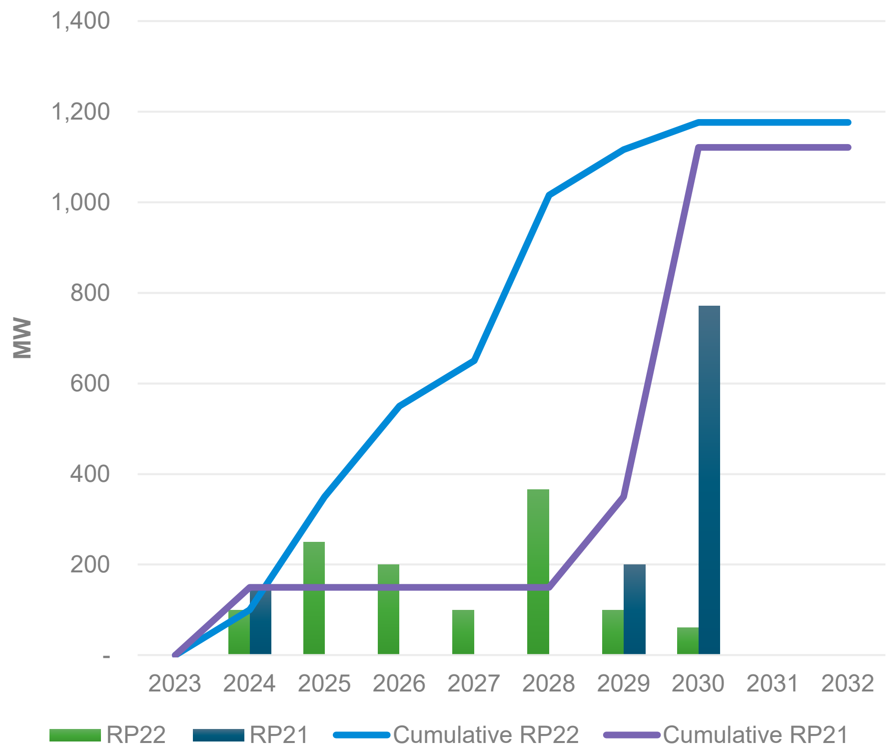
- Platte River will continue to proactively work toward the goal of reaching a 100% noncarbon resource mix, while maintaining the three pillars of providing reliable, environmentally responsible and financially sustainable electricity and services.
- **Transition period 2023 to 2029**
  - Significant cost risk in replacing coal portion of resource portfolio that has traditionally provided ~80% of all generation
  - Distributed energy resources integration and collaboration with owner communities
  - Organized energy market participation
- **Post transition 2030 forward**
  - Reduced price risk as ~80% of the resource portfolio is projected to be long-term fixed price contracts
  - Reduced carbon by ~90%

Resource plan update

Resource plan update

- *Resource diversification and system integration opportunities,* April board materials
- 2020 IRP P2 case refinement to Resource Plan 2022 (RP22),
- Next full IRP scheduled for 2024
- Procurement of new resources by Jan. 1, 2028, instead of Jan. 1, 2030
  - To manage potential delays
  - Planning for reliability
    - Extended dark calm
    - Operational experience prior to retirement of coal-fired generation
  - Updated renewable power purchase agreement cost estimates
- Reduced cumulative carbon emissions ~5.5%

Resource capacity additions



Average wholesale rate

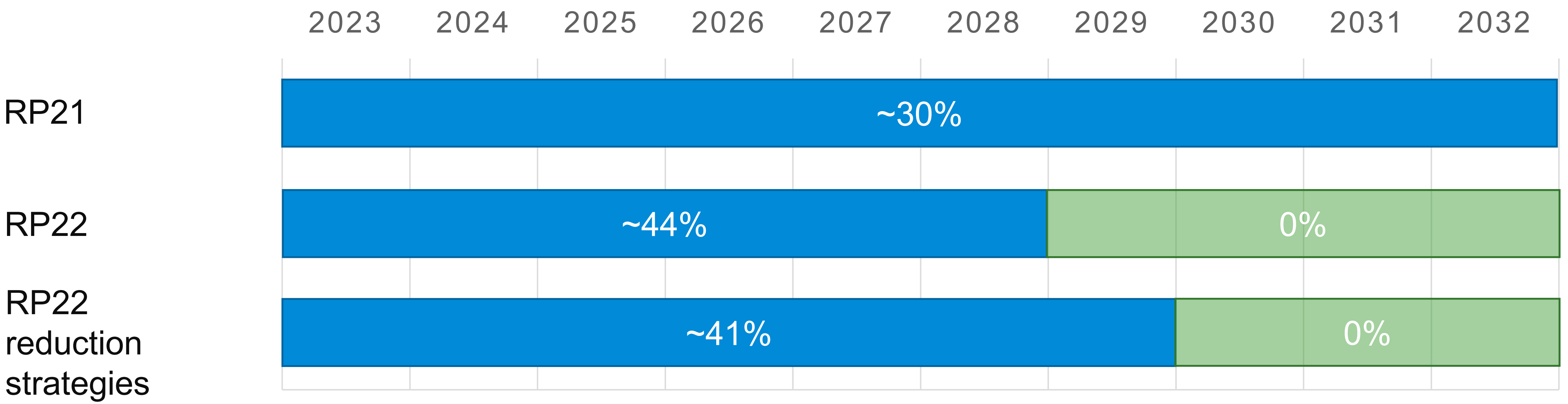
	2023 preliminary budget	2032 cumulative
Base projections 6.3% (2023 - 2028), 0.0% (2029 – 2032)	6.3%	44.3%
Revised recommendation 5.0% (2023 – 2029), 0% (2030 – 2032)	5.0%	40.7%

- Projections increased from 6.1% (presented to Board in May 2022) to 6.3% based on preliminary budget
- Revised recommendation includes rate pressure reduction strategies to smooth rates over a longer period
- Approval requested by board of directors for 2023 rate increase only

	2022 budget	2023 preliminary budget	% change
Average wholesale rate *	$64.63	$67.86	5.0%
Owner community: energy sales (GWh)	3,218	3,301	2.6%
Owner community: revenues (Millions)	$208	$224	7.7%

*Based on projected owner community energy and demand forecasts as well as forecasted intermittent energy production.

