Energy Market Insights

July 2022

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New England

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Eversource NH Default Rates Soar

January 2023 expected to hit $480/MWh

Eversource NH published estimated values for their August '22 – January '23 default rates in mid-June.

- The rates are estimated based on the winning energy block bids received from NextEra Energy and Constellation Energy.
- The small customer group rate is estimated at $0.22566/kWh, a 165% increase from the average default rate from the previous four years.
- The large customer group is estimated at $0.22423, with December '22 and January '23 coming in at $0.41884/kWh and $0.48550/kWh, respectively. This represents a 182% increase in default rates over the previous four years.
- Most of the YoY increase can be attributed to rising regional gas prices.
- Algonquin natural gas basis prices have risen significantly, with the full price (basis + Henry Hub) for a 6-month strip beginning August '22 trading between $16-$18/Dth.
- The rise in regional New England basis, partly driven by rising global LNG prices, has led to a subsequent increase in electricity forwards.
- The lack of liquidity in the market has also made it difficult for any bearish pressure to take effect on regional gas and electricity prices.

	Estimated Future Default Rates ($/kWh)	
	Small Customer Group	Large Customer Group
Aug-22	$0.22566	$0.22423
Sep-22		$0.19322
Oct-22		$0.17523
Nov-22		$0.24575
Dec-22		$0.41884
Jan-23		$0.48550
AVG	**$0.22566**	**$0.22423**

	Average Historical Default Rates ($/kWh)	
	Small Customer Group	Large Customer Group
2018	$0.0937	$0.0875
2019	$0.0919	$0.0838
2020	$0.0835	$0.0751
2021	$0.0718	$0.0718
AVG	**$0.0852**	**$0.0795**

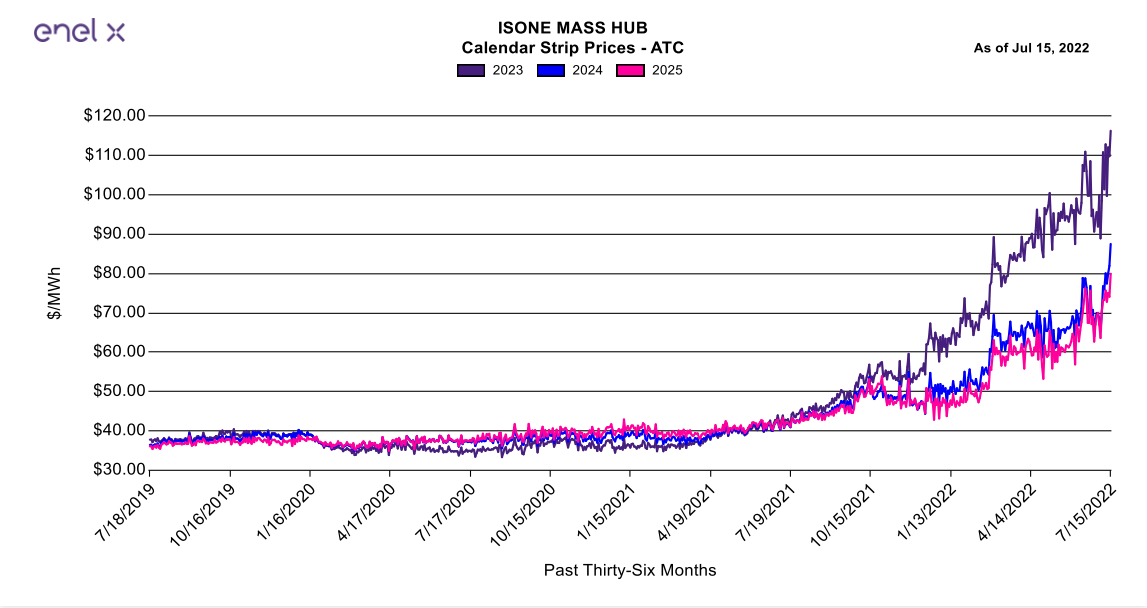
KEY TAKEAWAY: Eversource NH default rates will reach record highs over the next six months with an estimated 210% increase from 2021 default rates. Customers on utility default rates in Eversource NH should look to move to a third-party supply contract ahead of this winter, in order to avoid the particularly expensive months of December 2022 and January 2023.

New England – Power Prices

Mass Hub forwards highly volatile, index prices trend downward MoM

Where are forwards trending?

- CY23 strip prices at the Mass Hub delivery point ranged from $87.49/MWh – $110.95/MWh in June 2022, averaging $98.27/MWh for the month.
- CY24 and CY25 strips averaged $70.45/MWh and $67.55/MWh in June 2022, respectively.
- Strip prices for 2023, 2024, and 2025 have trended upwards through the first two weeks of July.



Where are index prices trending?

- Average monthly DA prices at Mass Hub declined 11% from May 2022 to June 2022. Prices have continued to trend downward through the first two weeks of July.
- June 2022 spot prices were 161% above the five-year average for that month.

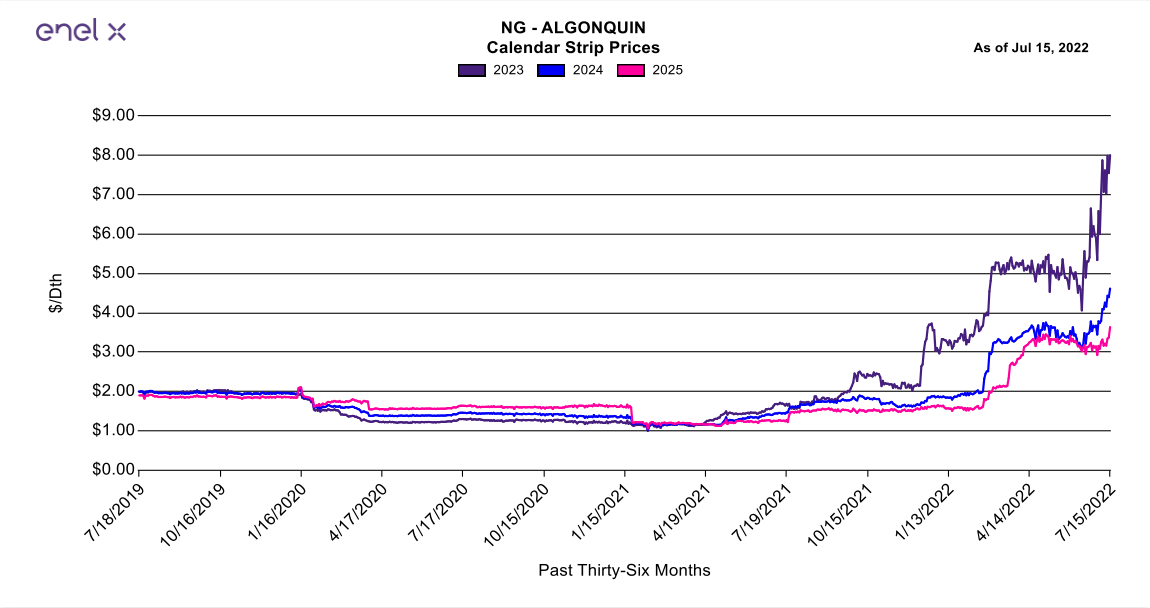
Average Monthly Day Ahead LMP - MaHub									
	2014	2015	2016	2017	2018	2019	2020	2021	2022
Jan	$168.81	$71.14	$38.60	$40.30	$108.75	$56.76	$26.45	$42.73	$149.46
Feb	$156.02	$122.77	$29.90	$30.02	$39.58	$35.62	$23.06	$73.12	$117.08
Mar	$111.16	$64.25	$20.63	$35.75	$35.38	$38.07	$17.18	$34.88	$66.18
Apr	$44.98	$28.43	$28.36	$29.23	$45.00	$26.97	$18.36	$26.14	$62.37
May	$36.95	$24.92	$21.24	$27.31	$24.04	$24.21	$16.48	$24.98	$76.71
Jun	$37.92	$21.16	$22.61	$25.48	$26.82	$22.09	$19.84	$37.10	$68.43
Jul	$37.50	$26.44	$31.12	$27.60	$32.89	$29.78	$23.78	$37.16	$60.88
Aug	$30.35	$30.06	$35.54	$24.90	$39.16	$25.69	$23.79	$49.47	
Sep	$34.10	$30.82	$28.62	$23.57	$33.89	$21.14	$20.46	$48.01	
Oct	$32.19	$37.01	$21.98	$29.74	$38.46	$20.75	$24.78	$57.71	
Nov	$47.71	$29.42	$24.98	$33.98	$57.43	$32.29	$25.12	$56.69	
Dec	$43.00	$22.42	$53.28	$71.31	$47.31	$40.98	$40.15	$65.14	
Avg.	**$65.06**	**$42.40**	**$29.74**	**$33.27**	**$44.06**	**$31.20**	**$23.29**	**$46.09**	**$85.87**

New England – Gas Prices

Algonquin CY23 basis strips climb to $8/Dth, index prices remain well above 5-year avg

Where are forwards trending?

- Algonquin CY 2023 strip prices averaged $5.23/MMBtu in June 2022 but have risen significantly through the first two weeks of July, surpassing $8/MMBtu in recent trading.
- The gap between CY23 strips and CY24/25 strips has widened in recent weeks as 2023 forward prices increase more rapidly than 2024 and 2025 forwards.



Where are index prices trending?

- Algonquin City-Gates daily prices averaged $7.26/MMBtu in June 2022, a 7% decrease from May 2022 prices.
- Despite decreasing MoM, June 2022 index prices were up 156% YoY and 215% above the five-year average.

Average of Daily Prices - Algonquin, City-Gates Full Price w/ HH									
	2014	2015	2016	2017	2018	2019	2020	2021	2022
Jan	$24.69	$9.34	$4.54	$5.09	$15.62	$6.95	$2.83	$4.92	$20.00
Feb	$21.05	$17.50	$3.46	$3.73	$4.40	$4.20	$2.27	$8.37	$14.56
Mar	$15.19	$7.99	$1.87	$4.52	$3.97	$4.04	$1.58	$3.40	$6.54
Apr	$4.80	$3.16	$2.93	$3.11	$4.98	$2.56	$1.63	$2.33	$6.49
May	$3.85	$1.87	$2.12	$3.08	$6.78	$2.32	$1.39	$2.31	$7.79
Jun	$4.05	$1.69	$2.28	$2.45	$2.62	$2.12	$1.52	$2.84	$7.26
Jul	$3.10	$1.99	$2.75	$2.50	$2.83	$2.28	$1.63	$3.22	$5.78
Aug	$2.71	$2.34	$3.11	$2.36	$3.17	$2.02	$1.49	$3.93	
Sep	$3.16	$2.80	$2.59	$1.90	$2.94	$1.95	$1.42	$4.44	
Oct	$2.83	$3.69	$2.26	$2.78	$3.23	$1.66	$2.00	$4.78	
Nov	$6.18	$3.29	$2.54	$3.27	$6.08	$3.31	$1.95	$5.63	
Dec	$6.01	$2.19	$6.74	$9.35	$5.77	$4.61	$4.24	$8.27	
Avg	**$8.07**	**$4.74**	**$3.10**	**$3.69**	**$5.22**	**$3.17**	**$2.00**	**$4.51**	**$9.99**

**This is a generic wholesale curve to New England. Pricing does not reflect locational adjustments, utility tariff designations or rate class adjustments specific to your facility. For more detailed pricing please contact your Enel X representative.*

New York

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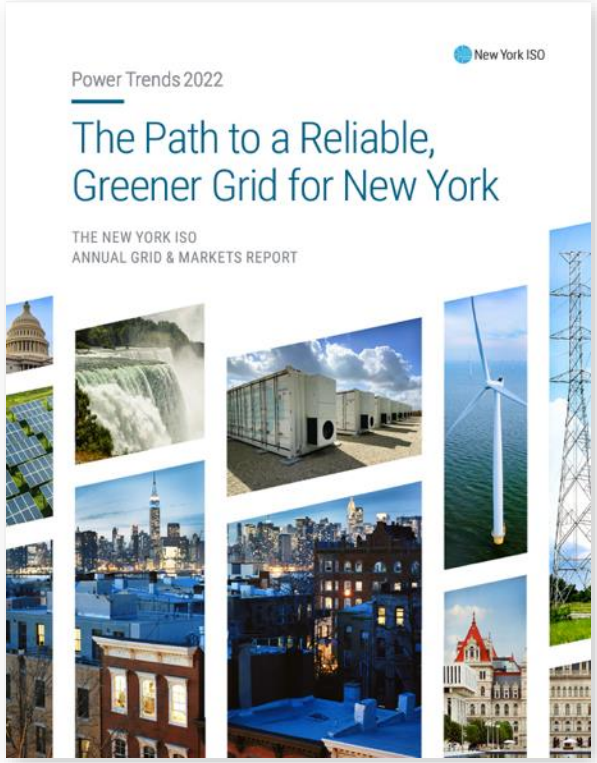
NYISO Releases 2022 Power Trends Report

Supply concerns as early as 2023, capacity market changes on the horizon

In June 2022, NYISO released their 2022 Power Trends report, which touched on a number of relevant topics:



Near-Term Projections:

- Generators needed for reliability on the NYISO grid are retiring and being replaced by intermittent generation. The shrinking reliability margin could lead to outages on the grid as early as 2023 if the state sees significant weather events (for instance, a sustained 98°F+ heat wave).
  - The additional renewable generation on the grid will need to be supported by battery resources, in order to improve reliability and stability on the grid.
- The Comprehensive Mitigation Reform (CMR) Proposal, which was approved by FERC, aims to change buyer side mitigation (BSM) rules in the capacity market so that renewable resources can obtain capacity supply obligations.
  - This change will make it easier for new renewable generating resources to be built on the NY grid.
- The CMR will also update the way capacity values are assigned to supply resources, in order to assure a more efficient market design.

Long-Term Projections:

- NYISO is expecting the grid to become a winter-peaking system by the mid-2030s, with electric heat pumps being the main driver for the switch from a summer peaking system.
- The projected 7.7M electric vehicles on the road in NY state in 2040 are expected to use 30,000 GWh of grid electricity in that year.

