



Updates to Electric Avoided Costs for Use by Energy Trust Docket No. UM 1893

**Peter Kernan
April 4, 2024**



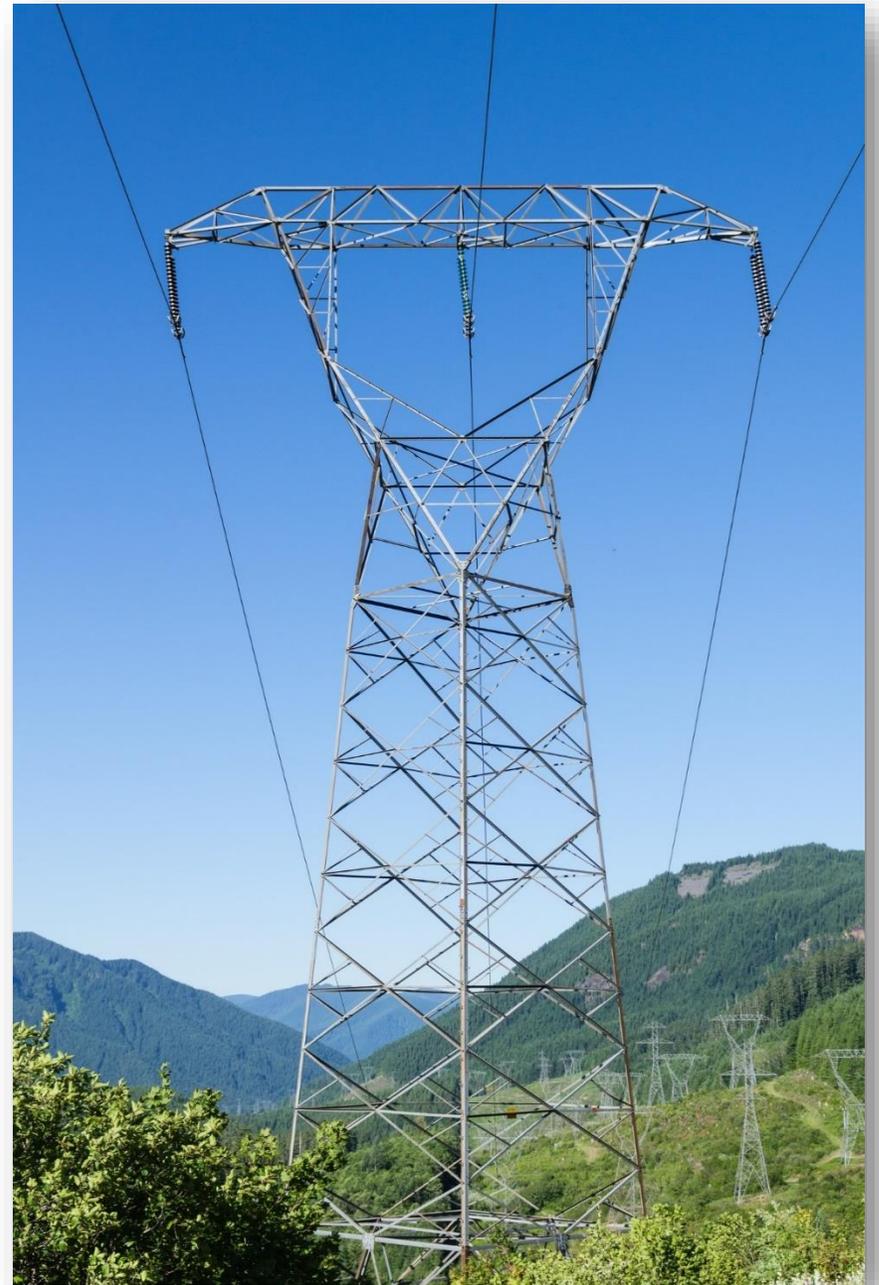
Agenda

Time	Topic
2:00	Welcome and introductions
2:10	Background and context
2:35	Energy Trust Presentation: First look at 2025 electric avoided costs
3:20	Additional discussion and next steps

Operating Agreements

- Be energy efficient: Allow room for multiple perspectives. Leave time for everyone
- Stay engaged (connected) without tripping the circuit breaker (don't overheat)
- Consider environmental conditions (mute when not speaking)
- Seek understanding (listen to understand, not to respond)
- Group norms (suggestions from participants)

Introductions

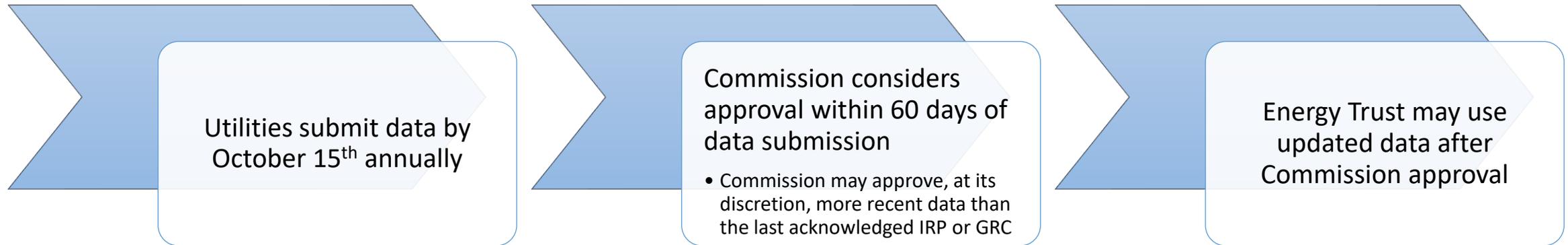


What are avoided costs?

The costs a utility would otherwise pay to provide energy through utility supply side resources and delivery infrastructure if demand side energy resources, such as energy efficiency, were not implemented.

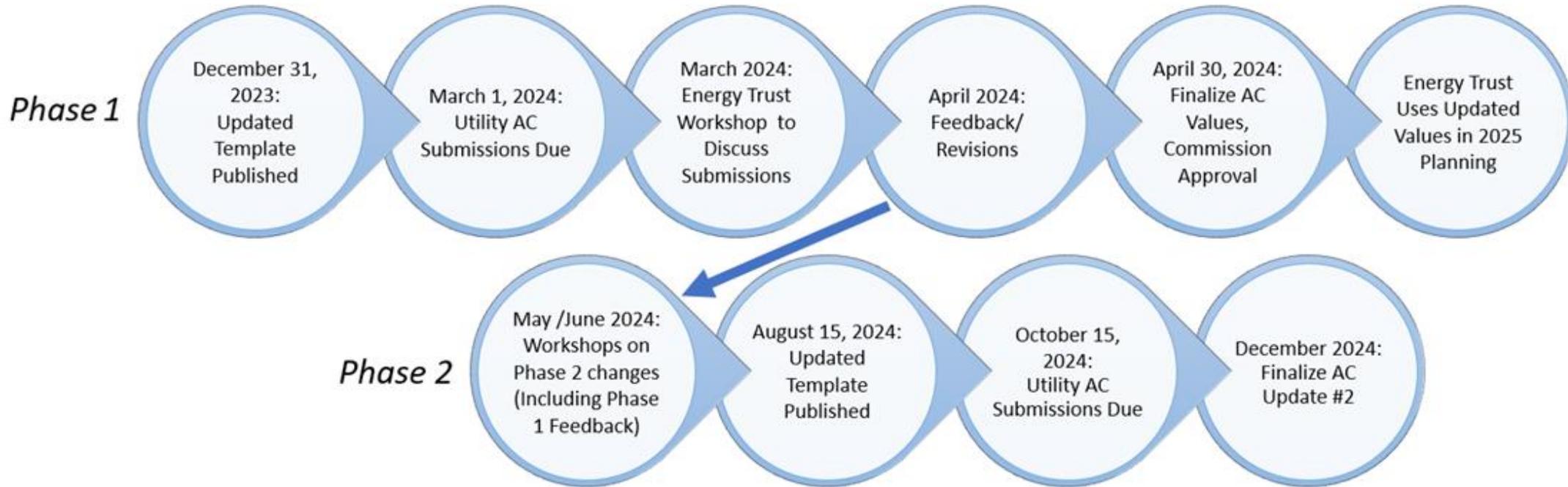
What is the standard process?