Long-term rate pressure reduction strategy



- RP22 creates higher rate pressure over a shorter period followed by a period with no pressure
- Strategies to reduce rate pressure

Change in rate projection

Evolving projections

- 2032: Current projections vs. May 2021 projections
  - Expenses ~16% higher
  - Rates ~8% higher
    - Rates lower due to higher assumed owner community loads partially from beneficial electrification
- Significant assumption updates since May 2021
  - RP22 is provisional resource case following the 2020 IRP, prior to 2024 IRP
  - Asset integration schedule acceleration
  - Renewal resource cost estimates increased
  - Dispatchable thermal firm transportation cost estimates
  - Portion of Rawhide Energy Station’s fixed operations and maintenance expense assumed to continue post coal-fired unit retirement
  - Staffing increased to support organized energy market entry, DER and technology
  - WAPA hydropower energy reduction and rate increase

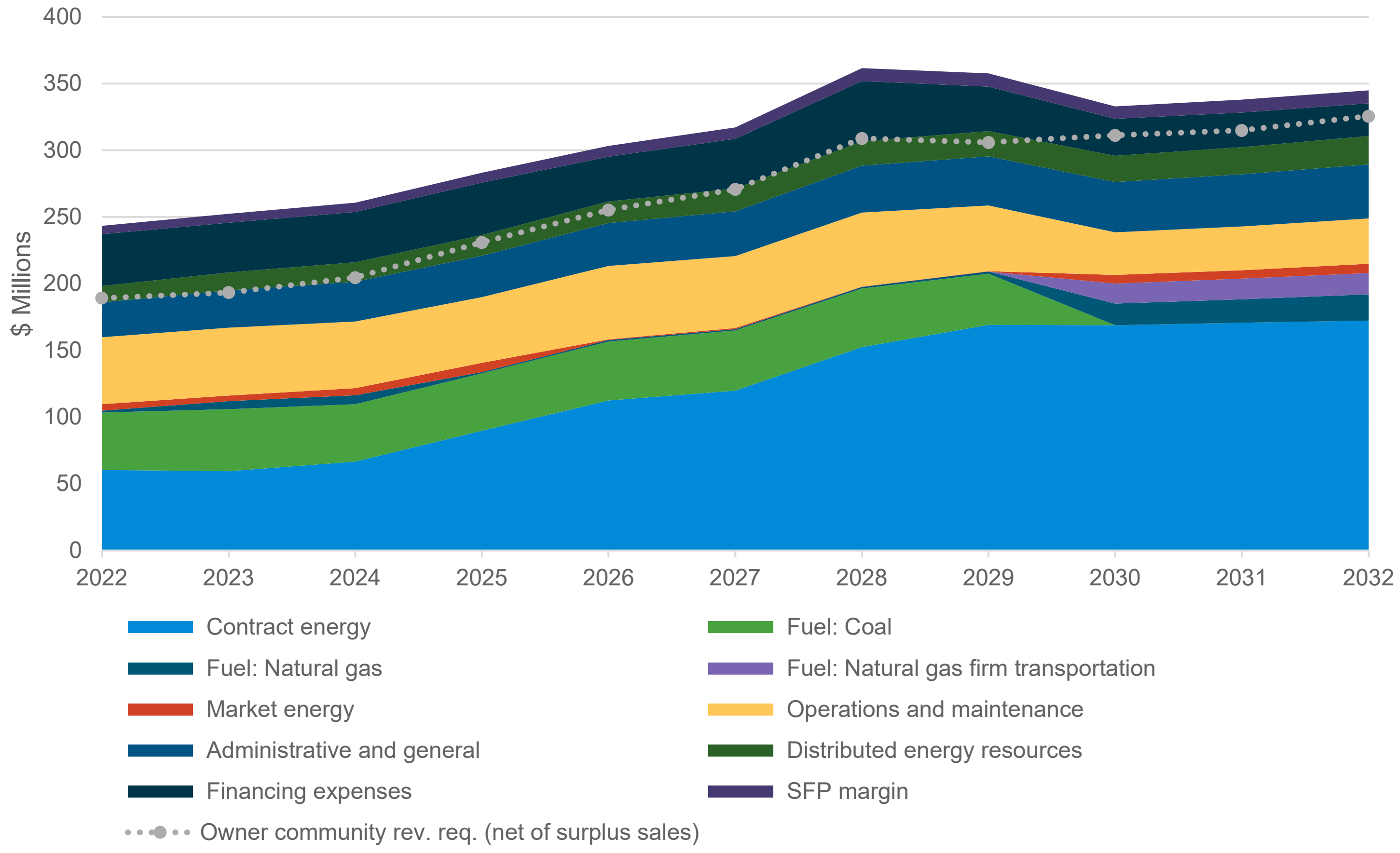
Modeling uncertainties

Potential modeling assumptions changes include, but are not limited to the following (this is why we revisit this multiple times per year and only request direction for the following year, the rest is an indication):

- Asset integration schedule
- Capital forecast
- Coal inventory sales
- Commodity prices
- Decommissioning
- DER strategy
- Economic externalities
- Emissions expense
- Federal hydropower allocations
- Integrated Resource Plan
- Load forecast
- Organized energy markets
- Pandemic
- Resource diversification policy
- Staffing
- Surplus sales

