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Item 6.1: Independent Market Monitor (IMM) 2024 State of the Market Report

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ERCOT Public
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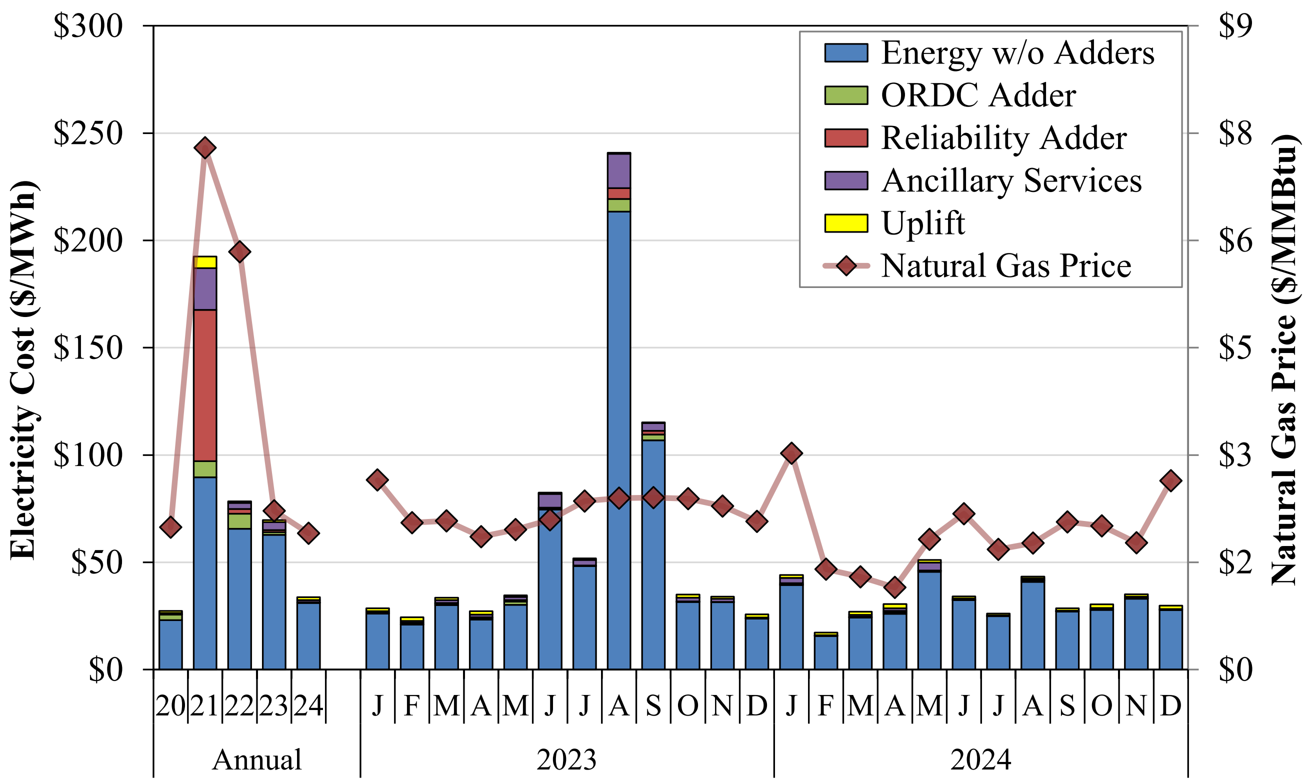
All-in cost decreased in 2024

- All-in cost declined 52% from $70/MWh to $34/MWh
- Real-time energy cost fell 51% to $31.91/MWh of load
- Ancillary service costs decreased 74% to $0.98/MWh of load.
- Natural Gas: $1.90/MMBtu (14% lower than 2023)



