

MARKET SUMMARY REPORT

September 2023

UNDERSTANDING THIS MARKET SUMMARY REPORT

Use the information in this email to identify trends and movements affecting electricity in the ERCOT market to make informed energy decisions. Here are a few quick tips:

- **Power prices** are determined from forward Heat Rate and natural gas strips for a specific timeframe. *Power Price = Heat Rate x Natural Gas Price*. Power prices can change based on electricity supply and demand, which is driven by factors such as weather, the economy, available generation and grid conditions.
- **Natural Gas** prices are a key driver of power prices because natural gas fuels the power plants that are brought online primarily to satisfy peak demand.
- **Heat Rates** are the common measure of power plant efficiency and are derived from power and natural gas prices: *Heat Rate = Power Price ÷ Natural Gas Price*. Heat rates are typically higher when gas prices are lower. Heat rates are impacted by weather, regulatory changes, consumer demand and power plant retirements.

REAL TIME PRICING AND CONGESTION

September low winds

	Load Zone Pricing				Congestion Pricing			
	North	Houston	South	West	North	Houston	South	West
9/1/2023	\$ 146.33	\$ 141.82	\$ 122.98	\$ 149.53	\$ 0.830	\$ (0.171)	\$ (12.104)	\$ 3.262
8/1/2023	\$ 199.45	\$ 200.53	\$ 162.77	\$ 200.84	\$ 1.518	\$ (0.528)	\$ (13.918)	\$ 2.739
7/1/2023	\$ 45.05	\$ 47.35	\$ 37.09	\$ 44.89	\$ 0.081	\$ 0.199	\$ (2.148)	\$ 1.090
6/1/2023	\$ 62.24	\$ 63.29	\$ 59.94	\$ 64.47	\$ 0.051	\$ (0.016)	\$ (1.321)	\$ 2.420
5/1/2023	\$ 28.72	\$ 31.34	\$ 29.41	\$ 38.78	\$ 0.136	\$ 0.310	\$ 0.671	\$ 8.697
4/1/2023	\$ 20.14	\$ 21.63	\$ 21.70	\$ 38.91	\$ 0.486	\$ 0.437	\$ 1.423	\$ 20.533
3/1/2023	\$ 25.38	\$ 26.14	\$ 29.43	\$ 53.62	\$ 0.852	\$ 0.025	\$ 3.379	\$ 25.416
2/1/2023	\$ 18.35	\$ 19.40	\$ 19.31	\$ 27.31	\$ 0.096	\$ 0.309	\$ 1.636	\$ 9.537
1/1/2023	\$ 23.40	\$ 22.81	\$ 22.90	\$ 33.96	\$ 0.025	\$ (0.152)	\$ 0.470	\$ 13.313
12/1/2022	\$ 59.18	\$ 57.01	\$ 56.23	\$ 71.57	\$ 2.874	\$ 0.200	\$ 2.278	\$ 16.574
11/1/2022	\$ 42.24	\$ 45.42	\$ 42.95	\$ 39.96	\$ 0.860	\$ 1.104	\$ 1.319	\$ 3.206
10/1/2022	\$ 48.29	\$ 51.25	\$ 50.22	\$ 48.34	\$ 0.057	\$ 1.159	\$ 1.172	\$ 3.534
9/1/2022	\$ 64.25	\$ 65.47	\$ 66.25	\$ 65.23	\$ 0.131	\$ 0.135	\$ 1.295	\$ 1.679

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HEAT RATE VS NATURAL GAS: MAY-SEPTEMBER

Power pricing moderated in last couple of weeks.



