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Municipal
Association



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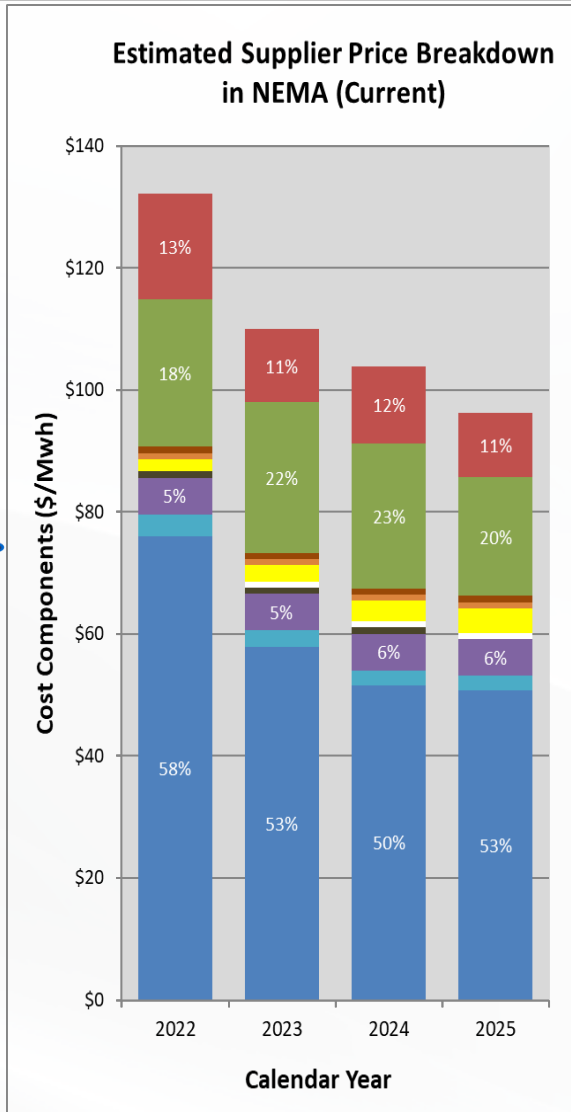
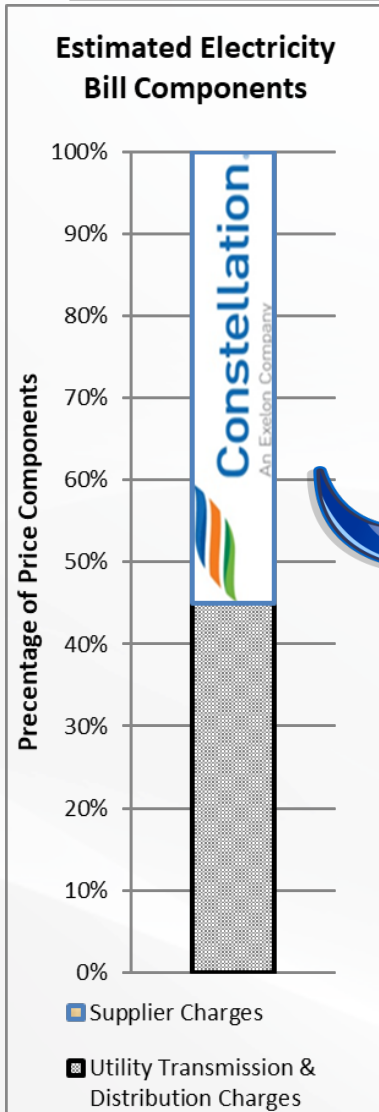
Virtual Energy Market Update

May 12, 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

What's In Your Electric Supplier's Price?



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- 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.
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* Source: Proprietary Data, Eversource

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Natural Gas Fundamental Outlook

Natural Gas Prices Have Enter “Chaos” Mode



Customer Takeaway:

- Prices have taken off despite limited domestic fundamental impact to natural gas from the war in the Ukraine.
- Low gas inventories, unsteady production, continued uncertainty from war impacts, and general commodities bullishness are the likely drivers to the upward momentum.
- We've now blown through the all-important \$6 resistance level – all bets are off.

