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MMA Massachusetts Municipal Association + Constellation An Exelon Company = MunEnergy A Service of the Massachusetts Municipal Association

Virtual Energy Market Update

October 6, 2022

Today's Agenda

- **Welcome & Introductions** – Katie McCue, Director of Administration, Finance and Operations, Massachusetts Municipal Association

- **Energy Market Update** – Brandon Fong, Principal, Commodities Management Group, Constellation

- **Working with Constellation Through the MMA** – Aiste Dacys & Charlotte Diogo, Senior Business Development Managers, Constellation

- **Q & A** - Thank you

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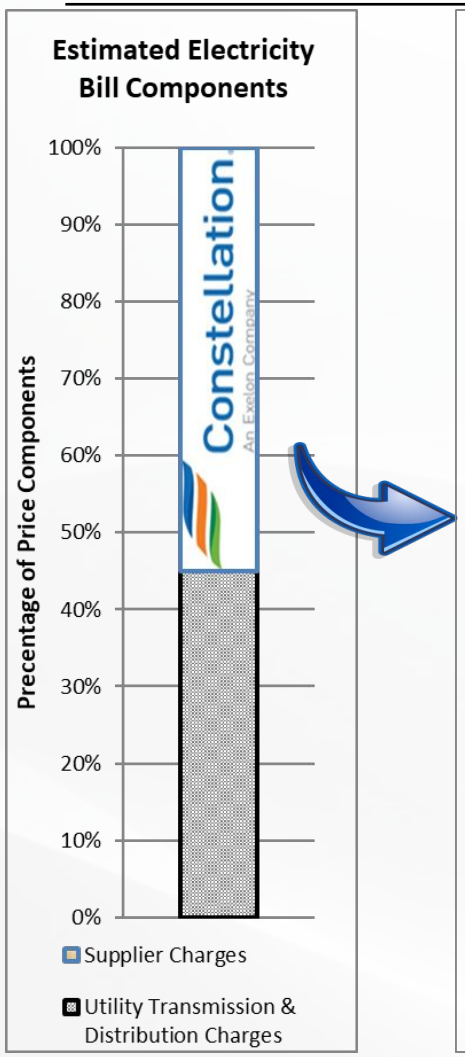
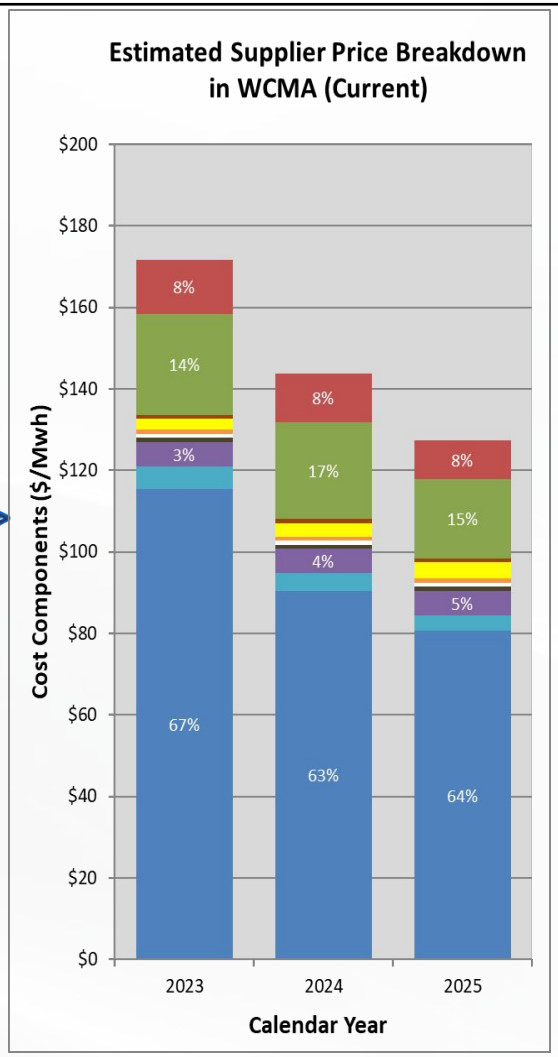
What's In Your Electric Supplier's Price?





- **Capacity** – Determined by prices set from independent system operator (ISO)-run auctions and customer capacity tag (peak usage). Designed to provide grid reliability and ensure enough generation available to the region.
- **Renewable Portfolio Standards (RPS)** – Mandates set by individual states for load-serving entities (LSE's/Constellation) to purchase a certain amount of renewable energy. Determined by state regulated compliance percentages and the financial market for renewable energy certificates (RECs).
- **Clean Energy Standard (CES)** – Similar to RPS but a Massachusetts mechanism to incent new zero emission generation (ex. hydro & nuclear)
- **Clean Energy Standard – Expansion** – MA state mandate for existing zero emission generation
- **Clean Peak Standard** – Mandate set by state of MA to incentivize renewable and storage power supply during peak periods.
- **Cost of Service/Fuel Security Ch. 1–** Additional costs to LSE's to fund out-of-market compensation for particular resources to ensure grid reliability in the region.
- **Inventoried Energy Program/Fuel Security Ch. 2**– ISO New England administered program that will provide payments to resources that can store fuel for winters '23/24 & '24/25.
- **Ancillaries** – Small administrative charges billed to load-serving entities by the ISO to operate grid safely and reliably.
- **Line Losses** – Included to make up for the energy lost over transmission and distribution (T&D) lines due to heating
- **Energy** – The cost of procuring the actual electrons transmitted through the T&D lines. Largely determined by cost of natural gas for New England.