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ERCOT NET LOAD

“Net Load” is the amount of power that must be supplied by non-renewable generation

- **Netload + outages**

- 52 intervals from August – September MTD (9/11) with Net Load 75 GW +
- All between the hours of 7 and 8:45 PM (sunset)
- Days where wind dipped extremely low and/or dipped late in the afternoon + thermal outages

- **Wind output for August and September** MTD averaged 10.6 GW and 11.3 GW respectively

- During tightest netload intervals (75 GW +), wind output averaged 4.8 GW in August and 5.4 GW September MTD

- **Thermal outages** still a major contributor to high Net Load; highest Net Load day (8/30, 76.5 GW) was due to 10 GW in thermal outages during peak time

- **9/6 Emergency Event**

- Transmission line overload trapping about 1.59 GW in South region
- Sunset on 9/6 about 30 minutes earlier than August (solar output falls off sooner in the day)

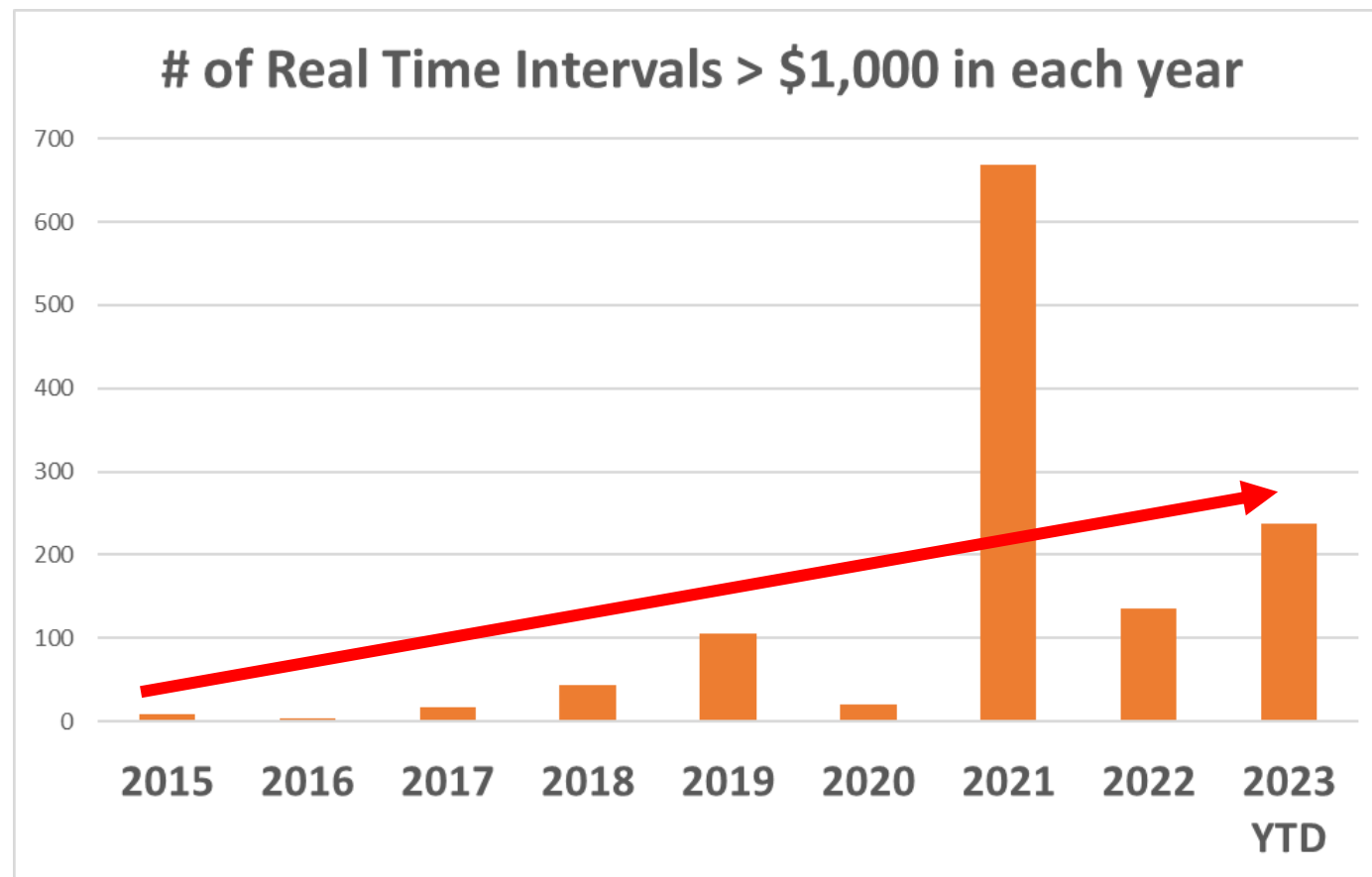
ERCOT CONTINGENCY RESPONSE SERVICE (ECRS)