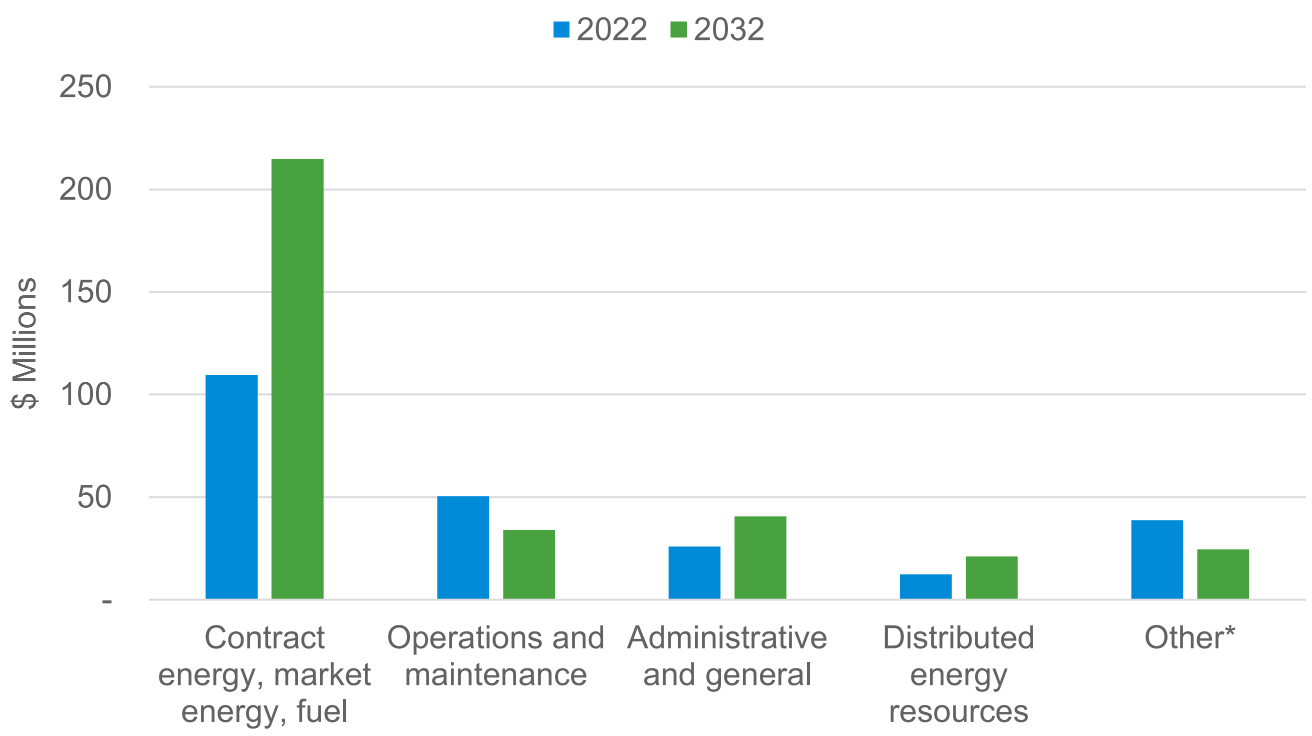
Rate drivers

Owner community revenue requirement



- Owner community revenue requirement is reduced by surplus sales revenue
- Revenue requirement increasing $138 million
  - $103 million, 75%, is cost increase
    - $80 million, 78%, of cost increase due to resource transition (significant risk)
    - $24 million, 22%, of cost increase across multiple cost categories
  - $35 million, 25%, is surplus sales reduction
- ~90% carbon emissions reduction

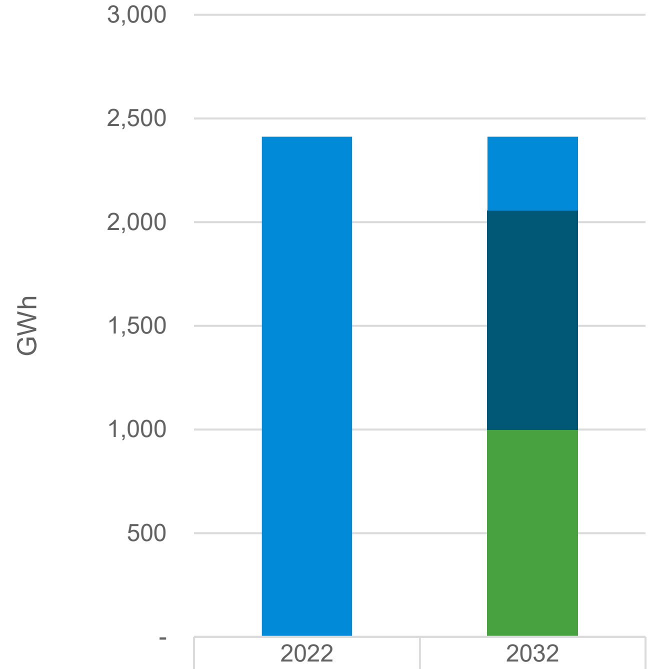
Operating and finance expenses



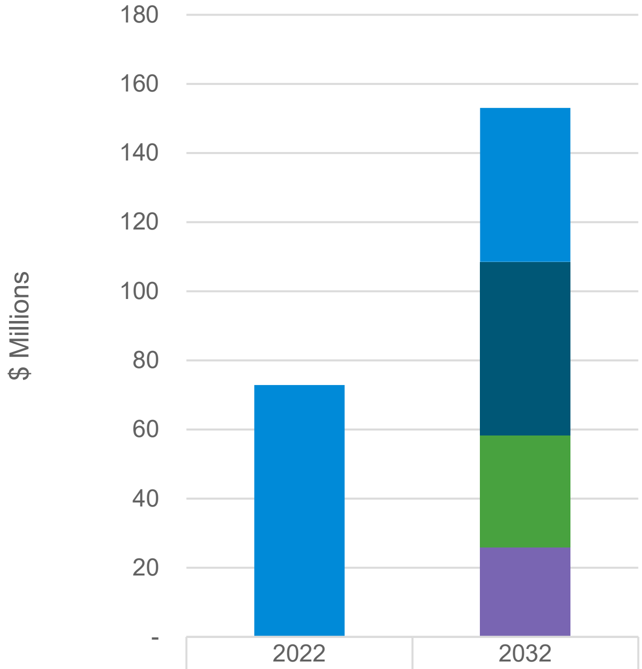
*Other includes depreciation, amortization and accretion, interest expense and other income

- Asset integration schedule and projected cost increases for renewable energy are driving rate pressure

Generation asset transition



	2022	2032
Dispatchable thermal	2,412	357
Wind		1,056
Solar		999
Storage		-



	2022	2032
Dispatchable thermal	$72.9	$44.5
Wind		$50.2
Solar		$32.4
Storage		$25.9