Source: CME Group, Trading Economics

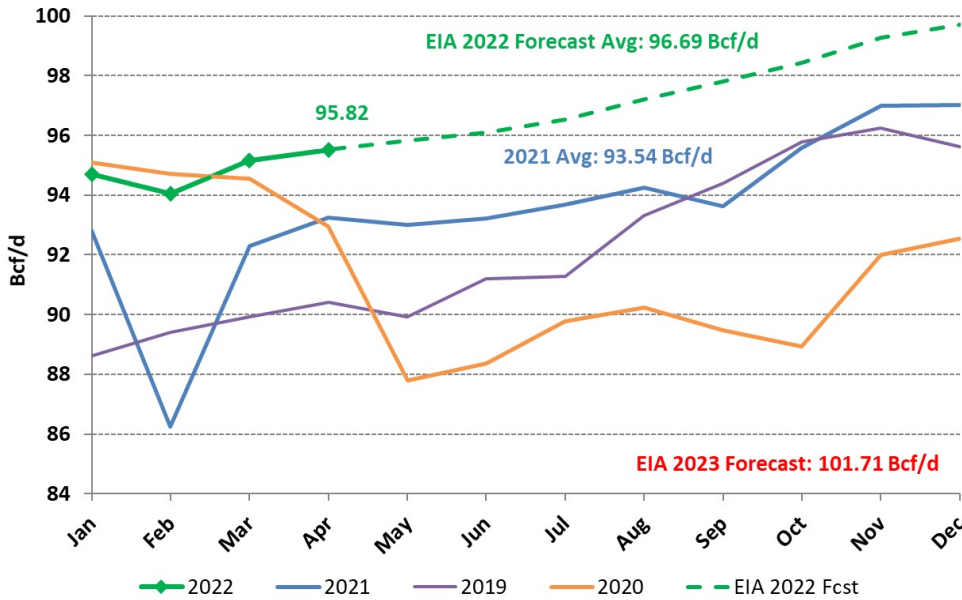
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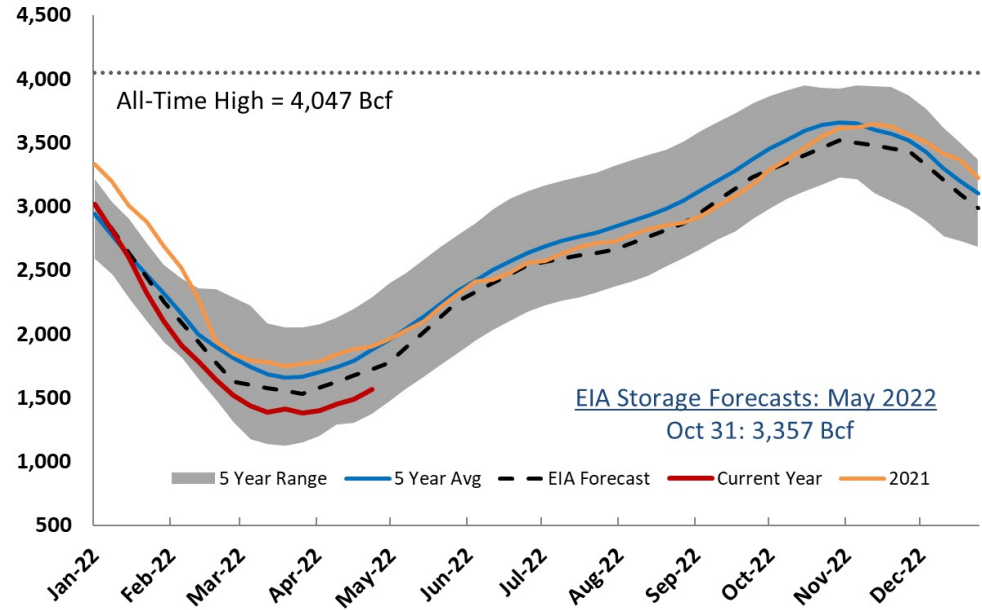


Uncertain Production and Lagging Storage Supportive for Prices

US Dry Gas Production (Bcf/day)



Natural Gas Storage Inventories (Bcf): Jan - Dec



- A strong March rebound in production is reflective of supportive natural gas and crude oil prices around \$5-6/MMBtu and \$100/bbl, respectively.
- Underground storage now sits 20 and 16% below last year and the 5-year average

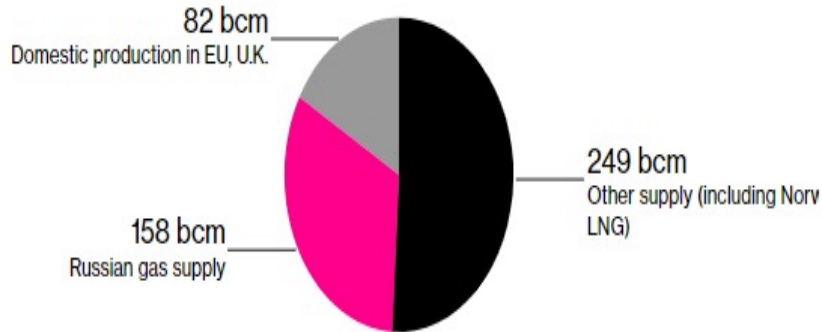
Customer Takeaway:

- The production trend this summer could reveal how prices could look later in 2022.
 - High oil price typically incentivized more drilling and extraction but producer discipline could limit growth.
- Lagging inventories means less supply available for heating-demand season but we have until November 1 to narrow deficits.
 - If deficits remain after the summer prices could remain supportive through fall and winter.