* Source: Proprietary Data, Eversource

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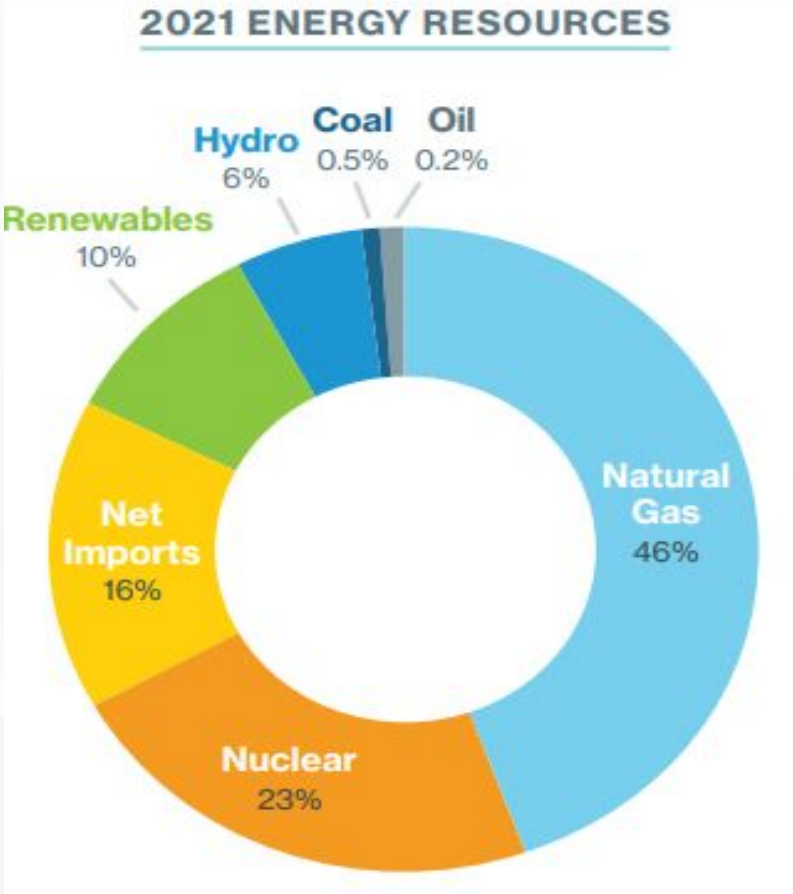
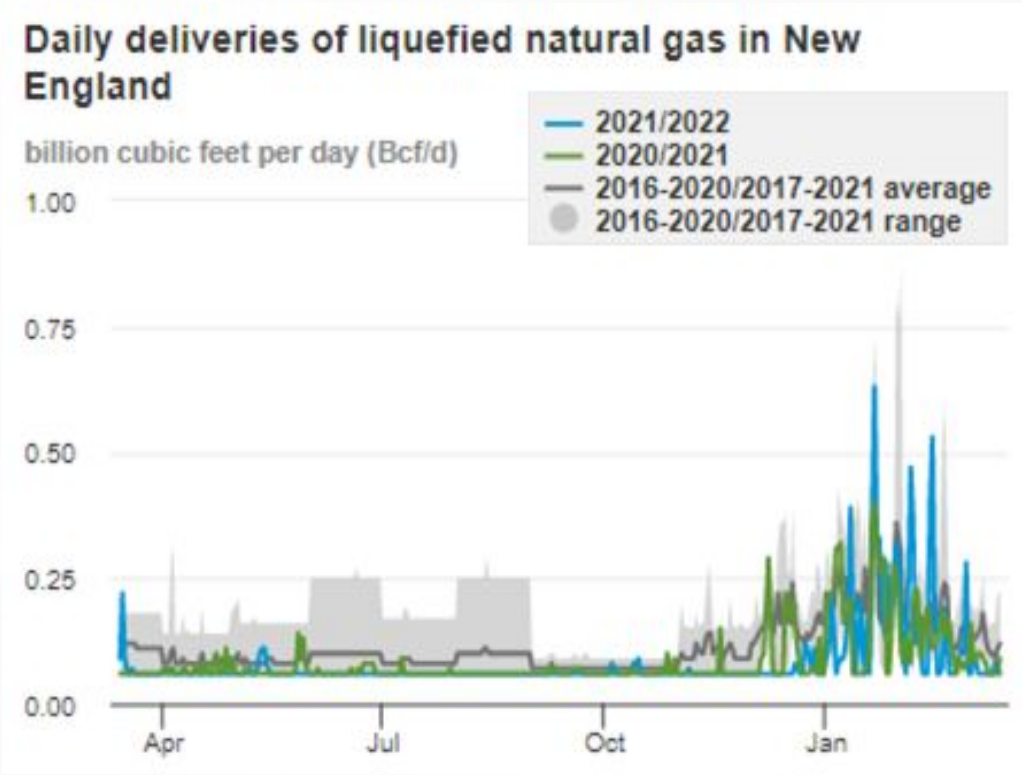
Why Natural Gas Matters to New England Power





- Natural gas pipeline constraints for gas coming up from Western PA/OH create a supply/demand imbalance during winter months
- Liquified natural gas (LNG) imports are necessary to supplement constrained dry gas coming west to east.
  - This creates a link between New England energy pricing and global natural gas prices.

Source: EIA , ISONE

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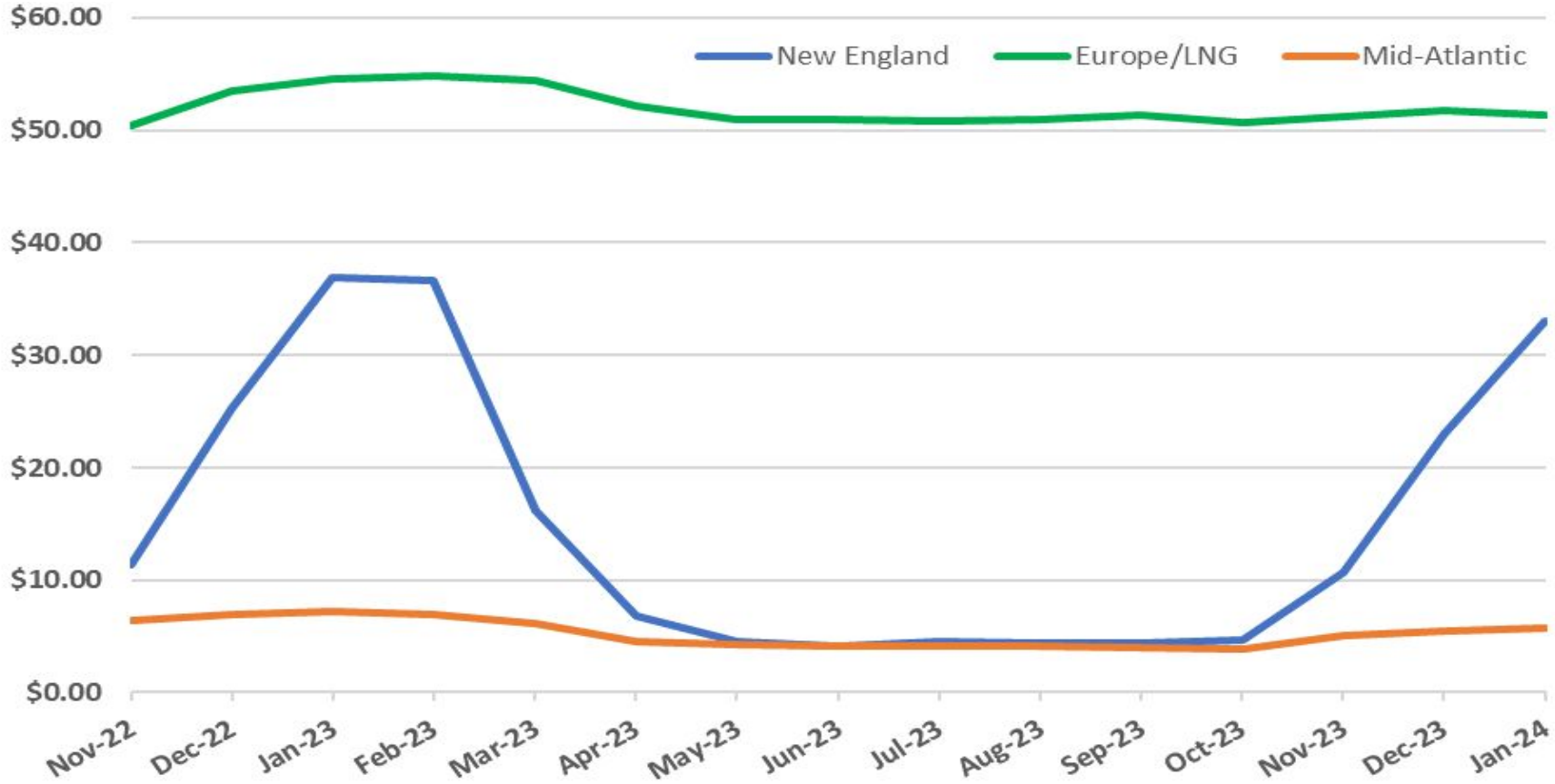
Why Natural Gas Matters to New England Power

New England Natural Gas = Henry Hub + Basis (difference between two price points)



