



2023 IRP UPDATE

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Previous Briefing: Jan 24, 2023

Agenda

1. Operational Environment Updates
2. Progress on the IRP Update
 - Phase 1 – Scoping
 - Phase 2 – Load Growth and Increasing Needs
 - Phase 3 – Resource Options
3. Next Steps

Today's Briefing is informational, to provide visibility into the process and findings to date.

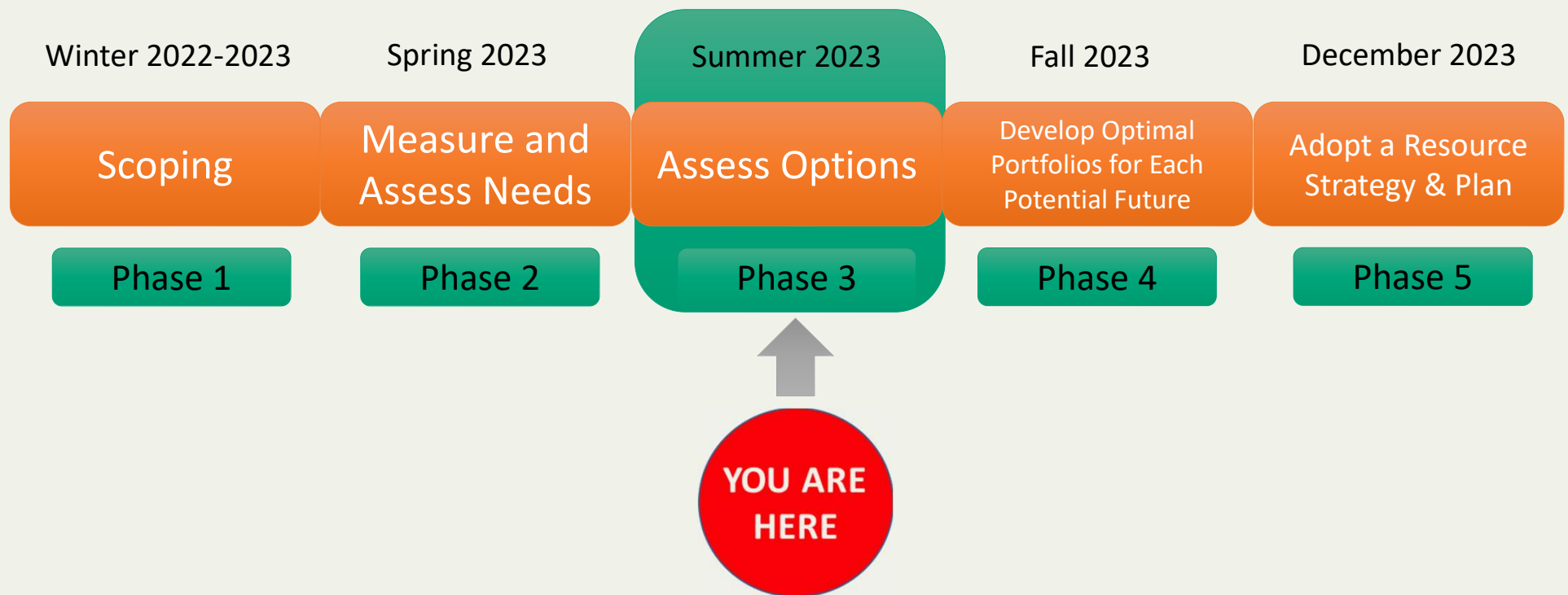
An additional briefing will be provided in early Fall, to be followed with a Draft IRP.

What Has Changed Since the Last IRP

- The Post-2028 BPA contract has more clarity.
- More certainty surrounding our regulatory obligations.
- Market development efforts are more mature.
- AMI rollout is progressing, enabling more demand side tools. The timeline firming up.
- Regional resource adequacy initiatives have developed. Binding seasons are on the horizon.
- Electrification and load forecast changes.
- Change to IRP statute to require Transmission assessment

The IRP Timeline

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Phase 1 –Scoping

	Block/Slice	Load Following	Block with Capacity Shaping
Low Load Growth	✓		
Base Load Growth	✓	✓	✓
High Load Growth	✓		

Core Questions

- How do newer electrification and electric vehicle forecasts affect our resource strategy?
- What have we learned in the BPA post 2028 process that may impact our resource strategy?