EE avoided costs are updated annually



Updating Avoided Costs in 2024

Two Phases



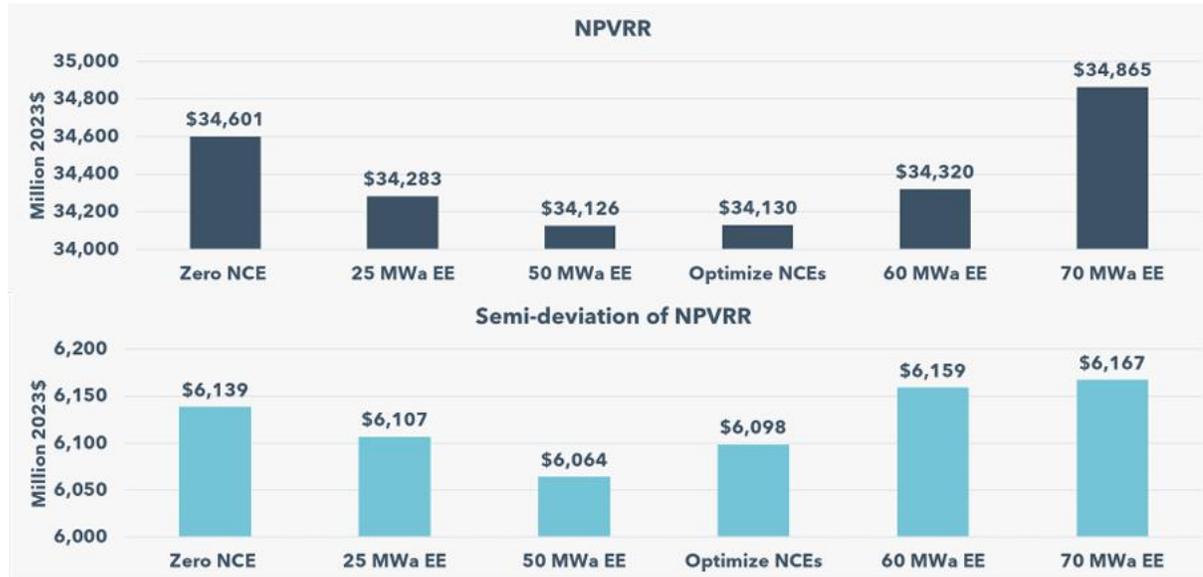
Why the 2023 delay and two-step process in 2024?



2023 Integrated Resource Plans

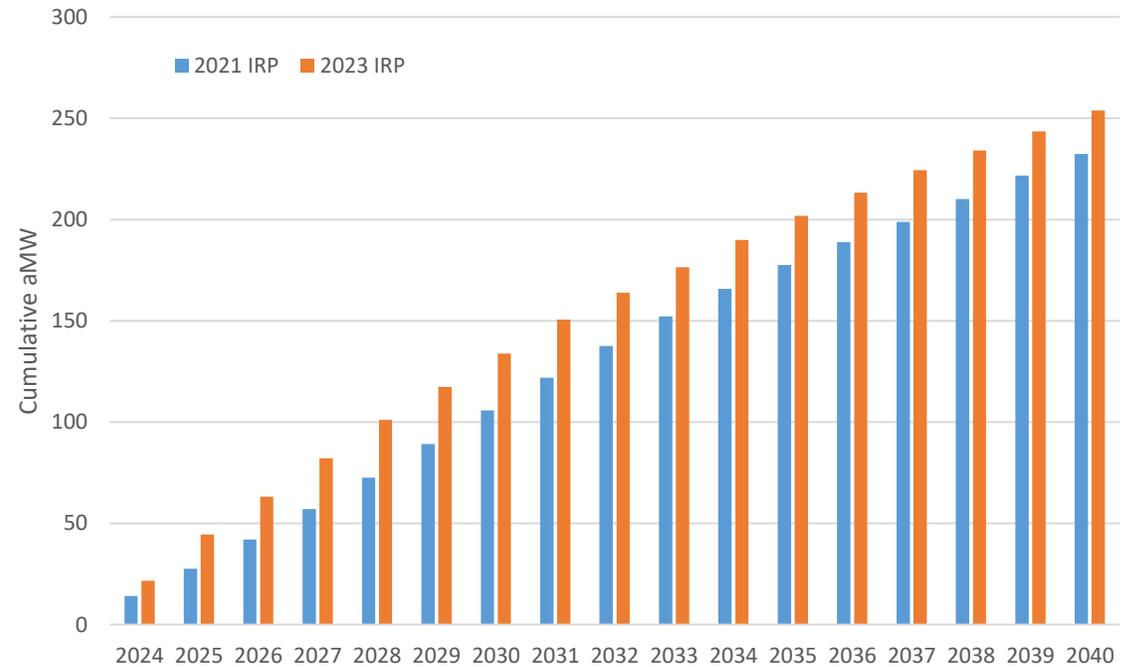
Clear signal that additional EE is part of least-cost portfolios

Figure 92. Cost and risk metrics of EE&DR portfolios

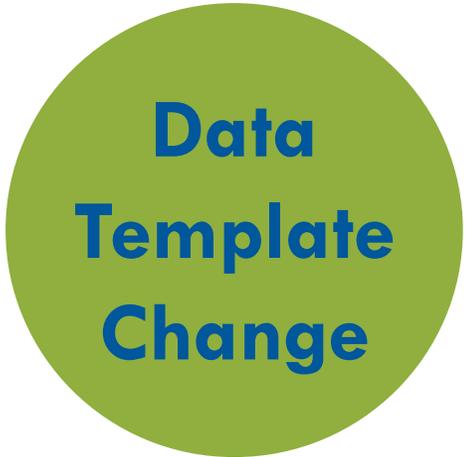


Source: PGE's 2023 Clean Energy Plan and Integrated Resource Plan, p. 276, <https://edocs.puc.state.or.us/efdocs/HTB/lc80htb8430.pdf>.

PacifiCorp's Preferred Portfolio Oregon EE Acquisition



Source: Staff comments on PacifiCorp's 2023 Clean Energy Plan and Integrated Resource Plan, p. 56, <https://edocs.puc.state.or.us/efdocs/HAC/lc82hac144131.pdf>. Data from Appendix D of Amended IRP Volume II filing.



**Data
Template
Change**

**Avoided Energy
Cost**

Rationale for seeking new data:

- **Low forward market prices from IRPs were not aligned with IRP signal for additional EE.**
- **IRP discussion that forward market prices may not capture the value of avoided energy.**
- **Opportunity for utilities to provide new data for conversation.**



EE Avoided Cost Modernization

List of Potential Topics:

- **Cost of Clean Energy**
- **Capacity Valuation**
- **Non-Energy Benefits**
 - Social cost of carbon
 - Health benefits
 - Arrearage relief
- **Other Potential Avoided Cost Streams**
 - Small scale renewable requirement of HB 2021
 - Planning reserve margin requirements
- **Others?**

Goals for 2024

- Recommend updated EE avoided costs at the April 30th Public Meeting
 - Include more recent data than the last EE avoided cost update (Q4 2022)
 - Directionally align avoided costs with the 2023 IRP signal
- Conduct Phase II to explore new planning and valuation considerations due to HB 2021

- What questions are there about the values presented?
- Does anything stand out which you think Staff should investigate?
- Are there alternate numbers to which Staff should give particular attention?