LNG Export Infrastructure Limits US Impacts of Global Energy Crisis

Where Europe Gets Its Gas

Supplies to European Union and U.K. in 2021

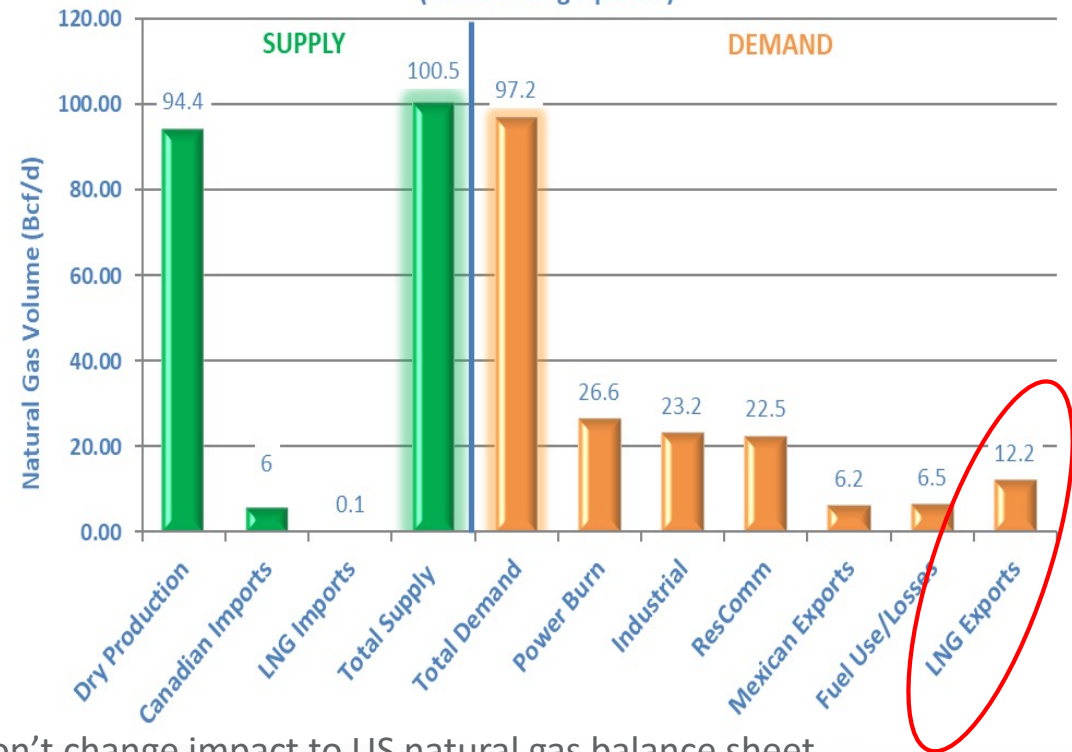


Source: IEA

- An interruption of energy flows into Europe poses the biggest price risk to international natural gas markets.
- A disruption of energy flow from Russia to Europe won't change impact to US natural gas balance sheet.
- US LNG exports continue to max out at infrastructure capacities.

2022 Balance Daily Snapshot

(week ending April 20)



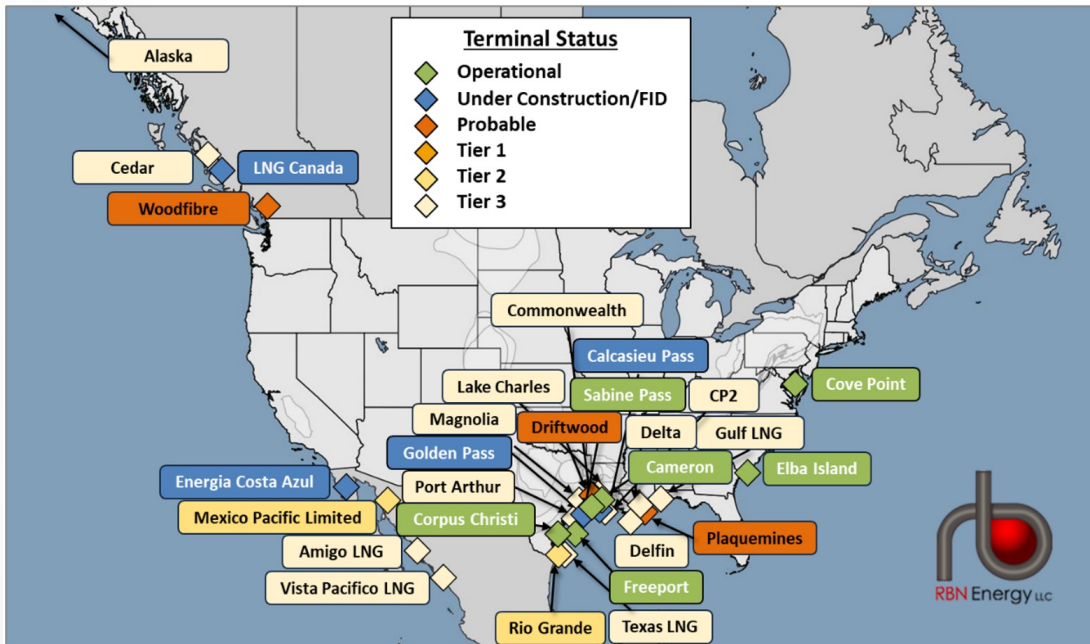
Customer Takeaway:

- Despite limited domestic fundamental impact to natural gas, there's been stronger support for Henry Hub natural gas prices amid the turmoil of the Russian-Ukraine war.
- Uncertainties of conflict escalation involving the West as well as any domestic disruption to energy (cyberattacks, etc.) continue to weigh on the national market.

Source: Bloomberg, EIA

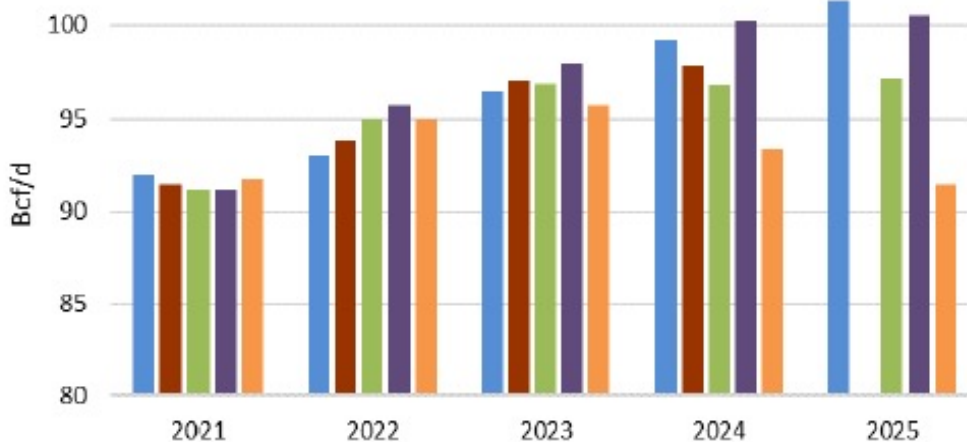
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Long-Term Export Demand – Can Production Keep Pace?