* All scenarios include electrification load, climate change impacts on load and hydrology, and the impact of new building codes and standards

Public Process

- **Engagement To Date:**
 - IRP Kick-off – Jan 24, 2023
 - In-Person Customer Open House – Feb 23, 2023
 - Online PowerTalks – March 9, 2023
 - Energy Block Party – Apr 22, 2023
 - Phase 1-3 Briefing - Today
- **Planned Upcoming Public Engagements**
 - Phase 4 Customer Open House
 - Phase 4 & 5 Briefing
 - Draft IRP Update Release

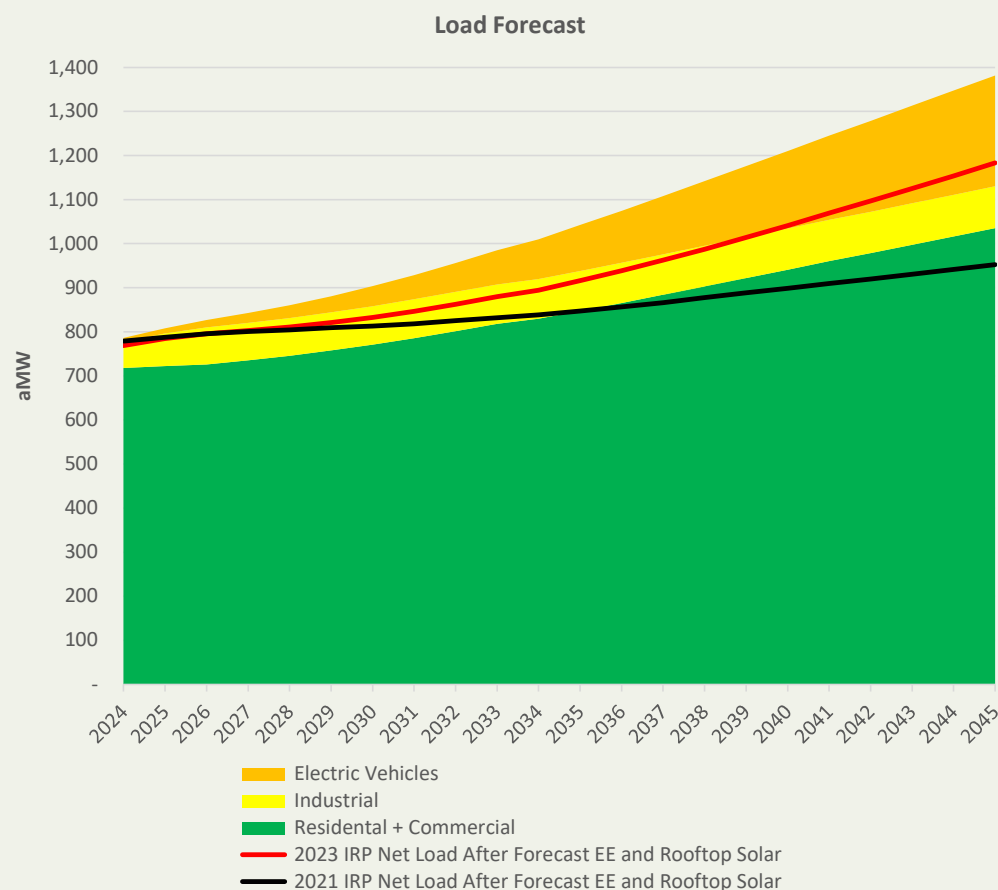
Goal:

The PUD uses a transparent and customer-centric process for long-term planning.

