

MunEnergy Winter Wrap Webinar

Agenda

Welcome & Introduction – Katie McCue, Deputy Executive Director, MMA

Energy Market Update - Winter Review and Market Opportunities – Brandon Fong, Principal, Commodities Management Group, Constellation

Meet Your Business Development Managers – Charlotte Diogo & Aiste Dacys, Business Development, Constellation

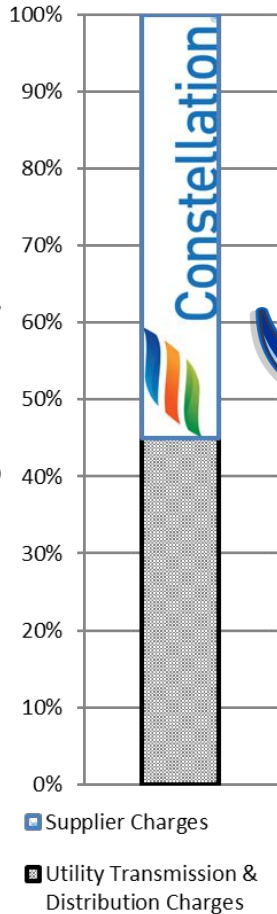
Questions and Closing



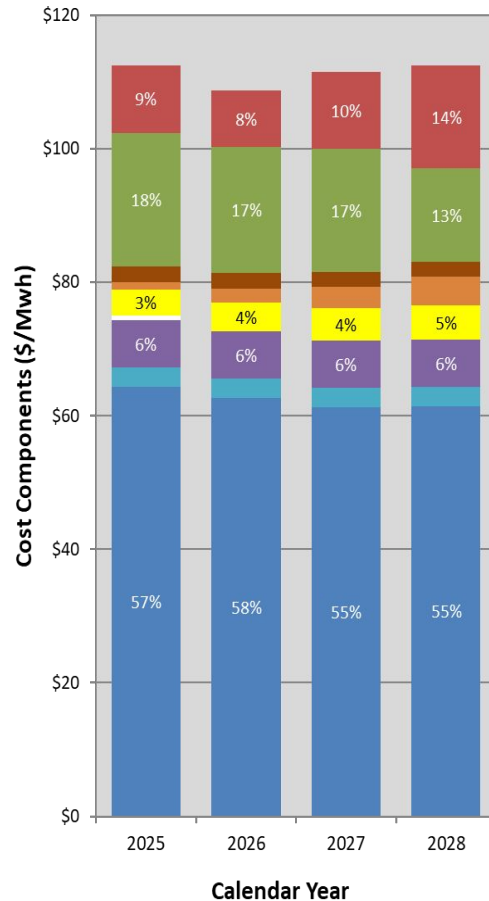
Massachusetts
Municipal
Association

What's In Your Electric Supplier's Price?

Estimated Electricity Bill Components



Estimated Supplier Price Breakdown in MA (Current)



- 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.
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- Clean Energy Standard (CES)** – Similar to RPS but a Massachusetts mechanism to incent new zero emission generation (ex. hydro & nuclear)
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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.
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- Line Losses** – Included to make up for the energy lost over transmission and distribution (T&D) lines due to heating