- **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

Forecast Comparison L48 Production



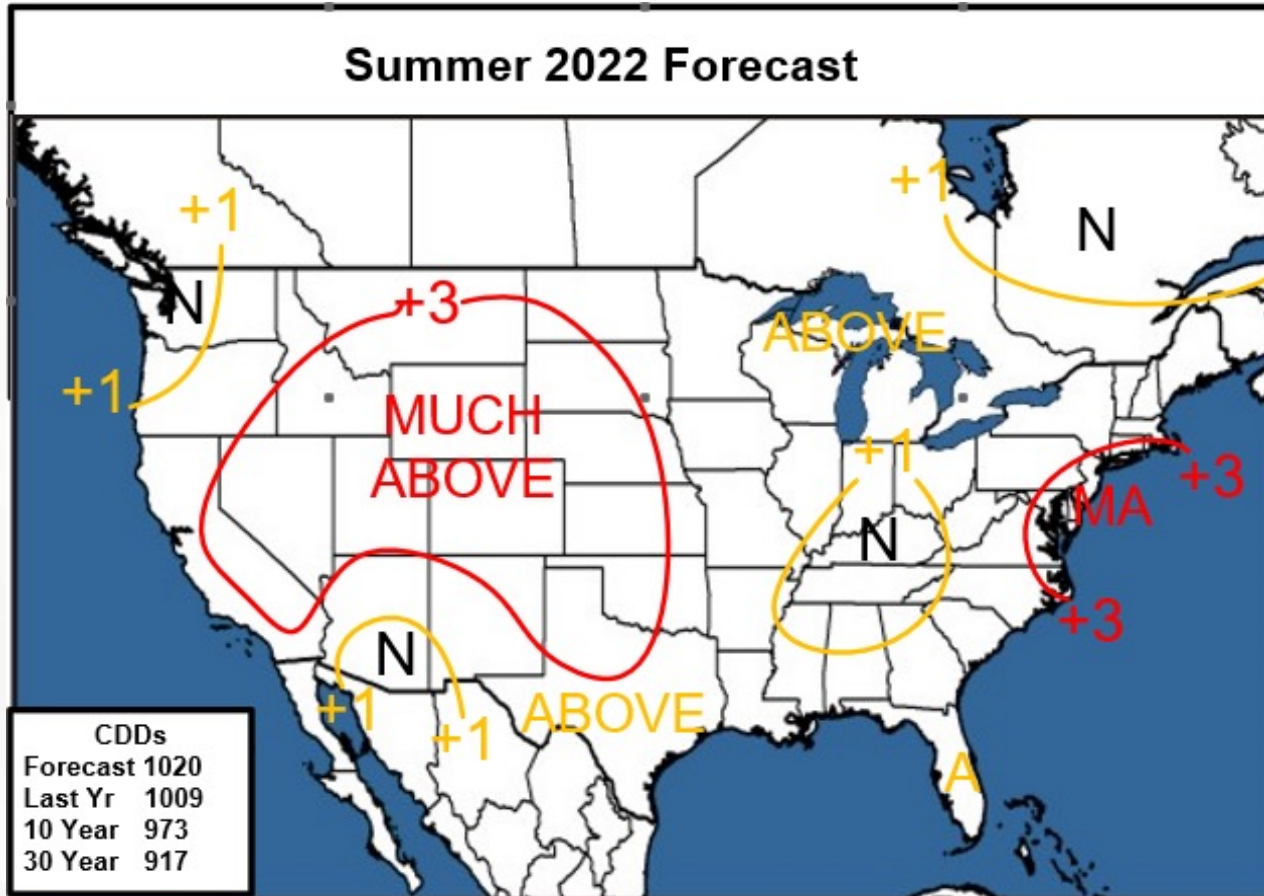
Source: EIA, Constellation, RBN Energy

Customer Takeaway:

- Forecasts of 6-12 Bcf/d of LNG export growth by 2027
 - **That means will need 6-12 Bcf/d of production just to keep up the supply/demand balance**
- This is a long-term bullish driver that could mean higher prices for a longer period

Weather

Summer Outlook: Another Hot One



- Constellation sees a top 5 hottest summer
- A La Nina pattern promotes zonal west to east flow
 - If there's a heat source in the West, it would flow East
- Highest confidence for heat is in the West and Texas.

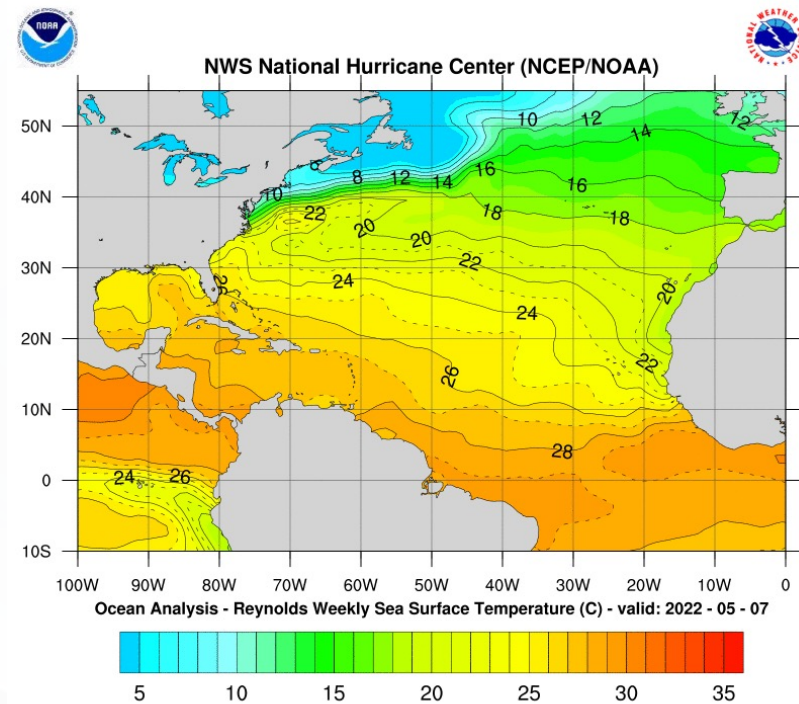
Customer Takeaway:

- Cooling demand/power burn stemming from realized temps will be a crucial determinant in rebuilding historically low storage inventories ahead of winter.
- We've seen few extended outages with lasting index price impacts but more sustained heat puts the regional grids at higher risks.