Phase 2 Findings – Load Forecast is Increasing

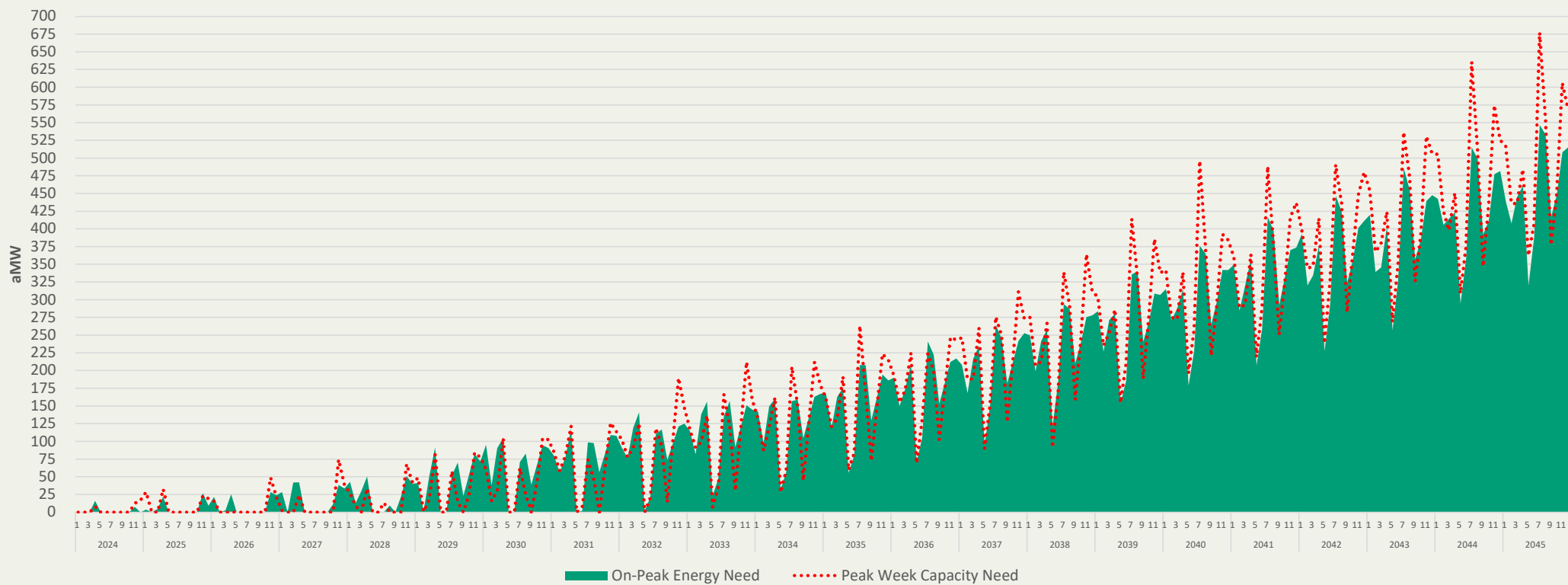
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- The PUD forecasts significant future load growth driven by electrification, electric vehicles, and local economic growth.
- Electrification load growth is an opportunity for the PUD to continue helping our community meet their increasing overall energy needs affordably, safely, reliably, and sustainably.



Phase 2 Findings: PUD Will Have Significant Future Energy and Capacity Resource Need Beyond Current Portfolio

Fifth Percentile Energy and Capacity Needs after Forecast Conservation



Phase 3 – Supply-Side Resource “Menu”

Bold, underlined items are new in the 2023 IRP

Baseload Resources

- *Firmer generation profile*

- Biomass
- Solar + Storage
- Wind + Storage
- Firm Annual Energy Contract
- Firm Winter Energy Contract
- **BPA Tier 2 Power**
- **Small Modular Nuclear Reactors (E WA, 2030's)**
- **Local Fusion (2040's)**

Variable Resources

- *Cheaper, less firm profile*

- Local Run-of-River Hydro New Stream Development
- Small, Local Utility Scale Solar
- E WA Utility Scale Solar
- Gorge Wind
- Montana Wind
- **West-of-Cascades Run-of-River Hydro Buyout**
- **Customer Rooftop Solar Incentive**