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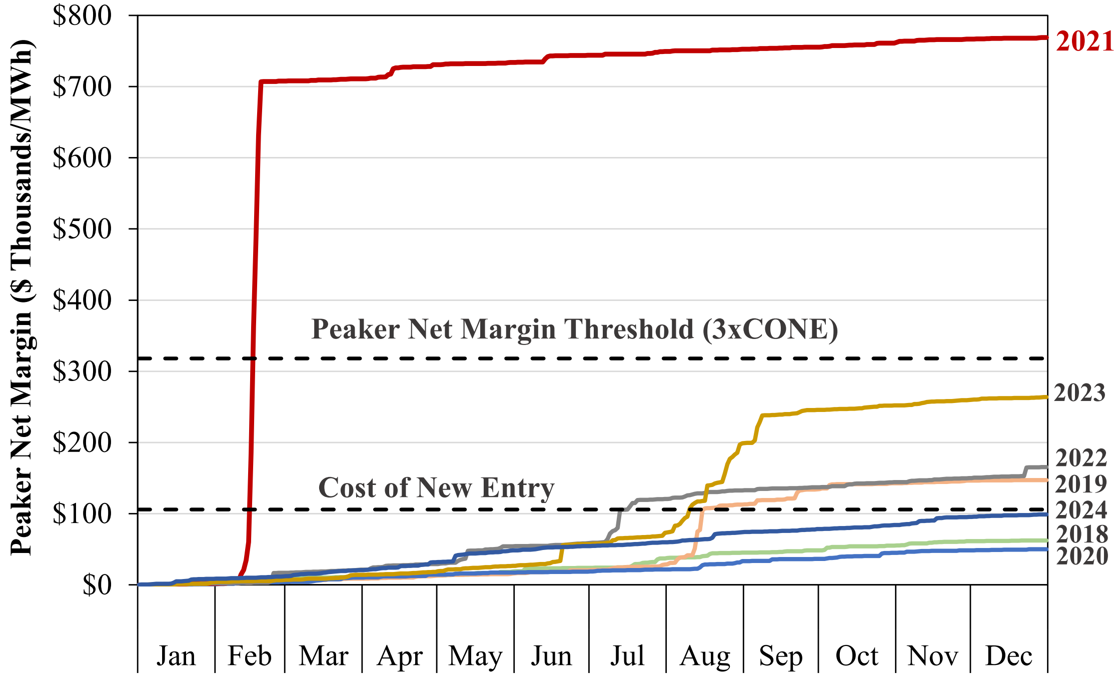
System less stressed as indicated by low shortage pricing

- Contribution of price spikes to peaker net margin lower in 2024
- Lower revenue from operating reserve shortage pricing through the ORDC
- Lower revenue from energy shortage pricing



	ORDC		
	Active Hours	Avg Price (Active Hours)	Avg Price (All Hours)
	#	$/MWh	$/MWh
2020	892	$21.60	$2.61
2021	612	$91.75	$7.46
2022	1,458	$36.90	$6.94
2023	773	$12.12	$1.27
2024	161	$11.07	$0.25