- ECRS is procured daily by ERCOT
 - First new Ancillary Service in 20 years (RegUp, RegDn, RRS, NSRS, ECRS)
 - ECRS requires 10-minute response and can be provided by Loads
 - This new ancillary is designed to avoid frequency incursions and is complimentary with RRS
- Since first introduced in June 2023:
 - Deployed 36 times between June and September 12th
 - 29 total deployment days (6 days with multiple deployments)
 - August – 16 days in which ECRS was deployed
 - Average deployment: 1 hour 27 minutes
 - Longest deployment: 6 hours 5 minutes on August 17th
 - Most frequently deployed at some point between 6 PM - 8PM
 - Higher netload + outages during this time due to naturally falling solar output/wind trying to recover from earlier output dips

ERCOT RTSPP VOLATILITY IS INCREASING

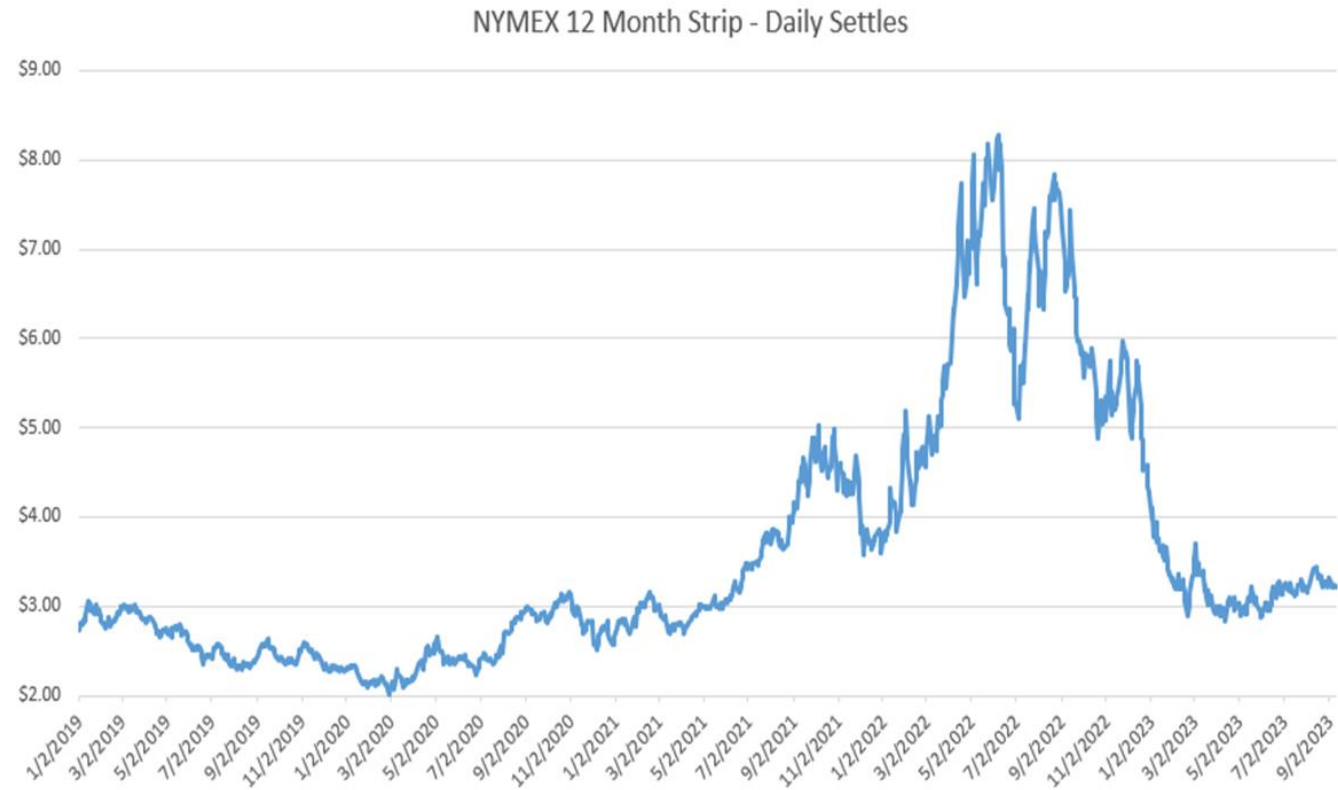
Even without Uri, RTSPP is trending higher.