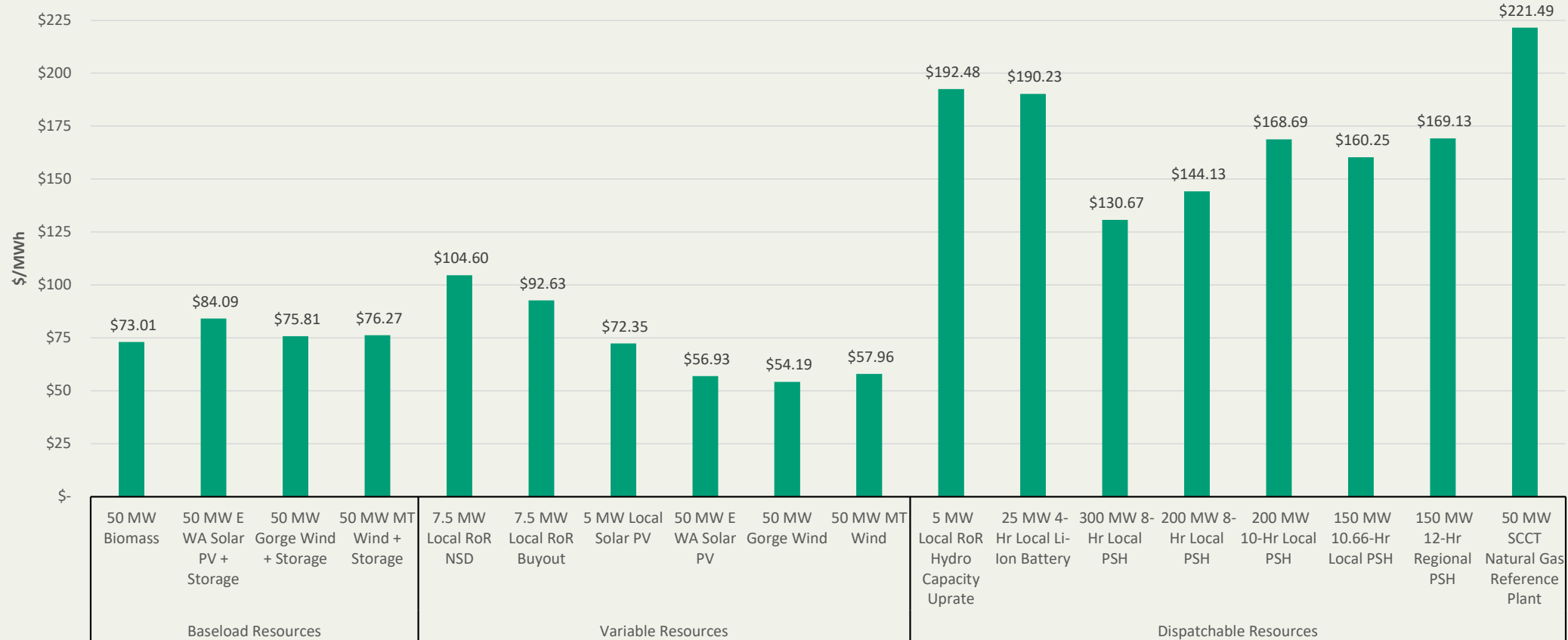
Dispatchable Resources

- *Can turn on/off for peaks*

- 12-Hr Regional Pumped Storage Hydro
- 4-Hr Battery Storage
- Annual Firm Capacity Contract
- Winter Firm Capacity Contract
- Seasonal Exchange Capacity Contract
- Natural Gas Peaker Plant (CETA Baseline Reference Only)
- **Local Run-of-River Hydro Capacity Uprate**
- 8-Hr Local Pumped Storage Hydro
- 10.66-Hr Local Pumped Storage Hydro
- 12-Hr Local Pumped Storage Hydro