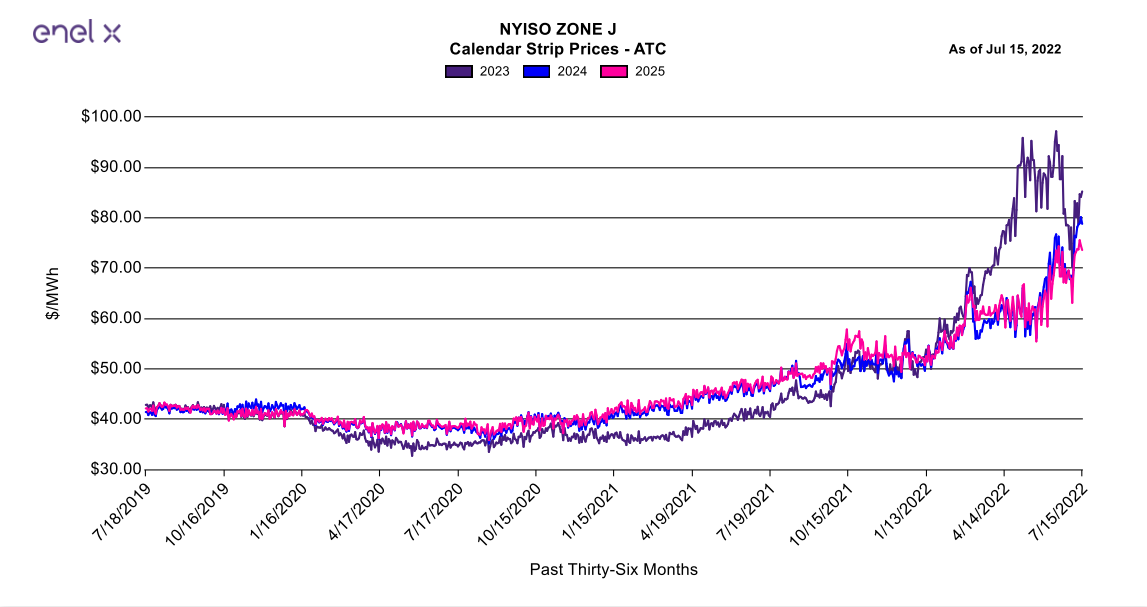
KEY TAKEAWAY: Consumers in New York will face an evolving grid over the next twenty years, with changes to both the supply and demand side of the equation adding uncertainty to grid reliability and the supply of electricity. Extreme weather events could lead to reliability issues and outages on the grid as early as 2023. The additional renewable generation on the grid stemming from the modification of New York's capacity market rules could have bearish pressure on wholesale electricity prices.

NYC – Power Prices

CY23 reduces its premium, June index prices settle above historicals

Where are forwards trending?

- Zone J CY 23 forward prices are currently trading at $85/MWh, $10/MWh below the highs observed in June.
- The CY24 and CY25 strips are up from this time last month, with prices currently trading at $75/MWh and $78/MWh, respectively.
- The CY23 strip's premium to outer years has been reduced over the past month.



Where are index prices trending?

- June prices settled at $75.72, down ~$3 from May's settle amid hot weather in the region.
- The average settlement in June 2022 was 174% above the five-year average for June and 117% above June 2021.

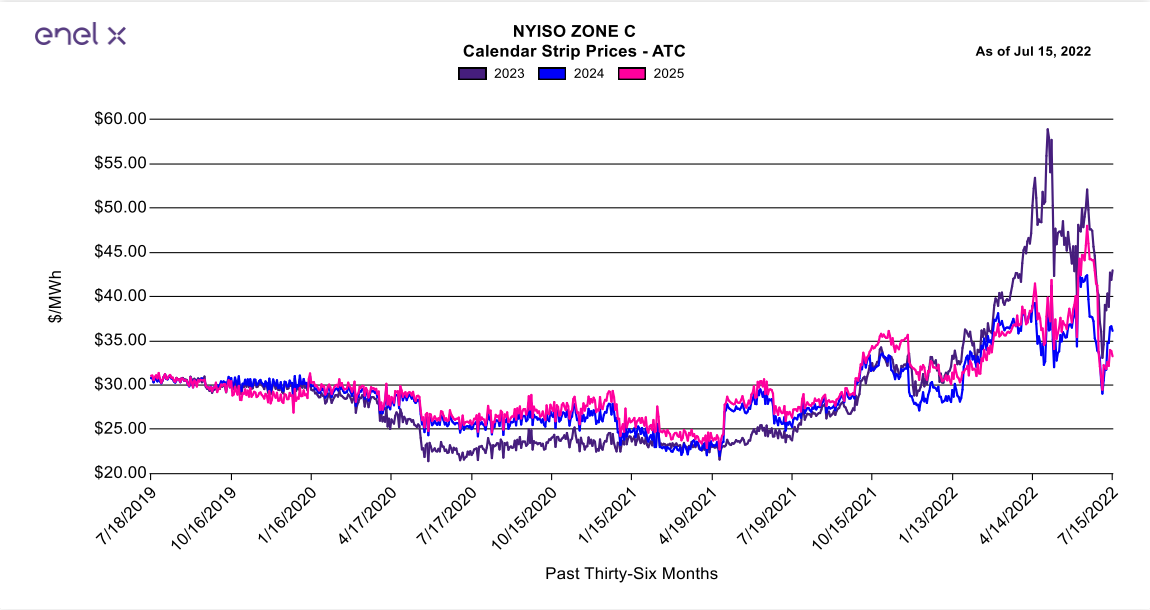
Average Monthly Day Ahead LMP - NYISO - Zone J									
	2014	2015	2016	2017	2018	2019	2020	2021	2022
Jan	$175.92	$57.34	$35.04	$40.64	$96.58	$49.20	$25.12	$36.35	$138.44
Feb	$122.84	$112.33	$29.61	$30.55	$34.05	$33.07	$21.26	$64.78	$94.62
Mar	$102.52	$51.26	$20.75	$36.04	$31.98	$35.00	$16.81	$29.40	$59.23
Apr	$46.49	$27.53	$28.62	$32.27	$34.77	$28.82	$15.53	$24.55	$64.88
May	$37.31	$30.35	$23.45	$31.61	$26.96	$23.39	$14.95	$26.11	$78.58
Jun	$39.95	$24.95	$25.47	$30.17	$29.79	$23.41	$19.78	$34.84	$75.72
Jul	$39.79	$30.01	$35.43	$33.57	$36.94	$31.23	$25.50	$42.00	
Aug	$32.10	$31.10	$35.64	$28.66	$39.36	$26.59	$23.45	$46.90	
Sep	$32.91	$32.45	$27.01	$26.26	$35.52	$21.49	$19.33	$48.41	
Oct	$32.09	$27.68	$20.84	$27.88	$34.70	$19.86	$19.59	$54.47	
Nov	$41.29	$23.34	$25.62	$29.97	$38.60	$26.55	$22.04	$57.10	
Dec	$36.23	$20.24	$46.06	$49.54	$38.63	$28.53	$33.09	$47.29	
Avg	**$61.62**	**$39.05**	**$29.46**	**$33.10**	**$39.82**	**$28.93**	**$21.37**	**$42.68**	**$85.24**

Upstate NY – Power Prices

CY23 drops from May high, spot prices see an expensive June

Where are forwards trending?

- The CY23 strip dropped from its highs in early May, dropping to $34/MWh. It is currently trading at $43/MWh.
- The CY23 strip tested the $35/MWh support line once in late June, driven by a drop in NYMEX prices.
- The CY24 and CY25 strips are both down from this time last month and are currently trading around $34/MWh and $36/MWh, respectively.



Where are index prices trending?

- June spot prices settled above May, averaging $25/MWh higher at $60.38/MWh.
- June 2022 prices were 182% above the five-year average for June and 113% above June 2021 prices.

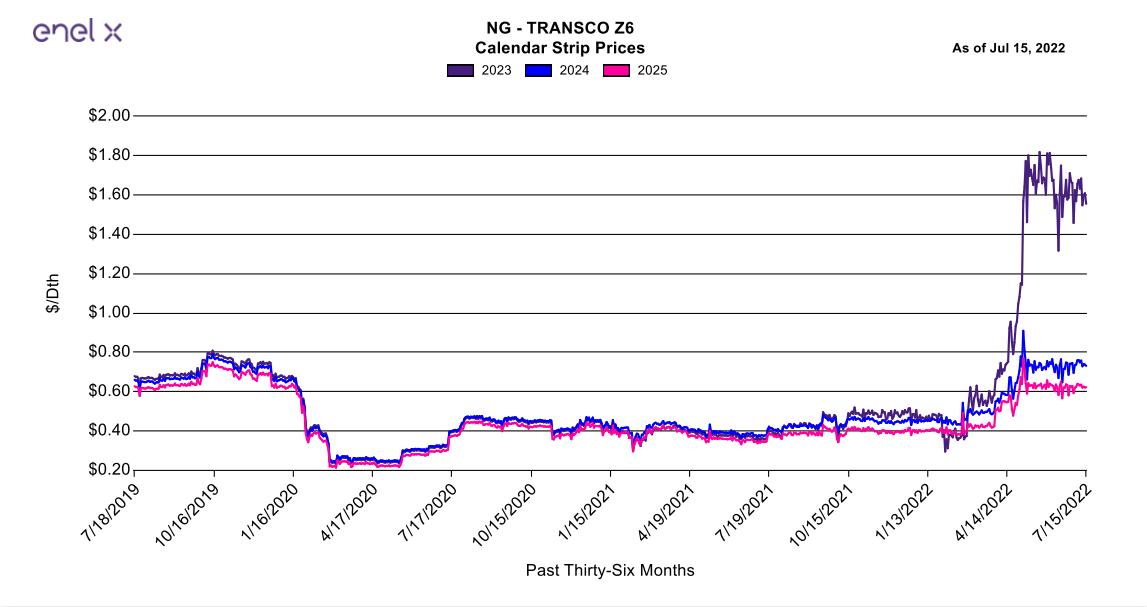
Average Monthly Day Ahead LMP - NYISO - Zone C									
	2014	2015	2016	2017	2018	2019	2020	2021	2022
Jan	$121.65	$37.81	$21.50	$29.68	$62.19	$35.02	$16.57	$23.96	$96.30
Feb	$80.31	$75.58	$17.63	$24.98	$23.91	$25.74	$16.36	$38.58	$66.26
Mar	$85.79	$37.35	$12.58	$24.47	$22.14	$27.67	$13.99	$14.43	$35.21
Apr	$40.38	$22.80	$22.01	$20.86	$28.14	$21.82	$11.87	$10.15	$34.31
May	$32.23	$25.66	$16.11	$20.28	$22.94	$15.11	$13.08	$15.97	$35.52
Jun	$35.71	$20.24	$21.06	$20.86	$25.51	$15.67	$16.46	$28.27	$60.38
Jul	$34.52	$24.94	$29.31	$25.74	$31.54	$25.27	$22.18	$32.81	
Aug	$29.40	$25.43	$30.40	$22.71	$32.87	$22.40	$19.94	$40.97	
Sep	$28.79	$25.14	$22.75	$21.72	$29.40	$16.90	$16.36	$35.01	
Oct	$29.30	$24.02	$18.27	$20.67	$29.50	$16.49	$16.10	$43.23	
Nov	$34.18	$16.32	$21.58	$23.18	$31.86	$19.75	$13.45	$41.57	
Dec	$31.50	$13.65	$25.79	$33.62	$31.12	$19.76	$19.69	$34.51	
Avg	**$48.65**	**$29.08**	**$21.58**	**$24.06**	**$30.93**	**$21.80**	**$16.34**	**$29.95**	**$54.66**

New York – Gas Prices

Gas basis forwards and index prices remain high

Where are forwards trending?

- The CY23 strip has decreased slightly over the past two months, going from $1.80/MMBtu to $1.60/MMBtu.
- Historically the CY23 strip has traded flat around $0.50/MMBtu, with the significant run-up beginning in mid April 2022.
- The CY24 and CY25 strips are trading flat from this time last month at $0.70/MMBtu and $0.60MMBtu, respectively.



Where are index prices trending?

- Full value natural gas basis settled at $6.91/MMBtu in June, down ~$0.50 from May's average value.
- June 2022 price settled 206% above the five-year average and about 164% above the June 2021 settle.

Average of Daily Prices - Transco Z6 NY Full Value									
	2014	2015	2016	2017	2018	2019	2020	2021	2022
Jan	$27.66	$7.24	$3.82	$3.82	$18.73	$6.02	$2.20	$3.13	$11.15
Feb	$11.27	$16.01	$3.09	$2.85	$3.21	$2.85	$1.87	$5.21	$6.17
Mar	$8.24	$3.67	$1.29	$3.44	$2.83	$2.91	$1.49	$2.24	$4.48
Apr	$4.13	$2.22	$1.57	$2.81	$2.79	$2.37	$1.51	$2.13	$6.11
May	$3.49	$2.60	$1.56	$2.80	$2.56	$2.28	$1.35	$2.36	$7.39
Jun	$3.22	$2.35	$1.83	$2.34	$2.78	$2.11	$1.43	$2.61	$6.91
Jul	$2.72	$1.98	$2.14	$2.44	$2.88	$2.17	$1.69	$3.32	
Aug	$2.38	$2.37	$2.03	$2.17	$3.00	$1.87	$1.47	$3.75	
Sep	$2.25	$2.09	$1.34	$2.29	$2.74	$1.75	$1.25	$4.27	
Oct	$2.09	$2.22	$1.12	$2.32	$2.89	$1.53	$1.22	$4.56	
Nov	$3.88	$1.77	$2.10	$2.91	$4.18	$2.62	$1.47	$4.92	
Dec	$3.25	$1.58	$4.37	$5.67	$4.12	$2.56	$2.78	$3.44	
Avg	$6.21	$3.84	$2.19	$2.99	$4.39	$2.59	$1.64	$3.49	$7.03

Mid-Atlantic

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PJM Holds 23/24 Capacity Auction

Comes after major delays related to capacity calculation disagreements with FERC

- After a multi-year delay, PJM held the annual Reliability Pricing Model (RPM) Base Residual Auction (BRA) for the 2023/2024 planning year – aka, it's "capacity auction."
- 23/24 prices were expected to stay in line with 22/23 rates but saw a decrease of 40% on average across all zones in rates resulting in a welcome price reprieve to retail customers in PJM.
- Lower priced results point to a PJM region that has plentiful supply of generation resources and relatively unchanged demand for electricity.
- A notable statistic for the 23/24 delivery year: coal generation that cleared the capacity auction (meaning they will receive capacity revenue) fell to almost 50% of the amount that cleared for the 21/22 delivery year, just 2 years previously.
- The minimum offer pricing rule (MOPR) and market seller offer cap (MSOC), which caused the major schedule delay, had minimal effect on prices in the 23/24 auction.