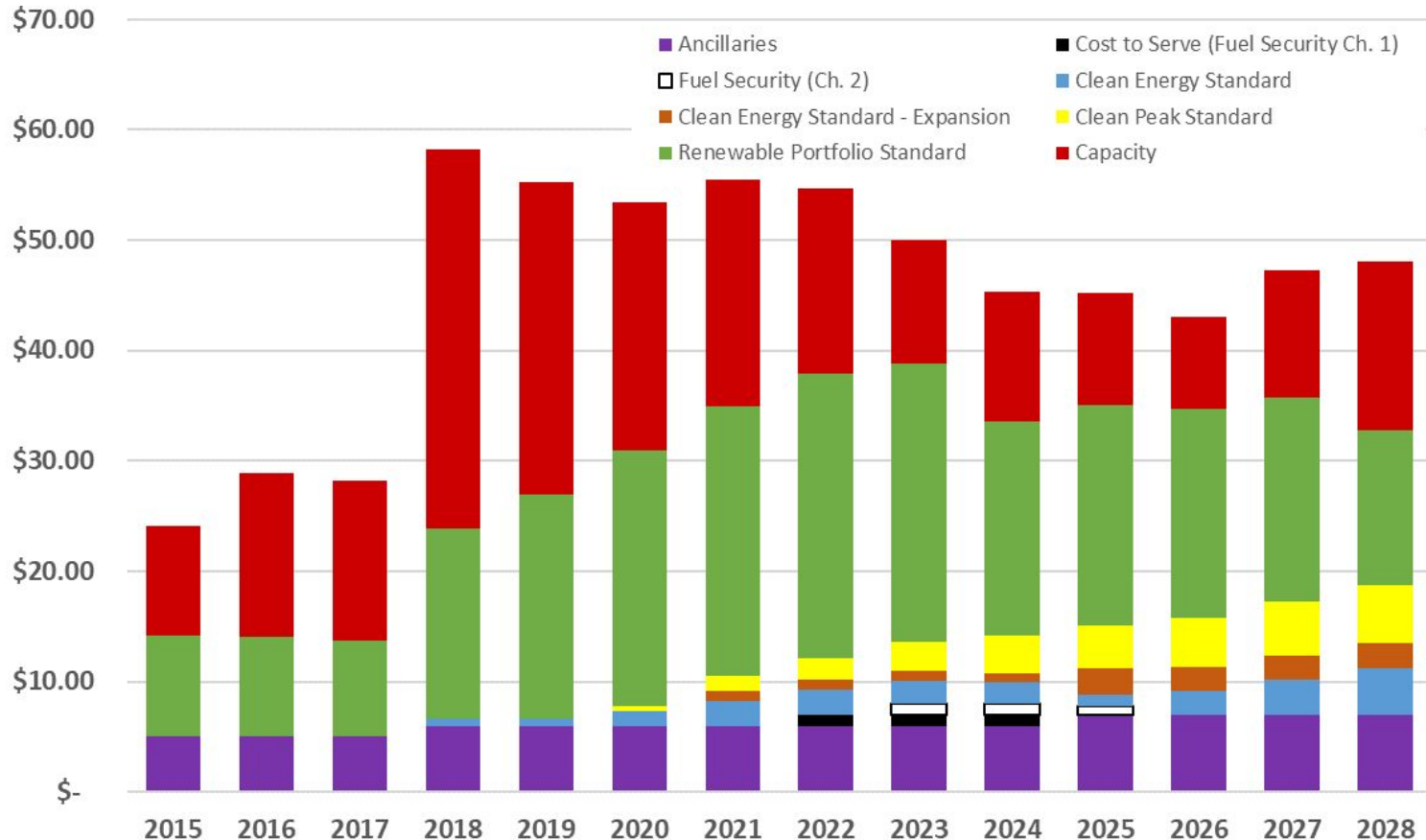
Energy – The cost of procuring the actual electrons transmitted through the T&D lines (largely determined by cost of natural gas for New England).

* Source: Proprietary Data, Eversource

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Massachusetts Non-Energy Costs Over Time

Massachusetts Non-Energy (Forward) Costs
Since 2015 (in \$/MWh)