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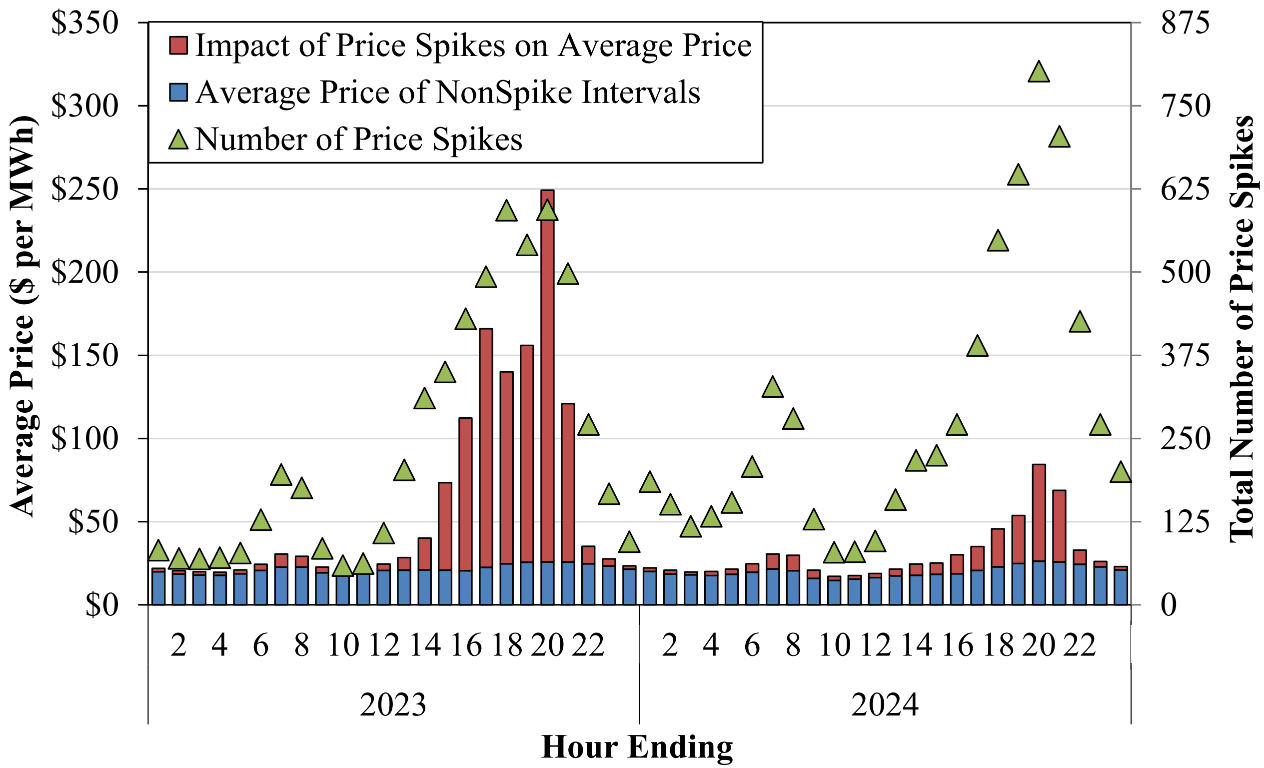
Impact of price spikes on average price

- Price spikes had a lower contribution to high prices and net revenue
- Price spikes can come from…
  - High energy offer prices
  - Reserve shortage pricing
  - Energy shortage
- High price threshold defined by 18 heat rate and daily fuel price



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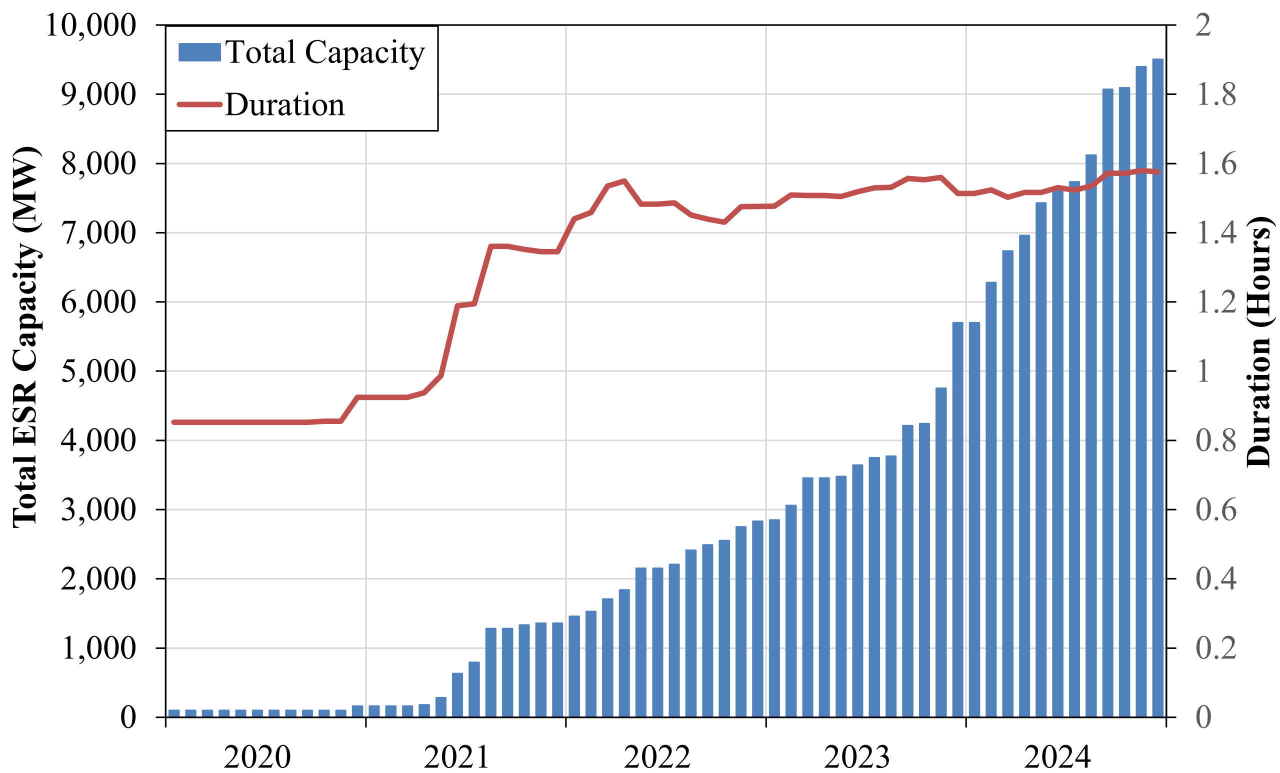
Energy storage resources – increased installed capacity