Source: EIA , ISONE

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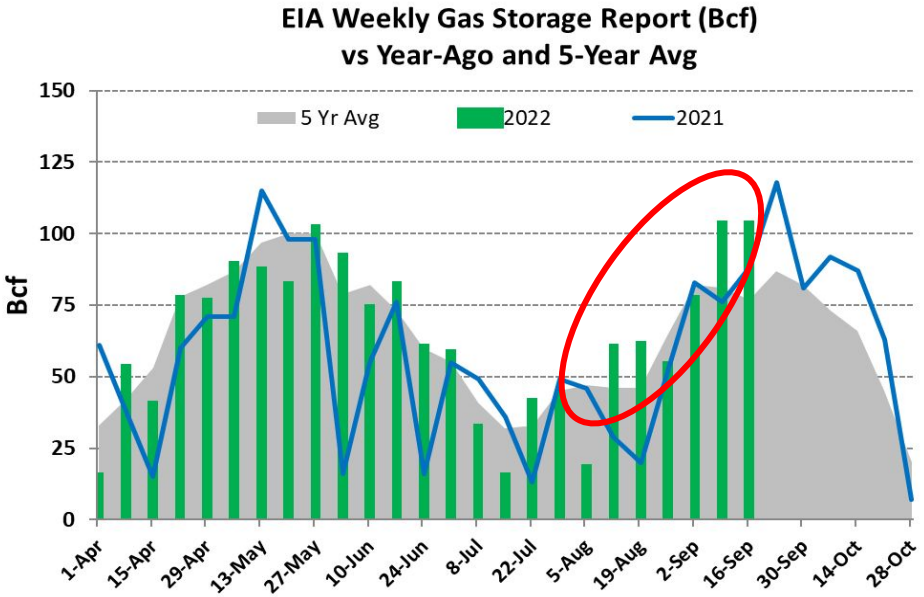
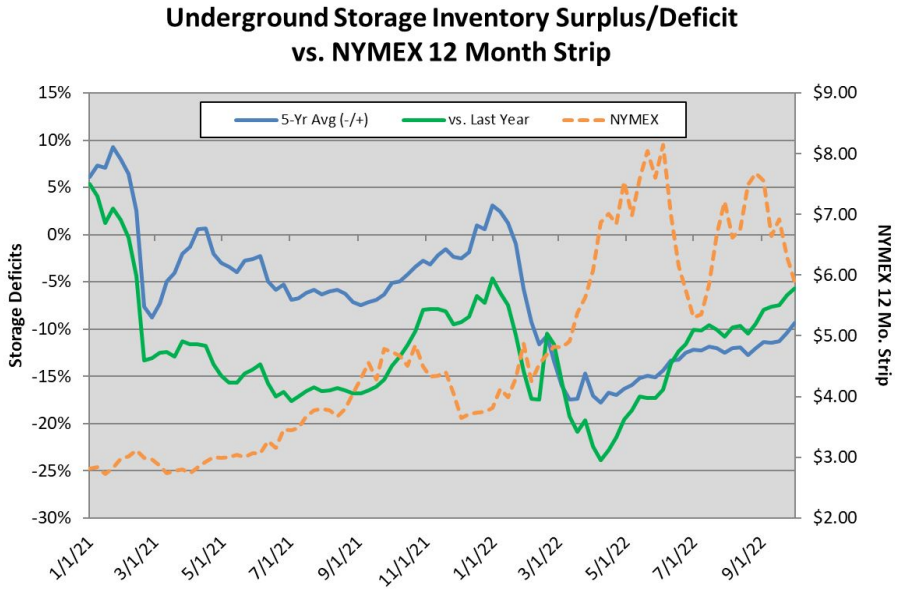
Strong Late-Season Push to Fill Storage Narrows Deficits





- Storage fills have come in at a hot 103 Bcf for the past two consecutive reports, well above historical averages for their respective weeks.
- This past week's 103 beat consensus by a nickel as well as last year's 86 and the 5-year average of 77.
- The current deficit to last year and the 5-year average of 5.7 and 9.3% respectively is significantly tighter than injection season peak of 24 and 18% back in early April despite the hottest summer on record.

Customer Takeaway:

- Storage fanatics can thank end-of-season stocks ending at respectable levels to muted fall temps and the Freeport LNG outage for most of the summer and fall.
- The late-season inventory scenario has kept the bearish momentum in late September going and is making for an opportune buying period ahead of winter.

Source: EIA

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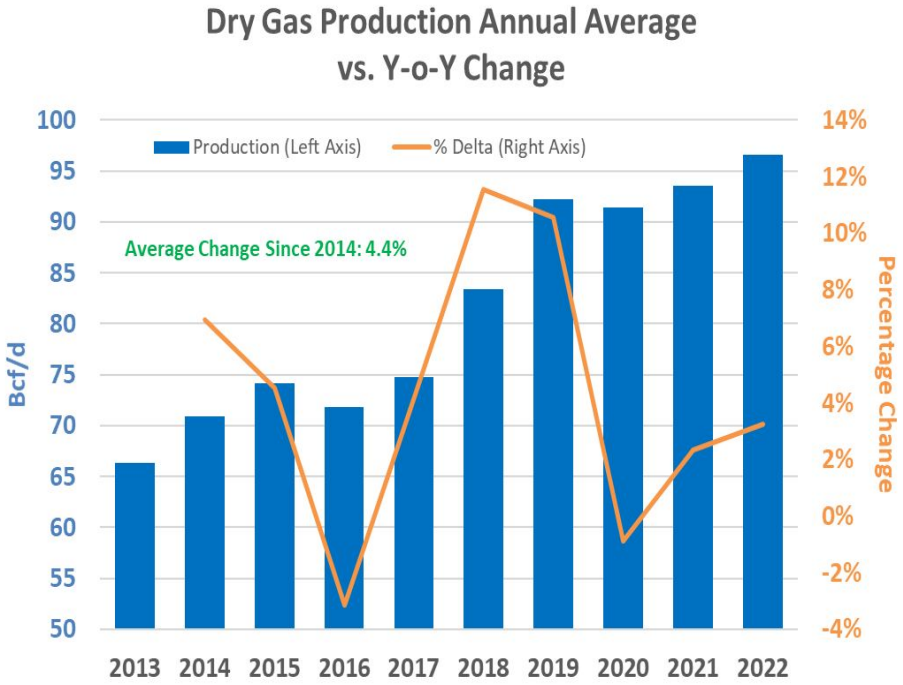
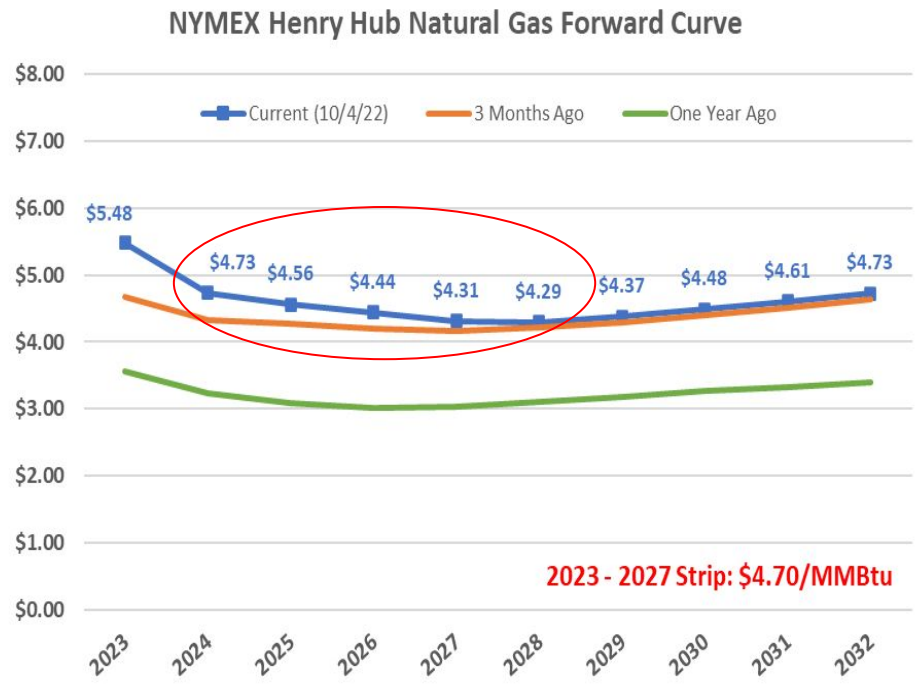
Production Steady – More Growth Expected in ‘25-’28?