* Source: Proprietary Data, Eversource

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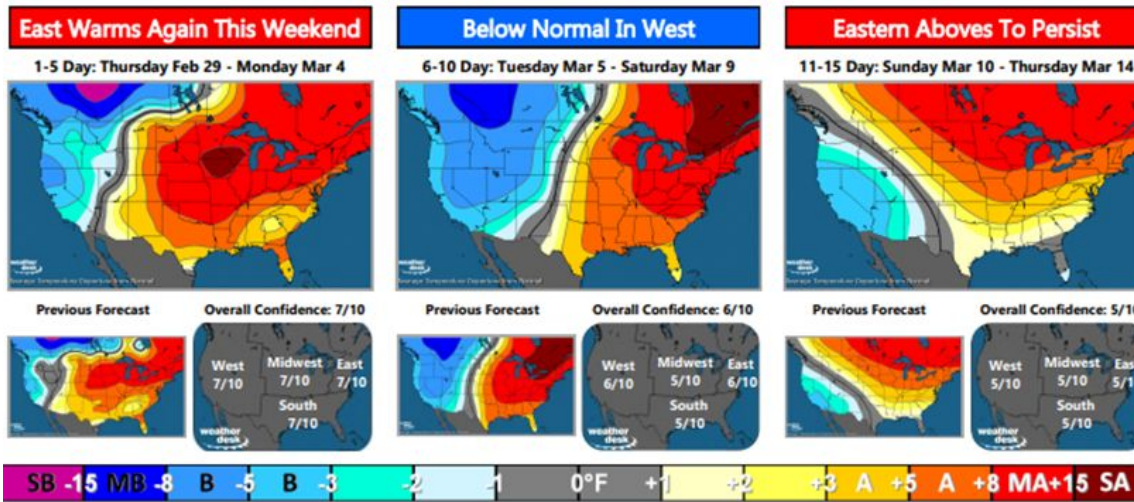
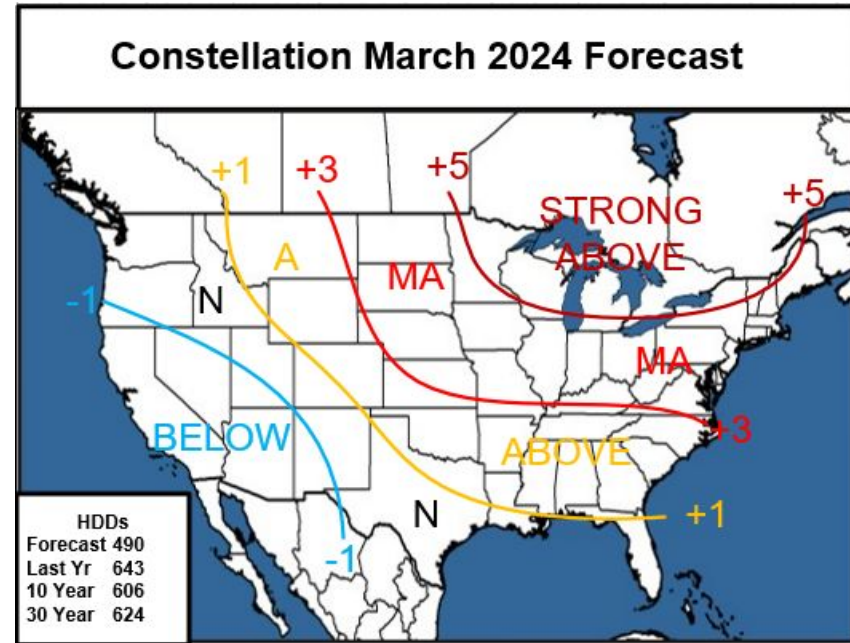
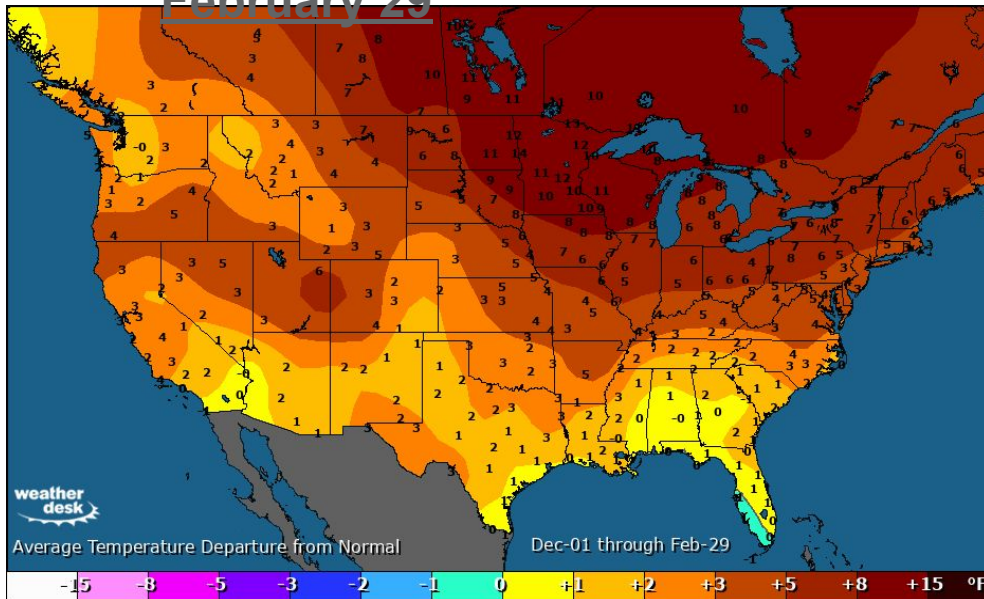
Natural Gas Prices Bounce Off 3.5 Year Low, Now at \$1.87/MMBtu