	Capacity Rates ($/MW-Day)		Total Annual Cost		
Zone	2023/2024	2022/2023	1MW Tag 2023/2024	1MW Tag 2022/2023	*Difference from 22/23 to 23/24*
AECO	$49.59	$97.75	$21,417	$41,786	($20,369)
AEP (Duke)	$34.20	$50.09	$15,123	$22,095	($6,972)
APS	$34.20	$50.09	$15,047	$21,340	($6,293)
ATSI (First Energy)	$34.20	$50.09	$15,039	$22,269	($7,230)
BGE	$71.62	$107.92	$31,439	$46,617	($15,177)
COMED	$34.20	$67.17	$14,708	$30,127	($15,419)
DAY	$34.20	$50.09	$14,907	$22,709	($7,801)
DEOK	$34.20	$59.38	$15,147	$26,834	($11,688)
DOM	$34.20	$50.09	$15,701	$21,246	($5,545)
DPL	$56.57	$97.75	$24,750	$41,351	($16,601)
DUQ	$34.20	$50.09	$14,921	$22,035	($7,114)
EKPC	$34.20	$50.09	$15,413	$21,614	($6,201)
JCPL	$49.59	$97.75	$21,388	$40,125	($18,738)
METED	$49.70	$96.42	$21,432	$41,897	($20,466)
PECO	$49.59	$97.75	$21,605	$43,000	($21,395)
PENELEC	$49.70	$96.42	$21,170	$40,591	($19,421)
PEPCO	$49.70	$95.97	$21,642	$41,876	($20,234)
PPL	$49.70	$96.42	$21,533	$42,385	($20,852)
PSEG	$49.59	$97.75	$21,692	$41,660	($19,968)
RECO	$49.59	$97.75	$21,456	$38,875	($17,419)

Source: PJM.com

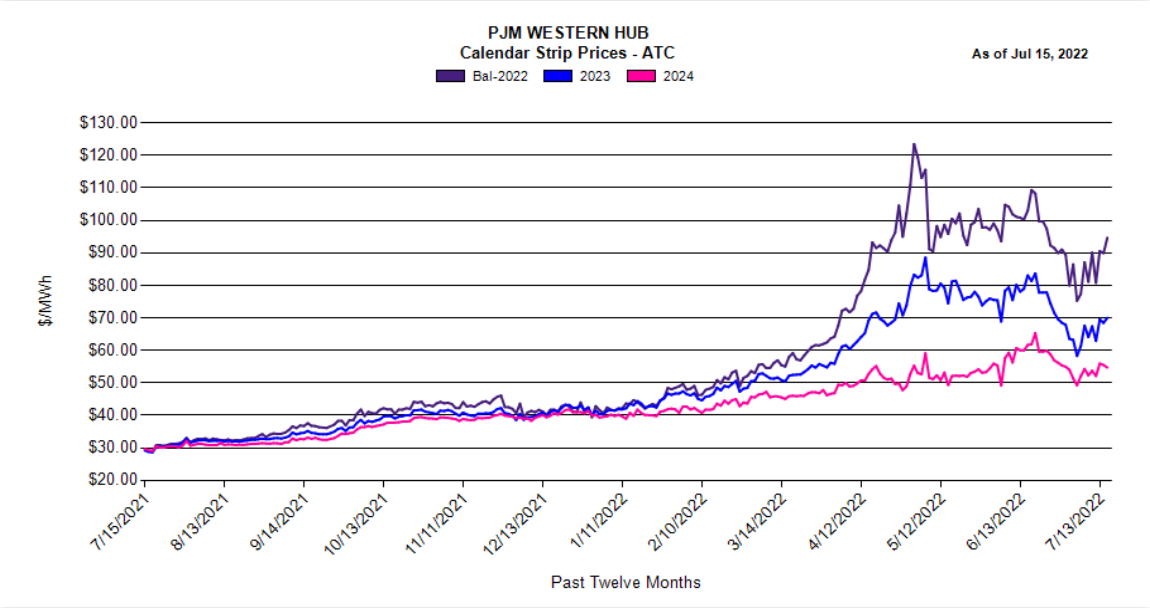
KEY TAKEAWAY: Capacity spend in PJM is traditionally the highest cost on a retail supply contract behind energy. Rates and annual spend for a customer with a 1 MW capacity tag (set over the 5 highest demand hours from the previous summer) are shown above. The decrease in 23/24 capacity rates bring another welcome capacity cost reprieve, partially offsetting rising energy costs which have pushed up contracting costs throughout the country.

PJM – Power Prices

After a long period of sustained price increases, some relief finally arrives

Where are forwards trending?

- Late June and early July saw a significant price drop as natural gas fundamentals caused a delayed price response in power forwards.
- Biggest drops occurred in the 2022 and 2023 strips as some natural gas concerns were alleviated from a month earlier.



Where are index prices trending?

- Despite the drop in forward pricing, average monthly pricing at Western Hub continued to set near term record in May and June, with high cooling demand outlooks being the major driver.
- Late July forecasts are overwhelmingly hot, meaning July will likely exceed June to set yet another annual high point.

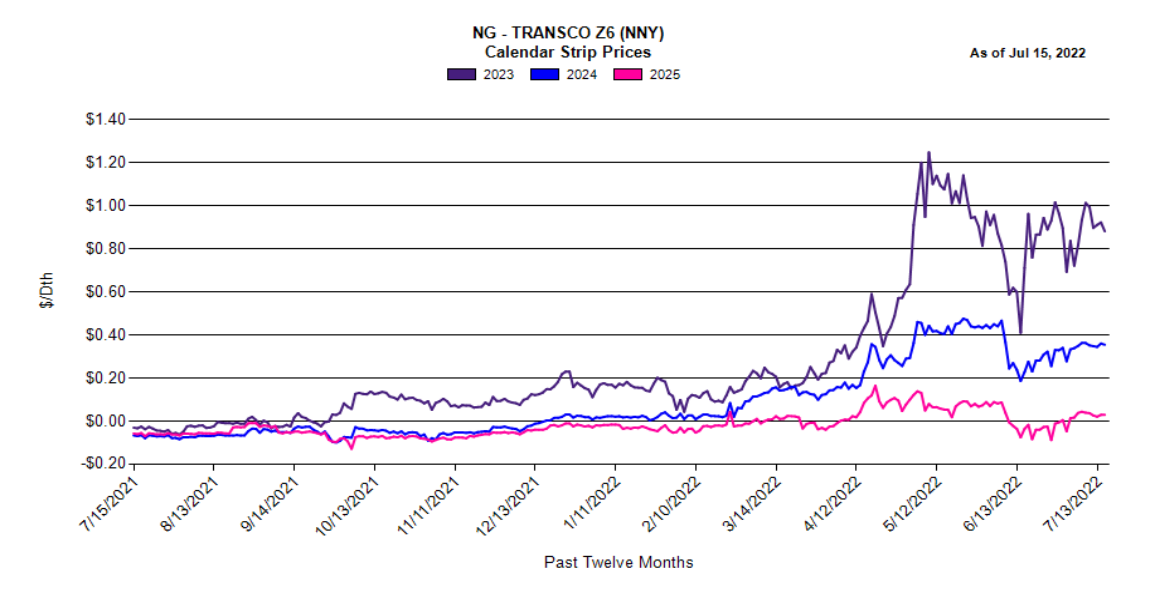
Average Monthly Day Ahead LMP - West Hub										
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Jan	$36.01	$132.05	$38.62	$30.99	$31.24	$72.91	$33.57	$22.03	$25.76	$68.75
Feb	$36.23	$71.44	$75.79	$28.48	$26.51	$27.61	$27.28	$19.89	$42.32	$51.25
Mar	$40.19	$69.56	$39.94	$25.49	$31.66	$33.69	$29.82	$18.63	$24.85	$46.31
Apr	$39.76	$41.45	$32.99	$30.00	$29.41	$35.25	$25.76	$17.38	$26.95	$66.53
May	$39.37	$42.04	$34.74	$24.30	$29.14	$35.50	$25.30	$17.38	$28.00	$79.21
Jun	$37.27	$40.79	$31.57	$26.34	$26.16	$29.64	$22.61	$18.53	$30.86	$86.00
Jul	$47.37	$37.23	$34.07	$32.38	$28.88	$32.27	$27.64	$25.42	$36.63	
Aug	$34.66	$34.46	$30.45	$32.60	$27.08	$32.23	$24.30	$23.18	$43.54	
Sep	$36.31	$35.63	$30.25	$30.76	$29.99	$32.71	$26.15	$19.56	$45.27	
Oct	$35.83	$35.34	$31.46	$30.20	$29.34	$33.21	$25.02	$21.75	$59.23	
Nov	$36.48	$39.43	$27.71	$26.81	$30.23	$37.34	$29.22	$21.32	$65.47	
Dec	$41.20	$33.31	$25.42	$32.13	$36.70	$33.79	$23.63	$26.03	$38.81	
Avg	$38.39	$51.06	$36.08	$29.21	$29.70	$36.34	$26.69	$20.92	$38.97	$66.34

PJM – Gas Prices

Gas prices respond to bearish headlines to end the bullish streak

Where are forwards trending?

- Transco Zone 6 Basis prices recovered from the mid-June drop, experiencing an inverse relationship with the significant reduction in Henry Hub (NYMEX) pricing.
- NYMEX 12 mo. forwards have slightly recovered after dropping from the mid-June high of over $9/Dth to less than $6/Dth. Recent closing prices have settled in the $7 range after a late week surge.



Where are index prices trending?

- Driven by the drop in NYMEX, Transco index average prices surprisingly cooled off in June. A cooler than expected June helped to bring prices down for a sustained period.
- Storage concerns have been temporarily alleviated as the Freeport LNG shutdown has allowed storage levels to rise at a higher rate, increasing the end of season outlook.

Average of Daily Prices - Transco Zone 6 xNY										
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Jan	$4.77	$25.21	$5.12	$3.19	$3.56	$16.78	$4.16	$2.16	$2.82	$9.60
Feb	$3.96	$8.47	$14.03	$2.66	$2.72	$3.07	$2.74	$1.85	$4.88	$5.40
Mar	$4.09	$5.96	$3.53	$1.31	$3.15	$2.78	$2.88	$1.48	$2.23	$4.44
Apr	$4.33	$4.27	$2.22	$1.57	$2.84	$2.77	$2.35	$1.50	$2.12	$6.07
May	$4.13	$3.52	$2.62	$1.60	$2.83	$2.55	$2.26	$1.36	$2.34	$7.34
Jun	$3.88	$3.22	$2.41	$1.92	$2.38	$2.77	$2.09	$1.42	$2.59	$6.88
Jul	$3.74	$2.70	$2.11	$2.18	$2.47	$2.87	$2.16	$1.67	$3.31	
Aug	$3.49	$2.38	$2.41	$2.12	$2.25	$3.01	$1.87	$1.46	$3.73	
Sep	$3.71	$2.22	$2.17	$1.53	$2.31	$2.73	$1.74	$1.23	$4.25	
Oct	$3.65	$2.15	$2.22	$1.36	$2.31	$2.86	$1.52	$1.20	$4.54	
Nov	$3.90	$3.87	$1.81	$2.16	$2.83	$4.10	$2.59	$1.46	$4.88	
Dec	$4.77	$3.37	$1.58	$3.69	$4.93	$4.01	$2.43	$2.78	$3.36	
Avg	$4.03	$5.61	$3.52	$2.11	$2.88	$4.19	$2.40	$1.63	$3.42	$6.62

Midwest

July 2022

< back to beginning

Michigan PSC Approves Consumers Energy IRP

Utility on path to maintain near-term reliability and achieve decarbonization by 2040

The Michigan Public Service Commission's (PSC) approval of Consumers Energy's Integrated Resource Plan (IRP) Settlement Agreement on June 23rd should provide a significant capacity margin buffer for MISO Zone 7 through 2025 and speed up the adoption of renewable energy and storage technology.

Highlights of the IRP include:

- Consumers' purchase of the gas-fired Covert Generating Station in 2023, which will move the plant from PJM to MISO and increase the MISO Zone 7 capacity reserve margin by 1,114 MW Zonal Resource Credits (ZRCs) beginning in the 2023-24 MISO planning year.*
- Retirement of the 1,318 MW coal-fired J.H. Campbell generator in 2025.
- Delayed retirement of the 769 MW natural gas- and fuel oil-fired D.E. Karn power plant until May 2031.
- Proposed roll out of Demand Response projected to achieve 641 MW of ZRCs by 2025.
- Approval for a one-time solicitation of up to 700 MW of ZRCs in MISO Zone 7 starting in the 2025-26 planning year.
- Battery deployment program (aiming for 75 MW of storage by 2027).
- Bringing thousands of MW of new solar energy capacity online in the next few years to achieve Consumers' target of 8 GW of new solar by 2040.

Capital expenditures associated with the IRP could exceed $900 M in the next five years – the purchase of Covert Generating Station and deployment of DR are projected to cost $815 M and $24 M, respectively.

* Note: the $236.66 capacity price in MISO Zone 7 in the 2022-23 planning year was a result of a shortage of 1,230 MW of capacity in the aggregated MISO North and Central region (e.g., MISO Zones 1 – 7). The addition of Covert to MISO Zone 7 should help make up a significant portion of this shortfall through 2025.

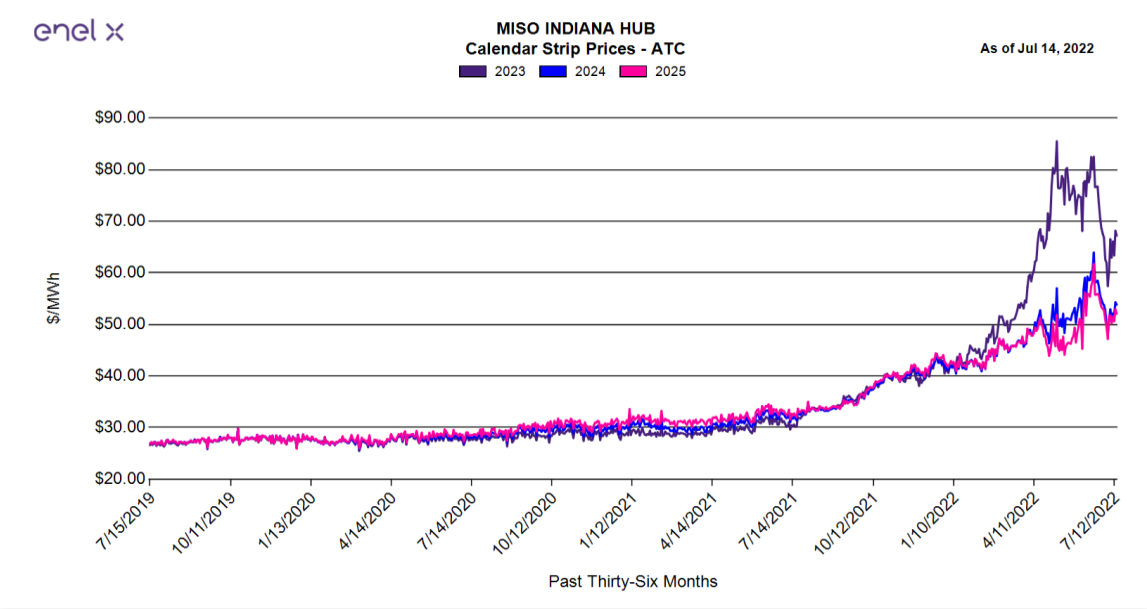
KEY TAKEAWAY: Consumers Energy utility default rates are set to increase, ceteris paribus, due to costs associated with the approved IRP. At the same time, the new generation and storage resources identified in the IRP will significantly increase the MISO Zone 7 capacity reserve margin and almost singlehandedly address the capacity deficiency across MISO Zones 1-7 that resulted in high prices in 2022-23.