- Production has seen very slow and deliberate growth through 2022 despite oil and gas prices high enough for substantial profits – limited by producer discipline.
- Though historical performance does NOT indicate future returns, annual production growth over the past three years show only a 1.6% uptick and the average change since 2014 excluding 2018 and 2019 (biggest yearly gains) is 2.5%.

Customer Takeaway:. Production will have to show better growth over the long-term to absorb the additional demand drivers from LNG exports and dependency on the power grid. Forward curve backwardation show the market is expecting it in ’24 – ’27.

Source: EIA

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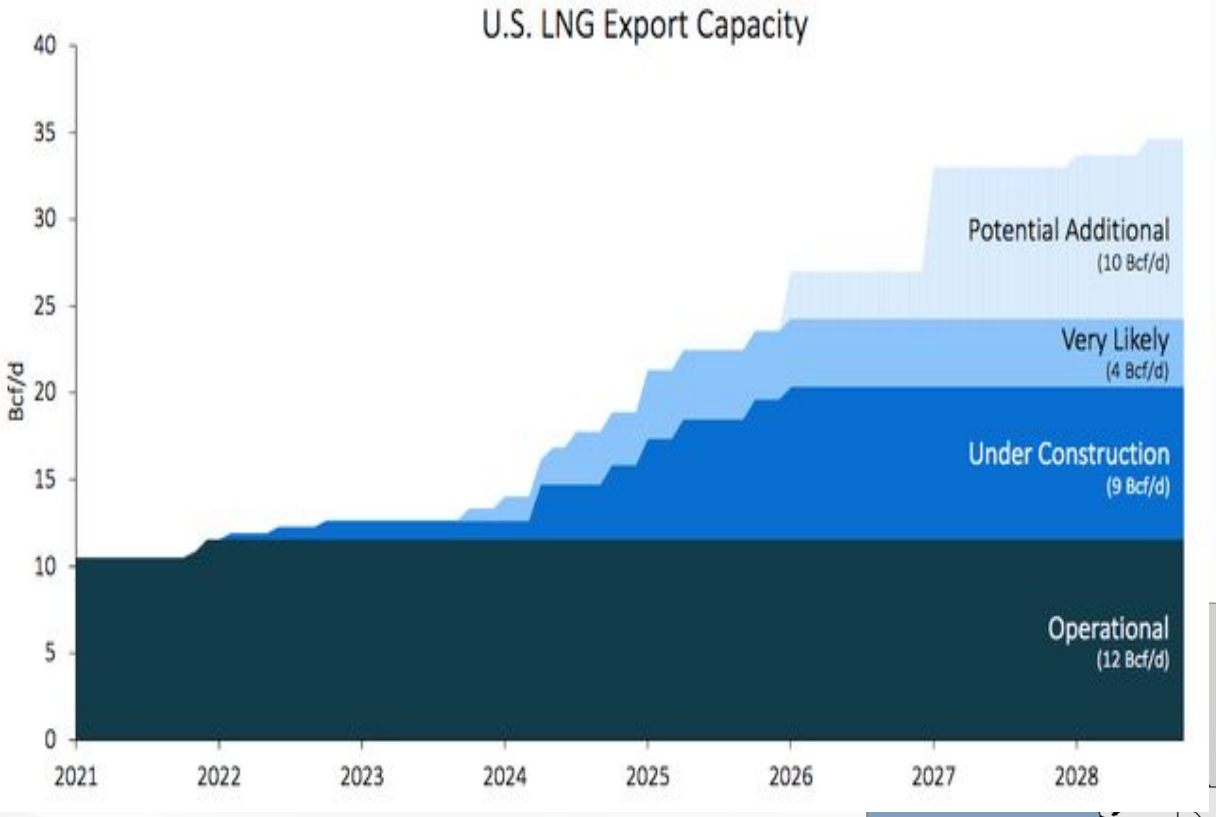
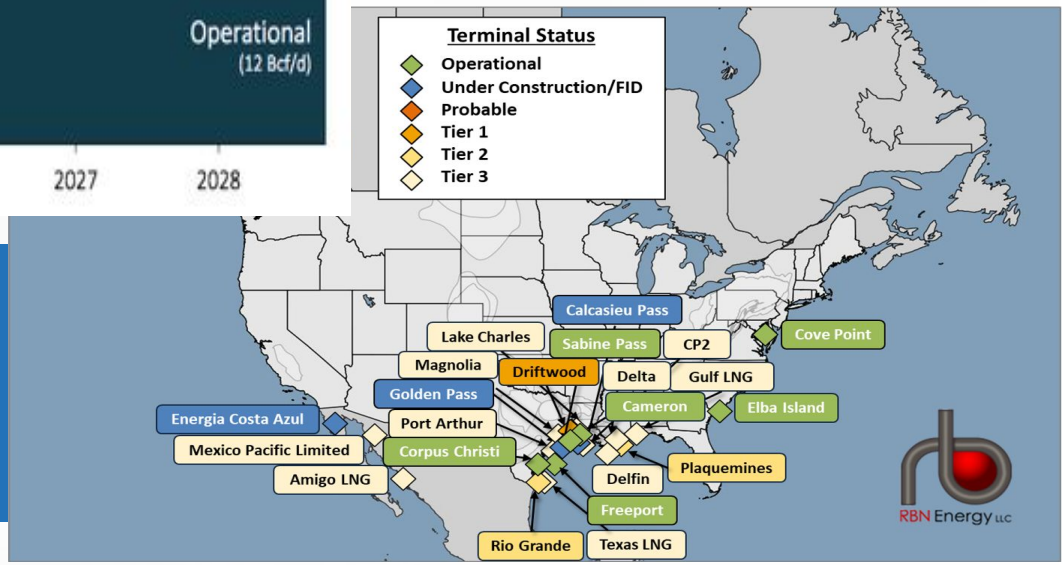
Long-Term LNG Export Demand Growth Accelerates



- **Exports Will Grow** – "Energy security" and economics will encourage more LNG export growth in the US
  - Numerous projects in the queue seeking US federal approval and long-term contract for financing
  - Activity has picked up exponentially since March



Customer Takeaway:

- **Forecasts of 8-20 Bcf/d of LNG export growth by 2028**
- This is a long-term bullish driver that could mean higher prices for a longer period

Source: RBN Energy, Seeking Alpha

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A New Landscape for Natural Gas Prices But We've Seen This Before

- **Under $3 signals over-supplied market**
- **Over $6 indicates an under-supplied market**

Customer Takeaway: Each pricing environment comes with its own supply/demand characteristics as we usher a new era of elevated demand supported by LNG exports and a higher dependency on natural gas. A checkdown in production growth has also led to further tightening in the supply/demand balance.