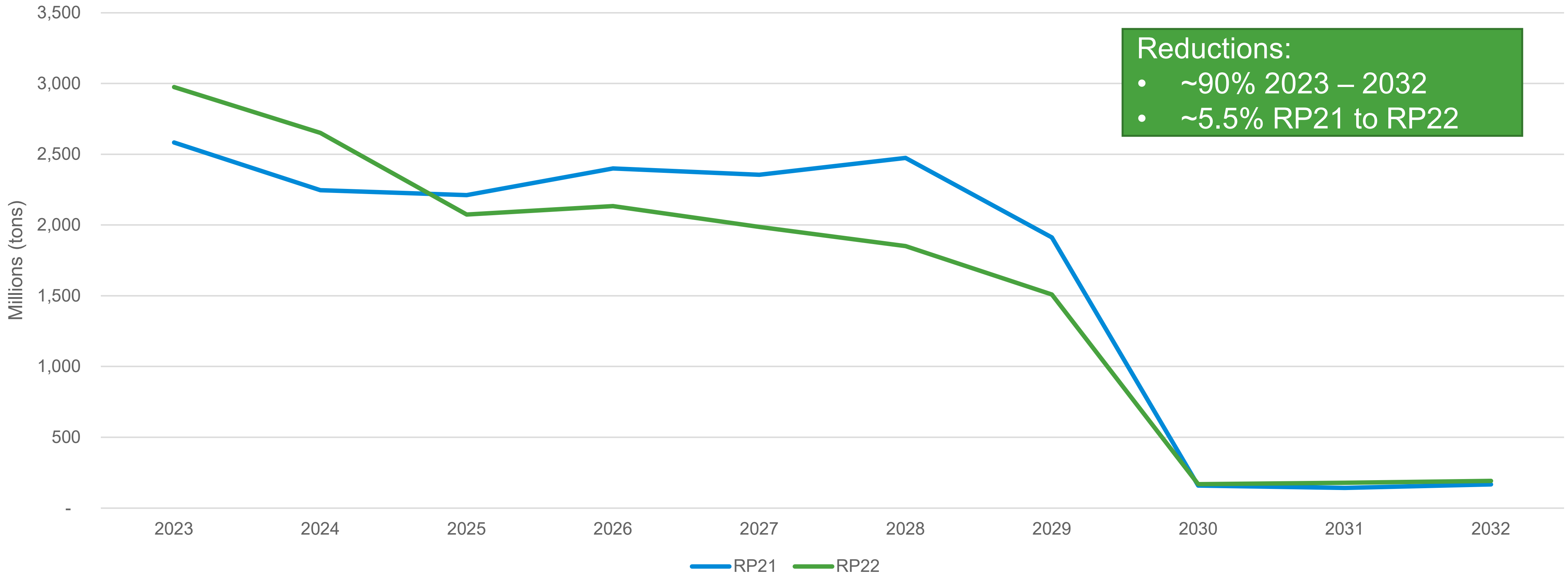
Cost to transition remaining coal generation increasing by $80 million

- 2022
  - 2,412 dispatchable thermal, $30/MWh, $72.9 million
- 2032
  - 2,412 dispatchable thermal, wind, solar, storage, $63/MWh, $153 million
    - 357 GWh dispatchable, $125/MWh, $44 million
    - 1,056 GWh, wind, $47/MWh, $50 million
    - 999 GWh solar, $32/MWh, $32 million
    - Storage, $26 million

New resources have significant cost uncertainty

- E.g., next solar installation is likely to increase ~$7 million per year from current projections

Carbon emissions reduction



Reductions:
- ~90% 2023 – 2032
- ~5.5% RP21 to RP22

Strategies to reduce rate pressure

Strategies to reduce rate pressure

- Strategies to explore
  - Accounting deferral policy
  - Windy Gap water unit sales
  - Prepay power purchase agreements
- Strategies that are not optimal
  - Delay asset integration schedule
  - Ownership vs. power purchase agreements
  - Additional debt financings

Strategies to reduce rate pressure

Strategies to explore

Deferred accounting policy

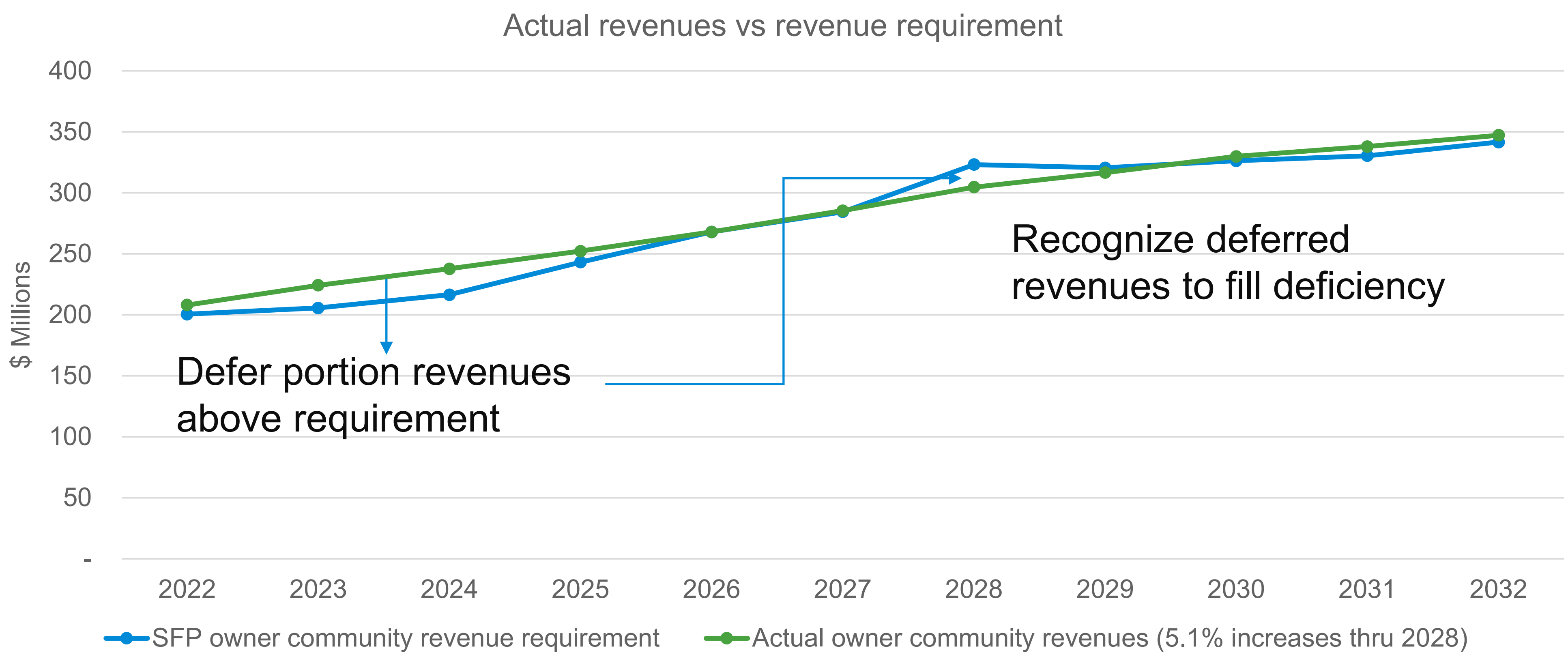
What is an accounting deferral policy?