MISO – Power Prices

Electricity prices decrease on lower demand and gas prices

Where are forwards trending?

- There has been convergence between the 2023 and 2024 calendar strip prices over the past month reflecting the decrease in near-term natural gas prices.
- However, ongoing constraints in the coal market are limiting the use of coal for electricity generation and forcing less efficient, higher-priced natural gas-fired generation to produce electricity throughout the Midwest, which negates some of the impact of lower gas prices.



Where are index prices trending?

- A two-week heat wave in the latter half of June significantly increased electricity demand and pushed DA prices above $135/MWh at the Indiana Hub.
- Relatively cooler weather in July has offered some price relief as MISO demand retreated from June highs.

Average Monthly Day-Ahead LMP - Indiana Hub

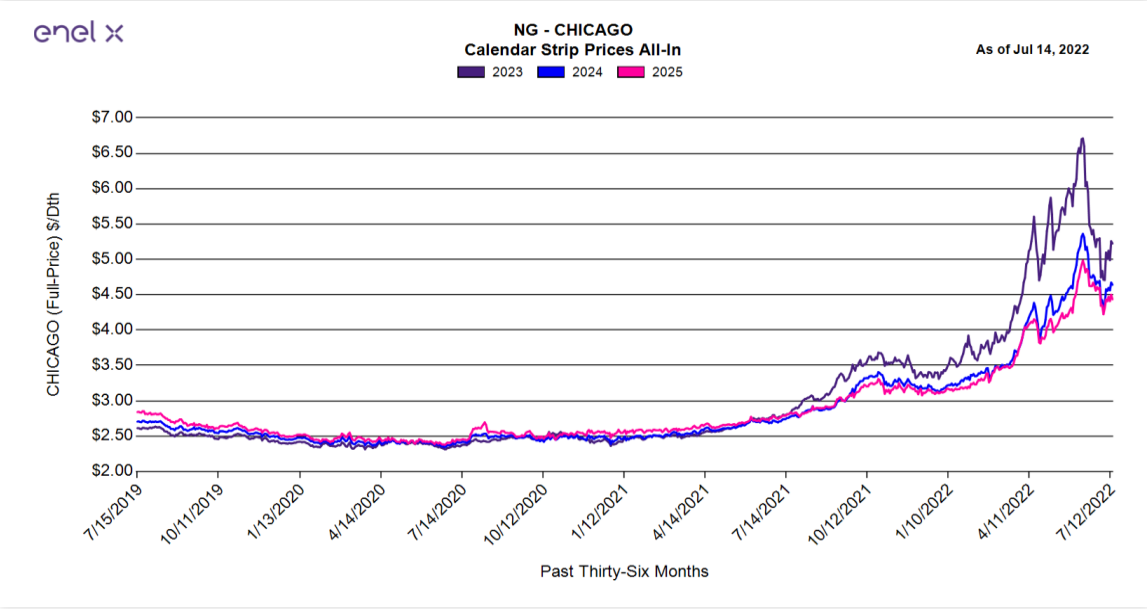
	2014	2015	2016	2017	2018	2019	2020	2021	2022
Jan	$63.86	$30.77	$23.96	$31.28	$40.67	$32.80	$23.49	$25.78	$52.64
Feb	$58.29	$40.41	$22.23	$26.45	$27.77	$27.25	$22.00	$61.88	$49.55
Mar	$46.93	$30.22	$22.03	$28.37	$28.32	$29.18	$20.81	$23.78	$49.51
Apr	$37.30	$27.64	$27.99	$29.86	$31.37	$27.18	$19.73	$28.27	$67.22
May	$38.41	$29.47	$24.35	$29.66	$33.79	$25.84	$19.94	$27.27	$77.29
Jun	$36.35	$27.52	$27.13	$28.90	$32.47	$24.58	$22.16	$34.17	$90.23
Jul	$32.12	$28.52	$31.28	$29.94	$31.59	$28.45	$26.88	$37.86	$82.32
Aug	$32.49	$27.36	$31.14	$27.49	$31.73	$25.21	$25.36	$44.24	
Sep	$32.51	$27.97	$32.69	$33.55	$33.39	$26.83	$21.34	$45.15	
Oct	$33.09	$26.90	$32.66	$29.60	$36.12	$24.98	$25.36	$58.19	
Nov	$35.99	$25.37	$27.87	$28.39	$36.07	$27.81	$24.12	$64.62	
Dec	$31.21	$22.82	$33.76	$28.88	$34.46	$23.56	$24.39	$43.31	
Avg	**$39.88**	**$28.75**	**$28.09**	**$29.36**	**$33.15**	**$26.97**	**$22.97**	**$41.21**	**$62.84**

Chicago – Gas Prices

Freeport LNG outage provides respite from historic natural gas price run-up

Where are forwards trending?

- The outage of the Freeport LNG export facility, expected to last through late 2022, has reduced U.S. export capacity by ~2.Bcf/d and allowed for the injection of more gas into storage for the upcoming heating season.
  - US Midwest storage sits at a 9.8% deficit to the 5-year average, an improvement to the 18.4% and 14.9% deficits in May and June.
- Chicago City-Gate 2022 and 2023 strip prices have converged as a result, with 2022 prices dropping from a ~$1.0/MMBtu premium in June to a ~$0.5/MMBtu premium in July.



Where are index prices trending?

- Higher gas burn for electricity production provided upward price pressure in the Midwest through the June heat wave, offsetting some of the benefit realized from the Freeport outage.
- July prices (through the 14th) are down 26% from the 12-month high in May but are trading at a 61% premium to July 2021.

Average of Daily Prices - Chicago City Gate									
	2014	2015	2016	2017	2018	2019	2020	2021	2022
Jan	$7.93	$3.04	$2.34	$3.29	$3.79	$3.22	$1.92	$2.53	$4.17
Feb	$11.95	$3.98	$1.99	$2.81	$2.57	$2.64	$1.74	$22.75	$4.48
Mar	$9.35	$2.90	$1.79	$2.84	$2.48	$3.39	$1.57	$2.47	$4.60
Apr	$4.72	$2.59	$1.90	$2.96	$2.77	$2.45	$1.66	$2.54	$6.39
May	$4.59	$2.81	$1.91	$3.02	$2.49	$2.36	$1.67	$2.75	$7.79
Jun	$4.64	$2.70	$2.46	$2.79	$2.75	$2.11	$1.55	$3.12	$7.42
Jul	$4.11	$2.83	$2.72	$2.80	$2.69	$2.12	$1.67	$3.61	$5.80
Aug	$3.92	$2.85	$2.74	$2.81	$2.86	$1.98	$2.05	$3.91	
Sep	$3.94	$2.69	$2.89	$2.87	$2.81	$2.13	$1.80	$4.80	
Oct	$3.84	$2.39	$2.86	$2.78	$3.21	$1.94	$2.08	$5.26	
Nov	$4.37	$2.14	$2.41	$2.97	$4.06	$2.51	$2.41	$4.89	
Dec	$3.49	$1.94	$3.63	$2.84	$3.75	$2.10	$2.44	$3.60	
Avg	$5.57	$2.74	$2.47	$2.90	$3.02	$2.41	$1.88	$5.19	$5.81

California

July 2022

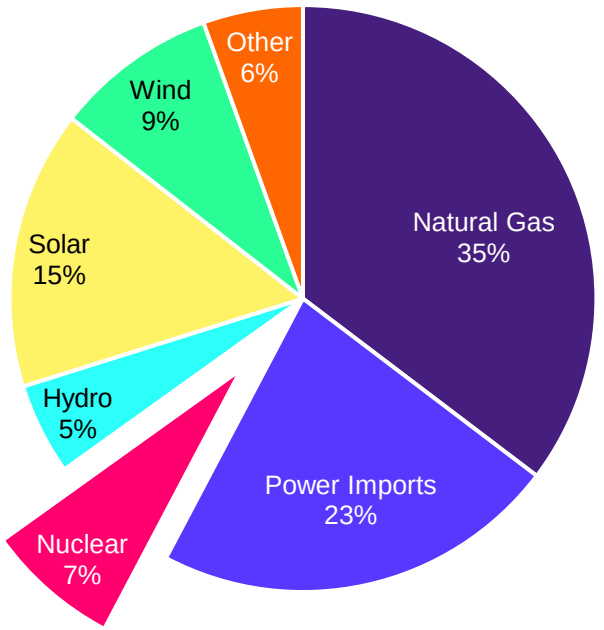
< back to beginning

CA Regulators Create Grid Reliability Fund

Newly established fund will invest in existing and new generation to increase reliability

- On June 29, California Legislators passed SB–112, establishing the state's Strategic Reliability Reserve Fund aimed at investing in new battery storage, emergency generation, zero-emission resources, and extending the lifetime of existing generation (including non-renewables) that are currently slated for retirement.
- SB-112 passed about a month after CAISO forecasted a potential generation shortfall in summer 2022 (CAISO Summer Loads and Resources Assessment). SB-112 also highlights the pervasive effects of climate change-driven extremes (drought, heat storms) on the grid's ability to supply enough generation at affordable rates. The fund will be managed by the Department of Water Resources with consultation by the state's Energy Commission.
- Unlike prior energy legislation, SB-112 is less renewable-focused as it does not define the fuel source of retiring generators it can fund the extension of. This, in conjunction with the Biden Administration's $6 billion program to assist the nation's aging nuclear fleet, has many looking at the potential extension of Diablo Canyon, California's last nuclear power plant.
- Currently slated for retirement by 2025 Diablo Canyon generated roughly 7% of the state's total electricity in 2021(illustrated in the chart to the right). The potential funding of Diablo Canyon and other non-renewable generating facilities is a stark change for the state's energy policy, but is largely necessary to maintain grid reliability as the state faces persistent grid reliability risk.

CAISO: 2021 Generation by Fuel Type



Source: Platt's Megawatt Daily Fundamentals

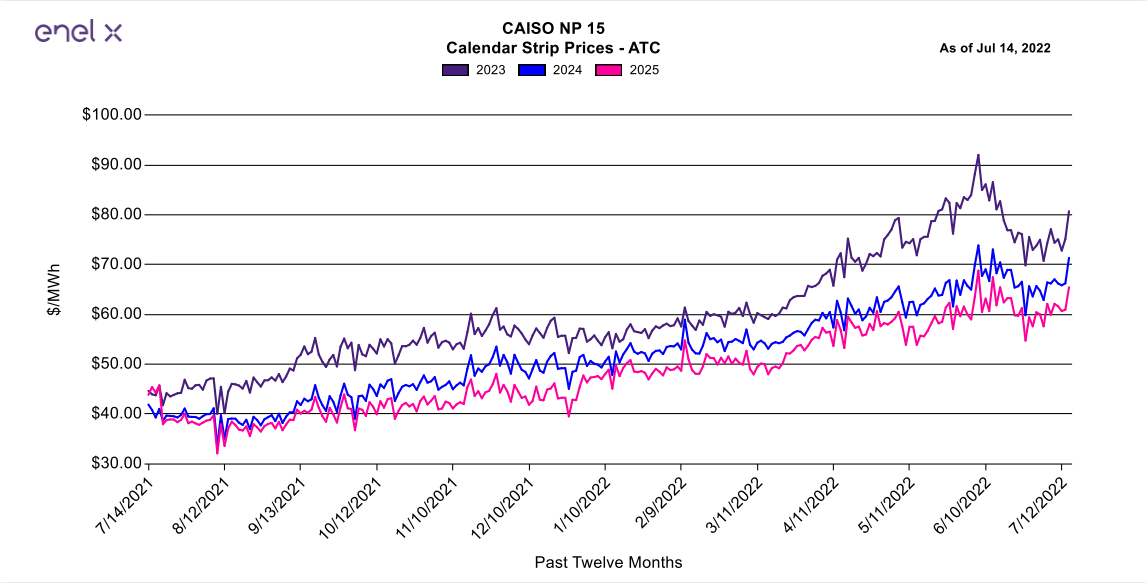
KEY TAKEAWAY: California's Strategic Reliability Reserve Fund is the state's latest attempt at addressing unsustainable grid reliability risks. Deviating from a historically renewable focus, the capability to fund extensions of non-renewable generators is necessary to reduce the potential of future shortfall while integrating more zero emission assets.

Northern CA – Power Prices

Driven by national natural gas prices, NP-15 electric forwards continue to rise

Where are forwards trending?

- Prices for the NP-15 2023 strip price fell through the end of June due to increased natural gas availability nationally following the Freeport LNG Outage. CY 2023 strips are still up 80% compared to this time last year and are currently trading in the 86th percentile since the start of 2022.
- National natural gas forward prices have risen due to increased power burn this summer causing supply concerns through the winter of 22/23. The increased pressure on near-term forwards has exacerbated backwardation in power markets, with the 2024 strip price trading at a $9/MWh (33%) discount compared to the 2023 calendar year price.



Where are index prices trending?

- June 2022 Day Ahead spot prices averaged roughly $74/MWh, the highest monthly average since February 2019. Hourly prices averaged 133% higher than the 5-year average, amid seasonally above average temperatures driving increased electric demand.