NYMEX Henry Hub Prompt Month Natural Gas (Since 2019)



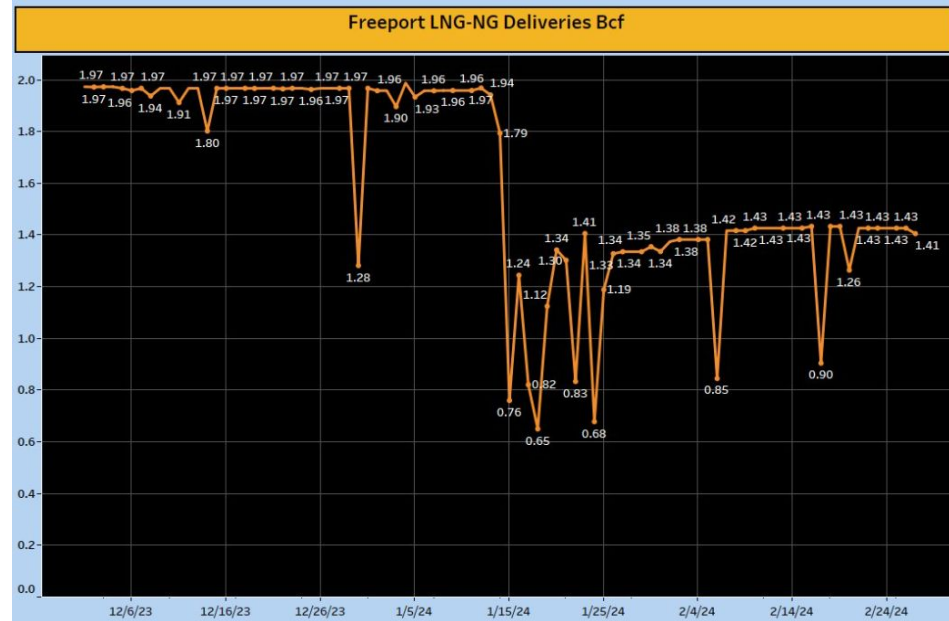
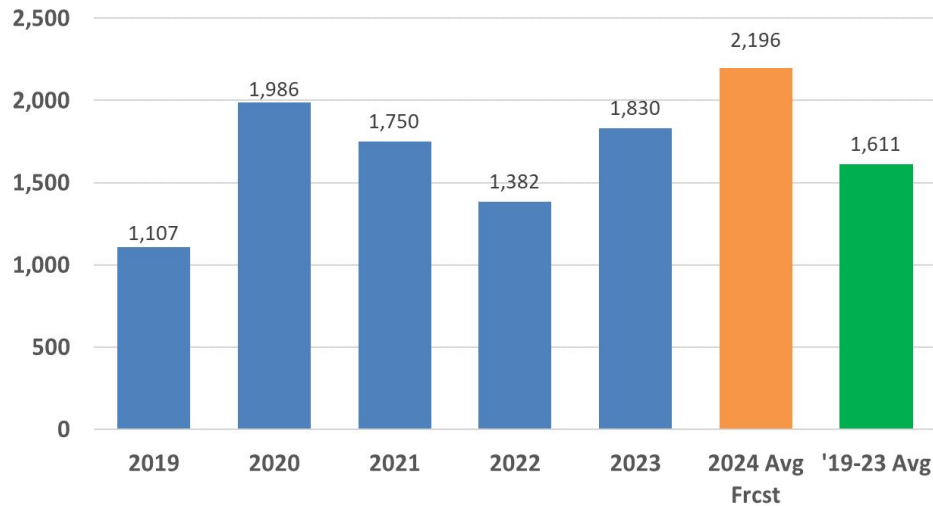
Warmest Winter on Record, 5th Warmest for New England