- Defers a portion of revenues from strong financial years to be recognized in future years when rate pressure occurs
- Defers a portion of expenses during transition period to future years with less rate pressure
- Consistent with other board approved accounting policies that spread costs for rate making purposes
    - Pension contribution expense recognition policy
    - Maintenance outage expense accrual policy

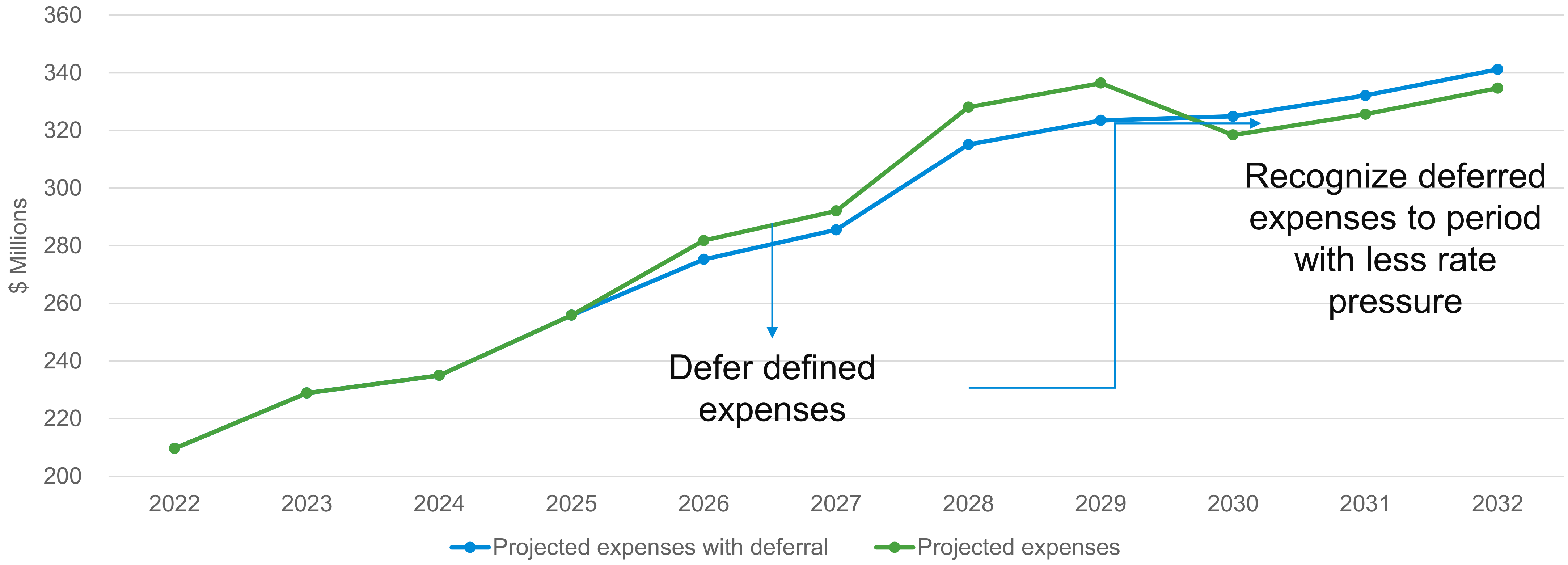
How will it be used?

- To be structured for use only during the resource portfolio transition with flexibility to adapt as the transition plan becomes finalized
- Ensures SFP minimum financial metrics are met
- Purpose is not to avoid needed rate increases but rather to avoid raising rates higher than necessary for years following the generation portfolio transition

Deferred revenue example



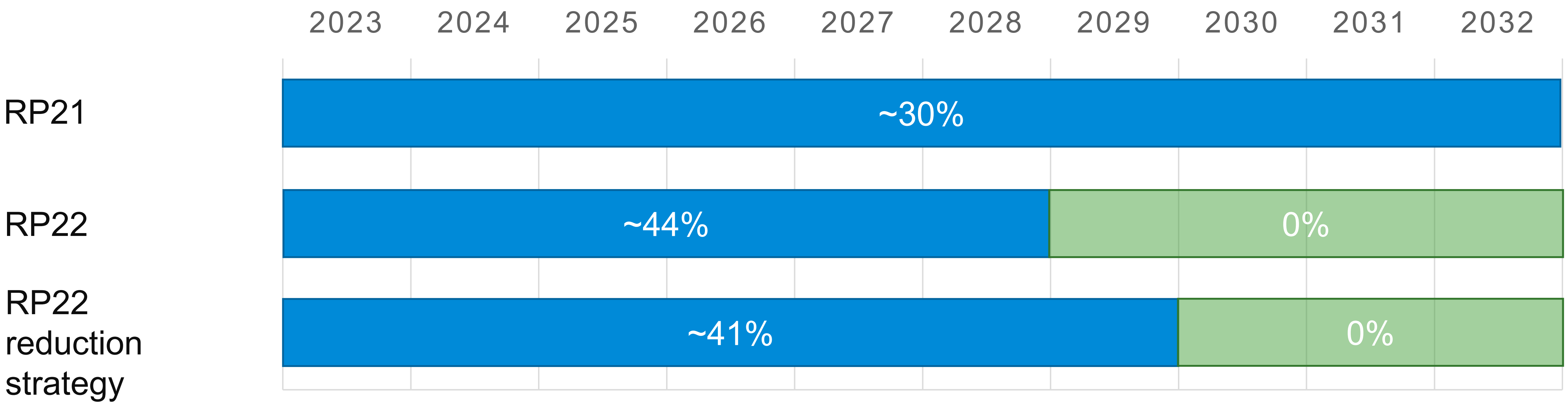
Deferred expenses example



Deferred accounting policy

- Increased rate flexibility and adaptability with evolving asset integration costs and timing
- Reduces rate pressure during the resource transition plan period with greater long-term rate stability
- Aligns with the boards' preference to smooth rates, avoiding significant single year increases
- Lowers total rate pressure, enhancing Platte River's rate competitiveness
- No expected credit rating impact
- Limit deferral of expenses to avoid shifting too much burden to future years
- Lower rates results in lower cash flow, increasing debt issuance

Deferred accounting policy



- RP22 creates more rate pressure over a shorter period; followed by a period with no pressure
- Deferred accounting policy
    - Lowers RP22 rate pressure to 2028 approximately 7% and total pressure approximately 3%
    - Smoother rate trajectory; followed by a period with no rate pressure

Windy Gap water unit sales

- Prior sales already mitigating rate increases
  - *Reduces rates ~5%*
- Total proceeds of $102.9 million received
  - 2023 – 2029 $11.0 million gain recognized annually, incorporated into projections
  - Increases cash reserves, lowering future debt requirements
  - 50 units sold of 60 units available to sell
- Potential 2022 sale of five units
  - Proceeds would be factored into projections
  - Cash from sale will facilitate financing resource additions, reducing debt issuance projections, positively impacting rates