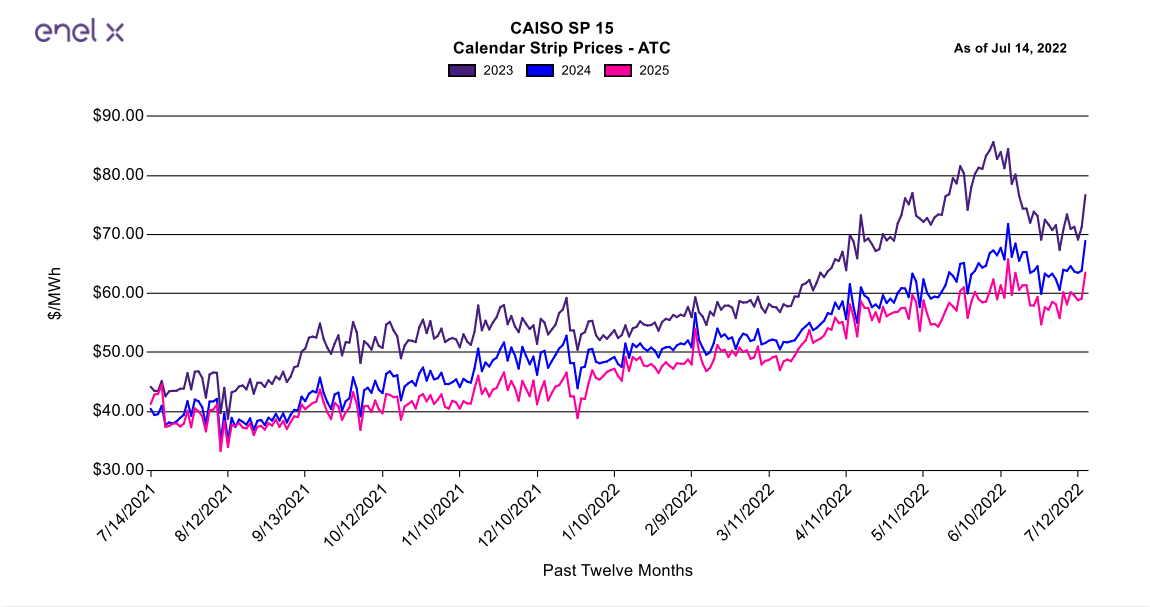
Average Daily Price - NP 15									
	2014	2015	2016	2017	2018	2019	2020	2021	2022
Jan	$ 46.07	$ 33.40	$ 28.54	$ 34.90	$ 32.94	$ 41.09	$ 31.19	$ 33.61	$ 52.71
Feb	$ 61.99	$ 30.71	$ 24.01	$ 29.23	$ 30.47	$ 75.58	$ 26.34	$ 59.48	$ 47.63
Mar	$ 47.63	$ 30.72	$ 19.60	$ 22.12	$ 30.06	$ 36.63	$ 26.58	$ 33.04	$ 46.90
Apr	$ 47.48	$ 32.27	$ 21.23	$ 22.13	$ 24.91	$ 22.25	$ 21.61	$ 35.58	$ 63.42
May	$ 46.67	$ 32.69	$ 20.76	$ 29.28	$ 20.75	$ 18.46	$ 18.43	$ 35.95	$ 66.57
Jun	$ 45.42	$ 34.64	$ 28.09	$ 33.12	$ 28.14	$ 22.94	$ 23.49	$ 50.31	$ 73.67
Jul	$ 47.23	$ 35.54	$ 32.80	$ 35.84	$ 54.89	$ 30.28	$ 25.70	$ 67.21	$ 63.28
Aug	$ 46.49	$ 34.32	$ 34.85	$ 45.20	$ 49.84	$ 31.82	$ 49.66	$ 60.30	
Sep	$ 45.45	$ 34.46	$ 34.66	$ 39.72	$ 33.42	$ 34.55	$ 41.66	$ 66.53	
Oct	$ 44.73	$ 32.49	$ 34.03	$ 41.19	$ 43.74	$ 36.32	$ 42.90	$ 66.29	
Nov	$ 45.12	$ 29.41	$ 30.17	$ 36.27	$ 52.40	$ 41.51	$ 38.58	$ 58.84	
Dec	$ 37.52	$ 28.65	$ 36.60	$ 34.22	$ 54.17	$ 39.82	$ 40.06	$ 61.88	
Avg	$ 46.81	$ 32.44	$ 28.78	$ 33.60	$ 37.98	$ 35.94	$ 32.18	$ 52.42	$ 59.17

Southern CA – Power Prices

2023 Electric Forwards double in price since last year

Where are forwards trending?

- SP-15 forward prices were level to begin the month of July but recently increased due to rising prices in national natural gas. Prices for the CY 2023 strip are now roughly double where they were trading last year and 44% higher from the beginning of 2022.
- Following a steep decline from June highs, prices have recently risen due to nationwide increases in demand for natural gas to meet power generation. Longer-term future contracts present backwardation with the CY 2024 strip price trading at a 10% discount compared to 2023.



Where are index prices trending?

- Southern California DA average spot prices for June 2022 ($68/MWh) were the highest in over a decade. Drought conditions leading to increased reliance on natural gas have driven up hourly prices, particularly in evening hours. Average Day Ahead prices for the first half of July have fallen due to increased availability of natural gas nationally. Price through the remainder of the month are expected to rise as persistent above-average temperatures are expected.

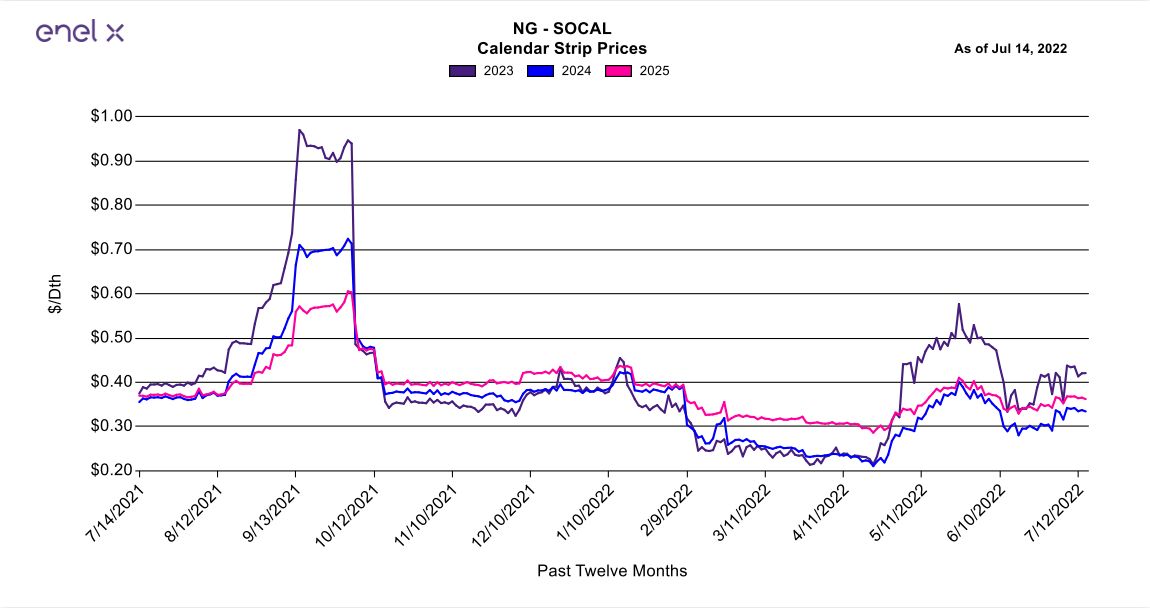
Average Daily Price - SP 15									
	2014	2015	2016	2017	2018	2019	2020	2021	2022
Jan	$ 46.47	$ 33.51	$ 28.18	$ 33.55	$ 34.37	$ 39.96	$ 31.22	$ 31.73	$ 50.69
Feb	$ 61.70	$ 30.05	$ 22.99	$ 26.39	$ 34.24	$ 70.89	$ 25.67	$ 64.01	$ 43.17
Mar	$ 47.60	$ 29.00	$ 18.05	$ 21.75	$ 30.53	$ 36.02	$ 24.99	$ 30.48	$ 41.47
Apr	$ 44.71	$ 27.93	$ 18.44	$ 24.80	$ 24.88	$ 23.52	$ 18.53	$ 30.30	$ 56.09
May	$ 45.85	$ 27.21	$ 21.01	$ 28.35	$ 21.65	$ 18.43	$ 17.26	$ 28.13	$ 59.06
Jun	$ 45.25	$ 33.94	$ 29.95	$ 32.80	$ 28.17	$ 23.07	$ 22.20	$ 49.85	$ 68.10
Jul	$ 47.75	$ 36.02	$ 34.29	$ 36.70	$ 75.43	$ 31.52	$ 27.99	$ 67.94	$ 61.00
Aug	$ 45.89	$ 35.69	$ 34.93	$ 45.35	$ 69.73	$ 32.84	$ 77.05	$ 59.05	
Sep	$ 46.65	$ 34.76	$ 32.89	$ 38.43	$ 35.33	$ 36.08	$ 44.22	$ 66.09	
Oct	$ 45.17	$ 32.62	$ 33.06	$ 41.09	$ 38.88	$ 34.36	$ 42.23	$ 56.90	
Nov	$ 44.98	$ 28.86	$ 27.79	$ 39.51	$ 51.59	$ 42.03	$ 36.74	$ 56.35	
Dec	$ 37.87	$ 28.09	$ 33.95	$ 39.12	$ 52.93	$ 40.24	$ 38.68	$ 59.17	
Avg	**$ 46.66**	**$ 31.47**	**$ 27.96**	**$ 33.99**	**$ 41.48**	**$ 35.75**	**$ 33.90**	**$ 50.00**	**$ 54.22**

California – Gas Prices

SoCal Basis forwards decline in early June

Where are forwards trending?

– Calendar Year 2023 strip prices for SoCal gas basis fell 40% through the month of June but have trended upward through the first two weeks of July. CY 2023 strip prices are now in the 68th percentile over the past 12-months.



Where are index prices trending?

– SoCal Basis spot prices were increased month-over-month in June but have fallen to near zero through the first half of July.

– PG&E monthly average spot basis prices decreased month-over-month but at $1.06/Dth were roughly 47% above the 3-year average.

– Basis prices in both regions are expected to increase through the remainder of June and trend closely to 2021 monthly averages as drought conditions in the state increase gas demand to meet electric generation needs.

Average Daily Price - SoCal Basis Only				
	2019	2020	2021	2022
Jan	$0.45	$0.26	$0.25	$0.87
Feb	$4.11	($0.01)	$17.93	$0.04
Mar	$0.34	($0.21)	$0.05	($0.50)
Apr	($0.61)	($0.30)	$0.23	($0.10)
May	($0.82)	($0.06)	($0.01)	($0.10)
Jun	($0.58)	$0.03	$0.71	$0.12
Jul	$0.05	$0.02	$1.28	($0.00)
Aug	$0.23	$0.99	$1.20	
Sep	$0.14	$0.70	$1.48	
Oct	$0.21	$0.49	$0.25	
Nov	$0.11	$0.42	$0.11	
Dec	$0.79	$0.86	$2.08	

Average Daily Price - PG&E City Gate Basis Only				
	2019	2020	2021	2022
Jan	$0.61	$0.95	$0.92	$0.97
Feb	$4.88	$0.76	($0.56)	$0.43
Mar	$1.12	$0.80	$1.02	$0.59
Apr	$0.63	$0.64	$1.17	$0.83
May	$0.65	$0.83	$0.99	$1.30
Jun	$0.18	$0.81	$1.19	$1.06
Jul	$0.24	$0.74	$1.28	$0.60
Aug	$0.44	$0.85	$1.32	
Sep	$0.51	$1.67	$1.61	
Oct	$0.92	$1.70	$1.51	
Nov	$0.76	$1.26	$1.05	
Dec	$1.19	$1.03	$2.02	

Texas

July 2022

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Insight of the Month

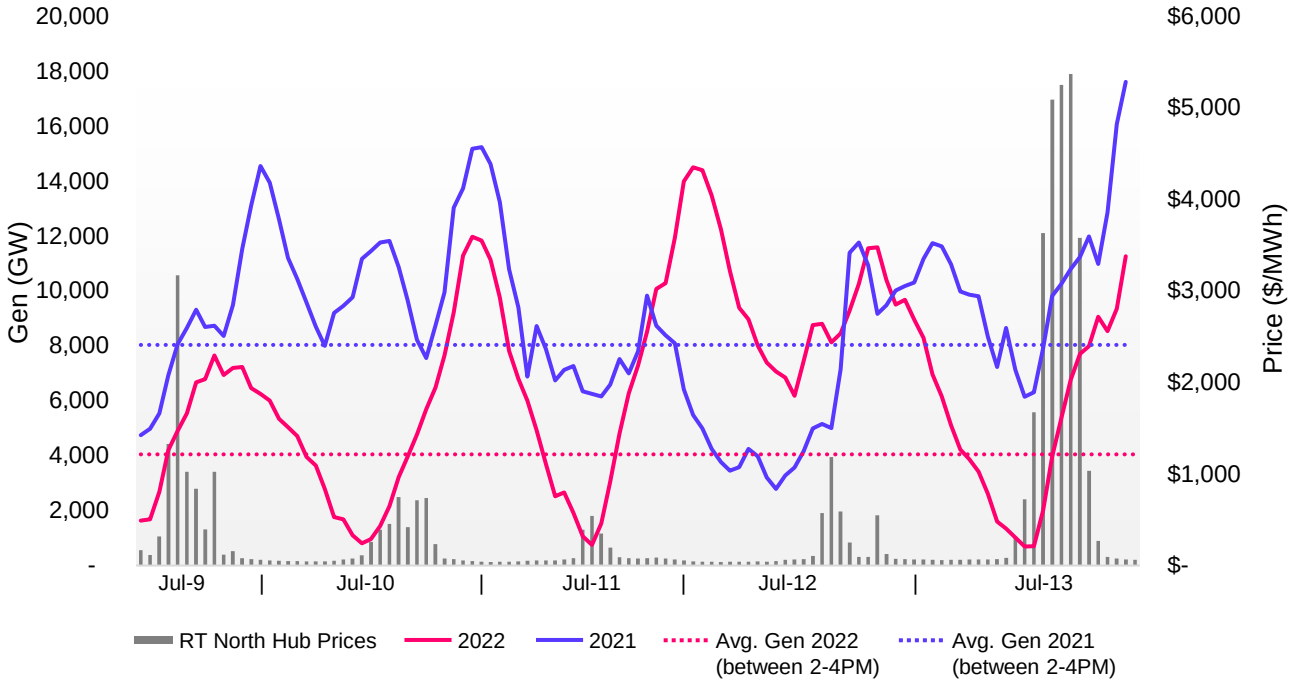
Extreme hot weather across Texas and low wind generation put stress on the grid

ERCOT called for two voluntary conservation appeals on 7/11 and 7/13 to manage the grid effectively on days with low operating reserves.