- Total of 1.9GW of ESR capacity by the end of 2024
- The average duration has increased to 1.6hrs
- Considerable developer interest in interconnecting more ESR in the near future



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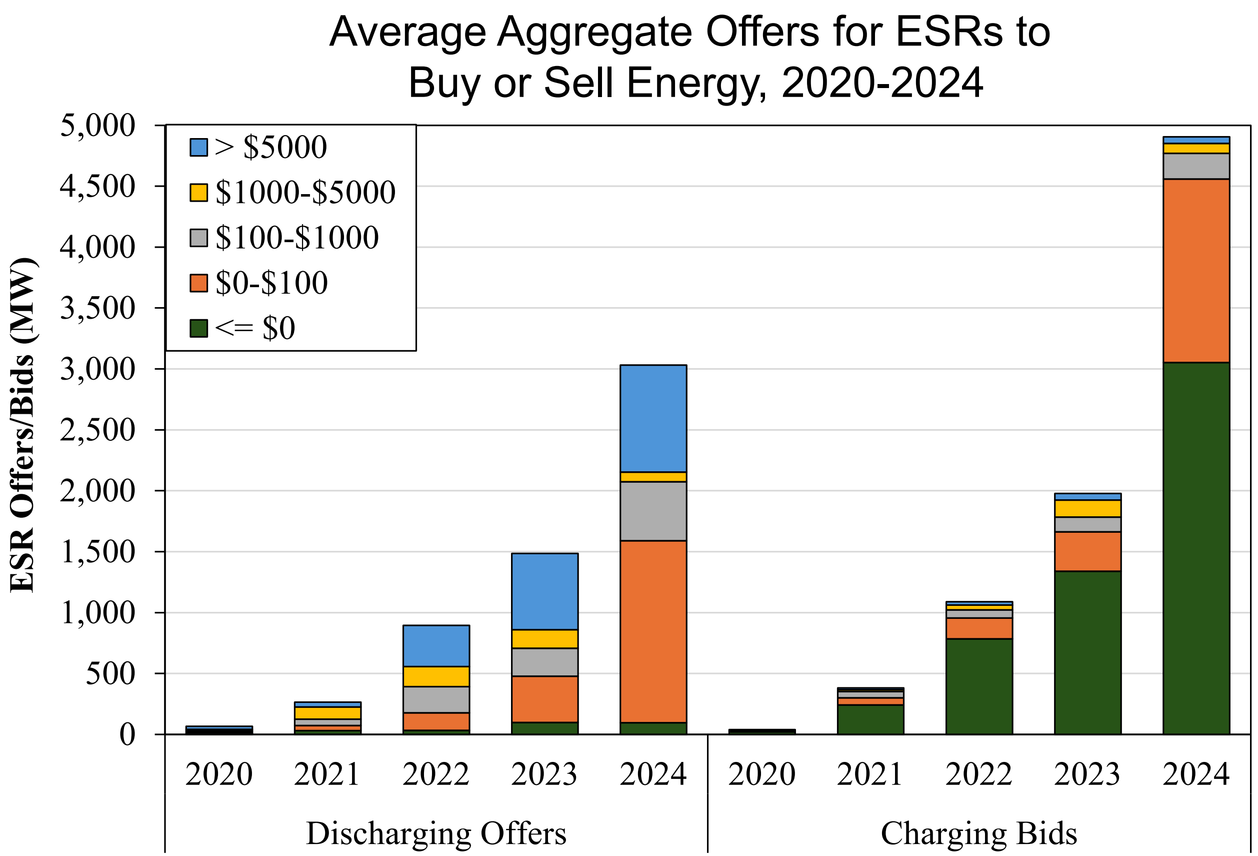
Energy storage resources – market participation