- These price spikes represent “Scarcity Events.”



NATURAL GAS 12-MONTH ROLLING STRIP

Flat to bearish sentiment now.

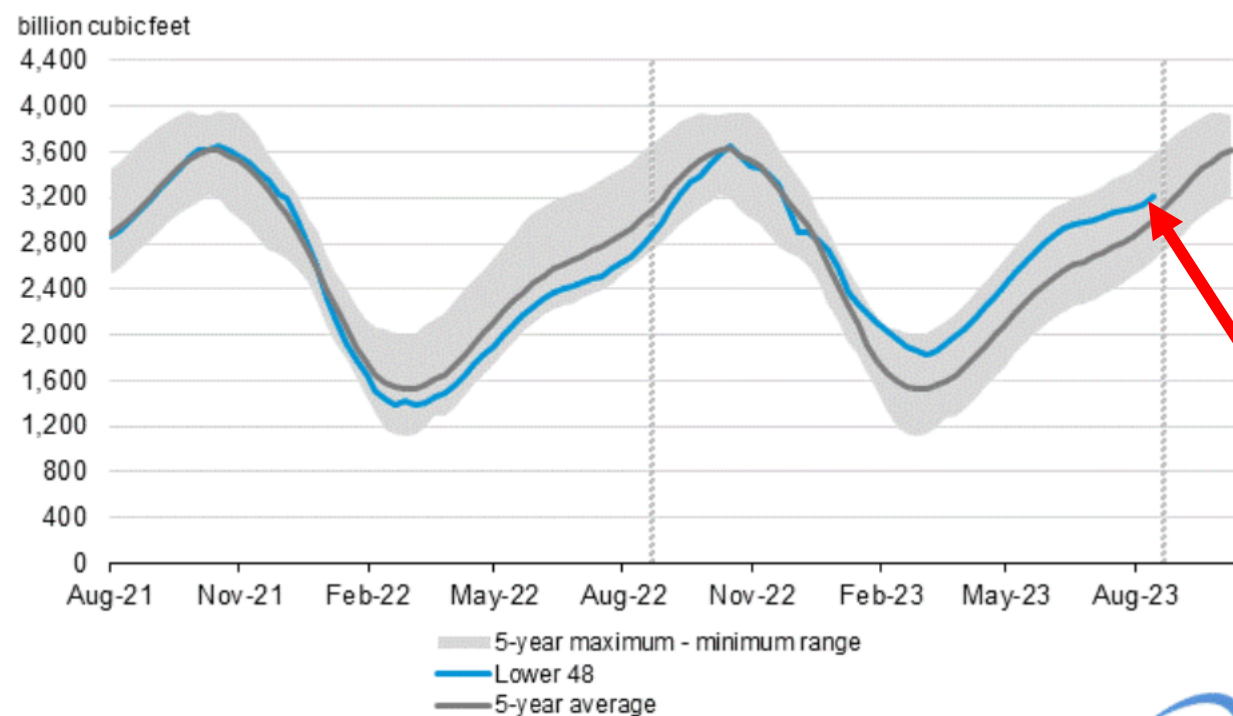


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NATURAL GAS STORAGE

Last injection of 57 Bcf. Levels getting closer to 5-year average.