While ERCOT did not experience any outages, **the combination of record high electricity demand with low wind generation during the tightest hours caused RT prices to spike to four-digit numbers** for several hours, as shown in the chart.

- On July 13th, RT prices reached the systemwide offer cap of $5,000/MWh from 3-5 PM in multiple hubs for the first time in 2022. The monthly average for North Hub RT is now trading at $207/MWh.
- Extreme hot weather persists across Texas. Max temperatures have averaged 100 degrees or more for 5 consecutive days. Consequently, demand for electricity is up to YTD record levels of almost 80,000 MW.
- Compared to 2021, average wind generation during peak hours underperformed by almost 4,000 MW from July 9 – 13th. While ~8,029 MW or 24% of total installed capacity was available during 2-4 PM in 2021, only 4,042 MW or 11% was available in 2022. This scenario highlights the impact of extremely hot weather for consecutive days on the supply and demand for electricity.

Hourly Wind Generation & RT Prices in ERCOT (July 9-13th)



Source: ERCOT. Wind Integration Reports. (July 9th – 13th)

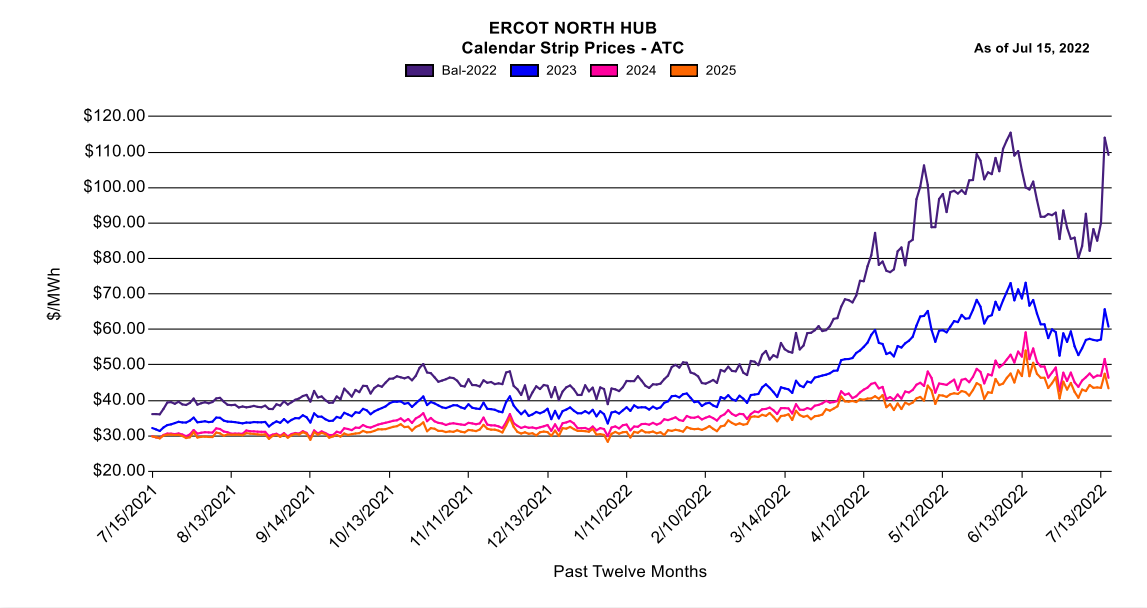
KEY TAKEAWAY: The ERCOT grid is still vulnerable to extreme weather events. Retail customers on a fixed all-inclusive rate are generally not impacted by real-time energy pricing movements. However, customers on index products are likely to see a higher energy supply bill given the continued strain on the grid, causing LMP spikes.

ERCOT – Power Prices

Electricity prices spiked to $5,000/MWh for several hours in July

Where are forwards trending?

- Bal-22 forwards dropped to $80/MWh in mid-June but reached a recent high of $110/MWh. Prices are back to levels from a month ago.
- The spread between Bal-2022 and CY 2023 is ~$50/MWh, flat from a month ago.
- CY 2024 & 2025 continue to trade around ~$50/MWh, at a ~$10/MWh discount compared to CY 2023.



Where are index prices trending?

- North Hub DA prices in June averaged $79.20 in June, down ~2% month-over-month.
- The month-to-date average for July is ~$137.49/MWh. New record loads and low wind conditions put stress on the grid and led RT prices to hit the systemwide offer cap of $5,000/MWh for several hours.
- Prices for the month of July are up ~231% from a year ago.

Average Monthly Day Ahead LMP - North Hub

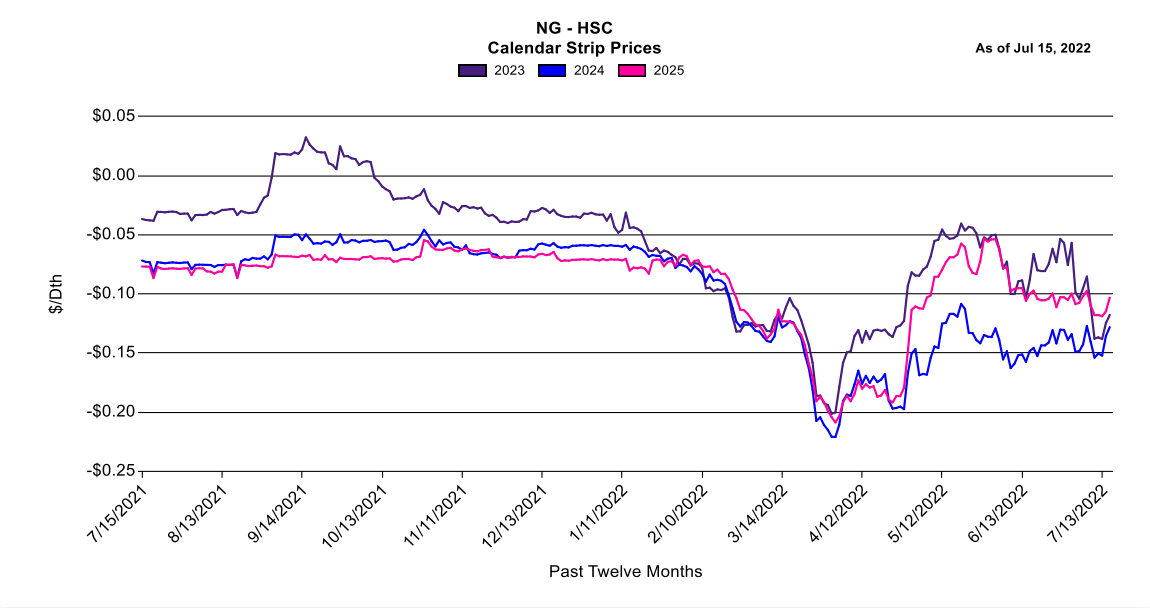
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Jan	$26.19	$36.71	$25.00	$19.13	$22.99	$37.59	$24.32	$16.96	$21.54	$33.65
Feb	$25.12	$51.30	$23.93	$15.29	$19.45	$21.77	$20.86	$17.72	$1,485.49	$39.39
Mar	$30.73	$49.91	$26.24	$16.86	$21.23	$22.61	$28.10	$23.34	$20.87	$38.49
Apr	$33.81	$40.29	$23.62	$18.35	$21.41	$23.52	$22.99	$19.91	$29.63	$52.52
May	$33.05	$35.77	$23.79	$17.91	$23.42	$35.31	$23.98	$18.23	$24.23	$80.51
Jun	$34.96	$39.73	$24.32	$23.16	$25.89	$30.21	$25.18	$18.92	$42.23	$79.20
Jul	$33.06	$36.02	$29.46	$26.80	$30.65	$78.97	$29.78	$22.99	$41.48	$137.49
Aug	$35.84	$39.33	$45.30	$29.83	$26.83	$31.60	$126.52	$39.21	$41.36	
Sep	$33.44	$33.87	$24.58	$26.25	$23.35	$27.30	$79.88	$18.99	$45.25	
Oct	$29.73	$34.69	$20.82	$24.01	$21.41	$30.03	$28.00	$23.36	$53.70	
Nov	$30.46	$34.53	$19.20	$18.66	$21.58	$31.22	$23.62	$23.73	$39.78	
Dec	$35.42	$26.57	$17.44	$25.15	$20.95	$30.40	$18.73	$20.89	$29.70	
Avg	**$31.82**	**$38.23**	**$25.31**	**$21.78**	**$23.26**	**$33.38**	**$37.66**	**$22.02**	**$156.27**	**$61.62**

ERCOT – Gas Prices

CY 2023-2025 trending upwards in July

Where are forwards trending?

- While CY 2023-2025 prices dropped in mid-June as a result of the LNG Freeport terminal closure, they have followed an upward trend during the first weeks of July.
- CY 2023-2025 are trading closely in a range between ~($0.10) and ($0.15)/Dth.
- CY 2024 is trading at a discount compared to CY 2023 & 2025.



Where are index prices trending?

- July 2022 HSC basis average is flat compared to a month ago and 21 cents lower than a year ago.
- Year to date, the 2022 HSC basis has averaged ~($0.28)/Dth, and the HSC Full Price with Henry Hub $5.74/Dth, ~15 cents above last month's average.

Average of Daily Prices - Houston Ship Channel Basis Only										
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Jan	($0.06)	($0.08)	($0.07)	($0.06)	($0.10)	$0.35	($0.06)	($0.09)	($0.00)	($0.30)
Feb	($0.06)	$0.21	($0.15)	($0.08)	($0.05)	($0.02)	$0.00	($0.03)	$50.21	($0.33)
Mar	($0.04)	($0.02)	($0.10)	($0.02)	$0.04	$0.03	($0.01)	($0.06)	($0.15)	($0.35)
Apr	($0.02)	($0.03)	($0.02)	($0.03)	$0.04	$0.07	($0.04)	($0.03)	$0.04	($0.20)
May	$0.02	($0.10)	($0.03)	($0.04)	$0.11	$0.04	($0.06)	$0.00	$0.03	($0.17)
Jun	($0.04)	$0.04	($0.04)	($0.07)	$0.13	$0.07	($0.04)	($0.00)	($0.04)	($0.31)
Jul	($0.01)	$0.01	($0.00)	($0.08)	$0.01	$0.09	($0.06)	$0.00	($0.10)	($0.31)
Aug	($0.01)	$0.06	($0.03)	($0.05)	($0.01)	$0.08	($0.07)	$0.01	($0.05)	
Sep	$0.02	$0.02	($0.03)	($0.03)	($0.01)	$0.04	($0.07)	$0.07	($0.05)	
Oct	($0.04)	($0.06)	$0.02	$0.15	$0.06	$0.25	($0.05)	$0.14	($0.20)	
Nov	($0.07)	($0.07)	($0.02)	$0.01	($0.04)	$0.05	($0.14)	$0.04	($0.25)	
Dec	$0.09	($0.12)	$0.06	($0.09)	($0.00)	($0.01)	($0.11)	($0.03)	($0.20)	

Mexico

July 2022

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Insight of the Month

Federal Electricity Commission (CFE) tariff subsidies can no longer be sustained

- According to President Andres Manuel Lopez Obrador, the government is currently looking for options to provide more funding to CFE to fulfill his promise to keep electricity pricing in line with rising inflation.
- This news follows the rapid increase in natural gas and other fossil fuel prices globally after the Covid-19 pandemic and the Ukraine-Russia war which has raised costs for state owned and private generators in the country alike.
- CFE tariffs have traditionally grown less than 3% month-over-month with some months being exceptions, but this growth does not reflect the real cost of energy, which is in part driven by locational marginal pricing (LMP) prices which have risen significantly.
- CFE has reported losses for several months now. CFE can no longer keep sustaining itself amid such heavy losses without drastic measures.

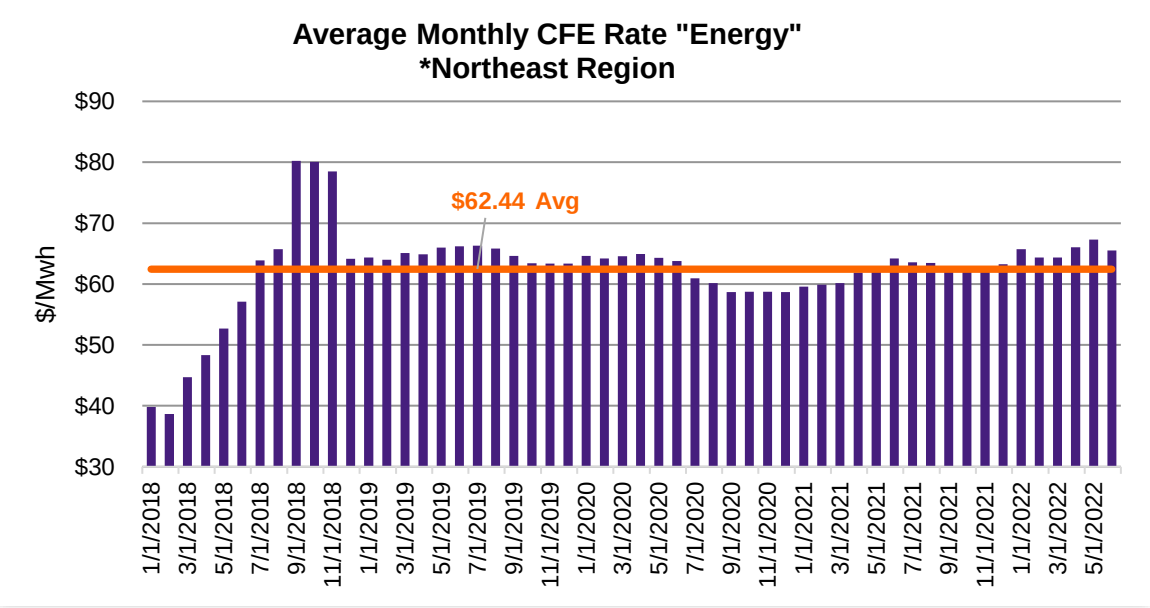
KEY TAKEAWAY: Given the political pressure to keep CFE tariffs stable, the president most likely will keep giving more resources to the CFE which may be enough in the short term, but will lead to a lot of uncertainty after his political term ends.