Questions for Consideration



Overview of 2025 Draft Avoided Costs for Oregon

UM 1893 Workshop Presentation

April 4, 2024



Draft Electric Avoided Cost Updates

Key Components of Electric Avoided Costs

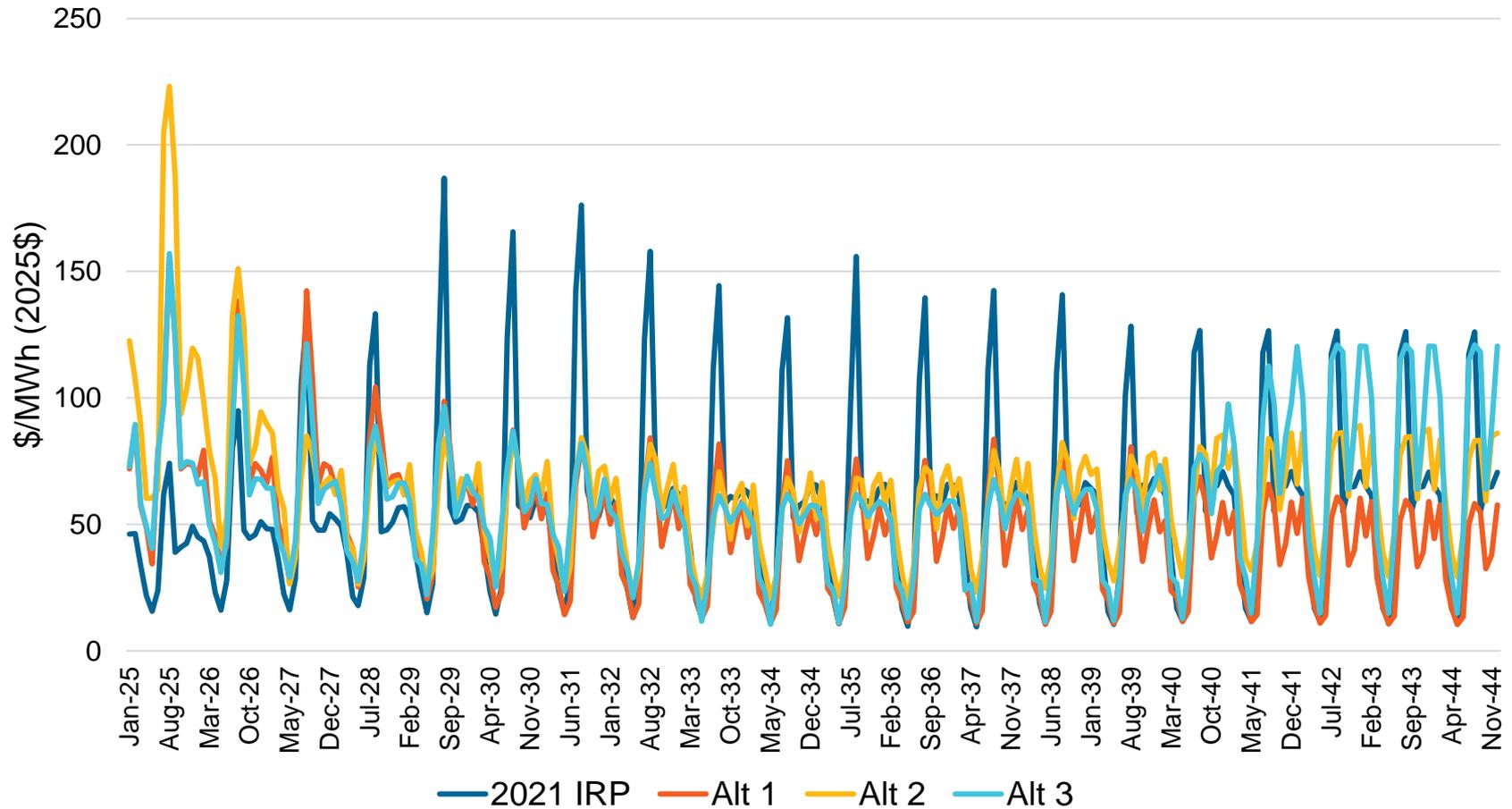
1. Energy Price Forecasts
 - Forward market prices
 - Avoided energy forecast
2. Avoided Transmission & Distribution (T&D) deferral value
3. Avoided generation capacity deferral value
4. Regional 10% conservation credit
5. Utility risk reduction value

Forward Price Summary

Utility	Scenario	Description	HLH 2025-44		LLH 2025-44	
			Mean	Range	Mean	Range
PAC	2024	Values used in 2024 Avoided Costs	33.92	81.00	35.72	57.19
	2021 IRP	Medium Gas, Medium CO2 electricity market prices used in 2021 IRP	58.02	177.44	38.48	51.36
	Alt 1	Medium Gas, Medium CO2 electricity market prices used in 2023 IRP	49.82	146.08	49.83	74.57
	Alt 2	Medium Gas, Zero CO2 electricity market prices used in Standard QF Pricing effective 9/22/23	63.77	203.92	58.80	83.28
	Alt 3	Avoided Energy Submission. LMP values from 2023 IRP. Starting in 2030, LMPs adjusted to reduction target under HB2021, 80% in 2030 rising to 100% in 2040.	59.65	146.55	65.98	123.10
PGE	2024	Values used in 2024 Avoided Costs	51.43	52.55	49.57	50.43
	2023 IRP	PNW Wholesale Electricity Prices modeled in the 2023 IRP	24.93	30.30	24.86	24.56
	Alt 1	Avoided Energy Submission. Renewable Solar Qualified Facility filed via Docket No. UM 1728	20.84	174.99	13.72	106.76
	Alt 2	2025-2028: operational forward curve 2029: interpolation 2030: IRP long-term fundamental energy forecast	40.08	219.83	34.86	118.40

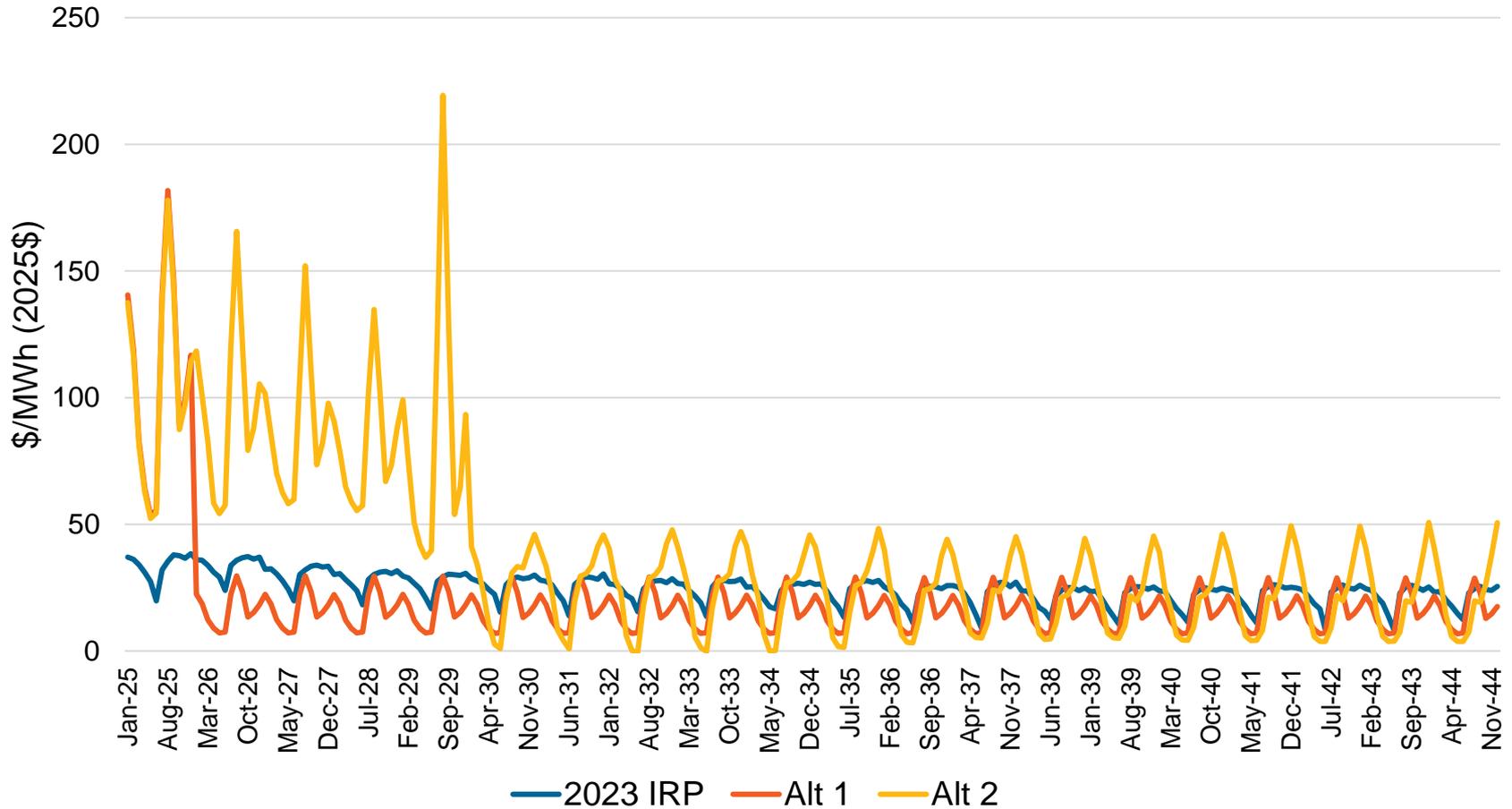
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PAC HLH Forward Price Comparison