Prepay power purchase agreements

- Based on natural gas prepay structures
- Estimated savings ~7% of purchase power agreement, however
  - Long-term benefits unknown at time of agreement (resets periodically)
  - Power purchase agreement term and prepayment term do not align
    - Risk of prepayment agreement without a power purchase agreement
- Rate impact, and resulting savings, dependent on quantity of prepay structured renewable contracts
- Additional analysis and legal review required

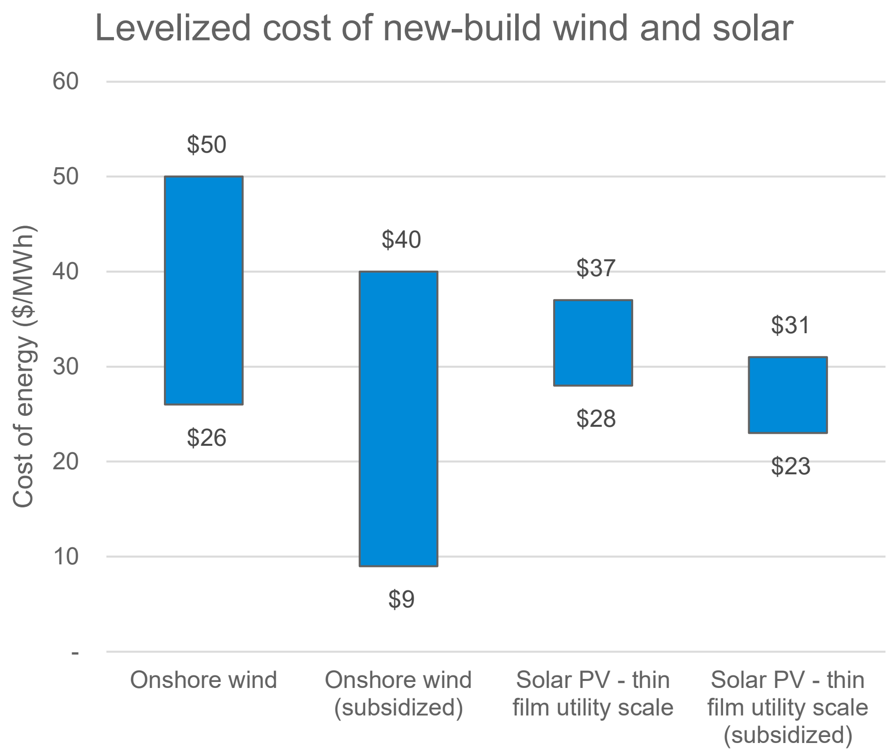
Strategies to reduce rate pressure

Strategies that are not optimal

Delay asset integration schedule

- Significant cost increases projected in 2027 ($8.4 million) and 2028 ($26.0 million) as renewable and storage resources are added
- Modeled costs could be updated to integrate resources later (mid 2028 or 2029)
- Asset integration schedule timing is based on enhancing reliability and reliability is at risk if the integration schedule is changed
    - Accounting deferrals also shift expenses without impacting reliability
- Annual rate projections will change but total rate pressure of resource transition is not impacted

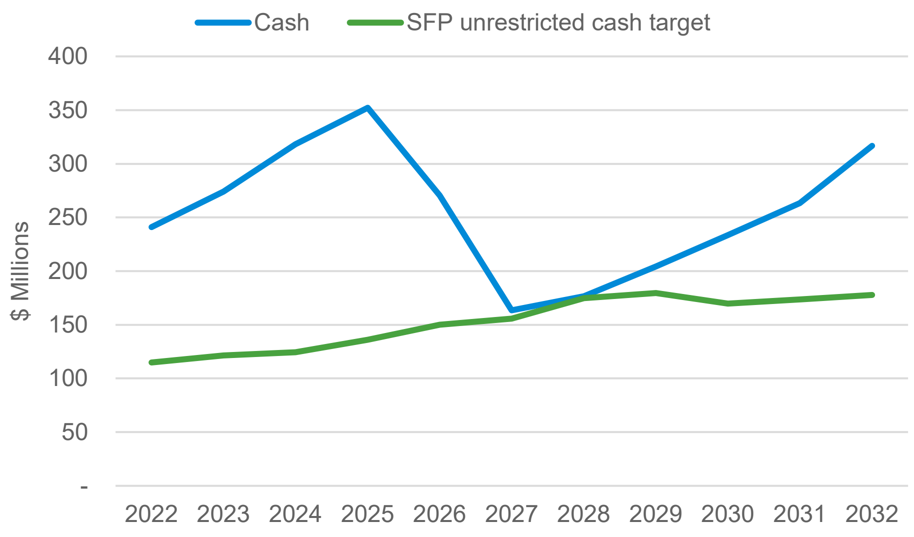
Ownership vs. power purchase agreements

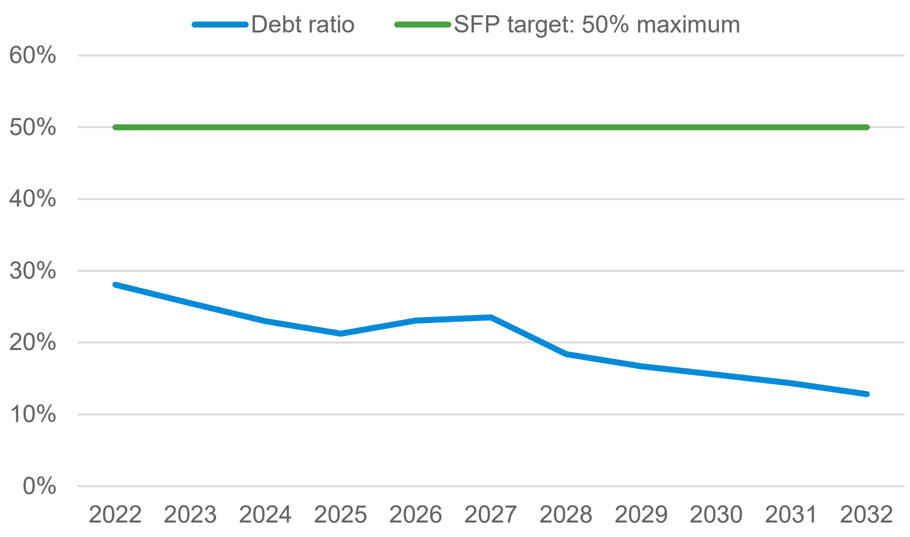


Source : Lazard's levelized cost of energy analysis—version 15.0, 28th October 2021

- Independent Power Producers and Investor Owner Utilities can utilize accelerated depreciation and federal tax subsidies to lower costs 15-20%
- Renewable developer's competitive advantage with EPC costs, manufacturing, and O&M is confidential information
  - Cost savings vary by developers, approximately 5-10%.
- Renewable developers pass along a portion of these advantages in PPA pricing to be competitive.