Working gas in underground storage compared with the 5-year maximum and minimum



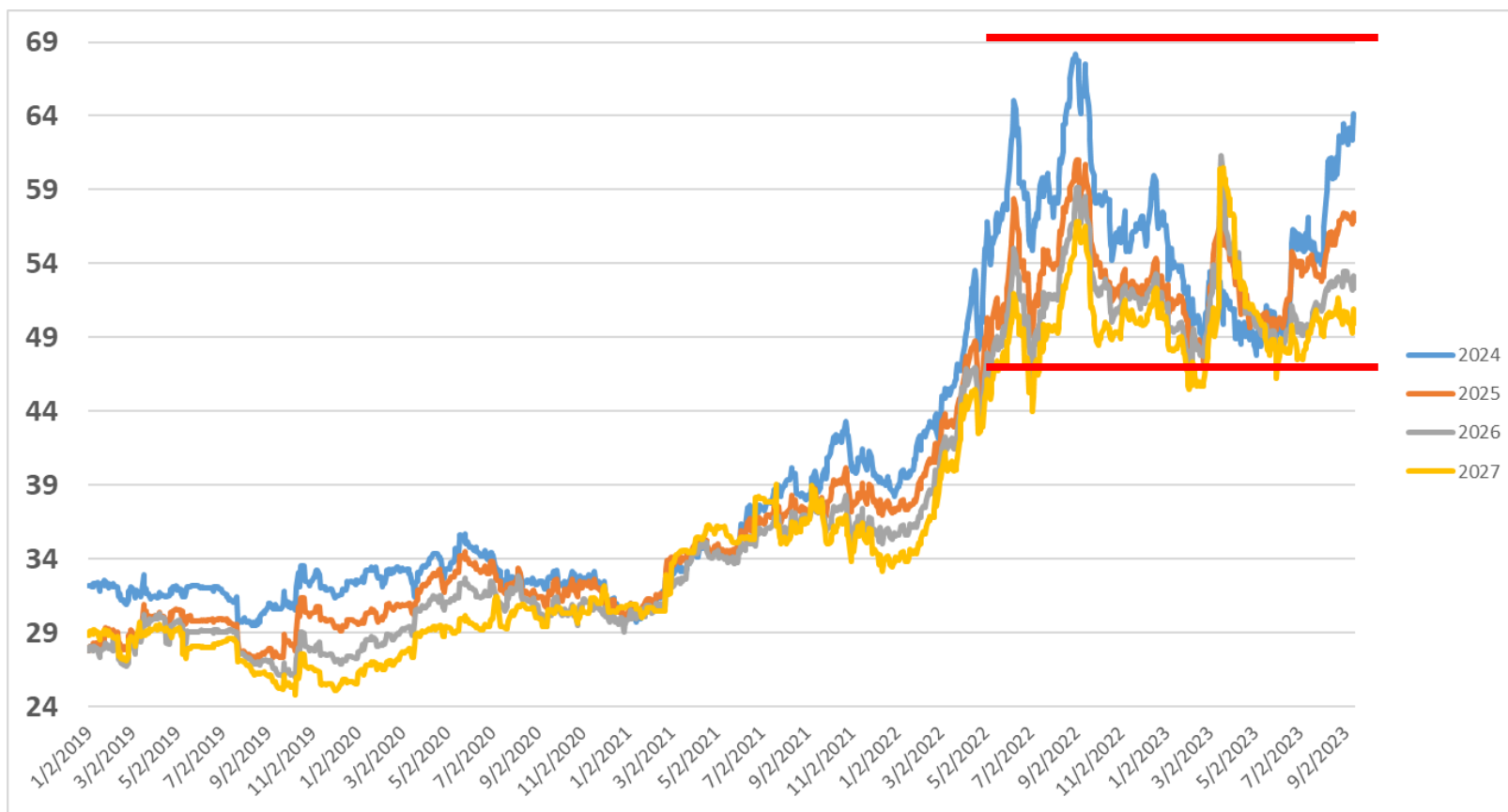
Levels now 7% above 5-year average.