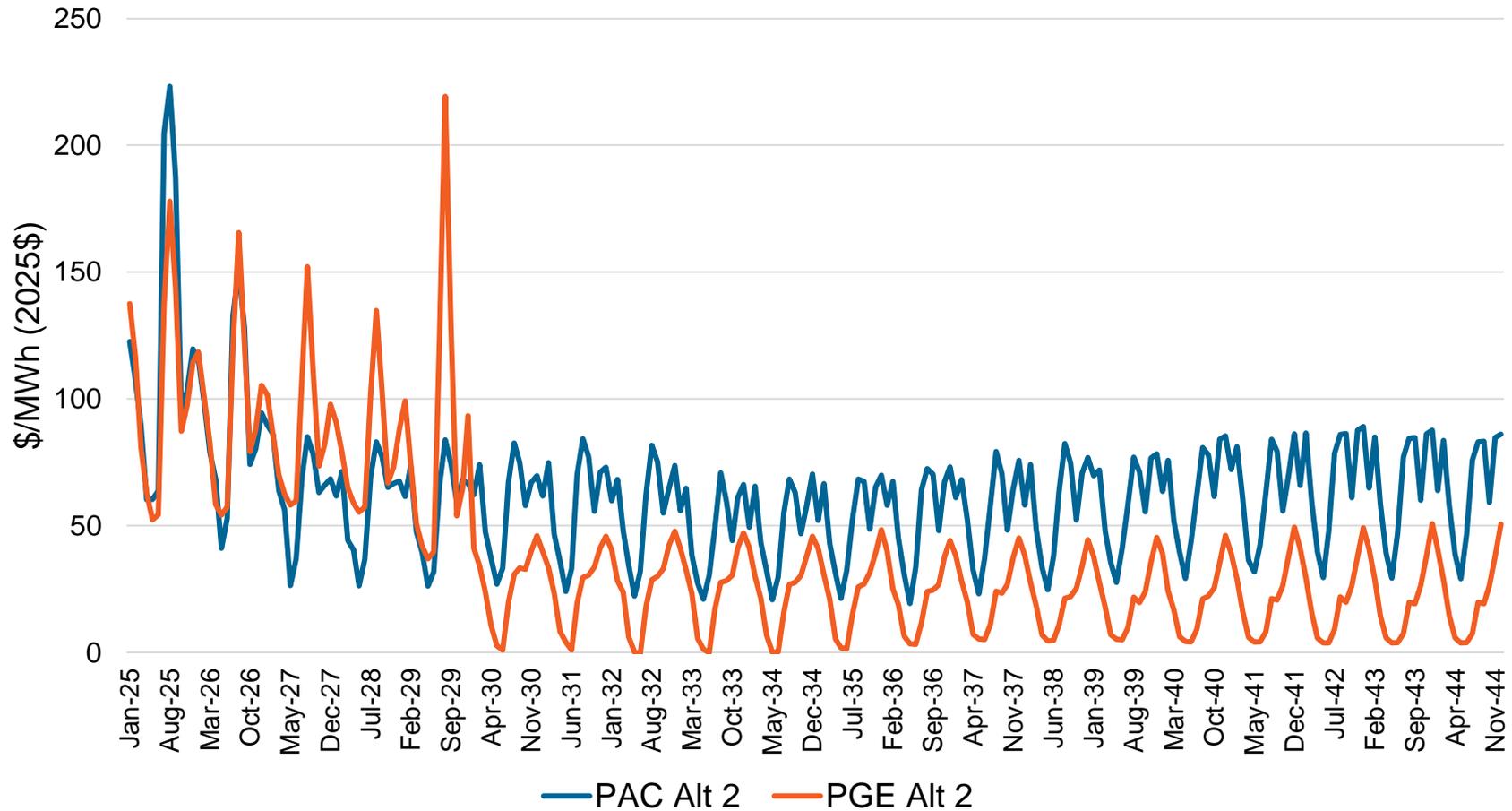


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PGE HLH Forward Price Comparison