Source: Trading Economics

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Weather

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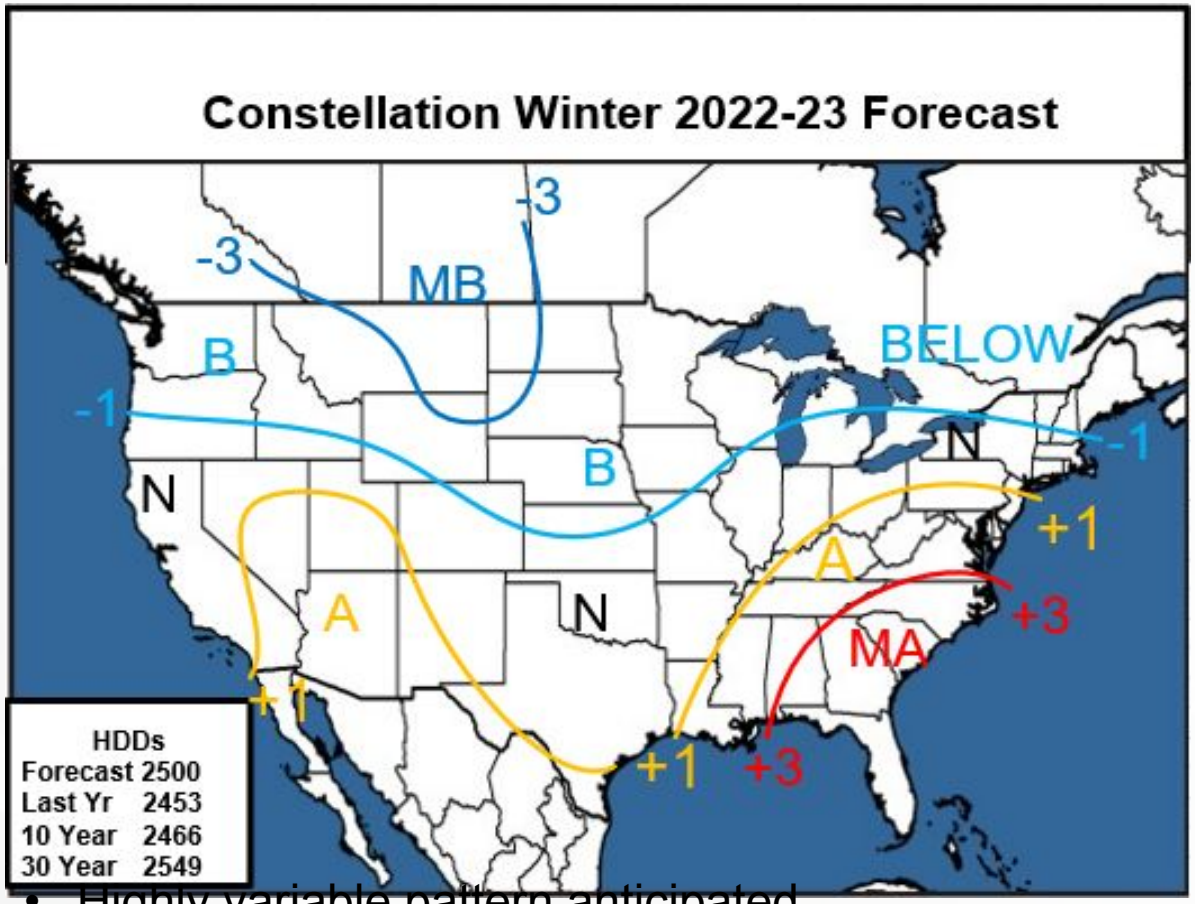
Constellation Winter Forecast – The Headlines



Population Weighted HDD Forecast: 2,500 (17th warmest since 1950)

Last Year: 2,453
10-Year Avg: 2,466 (17th warmest)
30-Year Avg: 2,549 (25th warmest)
Vendors 1-3: 2,468 - 2,500

Analog Years
2017-18 (50%)
2021-22 (30%)
1956-57 (20%)

- Highly variable pattern anticipated
- 3rd straight La Nina winter – history shows cold
- Elevated colder risks for the Northeast/Mid-Con
- Mild December start, cold January

Source: Constellation

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Winter Analogs (Comparable Years) By Month – Mild Start

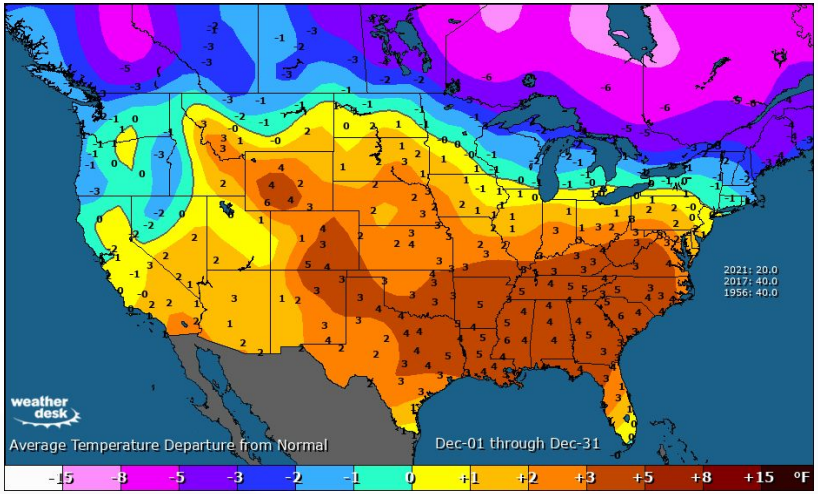
Winter 2022 - 23
New England Cold Chances

Severe Cold Outbreak
1 in 10

None
1 in 3

Meaningful Outbreak
1 in 2

Decembe



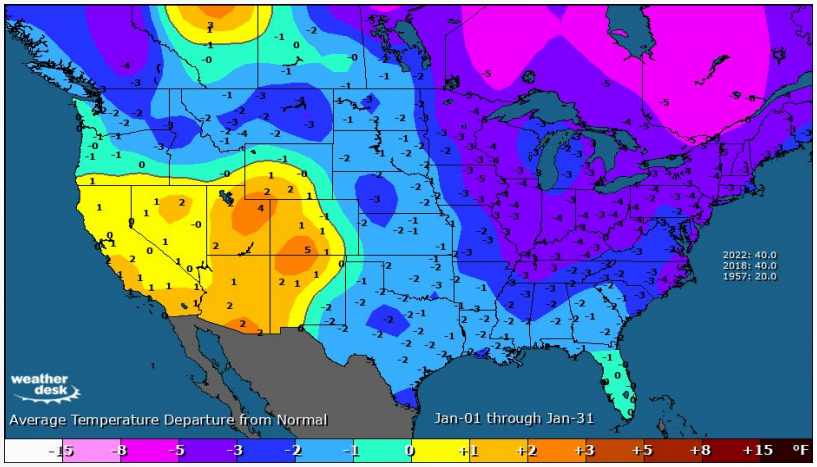
Winter 2022 - 23
ERCOT Cold Chances

Severe Cold Outbreak
1 in 15

Meaningful Outbreak
1 in 4

None
1 in 2

Januar



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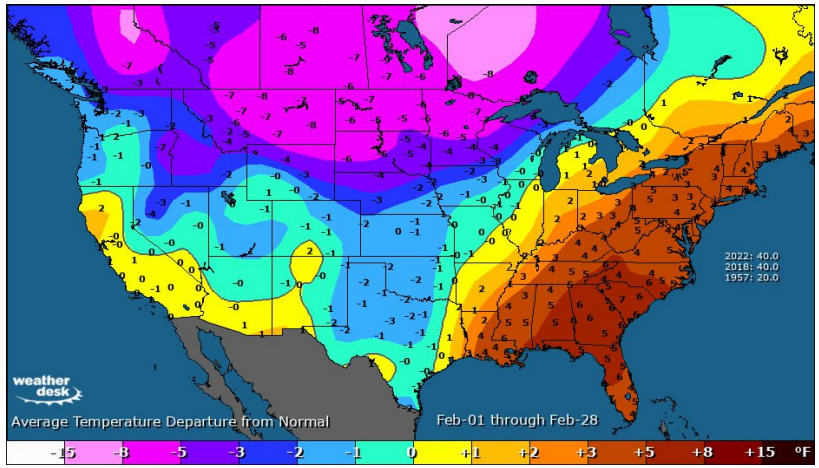