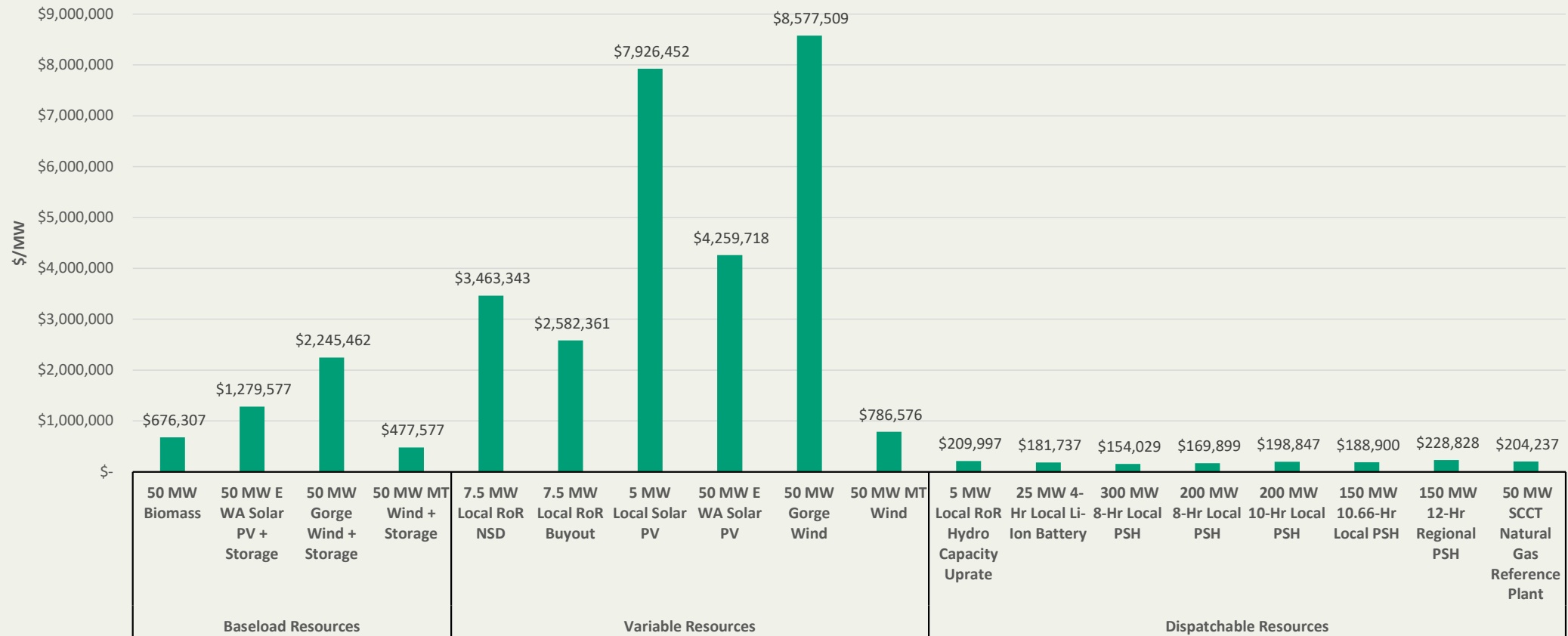
Levelized Cost of Energy

Levelized Cost of Energy (2024 Delivery for Illustration)