- Larger share of offers in a competitive price range
- Bid prices for charging are often below $0/MWh
- ESRs provided 1.8GW - 2.5GW of reserves compared to 0.6GW – 1.2GW in 2022



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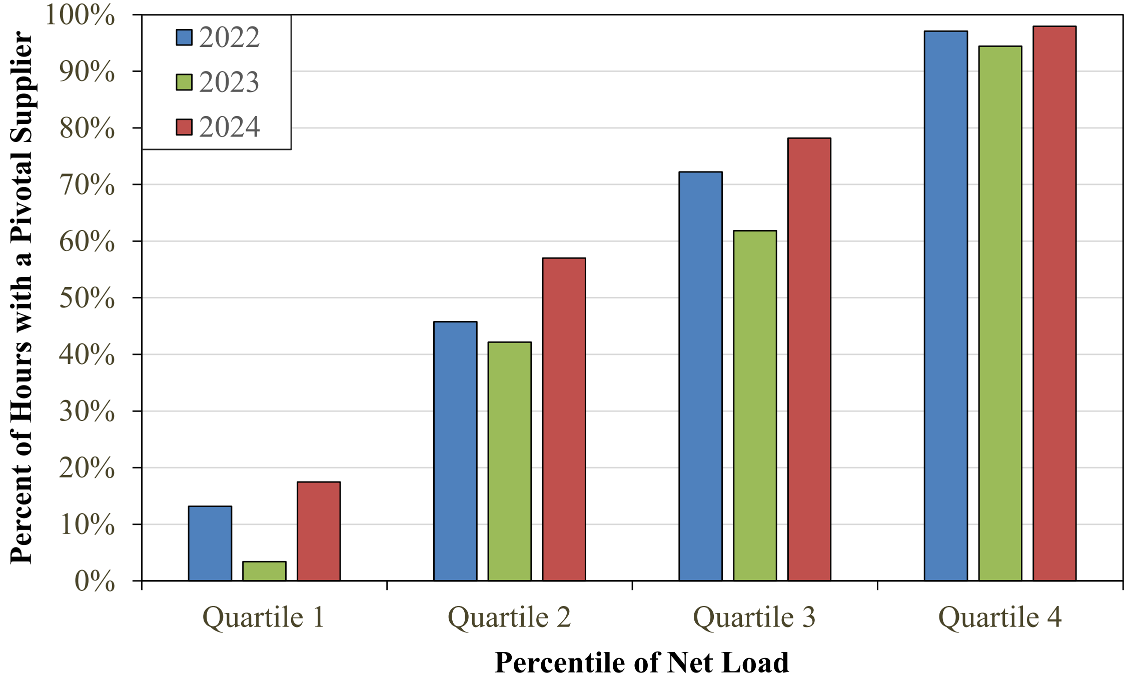
Competition and market power – structural market power

- Market power exists in 90% of higher-load hours.
- Some portfolios have concentration within zones …
- Market power exists at the zonal level in 66% of hours in the the top load quartile.