Source: Constellation

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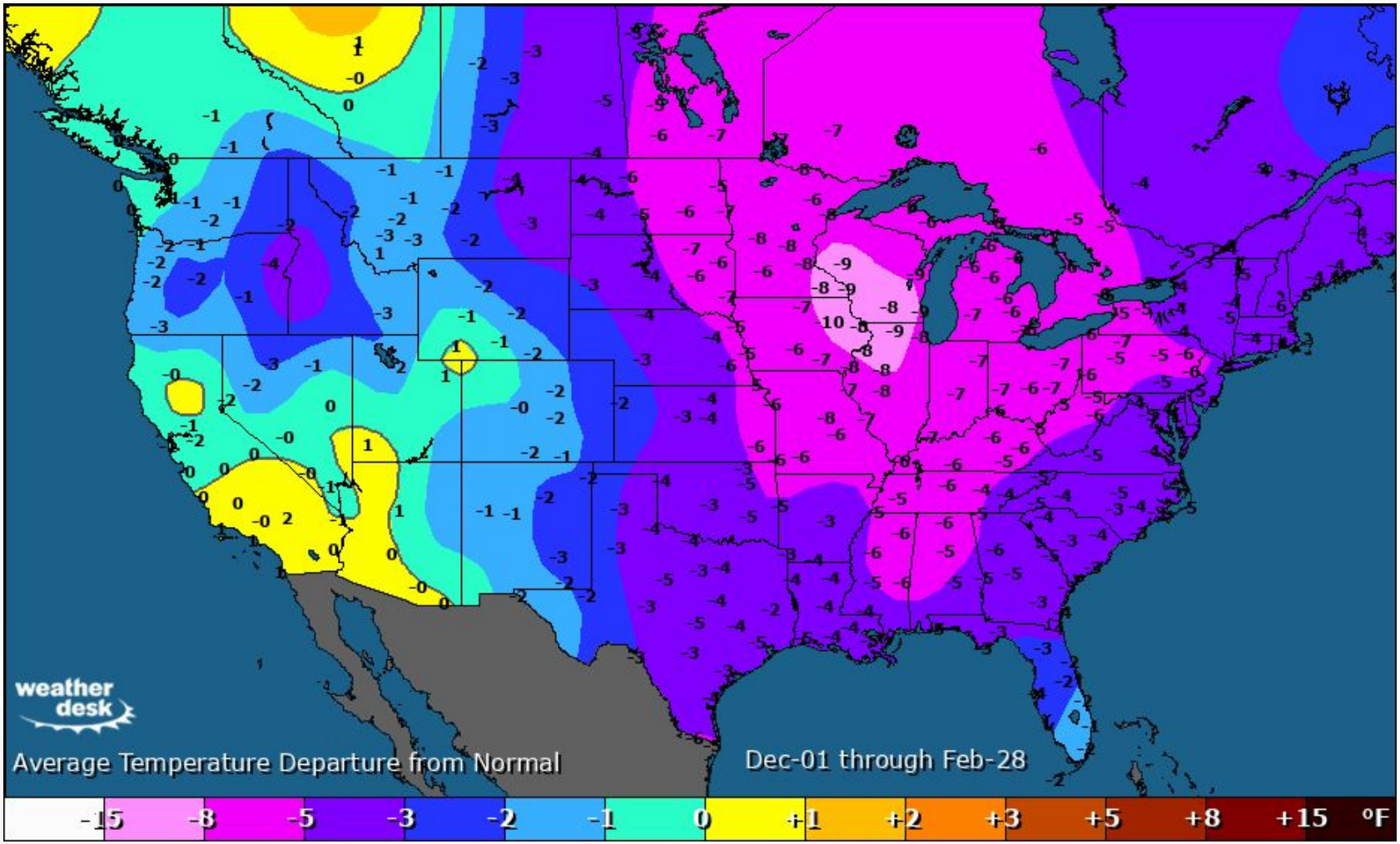
Forecast Risks: 3rd La Nina Winters = Brrrrrr…cold! (2013/2000/1976)



The above equally weighted average of these years yields about **2,900** GWHDD

10 Year Normal – **2,466** / 30 Year Normal – **2,549** / Forecast – **2,500**

Source: Constellation

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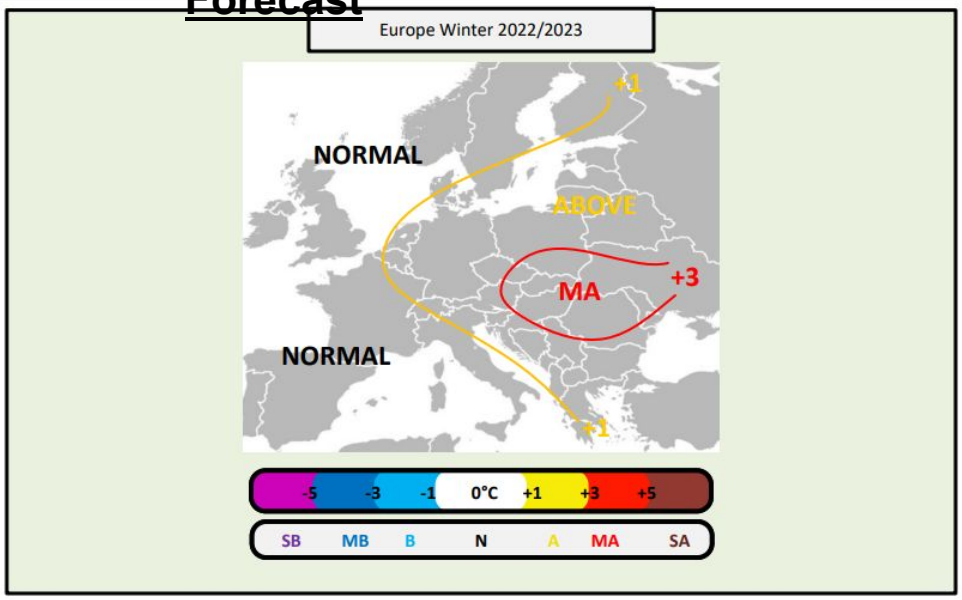
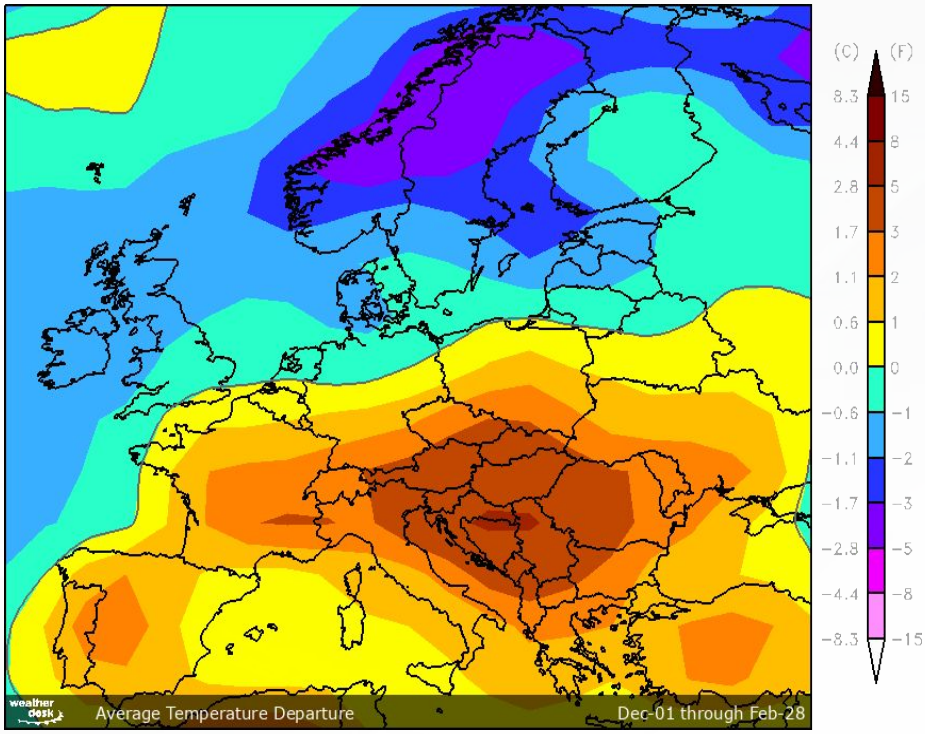
Winter to Play a Huge Role in European Energy Crisis