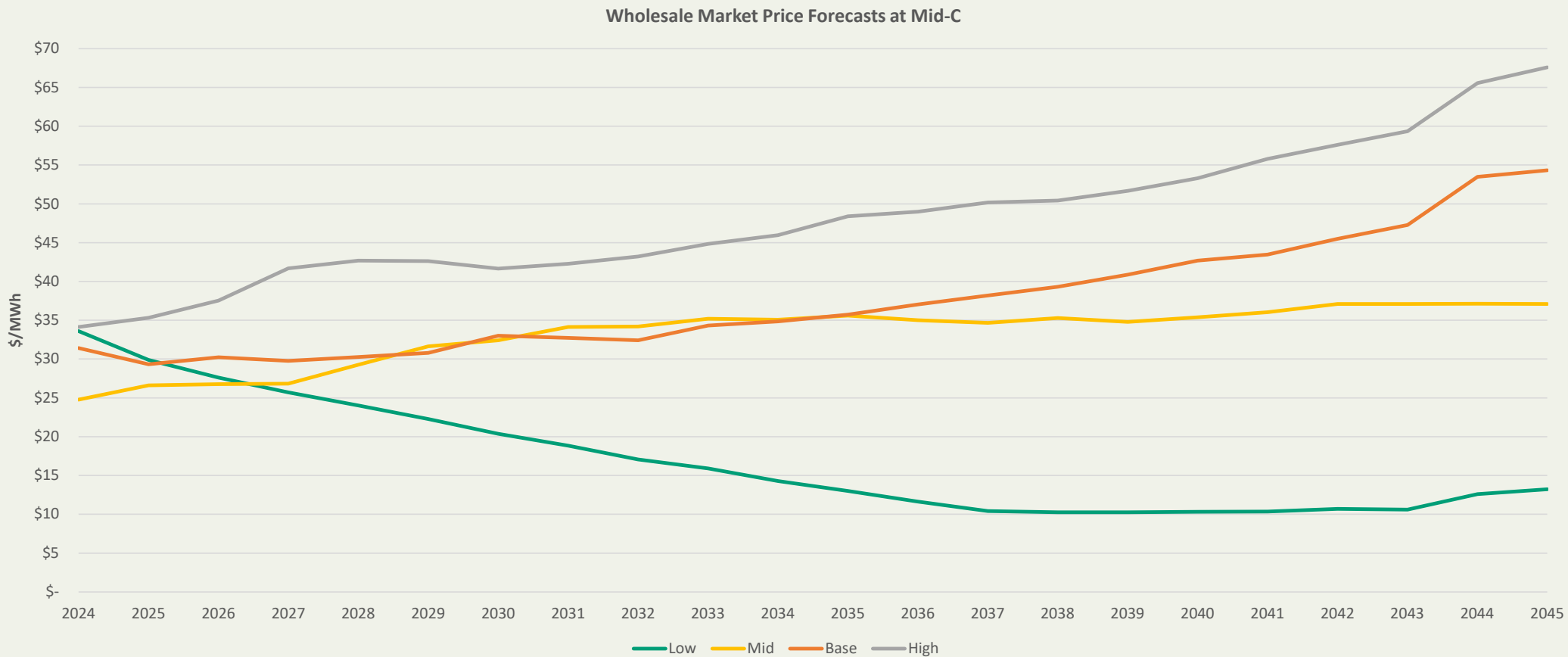
Levelized Cost of Winter Capacity

Levelized Cost of Winter Capacity (2024 Delivery for Illustration)