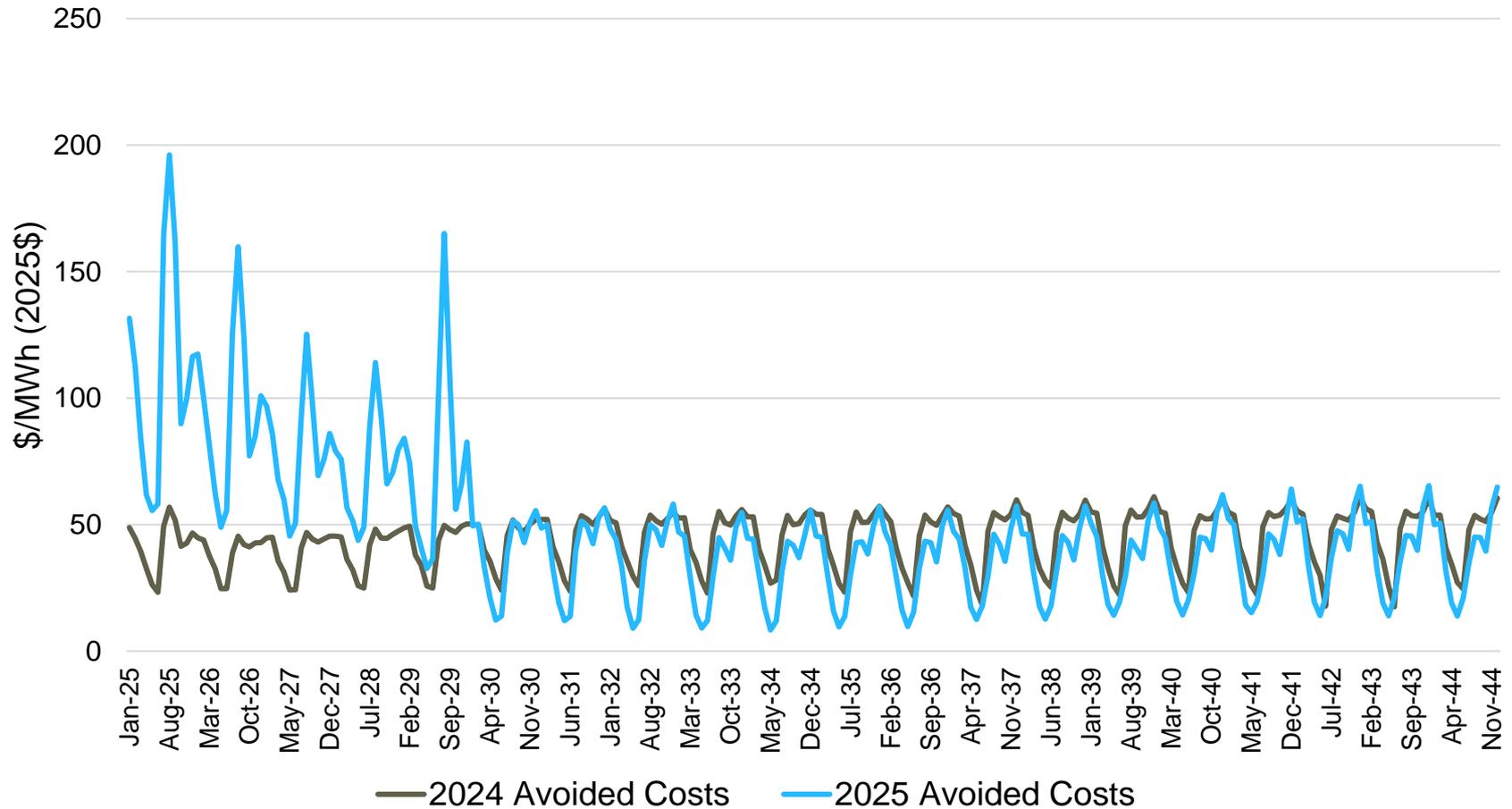


Electric Utility HLH Forward Price Comparison for 2025 Avoided Costs



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Blended High Load Hours Forward Price Comparison



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Electric Transmission and Distribution Capacity Deferral Value

- Blended values selected for draft calculations
 - Transmission deferral value went up 45% compared to 2024 avoided costs.
 - Distribution deferral value went down 3% compared to 2024 avoided costs.

Transmission Deferral Value (2025 \$/kW-yr)

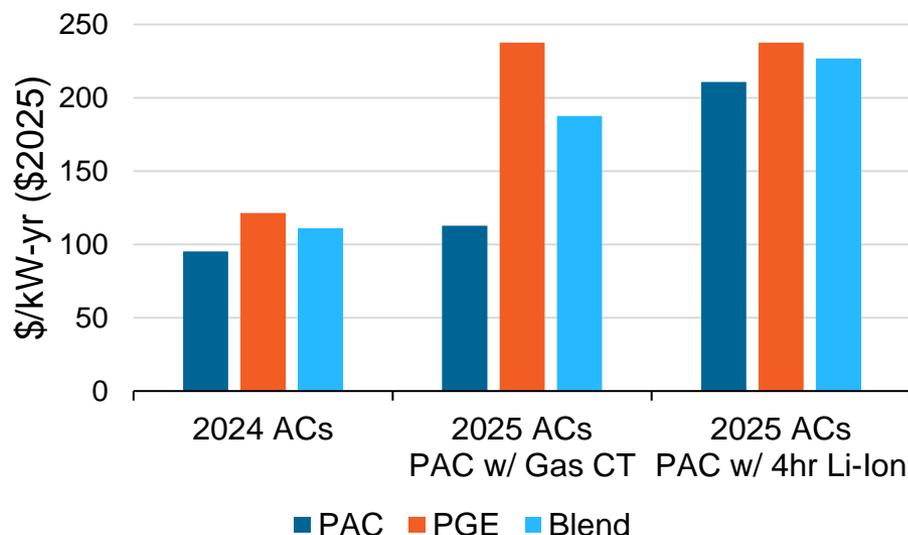
	2024 Avoided Costs	2025 Avoided Costs	% Change
PAC	7.05	5.44	-23%
PGE	59.44	89.17	50%
Blend	38.48	55.68	45%

Distribution Deferral Value (2025 \$/kW-yr)

	2024 Avoided Costs	2025 Avoided Costs	% Change
PAC	14.89	11.19	-25%
PGE	15.78	17.57	11%
Blend	15.42	15.02	-3%

Electric Generation Capacity Deferral Value

- PGE's generation capacity value increased 96%
 - 2023 IRP net cost of capacity of 4-hr Li-Ion battery
- Two options in consideration for PAC based on marginal resource
 - Gas combustion turbine – 18% increase over 2024 ACs
 - 4-hr Li-Ion battery – 121% increase over 2024 ACs
- Blended value increases 69% with gas CT and 104% with battery, relative to 2024 Blend



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Risk Reduction and NW Power Act Credit

- Blended risk reduction decreased by 16% relative to 2024
 - Value in PAC's 2023 IRP is 39% lower
- NW Power Act Credit adds 10% to all values
 - In 2025 Avoided Costs, 10% adder now applied to Risk Reduction value per Northwest Power and Conservation Council methodology

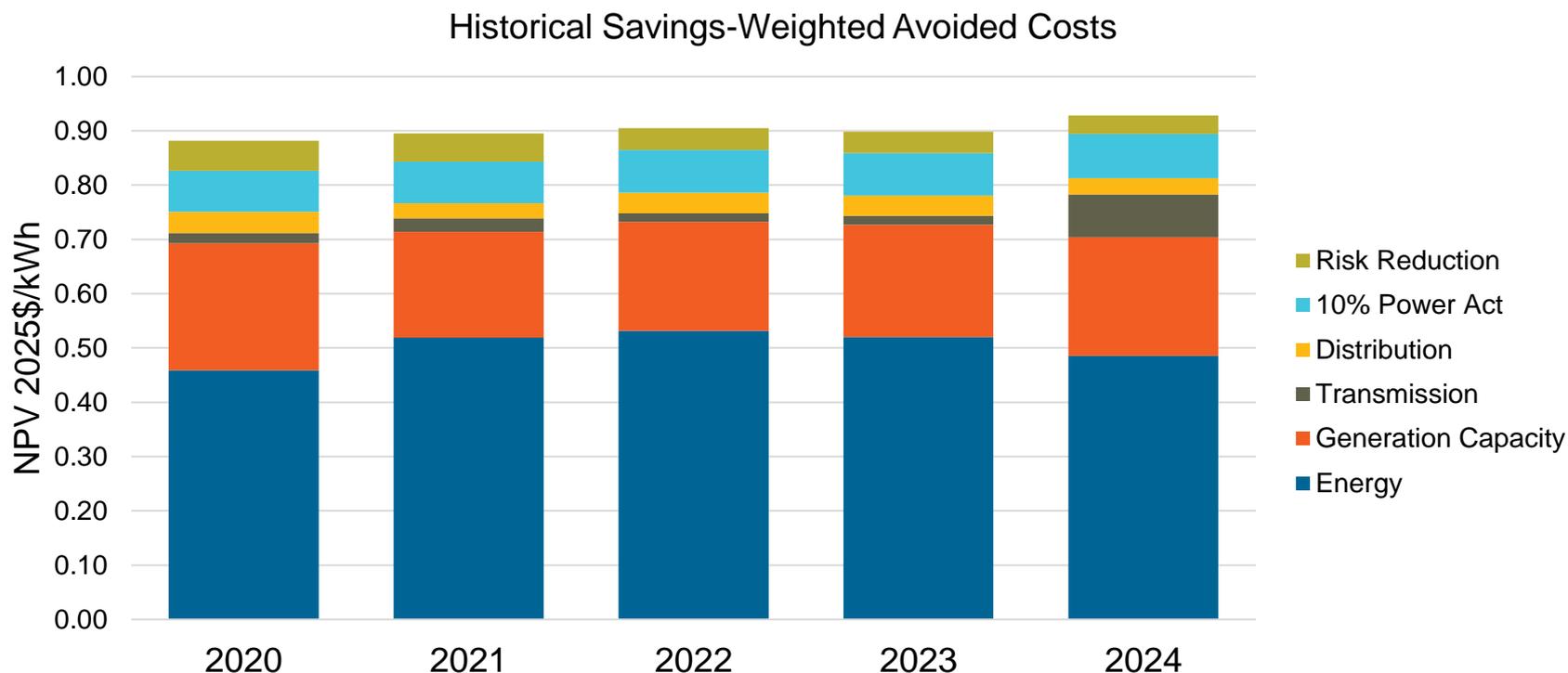
Risk Reduction Value (2025 \$/MWh)