Source: Constellation

More Tropical Storm Activity Ahead for 2022

Colorado State 2022 Extended Range Atlantic Basin Hurricane Forecast		
	1991-2020 Average	2022 Forecast
Named Storms	14.4	19
Hurricanes	7.2	9
Major Hurricanes	3.2	4
Probability Of Major Hurricanes Making Landfall		
	Average for Last Century	2022 Forecast
Entire US Coastline	52%	71%
US East Coast	31%	47%
Gulf Coast	30%	46%
Caribbean	42%	60%



- Atlantic water temperatures remain above-normal, while atmospheric conditions (weak La Nina) should provide favorable settings as well.
- Preliminary risks remain for a more active season overall, with high likelihood of major hurricanes (cat 3 or greater).

Customer Takeaway:

- Landfall hurricanes now carry both bullish and bearish risks depending on location, size, and scope.
- Outages to LNG export facilities means less natural gas (temporarily leaving the US) while storms targeting gas-producing regions are bullish for prices.
- In either scenario, initial market reactions to impactful storm tracks result in volatility.

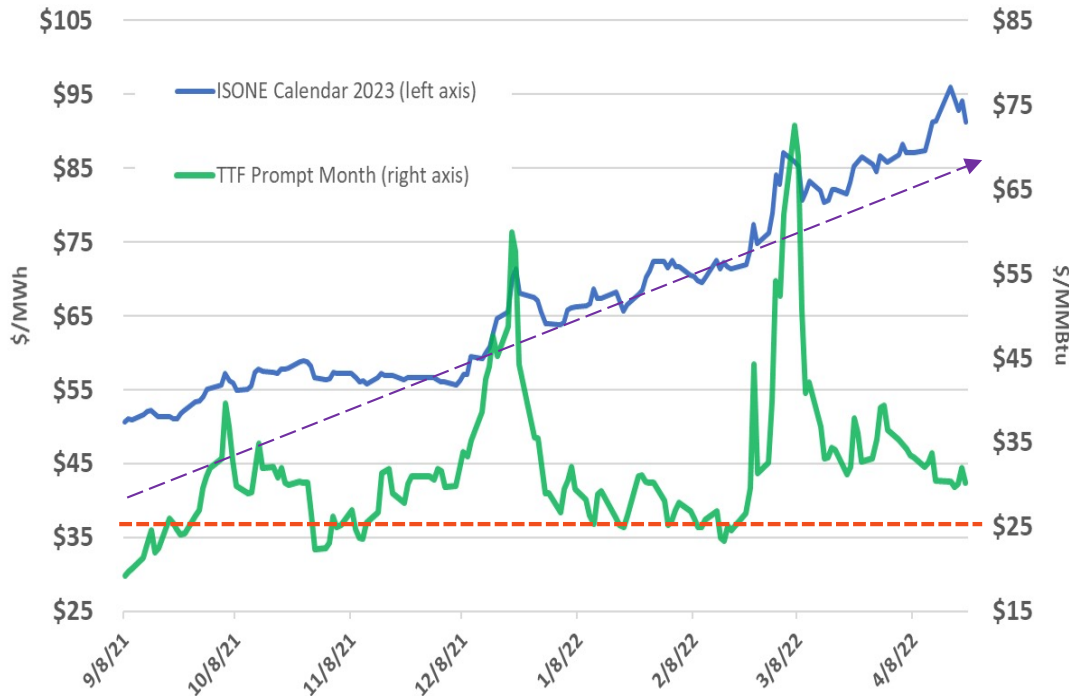
Source: Constellation, National Hurricane Center

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Regional Fundamental and Pricing Impacts

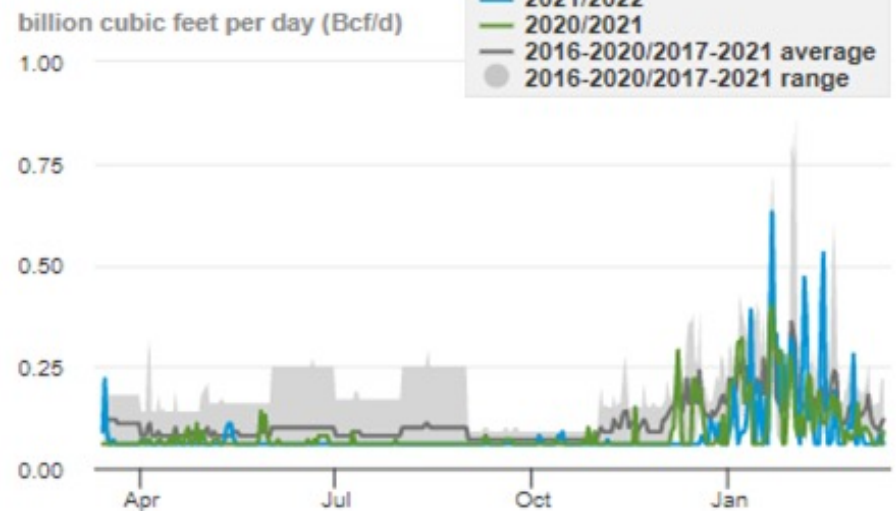
Winter LNG Imports Link New England Prices to Volatile Global Markets