Data source: U.S. Energy Information Administration



7X24 PRICING

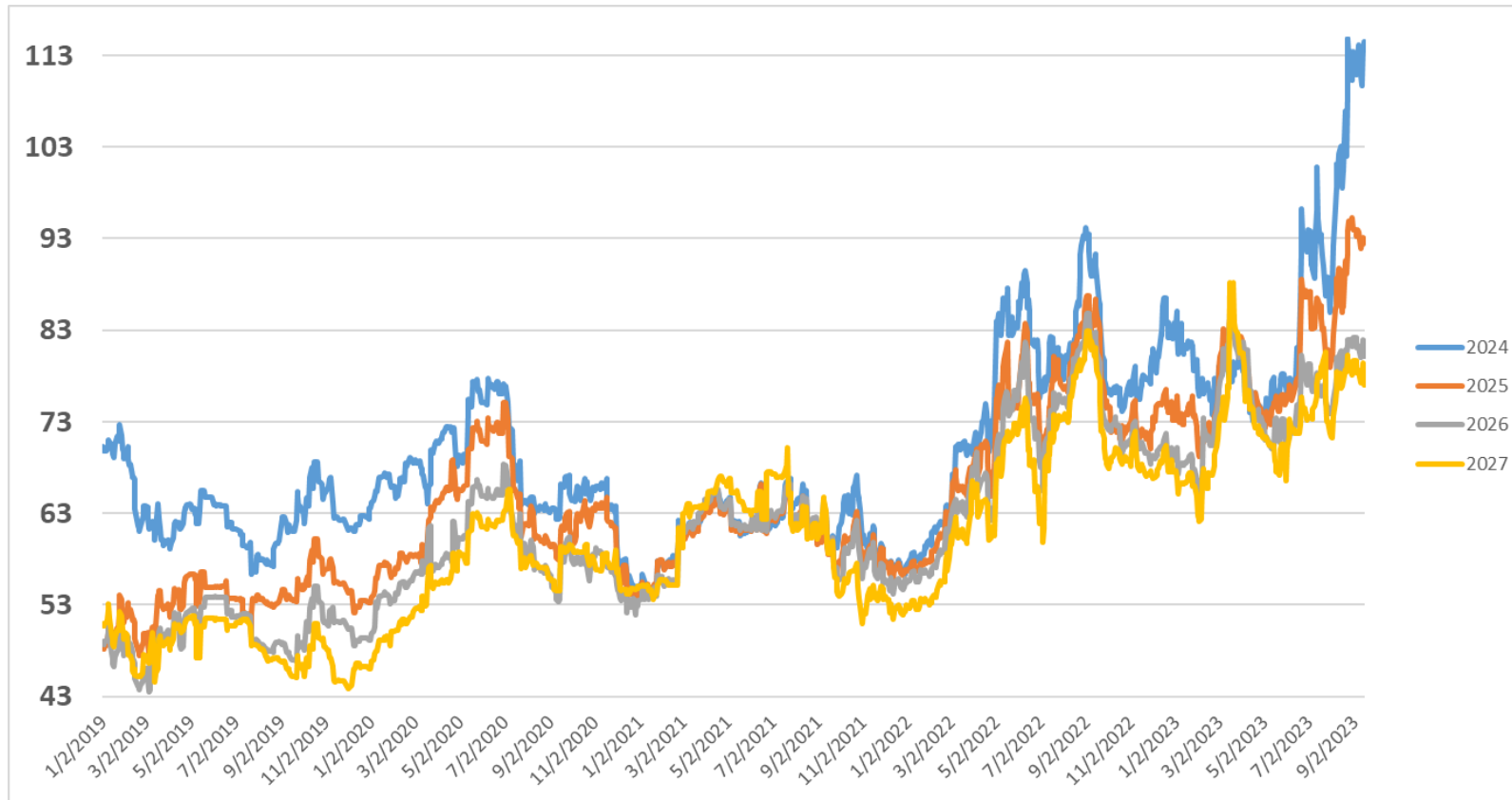
\$14/MWh Backwardation from 2024 to 2027



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5X16 SUMMER PRICING

\$37 / MWh Summer Backwardation 2024 - 2027



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MARKET NUGGETS

Power

- Price Backwardation is once again a feature in the market
- Heat Rate Trend continues to be higher
- Heat Rates driving market pricing – not natural gas
- August ECRS cost was about \$6.50 / MWh

Gas

- Bearish to flat sentiment
- Much of the US gas storage surplus (vs 5-yr average) was depleted by Texas Summer gen
- Storage may start to build again with summer heat gone
- LNG demand running over 13 Bcfd with Freeport back online
- LNG could trend towards +14 Bcfd next spring
- Potential expanded Australian pipeline worker strike may put pressure on US LNG deliveries

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