Wholesale Market Price Forecasts

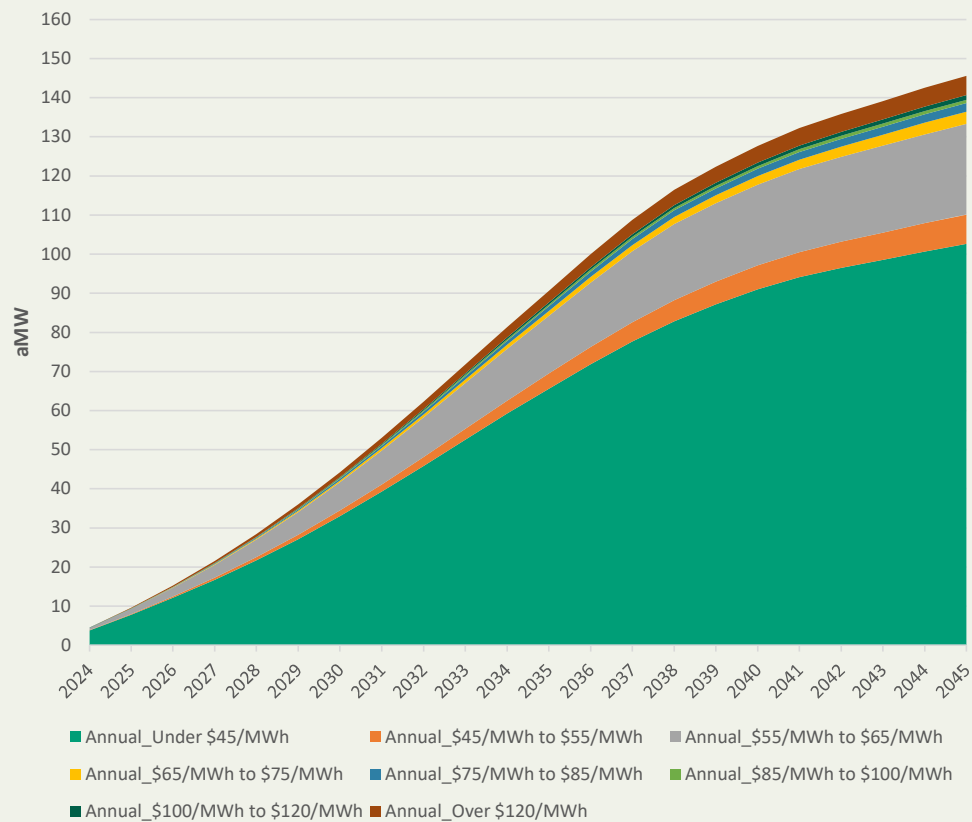
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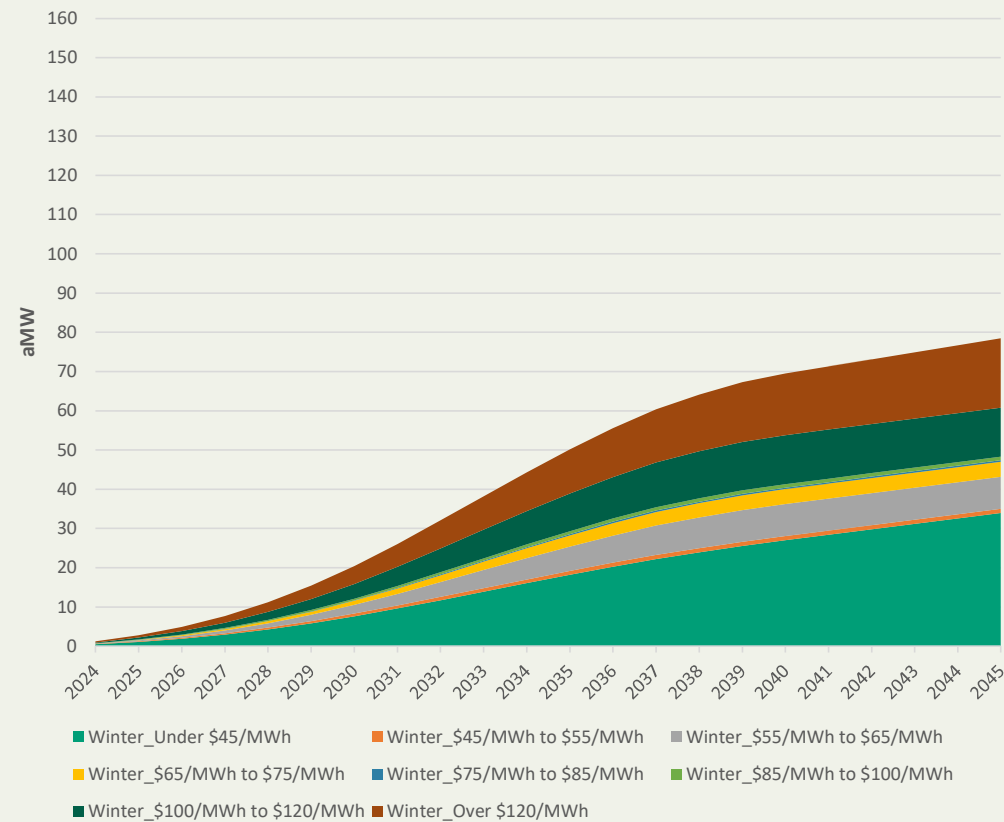
Conservation: Lots of Opportunities for Energy Efficiency