ISONE/NYISO Calendar Strips
vs. Dutch Prompt Month Natural Gas (TTF)



- Tight correlation between global natural gas prices and New England forward energy rates due to constrained fuel in the winter here.
- The European market was tight heading into winter 2021/'22 already.
 - High demand LNG cargoes
 - Low storage inventories
 - High cost for coal and oil generation

Daily deliveries of liquefied natural gas in New England

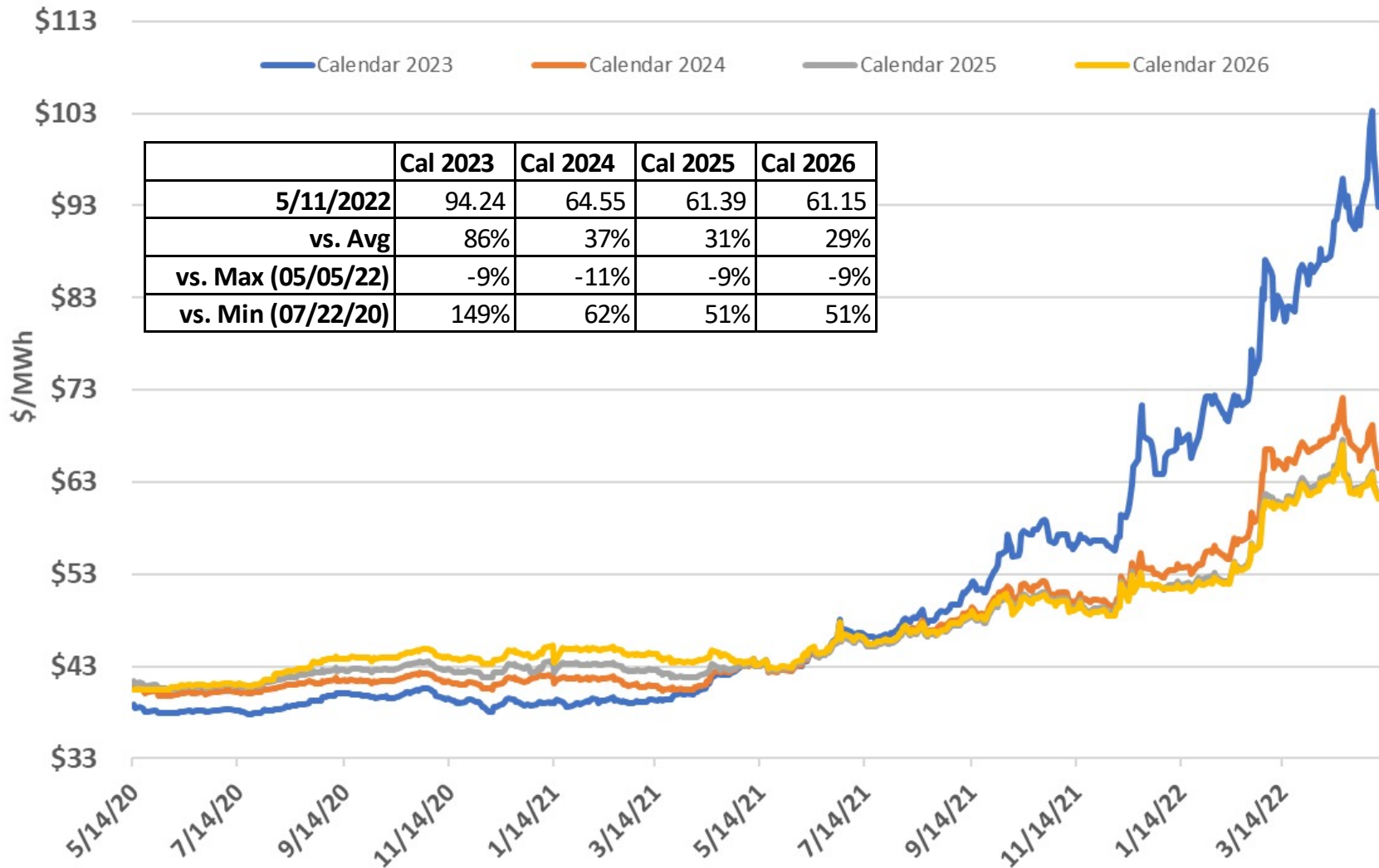


Customer Takeaway:

- European natural gas prices remain volatile on the prospect of supply disruptions in an already very tight market.
- Forward New England energy prices will likely remain elevated for the foreseeable future with the most risk exposed during the winter months.