Actual December 1 –
February 29



2,000+ Bcf in Storage Expected by April

Year-Over-Year Storage Inventories
End of Withdrawal Season Low (in Bcf)



- After a seasonally bearish 60 Bcf was withdrawn for week-ending February 16, the storage surplus to last year and the 5-year average stand at 12 and 22%, respectively.
- 7 weeks remain in traditional withdrawal season market consensus for stocks come March 31 is 2,196 Bcf, which would put it 36% above the 5-year average while the EIA's outlook is for 1,905 Bcf.
- Freeport LNG's train 3 outage from Winter Storm Heather has provided the market with an extra and unexpected 0.7 Bcf/d of natural gas for domestic use.

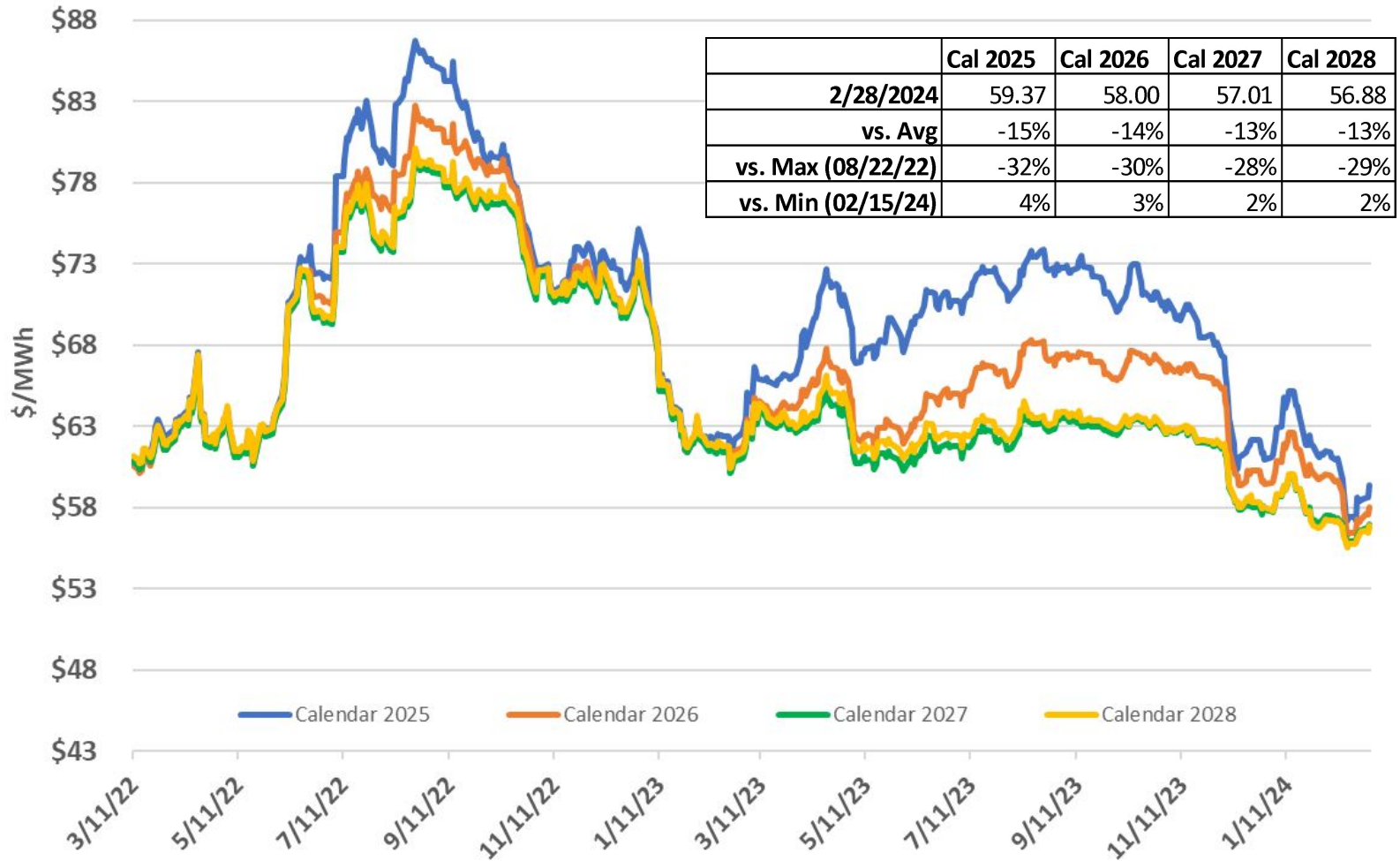
Customer Takeaway: With low heating/natural gas demand stemming from the warmest winter on record this season, and limited production freeze-offs, natural gas storage is in very strong position to end the withdrawal season at its highest point 2016. The market has responded to the oversupply in kind with prices dipping below the bearish \$2.00/MMBtu level