Constellation Europe Forecast



Europe 3rd Year La Nina Risks



- Overall, there is moderate confidence that the eastern and southern portions of the Continent will be milde- than-normal, yielding lower heating demand from Ukraine into Germany, Italy and France. However, wind generation may also come in lower than normal for most of Europe.
- If we use the same methodology in Europe for 3rd year La Nina risks, a colder outcome is possible for Scandinavia and the U.K, but the interior is still expected to average above-normal.

Source: Constellation

Pricing Impacts

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“Softness” in Prices From Quiet Temps and Tropics

Customer Takeaway:

- One can’t deny the buying opportunity we’ve seen lately when framing it against pricing over the past 6 months. Upside risks still exist as we head into typically the most volatile time of year (winter).
- Fundamentals are improving but market sensitivity to news/data still make for tenuous and very uncertain markets.
- Don’t forget how hard it is to pick the exact bottom, diversify your buys with multiple layers

Source: Trading Economics

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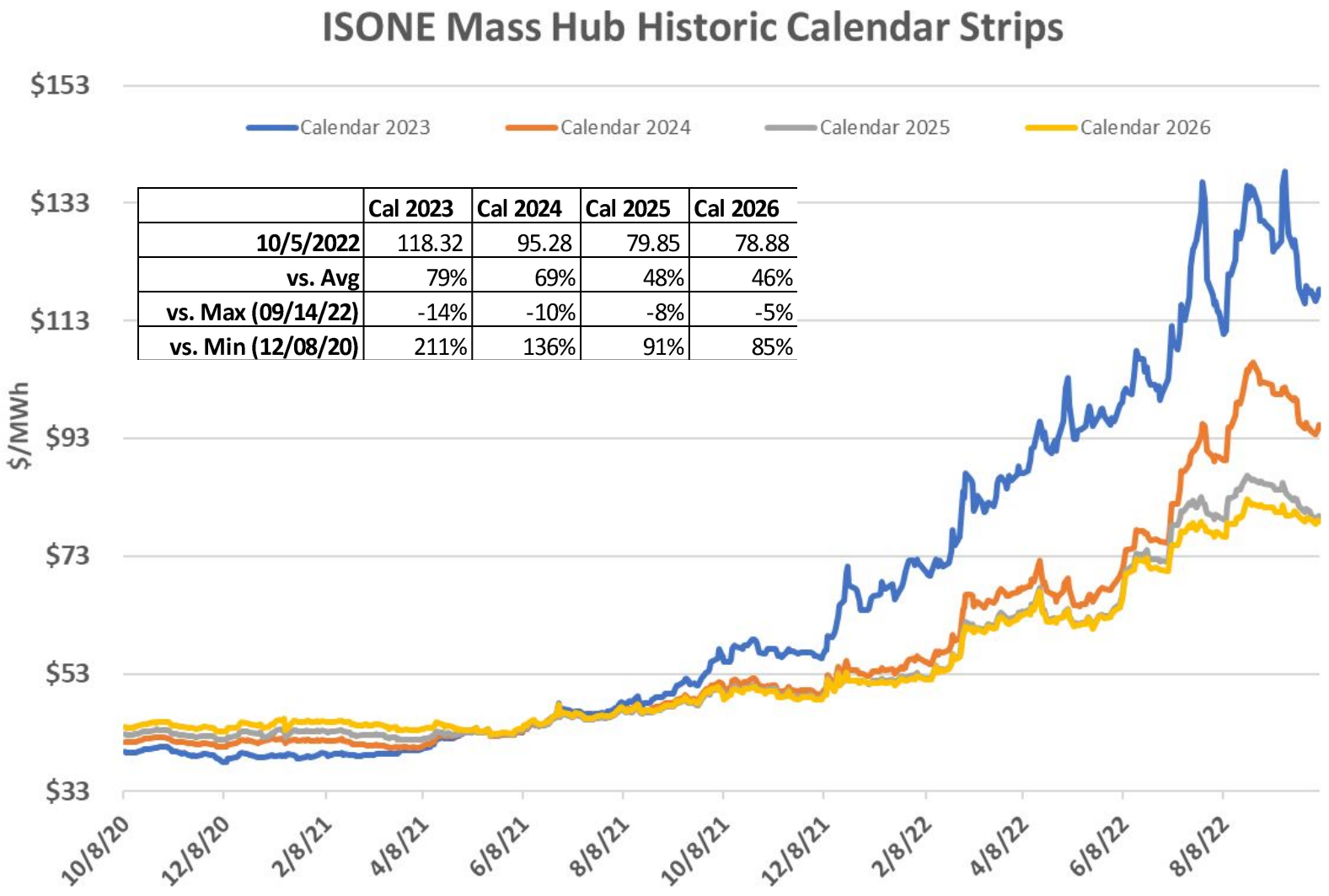
New England Historical Power Pricing – 2 Year Lookback



	Cal 2023	Cal 2024	Cal 2025	Cal 2026
10/5/2022	118.32	95.28	79.85	78.88
vs. Avg	79%	69%	48%	46%
vs. Max (09/14/22)	-14%	-10%	-8%	-5%
vs. Min (12/08/20)	211%	136%	91%	85%

Sources: Constellation

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Benefits From Participating in the MMA's MunEnergy program:

- A municipal energy contract negotiated and vetted by the MMA's energy attorney.
- An exceptional 55-day payment term billed directly on your utility bill so you can take advantage of Net Metering credits.
- No added fee to your kWh price. Unlike a broker where you pay the fee in your price per kWh over the term of the contract - there is no fee built into your price through the MMA's MunEnergy program.
- Ability to add/delete accounts at any point during the term of the contract without penalty*. No bandwidth on usage.
- Ability to add solar or any other co-generation without penalty*.