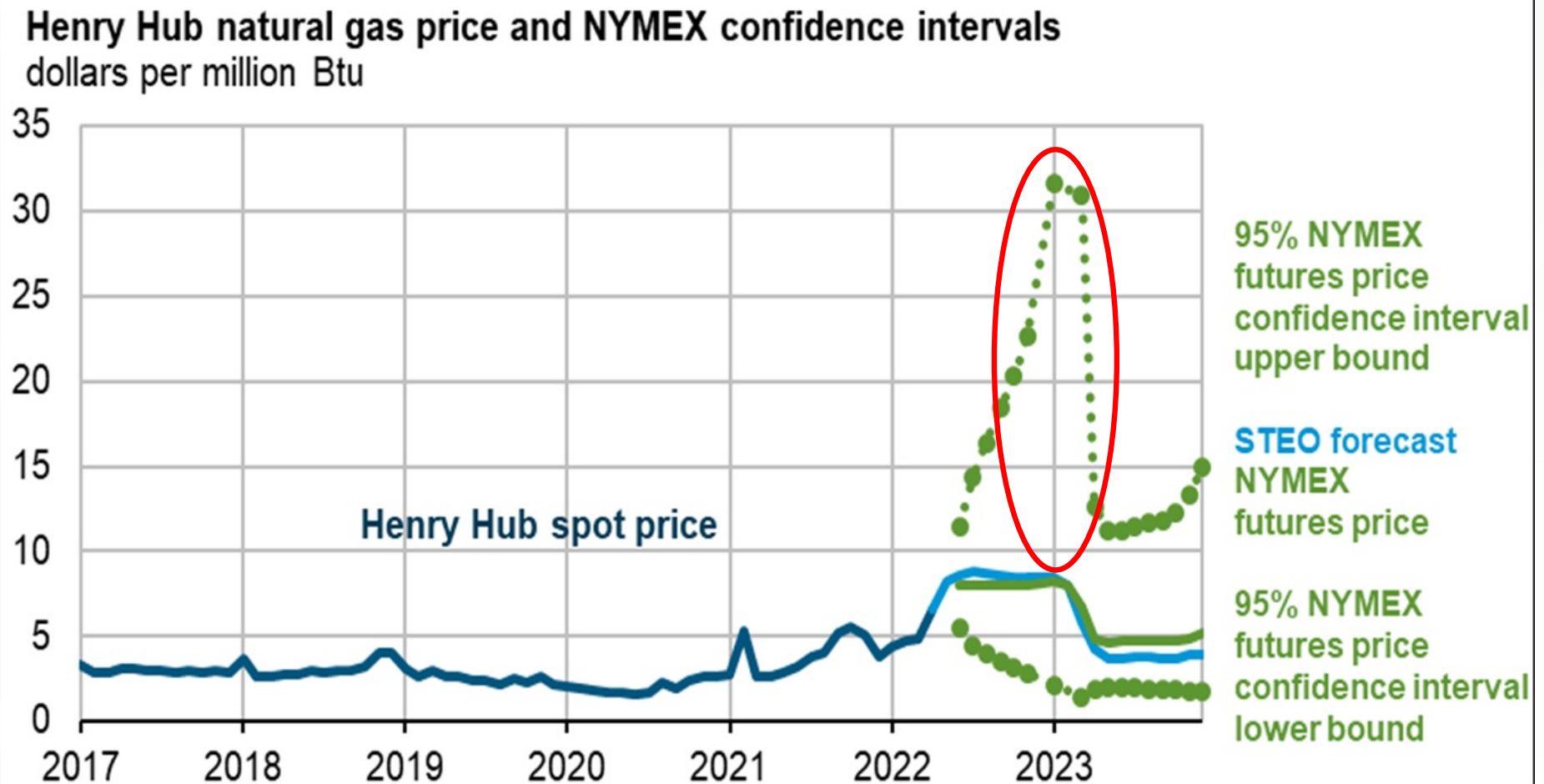
New England Historical Power Pricing – 2 Year Lookback

ISONE Mass Hub Historic Calendar Strips



Sources: Constellation

Upside Risks Vastly Outweigh Downside Rewards



Note: Confidence interval derived from options market information for the five trading days ending May 5, 2022. Intervals not calculated for months with sparse trading in near-the-money options contracts.

Sources: U.S. Energy Information Administration, Short-Term Energy Outlook, May 2022, CME Group, and Refinitiv an LSEG Business



Source: CME Group

The MunEnergy Program

Contract Benefits

- 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

Thank you

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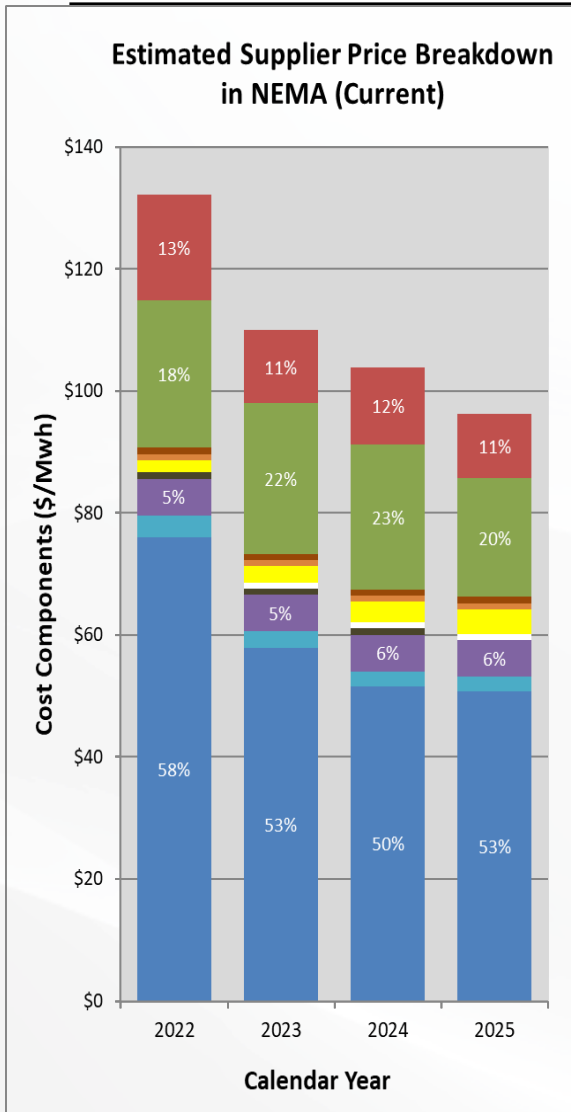
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Appendix