Monthly CFE Rates

CFE rates in June, both month-over-month & year-over-year

Where are index prices trending?

– In June 2022, Northeast Region GDMTH energy prices are down 2.69% and up 2.01% year-over-year.



Where are capacity prices trending?

– Monthly GDMTH capacity prices decreased 3.13% month-over-month and increased 2.2% year-over-year in the West region.

Average Monthly CFE GDMTH Capacity- West* USD/MW	2018	2019	2020	2021	2022
Jan	$ 9,211	$ 17,084	$ 17,134	$ 15,932	$ 17,292
Feb	$ 9,722	$ 16,968	$ 17,006	$ 16,038	$ 17,441
Mar	$ 11,170	$ 17,301	$ 17,116	$ 16,076	$ 17,441
Apr	$ 12,282	$ 17,238	$ 17,225	$ 16,679	$ 17,966
May	$ 13,631	$ 17,576	$ 17,038	$ 16,766	$ 18,372
Jun	$ 14,991	$ 17,645	$ 16,875	$ 17,408	$ 17,798
Jul	$ 17,085	$ 17,681	$ 16,473	$ 17,203	
Aug	$ 19,443	$ 17,541	$ 16,223	$ 17,170	
Sep	$ 22,074	$ 17,164	$ 15,762	$ 16,776	
Oct	$ 22,023	$ 16,796	$ 15,764	$ 16,731	
Nov	$ 21,530	$ 16,779	$ 15,769	$ 16,888	
Dec	$ 17,120	$ 16,772	$ 15,749	$ 17,101	
Avg	**$ 15,857**	**$ 17,212**	**$ 16,511**	**$ 16,731**	**$ 17,718**

Definitions and Acronyms:

***CFE**: Federal electricity commission,Utility Company.*
***GDMTH**: Rate classification most used in medium voltage.*
***Northeast** region includes the states of Nuevo Leon and Tamaulipas.*
***West** region includes the states of Nayarit, Jalisco, Zacatecas, Aguascalientes, Colima, Michoacan, San Luis Potosí, Queretaro*

Note:

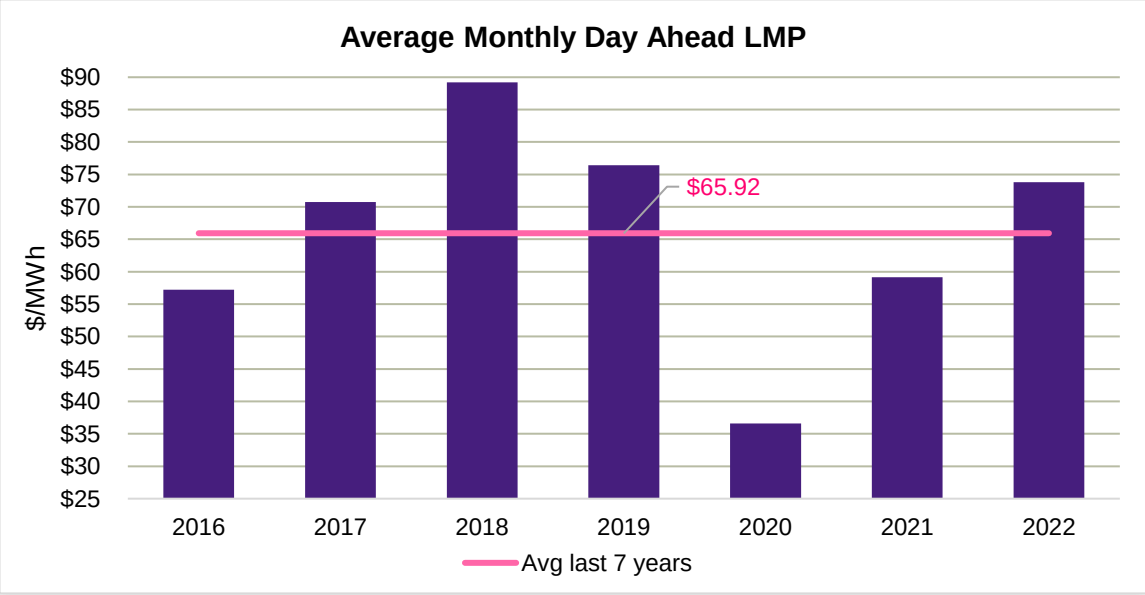
CFE prices are issued in MXN/kWh. For publication this chart is presented in USD/MWh, for which an average annual exchange rate of $20.1443 MXN is used. This rate can change monthly.

KEY TAKEAWAY: The month-over-month decrease is temporary and overall the increase in prices is due to the reduction of the subsidy by the government.

Average Monthly Day Ahead LMP

Where are index prices trending?

- Day Ahead LMPs averaged $103.71/MWh in May, which is 25% higher month-over-month and 88% higher year-over-year.
- So far in 2022, LMPs have averaged $73.79/MWh, 47% higher than the same months the year before when prices averaged $50.13/MWh.
- This increase follows the high cost of fossil fuels in the region and the world.



Average Monthly Day Ahead LMP USD/MWh							
	2016	2017	2018	2019	2020	2021	2022
Jan		$ 46.36	$ 60.47	$ 61.59	$ 29.62	$ 37.85	$ 56.30
Feb		$ 47.03	$ 67.99	$ 78.43	$ 31.70	$ 71.62	$ 58.19
Mar		$ 53.59	$ 64.59	$ 81.47	$ 27.04	$ 38.62	$ 67.50
Apr		$ 72.16	$ 78.05	$ 92.96	$ 21.69	$ 47.47	$ 83.26
May	$ 56.49	$ 77.63	$ 108.53	$ 96.22	$ 28.85	$ 55.10	$ 103.71
Jun	$ 64.42	$ 103.41	$ 116.31	$ 84.62	$ 36.24	$ 59.96	
Jul	$ 68.73	$ 76.93	$ 125.08	$ 83.11	$ 41.14	$ 71.41	
Aug	$ 58.22	$ 91.57	$ 137.61	$ 92.77	$ 51.49	$ 71.62	
Sep	$ 63.43	$ 73.22	$ 103.18	$ 87.93	$ 43.06	$ 69.30	
Oct	$ 63.24	$ 74.94	$ 78.63	$ 66.80	$ 44.84	$ 75.37	
Nov	$ 40.17	$ 74.19	$ 69.15	$ 54.97	$ 47.02	$ 61.57	
Dec	$ 42.90	$ 58.09	$ 60.69	$ 36.12	$ 36.29	$ 50.03	
Avg	**$57.20**	**$70.76**	**$89.19**	**$76.42**	**$ 36.58**	**$ 59.16**	**$ 73.79**

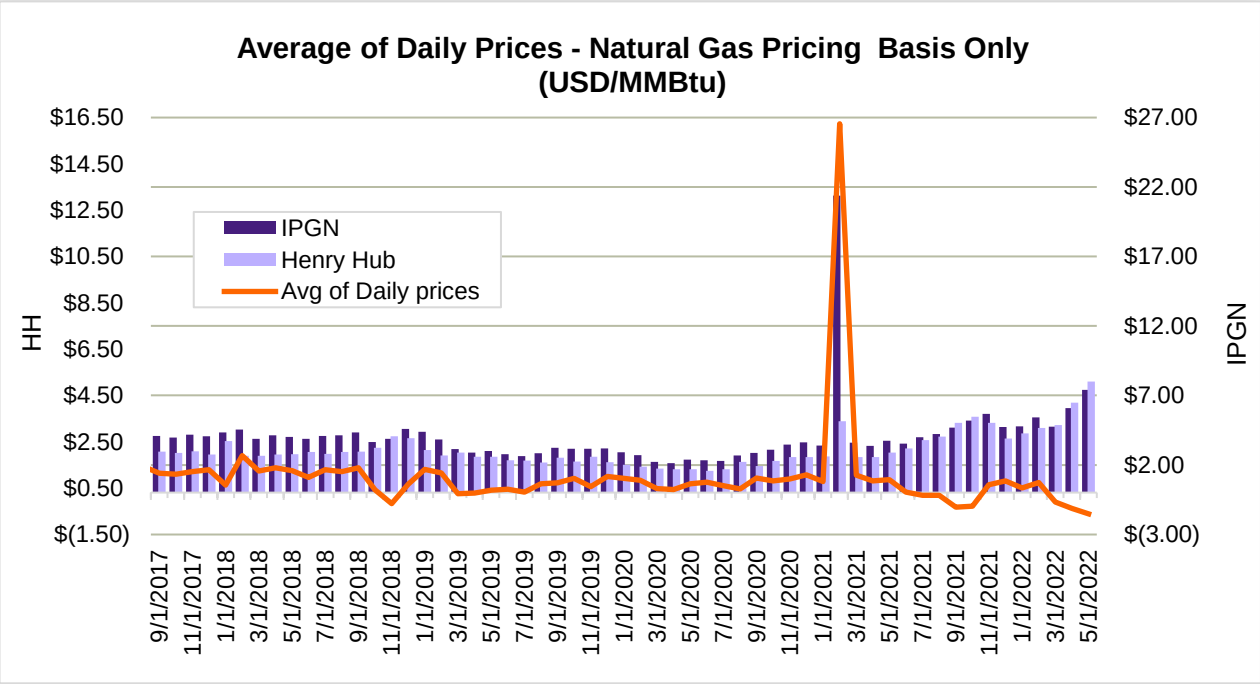
Sources: S&P Global Platt and CENACE. The published average price considers the 9 regions of the country. In turn, the misalignment of information is due to its publication by CENACE.

Natural Gas Price Index (IPGN)

Use sentence case for subtitle

Where are index prices trending?

- NGPI daily basis prices traded at negative $0.61/MMBtu in May, the third consecutive month the index traded at a discount to Henry Hub. In comparison, NGPI fetched a $0.86 premium in May 2021.
- In 2022, prices are averaging $0.03 USD/MMBtu, 99% less year-over-year through the same date, when prices averaged $3.95 USD/MMBtu.
- These changes are due to the reduction in IPGN and the increase in HH.



Average of Daily Prices - Natural Gas Pricing Basis Only USD/Mmbtu						
	2017	2018	2019	2020	2021	2022
Jan		$0.63	$1.30	$0.91	$0.78	$0.50
Feb		$1.90	$1.15	$0.84	$16.23	$0.74
Mar		$1.24	$0.25	$0.47	$1.05	-$0.10
Apr		$1.37	$0.28	$0.44	$0.81	-$0.38
May		$1.25	$0.41	$0.68	$0.86	-$0.61
Jun		$0.96	$0.45	$0.76	$0.33	
Jul	$1.15	$1.29	$0.32	$0.60	$0.19	
Aug	$1.44	$1.20	$0.68	$0.47	$0.18	
Sep	$1.14	$1.37	$0.73	$0.94	-$0.32	
Oct	$1.10	$0.43	$0.92	$0.81	-$0.29	
Nov	$1.21	-$0.18	$0.55	$0.89	$0.65	
Dec	$1.29	$0.67	$1.00	$1.07	$0.81	
Avg	**$1.22**	**$1.01**	**$0.67**	**$0.74**	**$1.77**	**$0.03**

Sources: NGI, S&P Global Platt

Natural Gas

July 2022

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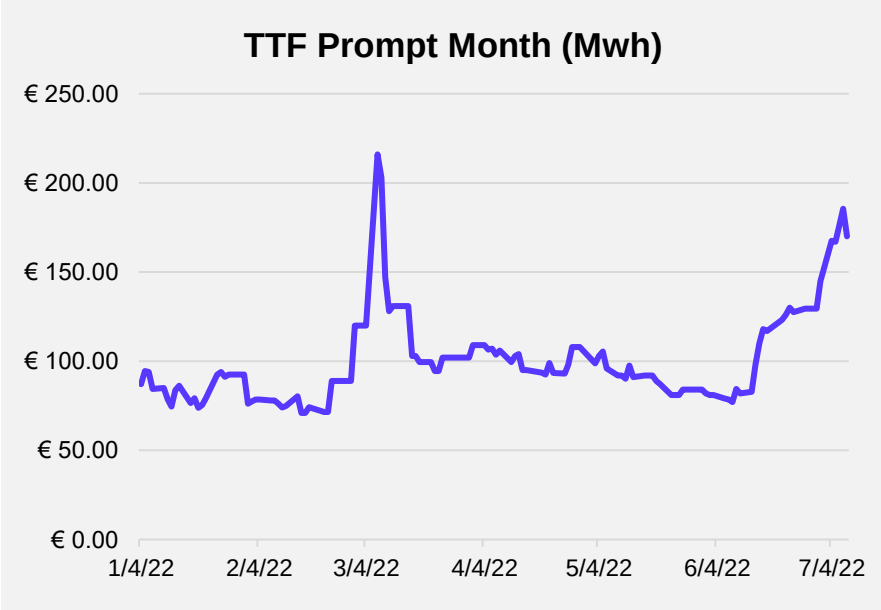
Tumultuous Gas Prices in Europe

Events in Europe have caused significant price increases for costs of energy in Europe (as shown on the right). Bullish events currently in motion include:

- The war in Ukraine, which continues to put upward pressure on natural gas pricing as countries initiate sanctions against Russia.
- Nordstream 1 pipeline maintenance is depriving Germany of a large supply of gas from Russia and has also raised concerns that it will never resume operation, further exacerbating the energy crisis (Expected 07/21/22 online date).
- Energy strikes in Norway's oil & gas sector, which caused increasing prices in both oil and gas as it threatened an already short supply of energy in Europe; however, Norway's government has stepped in to resolve as of 07/06/22.
- The outage of the US LNG facility in Freeport, TX, which has put downward pressure on pricing in the US, but has exasperated Europe's energy crisis as the continent looks elsewhere to fill the void of those shipments.
- A large number of France's nuclear plants remain shutdown from what was originally routine maintenance, some of which has been put off since before Covid-19, which is causing additional demand for gas supplies and putting additional upward pressure on its pricing.
- Additionally, like the US, Europe has endured above average temperatures across mainland Europe, with record breaking droughts in Italy.



TTF is Title Transfer Facility in Netherlands and is typically used as an indicator or proxy for European natural gas prices, specifically from LNG cargo.