	2024 Avoided Costs	2025 Avoided Costs	% Change
PAC	3.32	2.01	-39%
PGE	3.32	3.33	0%
Blend	3.32	2.80	-16%

Impacts of Updated Avoided Costs

Historical Electric Avoided Costs

- Savings-weighted average avoided costs have remained relatively constant
- 2020 to 2024 saw a 5% increase in real terms



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Comparison of Electric Avoided Cost Inputs

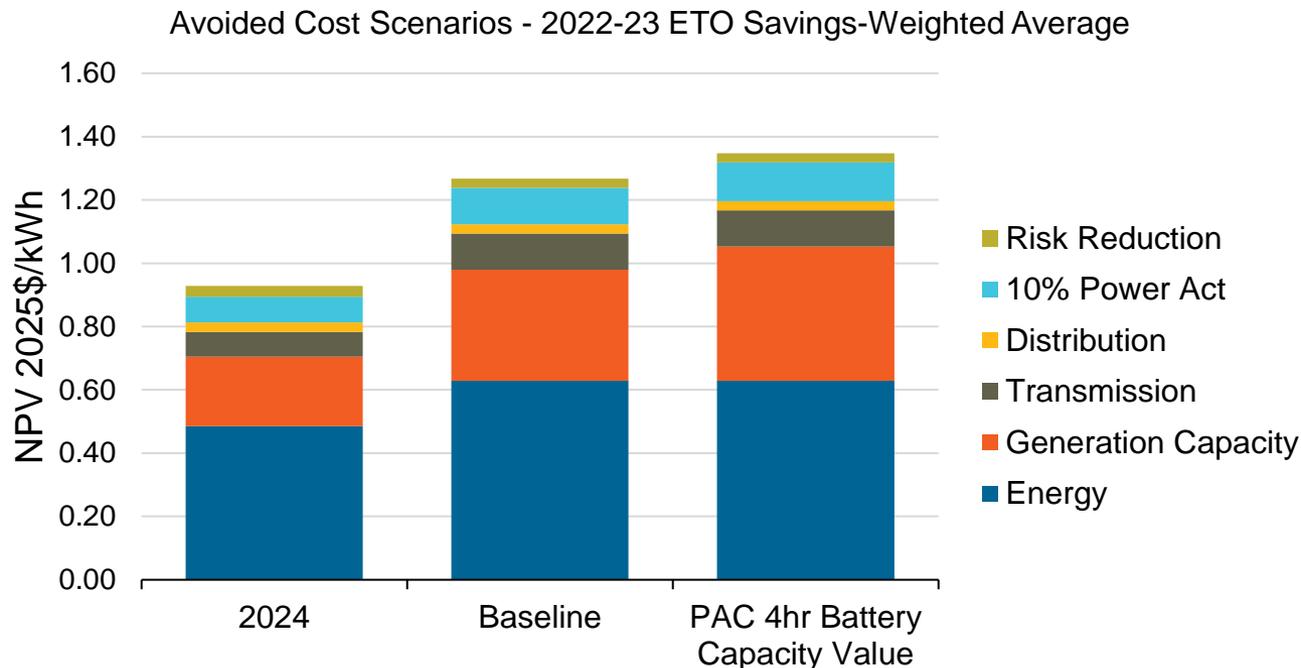
Summary of Electric Utility Avoided Cost inputs and Decisions

Avoided Cost Element		Pacific Power				Portland General Electric			
		Current	IRP	Update	Selection	Current	IRP	Update	Selection
		PAC Current (2024 AC)	PAC IRP Submission	PAC Updated Submission	Final Inputs for 2025 Avoided Cost	PGE Current (2024 AC)	PGE IRP Submission	PGE Updated Submission	Final Inputs for 2025 Avoided Cost
Global Assumptions	Inflation Rate	2.16%	2.16%	2.27%	Update	2.05%	2.10%	0.00%	IRP
	Real Discount Rate	4.63%	4.63%	4.40%	Update	4.41%	4.02%	0.00%	IRP
	Regional Act Credit	10.00%	10.00%	10.00%	Update	10.00%	10.00%	10.00%	IRP
T&D Line Losses	Transmission Loss Factor	3.50%	3.50%	0.00%	IRP	2.13%	2.07%	0.00%	IRP
	Distribution Loss Factor, Commercial	3.69%	3.69%	0.00%	IRP	4.02%	4.02%	0.00%	IRP
	Distribution Loss Factor, Industrial	3.20%	3.20%	0.00%	IRP	1.96%	1.96%	0.00%	IRP
	Distribution Loss Factor, Residential	4.46%	4.46%	0.00%	IRP	4.20%	4.20%	0.00%	IRP
Transmission Capacity Value	Transmission Deferral Credit	\$6.90	\$6.34	\$5.09	Update	\$58.25	\$87.34	\$0.00	IRP
	Seasonal Capacity Split - Summer	50%	39%	0%	IRP	50%	50%	0%	IRP
	Seasonal Capacity Split - Winter	50%	61%	0%	IRP	50%	50%	0%	IRP
	Deficiency start year	2024	2021	2021	Update	2024	2026	0	IRP
Distribution Capacity Value	Distribution Deferral Credit	\$14.57	\$13.38	\$10.46	Update	\$15.46	\$17.21	\$0.00	IRP
	Seasonal Capacity Split - Summer	100%	90%	0%	IRP	50%	50%	0%	IRP
	Seasonal Capacity Split - Winter	0%	10%	0%	IRP	50%	50%	0%	IRP
	Deficiency start year	2024	2021	2023	Update	2024	2026	0	IRP
Generation Capacity Value	Generation Capacity Credit	\$93.34	\$85.71	\$105.36	Alt 1	\$119.01	\$228.00	\$0.00	IRP
	Seasonal Capacity Split - Summer	100.0%	83%	0%	IRP	50.0%	50%	0%	IRP
	Seasonal Capacity Split - Winter	0.0%	17%	0%	IRP	50.0%	50%	0%	IRP
	Deficiency start year	2024	2026	2025	Update	2024	2026	0	IRP
Other Values	Risk Reduction Value	\$3.25	\$3.05	\$1.92	Update	\$3.25	\$3.00	\$0.00	IRP
	Forward Market Prices				Alt 2				Alt 2

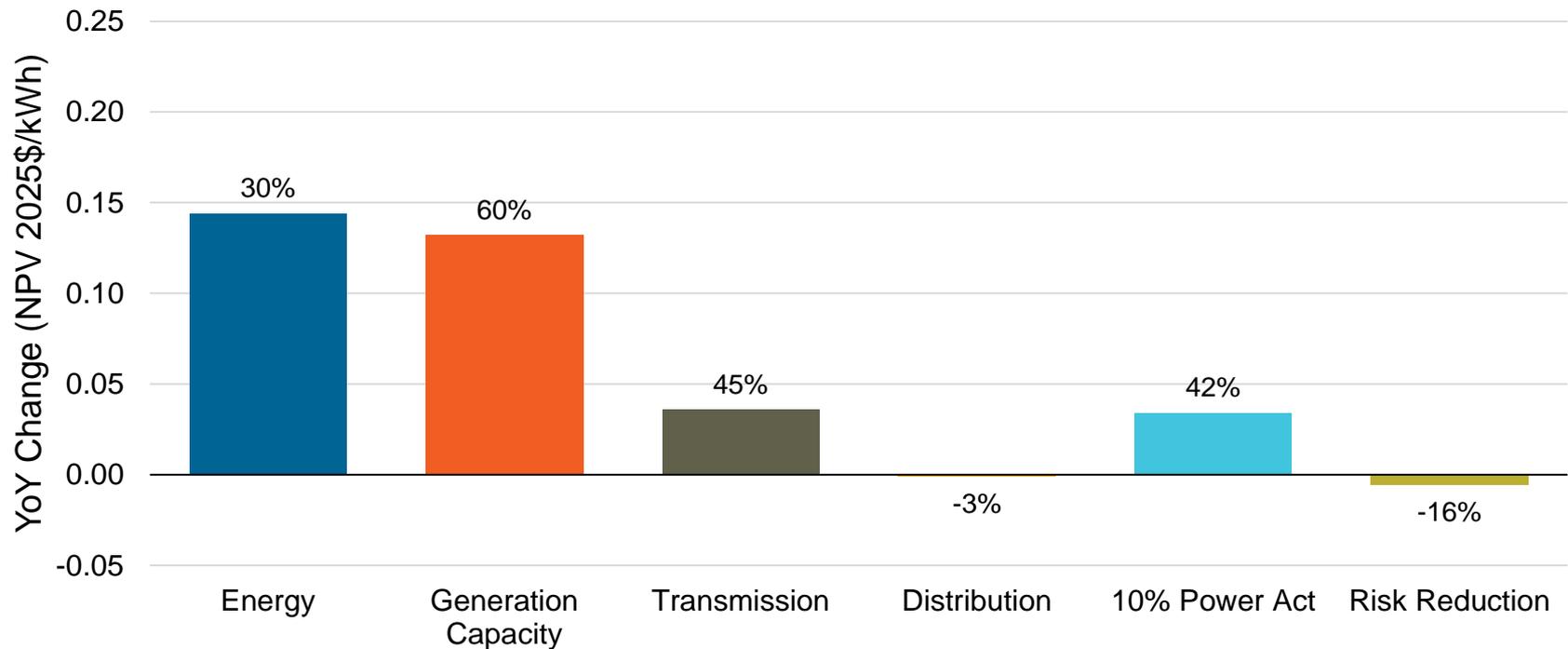
*Note: values in this table are in the dollar years provided by each utility - this will be inflated to 2025 dollars before final blending, as shown in the final 3 columns
 Values in 'Current (2024 AC)' fields are in that year's dollars