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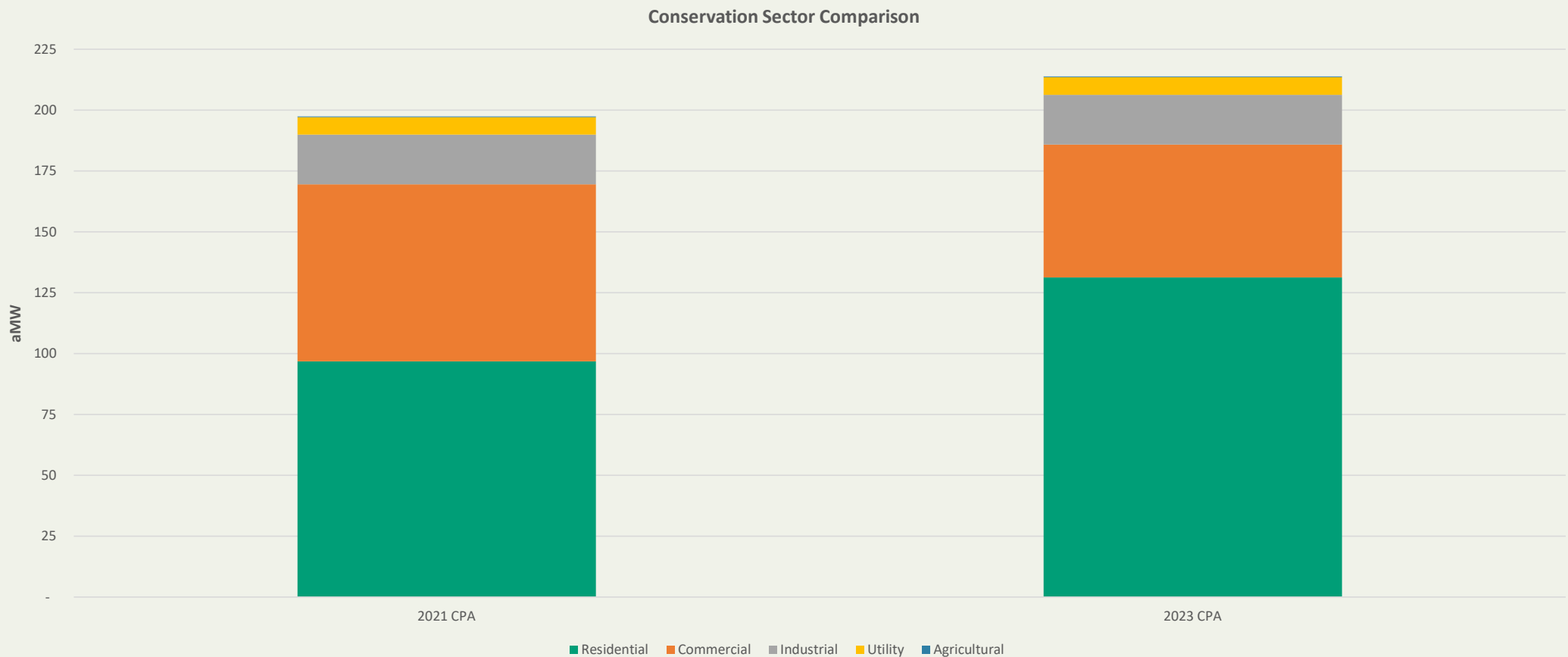
Annual Energy Efficiency Cost Bins



Winter Energy Efficiency Cost Bins



Conservation Potential Assessment (CPA) Comparison 2021 vs 2023



Phase 3 – Demand Response Programs

Bold, underlined items are new in 2023 IRP

Equipment Based

- *Smart-grid ready devices*

- Residential Electric Vehicle Charging
- Residential Water Heater Programs
- Residential HVAC Switch/Thermostats
- Commercial HVAC Switch/Thermostats
- **Behind the meter storage**

Smart Rate

- *Giving customers rate choices*

- Time of Use Rates
- Critical Peak Pricing
- Industrial Load Curtailment

Next Steps

- Phase 4 – Resource Optimization
 - Build optimized portfolio for each scenario and sensitivity
 - Compile results
- Phase 5
 - Develop a flexible resource strategy
 - Additional public outreach
 - Return to commission in the Fall with update

Questions and Discussion

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