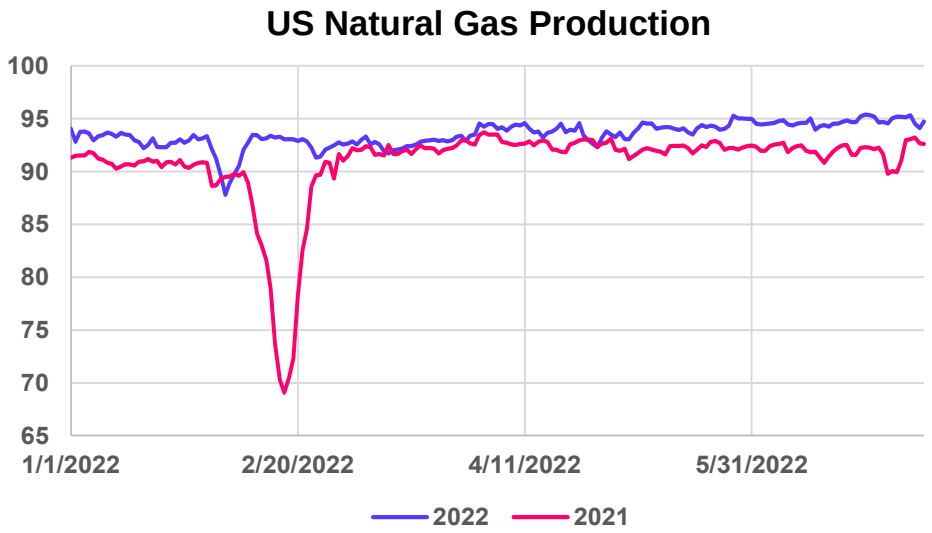
Source: Reuters

KEY TAKEAWAY: Despite the majority of US supply being from domestic production, high international pricing will affect basis prices in the Northeast and Transco Zone 5 regions, and also increase NYMEX volatility as the US LNG export capacity continues to grow.

Natural Gas – Supply

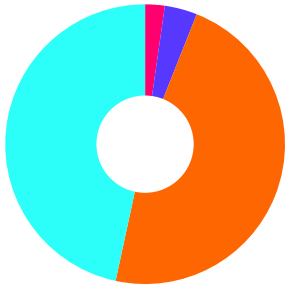
The past month has shown production levels consistently at or above 94.5 Bcf/d, and still growing. The growth in this production has been limited as producers are battling a multitude of issues including:

- Significant delays in obtaining materials and services
- Concerns about current administration's stance on fossil fuels
- Investors being fickle with fossil fuels, specifically private investors like endowments and foundations
- Producers still battling non-investment grade ratings
- Capital deployment in E&P waning as a recession is looming which could bring lower prices
- Overall increasing uncertainty



A survey of 133 different oil/gas producers conducted by the Dallas Federal Reserve shows a similar sentiment across the industry in regards to the impact of supply-chain issues on their respective firms.

- One producer service firm was quoted *"We continue to see our customers be very deliberate and cost aware. I am regularly amazed at how cautious the business is, even with the dramatic improvement in commodity prices."*



Survey of Oil/Gas Producers:

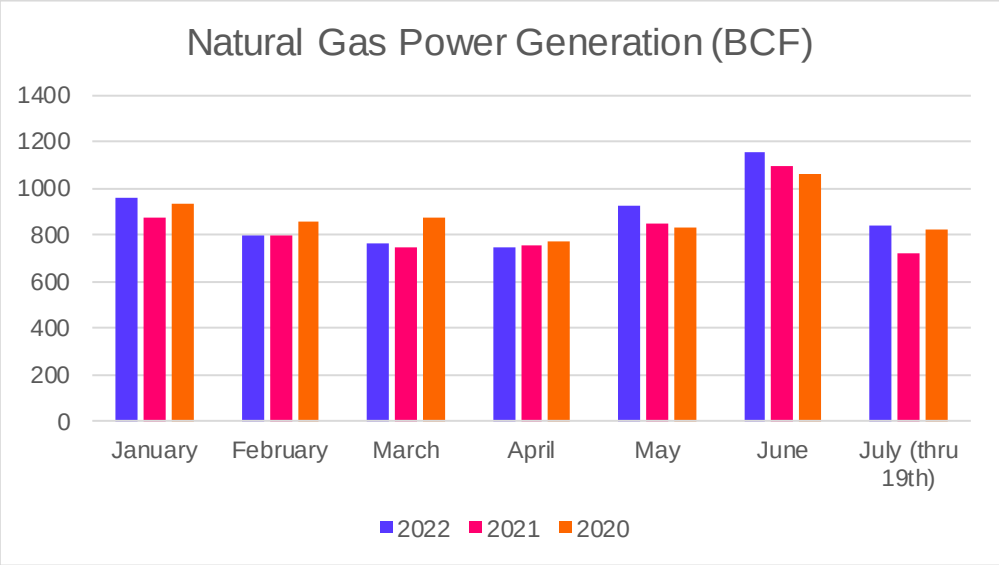
"How would you rate the impact of supply-chain issues on your firm?"

- No supply-chain issues (2%)
- No impact (4%)
- Slightly negative (47%)
- Significantly negative (47%)

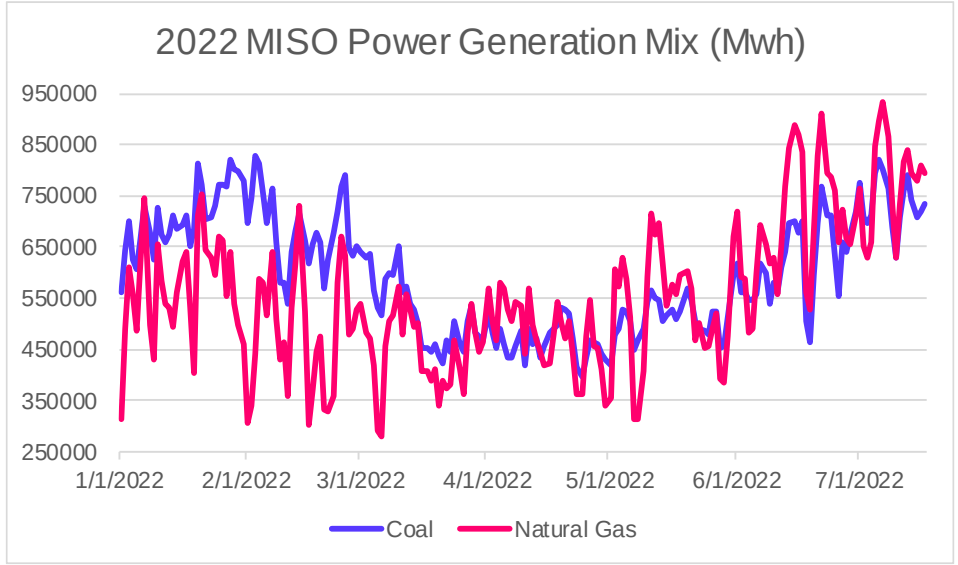
KEY TAKEAWAY: Despite high commodity prices, producers are increasingly apprehensive to deploy capital in new wells, partly due to supply chain constraints, but also because a recession is expected which will bring greater uncertainty to commodity prices

Natural Gas – Demand

Demand continues to be bullish for natural gas, particularly in power generation, despite the Freeport LNG facility being down, which has left an almost 2 Bcf/day void in export demand. (The outage is expected to last anywhere from 3-12 months).

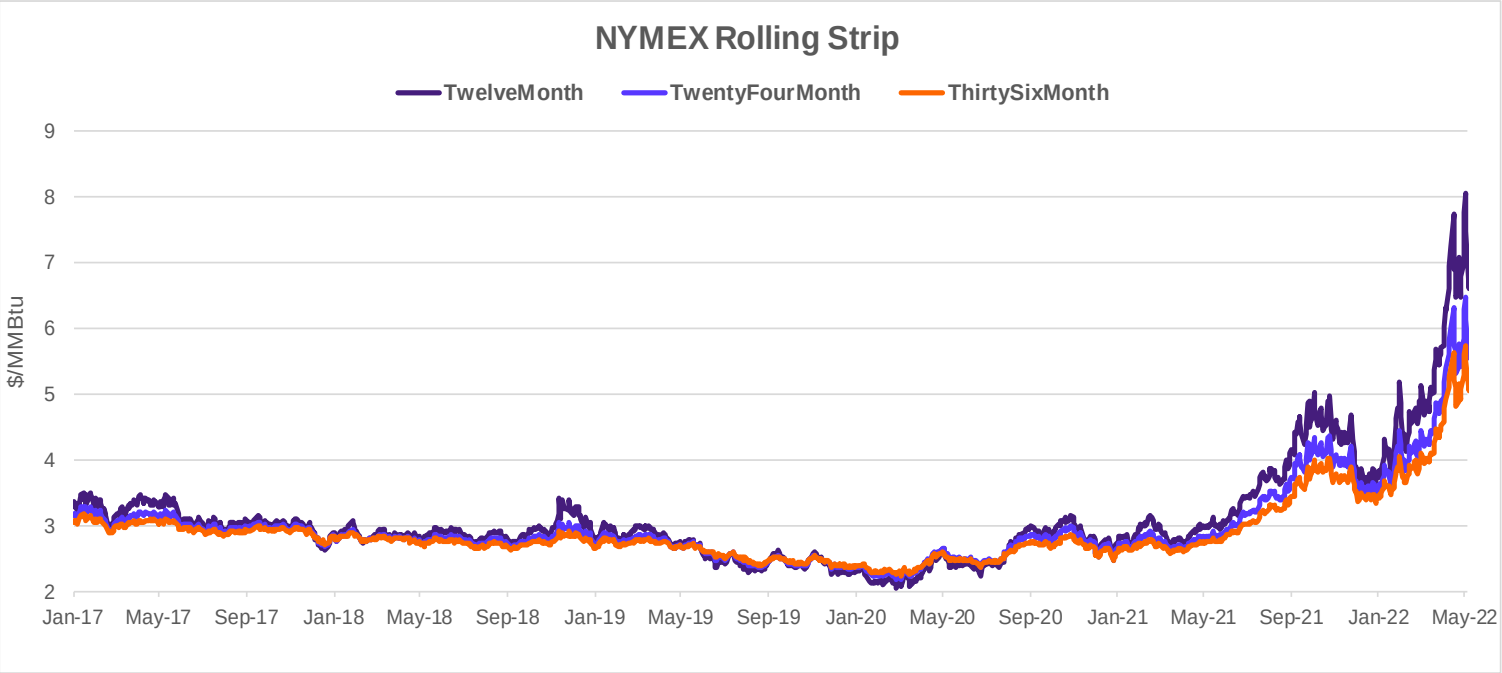


- Power generation for natural gas has been strong this summer, as it has surpassed the last 2 years in power generation demand across the US.
- The increase in natural gas power generation can partly be attributed to the increase in coal prices, as increased global demand has brought the commodity from $87 per short ton to $168 through the week ending July 1st, 2022.



- MISO, the Midwestern Independent Service Operator, has utilized a discernable amount more gas than coal since coal prices have skyrocketed.
- The increase in cooling degree days (CDD's) can also be attributed to increase power generation, as above average temperatures have been the norm for 2022 so far.

Natural Gas – Pricing

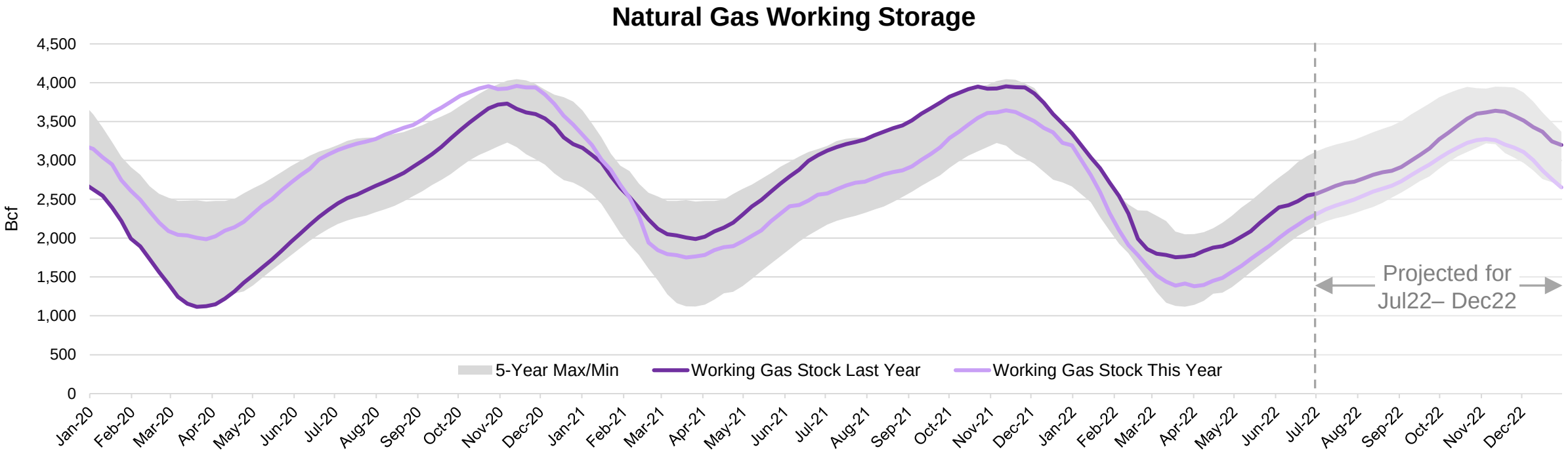


Rolling strip price data points refer to NYMEX futures 1, 2 and 3 years out respectively. Pricing updated as of 7/18/22 close.

Term	Price	Variance to last week	Variance to last year
12 month	$6.49	13.51%	72.05%
24 month	$5.68	9.48%	66.20%
36 month	$5.30	7.06%	65.38%

- The Henry Hub 1 year rolling strip is up 13.51% from last week, and 72.05% up from last year.
- The Henry Hub is facing mostly bullish fundamentals right now from:
  - Sluggish production growth
  - Low storage inventories
  - Greater demand for gas in power supply due to high coal prices
  - Robust export market
- The Freeport LNG facility being down supports some bearish fundamentals on the forward strip.

Natural Gas – Storage



EIA Weekly Storage Report

2,369

Bcf as of 07/08

Variance to Current Year	
5YA	**1YA**
2,688	**2,621**
-11.87%	-9.61%

- Current working stocks are 2369 Bcf , which is -252 Bcf less than storage levels 1 year ago at this time, and -319 Bcf less than the storage level's 5-year average.
- The South Central Region had the smallest change from last week increasing 0%, while the Midwest Region had the largest change at 4.27% more than last week at this time.
- We project end-of-season storage levels to be about **3.3 BCF** based on average pulls coupled with some export capacity down from the Freeport facility outage.
  - This EOS storage level would still be bullish as it falls below last year and the 5-year average.