Electric Results Summary

- Increased Generation Capacity value and Energy Forward Prices drive increase in avoided costs
 - 37% higher than 2024 with PAC's combustion turbine generation capacity value
 - 45% higher than 2024 with PAC's 4-hr Li-Ion battery generation capacity value

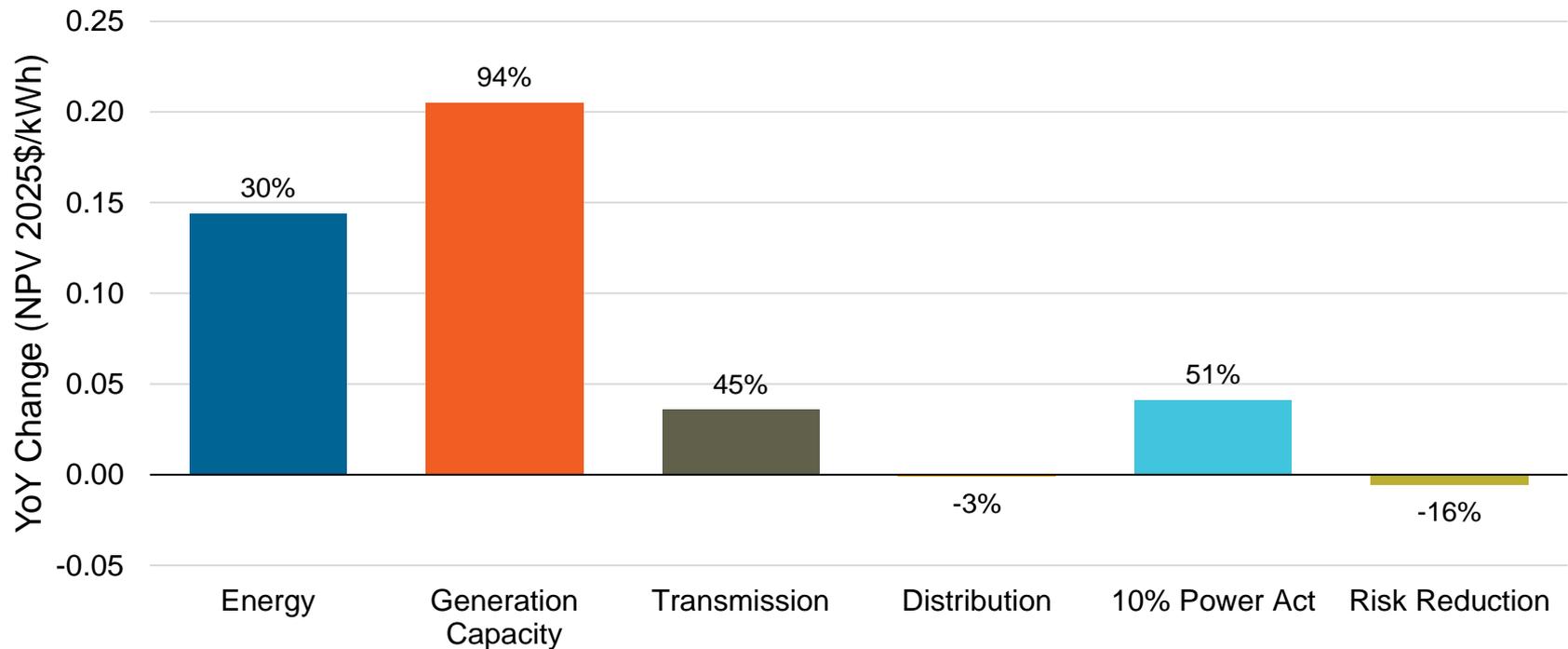


Baseline Scenario: Changes in Avoided Cost Components vs. 2024



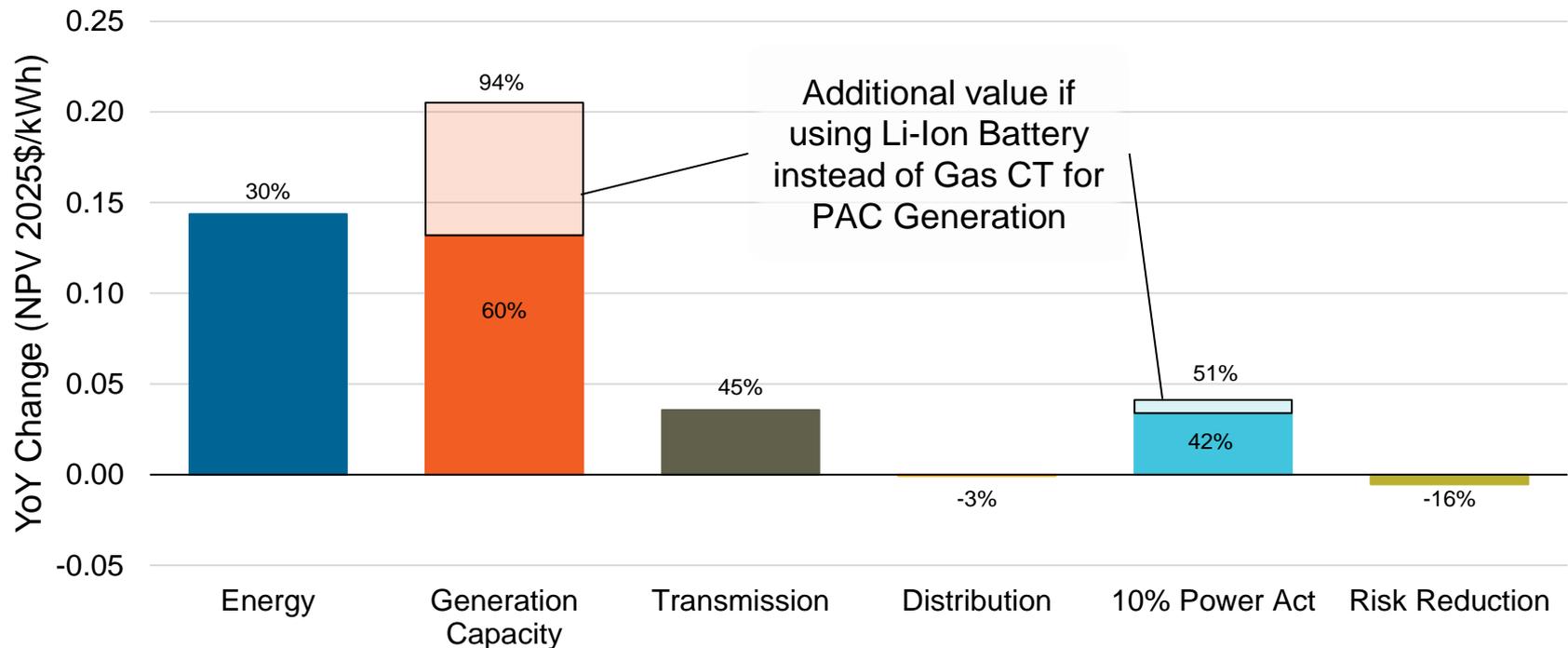
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PAC 4-hr Battery Capacity Value Scenario: Changes in Avoided Cost Components vs. 2024