Frequency of Pivotal Supplier
System (top) and Zonal (bottom)



Pivotal Frequency			
	2022	2023	2024
Houston	35%	52%	28%
North	65%	68%	66%
South	1%	0%	3%
West	8%	21%	50%

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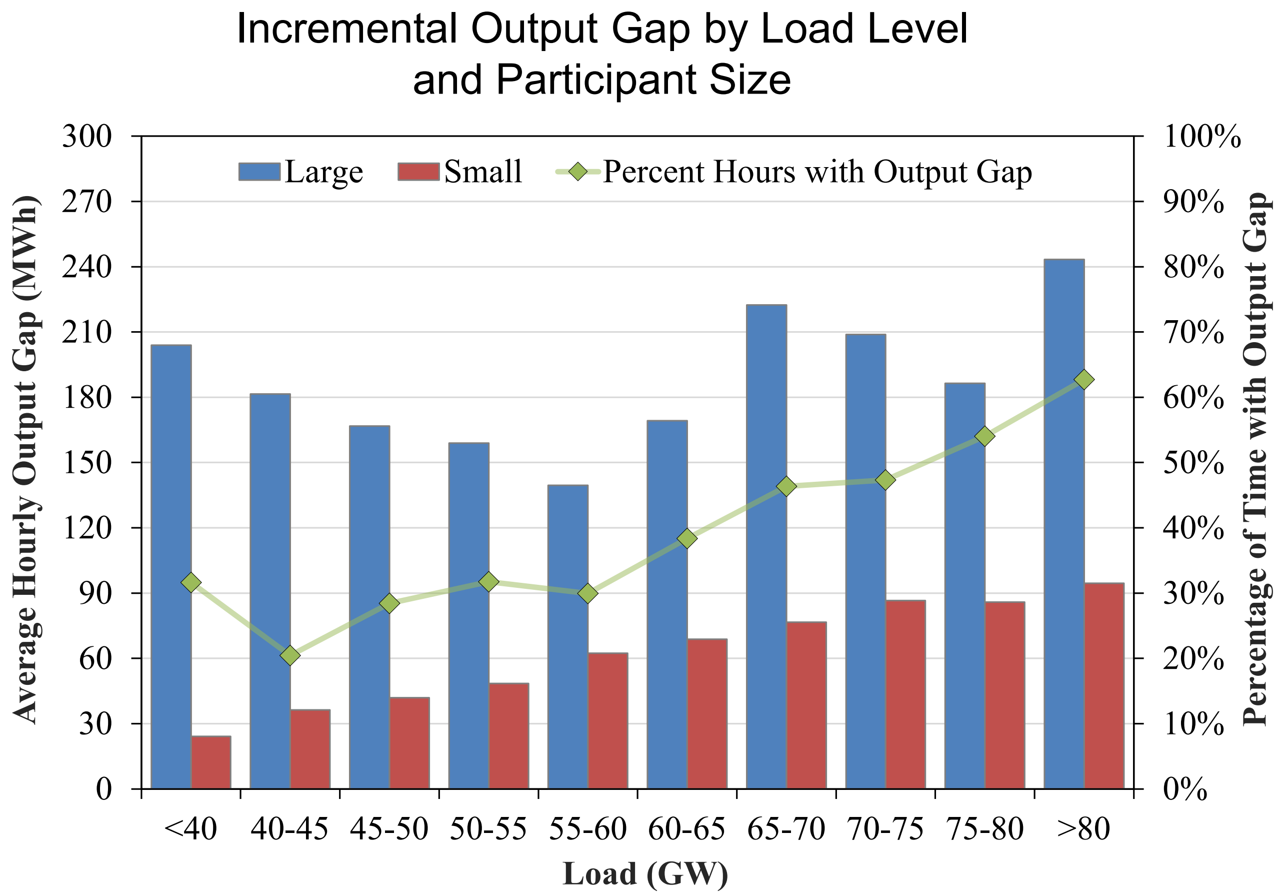
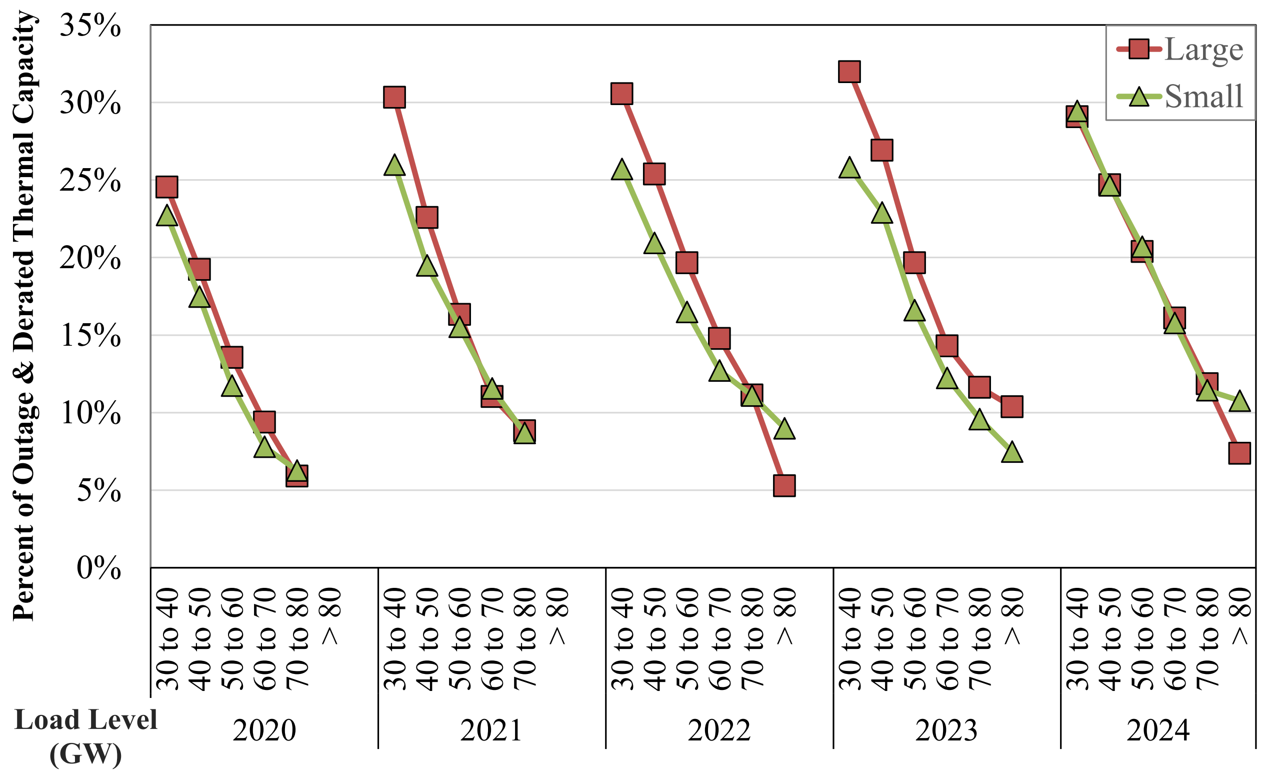
Competition and market power – economic withholding