Layering Your Energy Costs



Initial lock-in of non-energy components

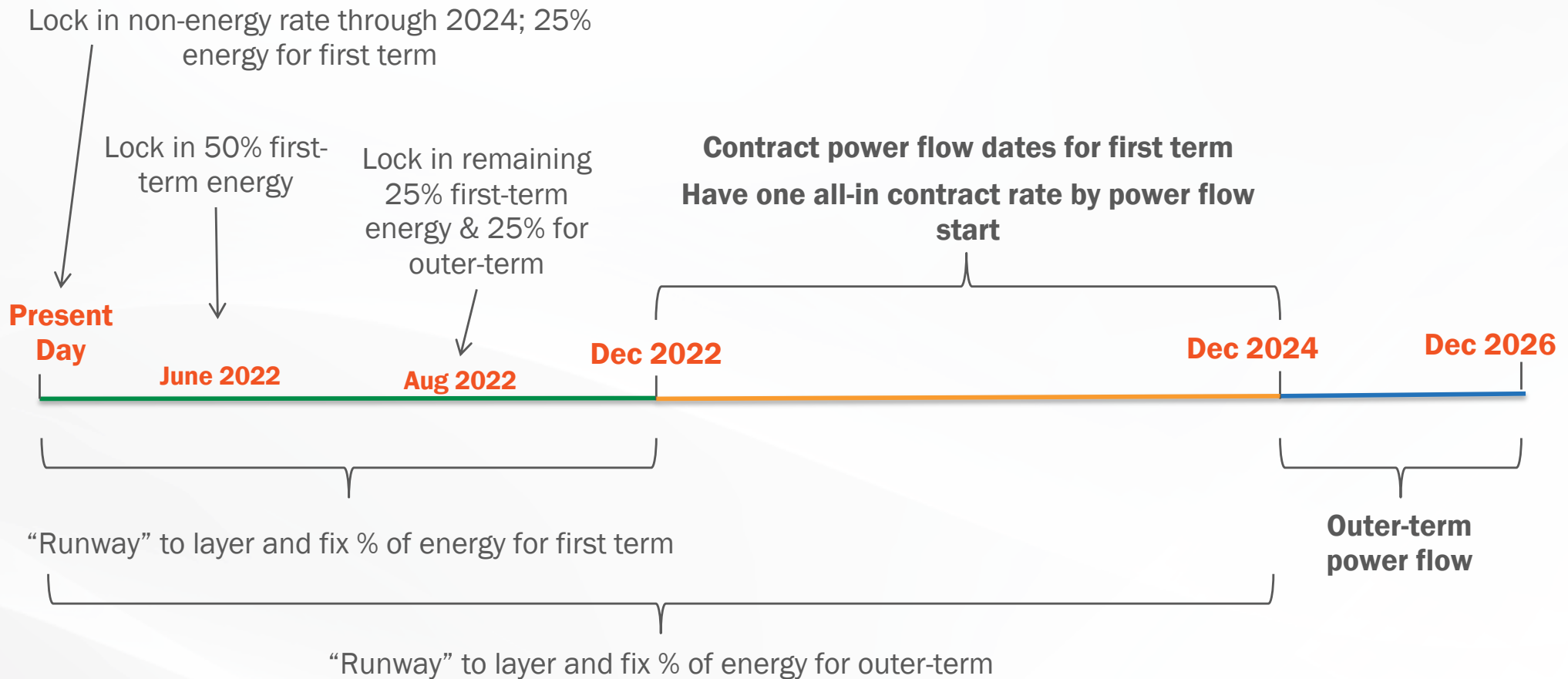
Layer energy over time

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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

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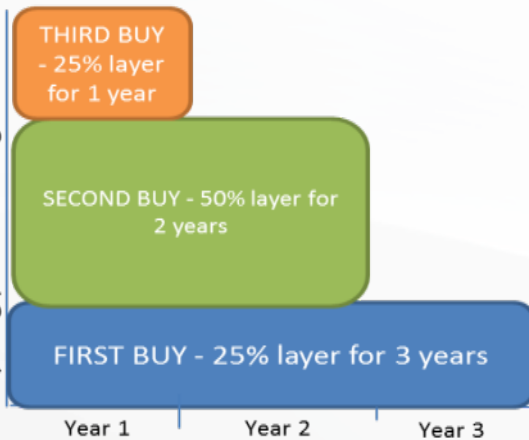
Source: Constellation



Manage Energy Through a Long-Term Strategy

What Does a Purchasing Strategy Look like?

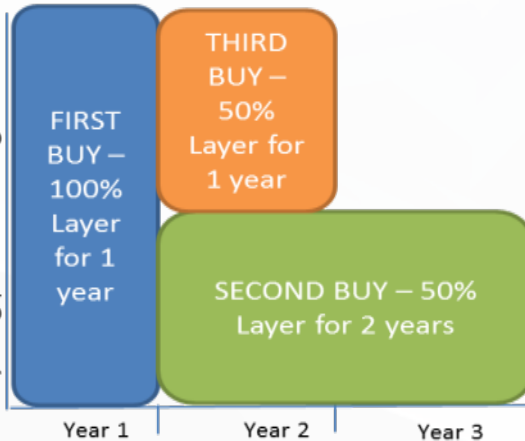
Layering purchases to get to 100% load locked



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...

Layering purchases to get to 100% load locked



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...

Layering purchases to get to 100% load locked



Year 1 | Year 2 | Year 3

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.