**Please see our terms and conditions which provide specific details of these protections for your town and school accounts.*

Sources: Constellation

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Q & A

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Thank you

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Appendix

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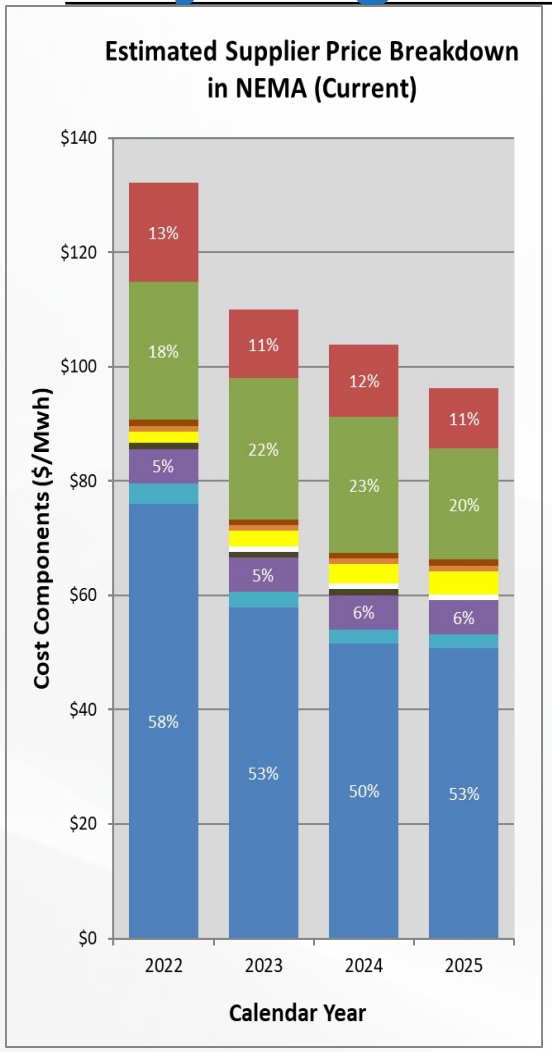
Layering Your Energy Costs



Initial lock-in of non-energy components

Layer energy over time

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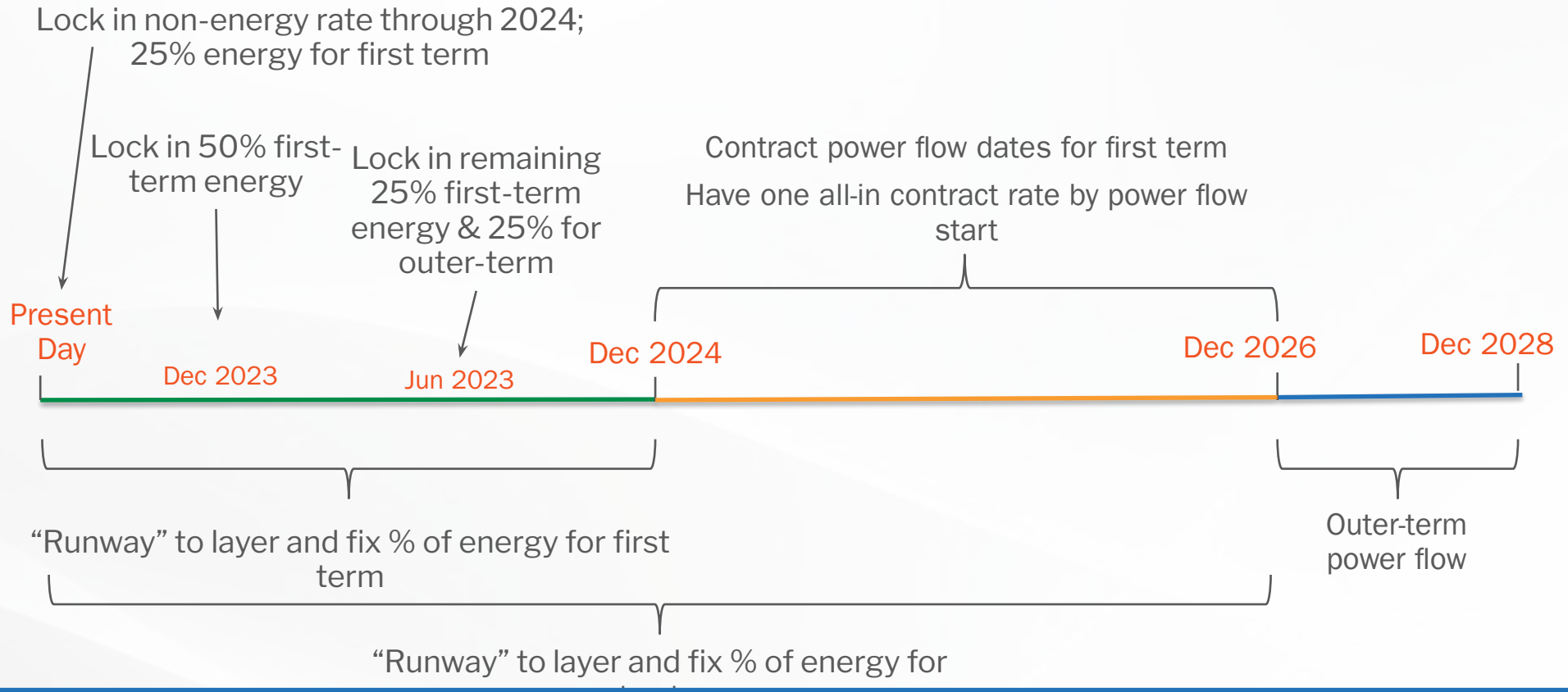
How To Time Your Layering Strategy



Customer Takeaway: Continuing to layer forward terms will allow you to manage the market over time while maintaining budget stability

Source: Constellation

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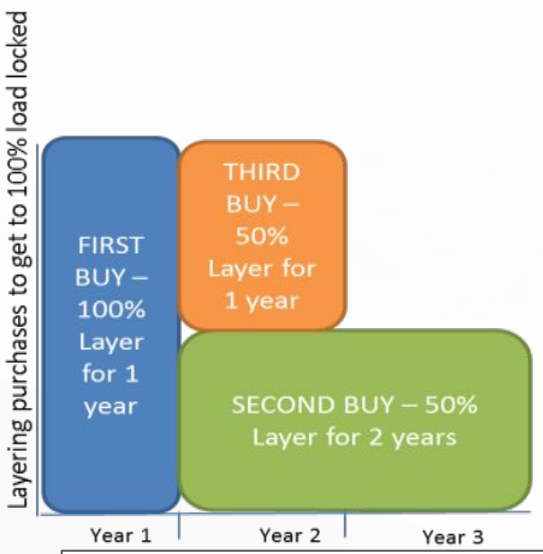
Manage Energy Through a Long-Term Strategy

What Does a Purchasing Strategy Look like?

3 year Strategy

Ex. Strategy 1: Customer signs a 3 year contract, and buys 25% of their power for the next 3 years. In the future, they add a 50% layer for years 1 and 2. At a later date, they take out another 25% layer for year 1, which give them 100% locked for year 1. They will then focus on years 2, 3, 4, 5…



3 year Strategy

Ex. Strategy 2: Customer signs a 3 year contract, and buys 100% of their power for year 1 right away. In the future, they add a 50% layer for years 2 and 3. At a later date, they add another 50% layer for year 2, locking in that price. They will then focus on years 3, 4 ,5, 6…

3 year Strategy

What will your strategy be??

- Ability to lock to on fully fixed-price rate after 100% energy has been layered for the term.
- Customers that want a no open exposure by flow date can achieve that from a number of different strategies.

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