Cash and debt





- SFP provides structure to balance cash and debt to finance dispatchable resources, transmission and other capital investments
- Ability to issue more debt, but does not provide rate relief rather creates more rate pressure

Recommendation

- Implement deferred accounting policy
- 5.0% rate increase for 2023
  - Long-term projections: 5.0% 2023 – 2029, 0.0% 2030 – 2032
  - Significant changes to long-term projections are likely
- Ongoing activities
  - Update resource plan and rate forecast annually (continuously evolving)
    - Continued DER collaboration among Platte River and the owner communities
  - Continue to evaluate options to reduce rate pressure
    - Windy Gap water unit sales
    - Prepaid power purchase agreements

Questions

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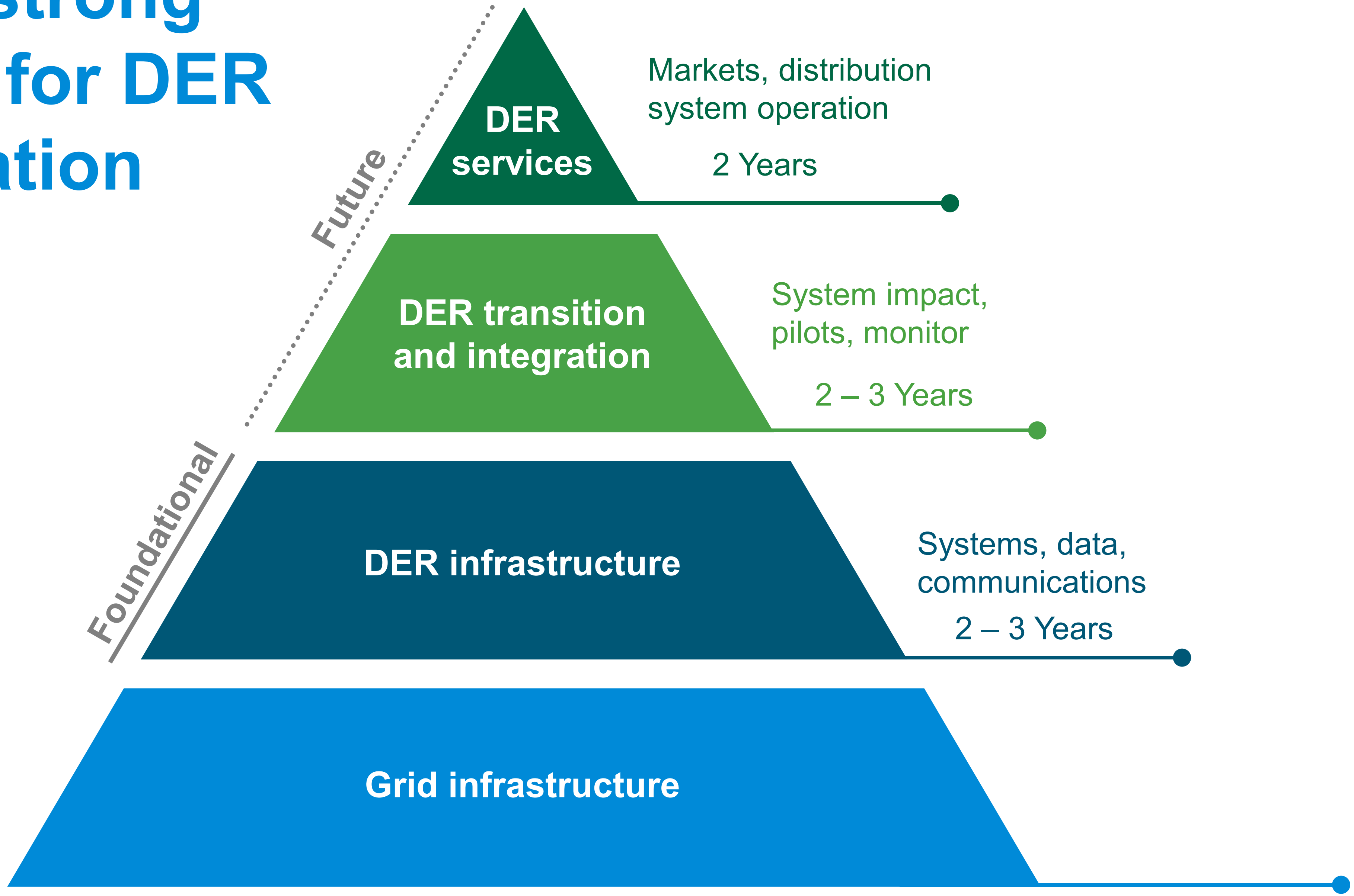
Foundational DER implementation

Raj Singam Setti, chief transition and integration officer

Building a strong foundation for DER implementation



Implementation objectives

Objective 1:

Utility data and telemetry

- Meter infrastructure (AMI)
- Meter data management system (MDMS)
- Real Time Data communications, quality, and cybersecurity

Objective 2:

Process and integration

- DER checklist
- DER Interconnection
- Compensation & rates

Objective 3:

DER enabling system

- Operational technologies (OT)
- Advanced Distribution management system, Energy management system (ADMS/EMS)
- Distributed energy resource management systems (DERMS)

Objective 4:

Customer centric engagement

- Customer value proposition
- Customer adoption modeling
- Customer programs, energy community

Objective 5:

Enhanced situational awareness

- Monitor and control
- Grid constraints
- Reliability

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Market selection

Melie Vincent, chief operating officer

Agenda

- Market options evaluated
- Key aspects
- Southwest Power Pool Western Energy Imbalance Service (SPP WEIS)
- SPP Markets+ and the Western Markets Exploratory Group (WMEG)
- Southwest Power Pool Regional Transmission Organization West (SPP RTOW)
- Market option comparisons
- Markets timeline

Market options under consideration

- SPP WEIS
  - Platte River committed to join in April 2023
- SPP Markets+ and WMEG
  - Market formation and pricing discussions are ongoing
  - Unknown if or when this would become a viable market option
- SPP RTO West
  - Platte River could join April 2025