- Evaluate the extent of foregone dispatch due to uncompetitive offer price
- Compare large and small suppliers for perspective
- High frequency, but small average capacity withheld



Competition and market power – physical withholding

- Look to see if larger suppliers physically withhold when more likely to have market power.
- Participants make slightly more capacity available to the market during higher load conditions
- Largest four suppliers compared to remaining suppliers*



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Resource adequacy

- Market Signals for New Investment
  - Market revenue in 2024 was 20% - 25% below estimated CONE for both combustion turbine and combined cycle technologies.
  - However, revenue has been greater than CONE in three of the past five years.
  - Why are we not seeing more gas fired new entry?
    - Lower merchant estimates of forward planning reserve margins.
    - Hesitancy spurred by government program availability.
    - Supply chain issues increase cost above CONE estimates.
    - Anticipation that increase in BES may shave shortage revenue.

- Projected Reserve Margin
  - Projected high load growth has created resource adequacy concerns.
  - The range of projections in the CDR report are helpful for context.
  - Forward procurement and prices can reflect confidence in projections.
  - Further enhancements will help with the confidence factor.

Recommendations

- Reform Shortage Pricing & AS Methodology
  - Define ASDCs to reflect marginal reliability
  - Adopt stochastic risk methodology to determine AS requirements
- Set duration requirement to 1hr for ECRS and NSRS
- Implement process to mitigate system & zonal market power
- Establish real-time offer requirement, penalties, and proxies