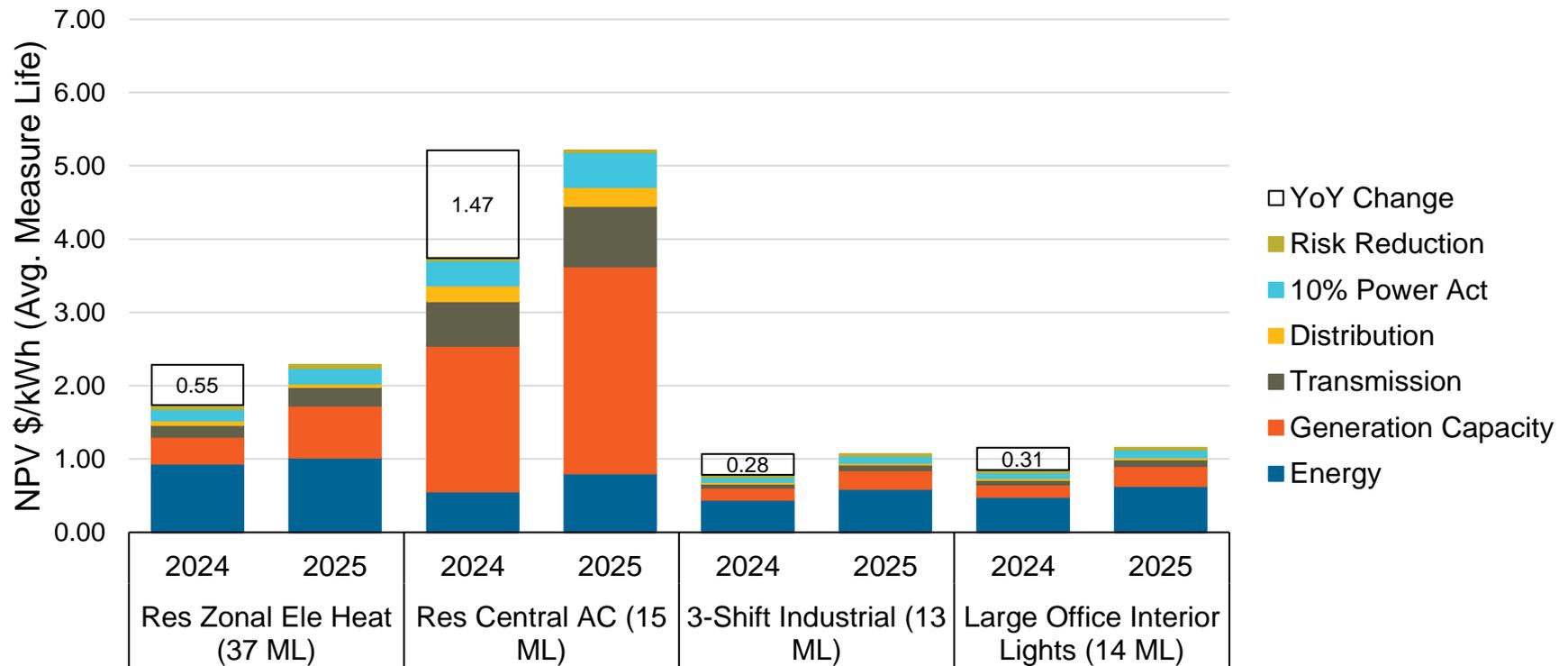


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Changes in Avoided Cost Components vs. 2024

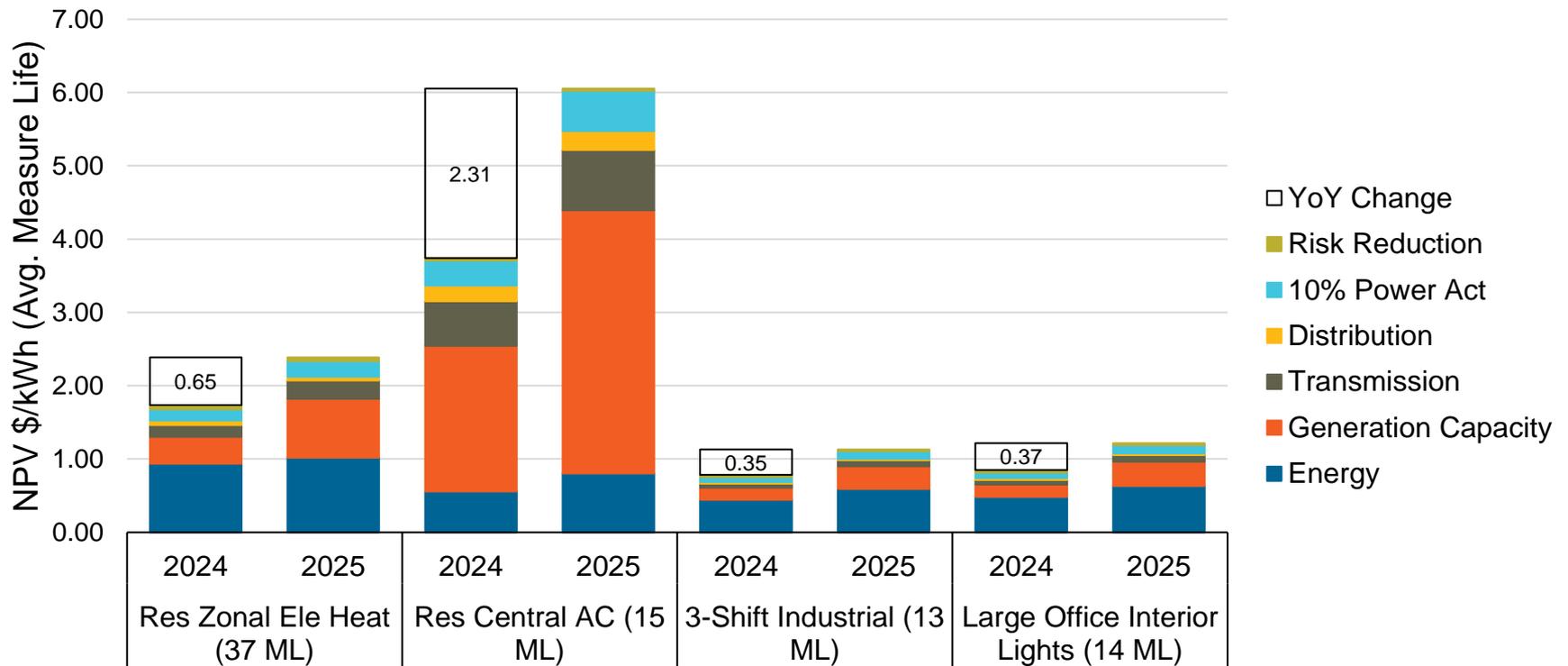


Baseline Scenario: Comparison of Electric Load Shapes by Value Component



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PAC 4-hr Battery Capacity Value Scenario: Comparison of Electric Load Shapes by Value Component



Next Steps

Next Steps

- Stakeholders submit additional feedback
- Commission approves a set of avoided cost values for Energy Trust's use in 2025 avoided cost calculations
- Energy Trust finalizes calculations



Questions?

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