Key aspects of long-term market solution

- Generator unit commitment
- Regional transmission planning
- Optimal dispatch of available resources
- Large geographic footprint to ensure intermittent resources are efficiently dispatched
- Regional entity responsible for reliability
- Market products that enable appropriate monetization of resource assets, including DER
- Robust and effective governance structure

Comparison of market services and products

Key aspects	SPP WEIS	SPP Markets+	WMEG	SPP RTOW
Generator unit commitment	None	Likely	Likely	Yes
Optimal dispatch of available resources	Only online resources in real-time (RT)	Day-ahead (DA) transmission (XMSN) compensation may result in diverging day-ahead and real-time market prices	DA XMSN compensation may result in diverging day-ahead and real-time market prices	Yes, in both DA and RT
Congestion hedging	None	Likely RT only	Likely RT only	Yes
Optimization of ancillary services	None	Unknown	Unknown	Yes
Regional transmission planning	None	Unlikely	Unlikely	Yes
Large geographic footprint to ensure efficient dispatch of intermittent resources	Limited footprint	Unknown	Unknown	Limited footprint
Regional entity responsible for reliability	None	Unlikely	Unlikely	Yes

Comparison of market key risks

Key risks	SPP WEIS	SPP Markets+	WMEG	SPP RTOW
Long-term certainty	• SPP Markets+ or WMEG may replace WEIS	1. SPP Markets+ may not materialize 2. Could be replaced by an RTO market	1. WMEG may not materialize 2. Could be replaced by an RTO market	1. WAPA needs to join and remain a XMSN owning member (TOM) 2. Long-term success depends on attracting additional TOMs 3. Provides greater certainty and optionality for resource planning
Operational concerns	1. Interim solution only 2. Does not provide a path to a full RTO	1. Interim solution only prior to an RTO 2. New market with new processes and systems	1. Interim solution only prior to an RTO 2. New market with new processes and systems	• Others may join RTOW under more favorable terms in the future
Platte River's share of market start-up costs	• Given the elimination of JDA, Platte River is committed to join SPP WEIS by April 2023	1. Share of market start-up likely \$2-4M, assuming 20-30 GW of load joins 2. Additional internal costs to allow participation 3. Additional start-up and internal costs to join RTO in the future	1. Share of market start-up likely \$2-4M, assuming 20-30 GW of load joins 2. Additional internal costs to allow participation 3. Additional start-up and internal costs to join RTO in the future	• Market start-up costs will not result in a separate fee to RTOW participants, as such costs will be recovered by SPP in admin fees
Exit fees to join a more favorable market	• None, with a two-year commitment	• Likely required to provide notice and pay unamortized start-up costs	• Likely required to provide notice and pay unamortized start-up costs	1. Likely required to provide notice and pay \$4.7M share of start-up costs, upon exit 2. Required to negotiate and pay an appropriate share of future transmission projects which were approved prior to Platte River exiting RTOW

Market option comparison – costs

Estimated annual cost savings	SPP WEIS (Xcel Energy BA)	SPP Markets+	WMEG	SPP RTOW**
Incremental transmission costs (savings)	$0			($3,666,162)
Schedule 1 (scheduling & dispatch)	$319,003			$319,003
Schedule 3 (regulation & frequency)	$1,002,641			$1,002,641
Schedule 5 (spinning reserves)	$994,694			$994,694
Schedule 6 (operating reserves)	$255,436			$255,436
Schedule 16 (flex reserves) (*)	$2,354,306			$-
Total	$4,926,080			($1,094,388)

* Flex reserves annual cost based on 2022 FERC settlement less $500,000 per year savings resulting from self-supply

** For purposes of this comparison, SPP RTO West Schedule 1, 3, 5, 16 & 16 charges are assumed equal to SPP RTO charges

SPP RTOW

Benefits

- SPP WEIS, SPP Markets+ and WMEG benefits
- Centralized transmission planning
- Proven market rules and processes used in other RTOs
- Greater certainty when planning for future resources
- Expands options for placement of future Platte River resources

Limitations

- 100% of the cost of new transmission facilities greater than 300 kV is allocated on a load ratio share basis
- 33% of the cost of transmission facilities ranging between 100 kV and 300 kV are allocated on a load ratio share basis
- Generator interconnection and firm transmission service requests will be performed by SPP, and Platte River would have little, if any, influence on the schedule to evaluate these requests
    - Possible mitigation: Interconnection requests in Platte River's queue prior to joining an RTO would continue to be evaluated by Platte River

Markets integration timeline

Timeline	Task
Q1 2022	• Platte River, PSCo and BHE committed to join SPP WEIS
Q3 2022	• Review draft service offering of SPP Markets+ and WMEG • Review cost/benefit studies of various markets • Select preferred market option
Q2 2023	• Begin participating in SPP WEIS • Financially commit to join SPP RTOW
Q2 2025	• Begin participating in SPP RTOW
Q1 2028	• Earliest time SPP Markets+ or WMEG would be operational

Key points

- SPP WEIS is a real-time only market that will serve as a bridge market solution to a full RTO
- Platte River intends to financially commit to SPP RTOW in early 2023
- Staff expects SPP RTOW will result in significant transmission and ancillary service cost savings
- Committing to SPP RTOW will create certainty for Platte River resource planning, DER development and transmission investment decisions, a critical aspect of the Resource Diversification Policy
- Staff will review market mechanisms, opportunities and hedging strategies unique to RTO participation with the board in future meetings.

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May and June operational results

Category	May variance		June variance		YTD variance	
Owner community demand	1.6%	◆	6.4%	●	4.2%	●
Owner community energy	(1.2%)	◆	2.0%	◆	0.5%	◆
Wind generation	18.7%	●	14.8%	●	8.6%	●
Solar generation	2.8%	●	9.7%	●	8.7%	●
Net variable cost to serve owner community load*	30.3%	●	29.1%	●	10.3%	●

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

*Total resource variable costs plus purchased power costs less sales revenue

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Financial summary

Category	May variance from budget ($ in millions)	June variance from budget ($ in millions)	Year to date variance from budget ($ in millions)
Net income *	$2.5 ●	$2.8 ●	$6.1 ●
Fixed obligation charge coverage	.61x ●	1.37x ●	.56x ●
Revenues	$2.0 ●	$2.5 ●	$6.5 ●
Operating expenses	$(0.1) ◆	$1.2 ●	$3.9 ●
Capital additions	$0.8 ●	$1.4 ●	$12.6 ●

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

* Net Income results impacted by unrealized losses on investments, $0.7 million in April and $3.9 million year to date

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