Source: EIA, Constellation

Pricing

Forward Energy Calendar Strip – Historic 2 Year Lookback

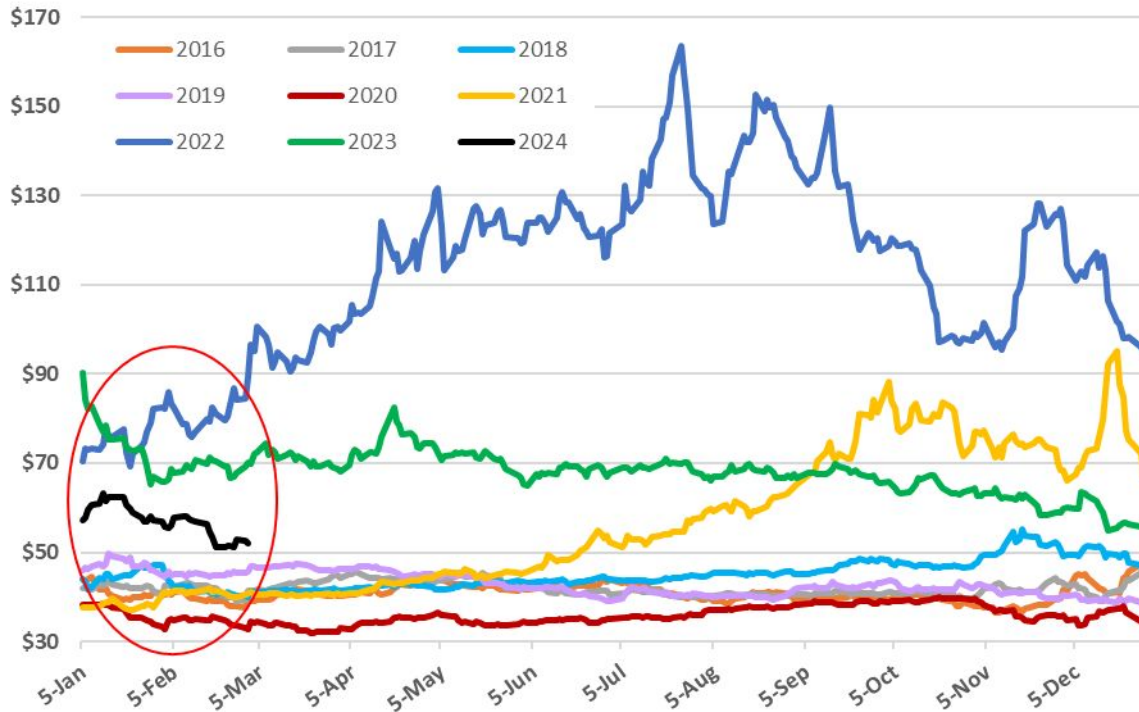
ISONE Mass Hub Historic Calendar Strips



Source: Constellation

First Quarter Buying Windows for After Warm Winters

ISONE 12-Month Rolling Power Strip



12-Mo Rolling MA Hub

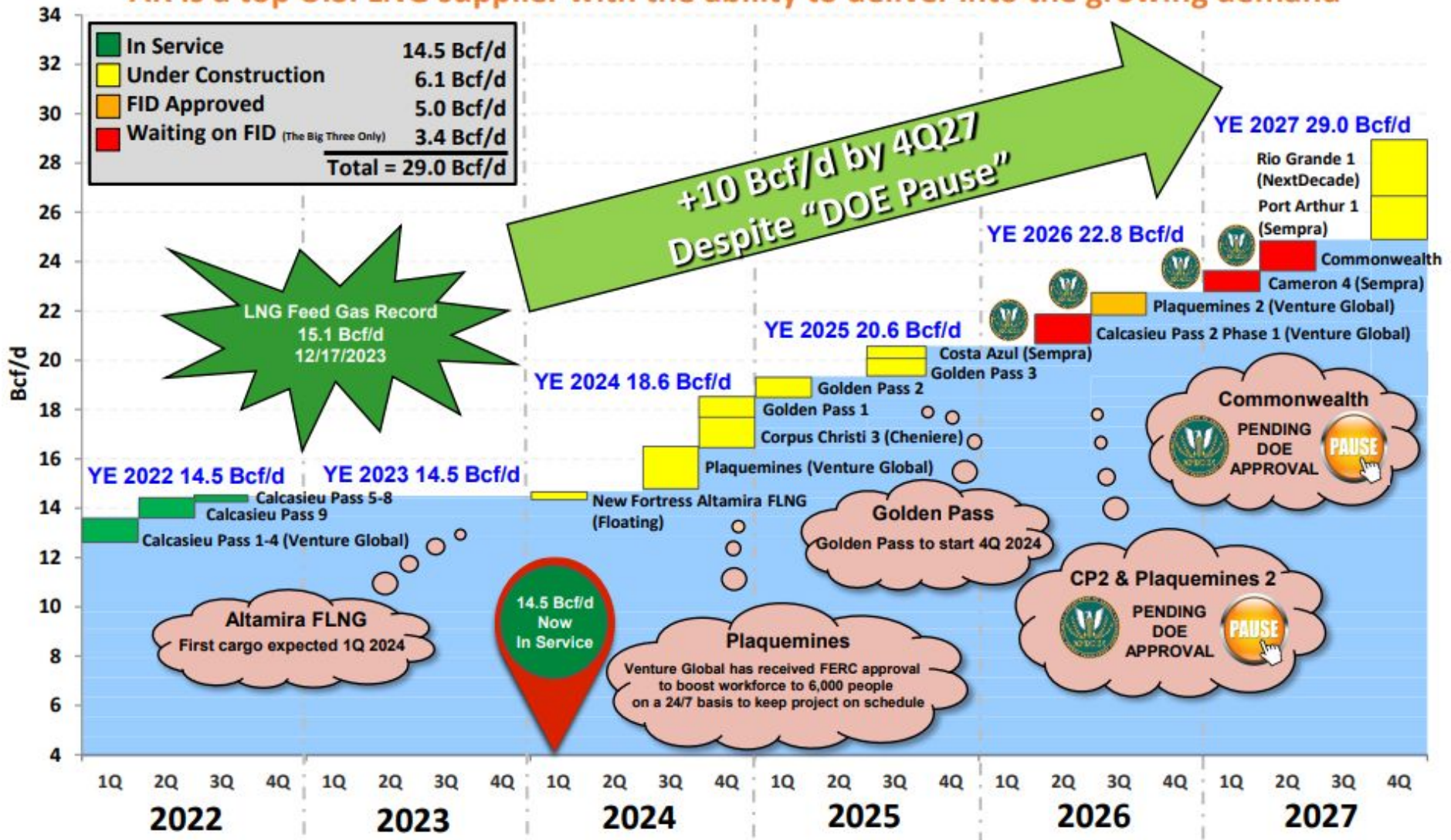
	Date	Price
2023	29-Dec	\$ 52.75
2022	3-Jan	\$ 69.78
2021	4-Jan	\$ 36.72
2020	23-Mar	\$ 31.96
2019	31-Dec	\$ 36.86
2018	28-Feb	\$ 39.79
2017	15-Dec	\$ 39.11
2016	9-Nov	\$ 36.52
2015	15-Dec	\$ 38.23
2014	31-Dec	\$ 53.40

Source: Constellation

Natural Gas Fundamentals

LNG Exports to Lead Future Natural Gas Demand in US

AR is a top U.S. LNG supplier with the ability to deliver into the growing demand



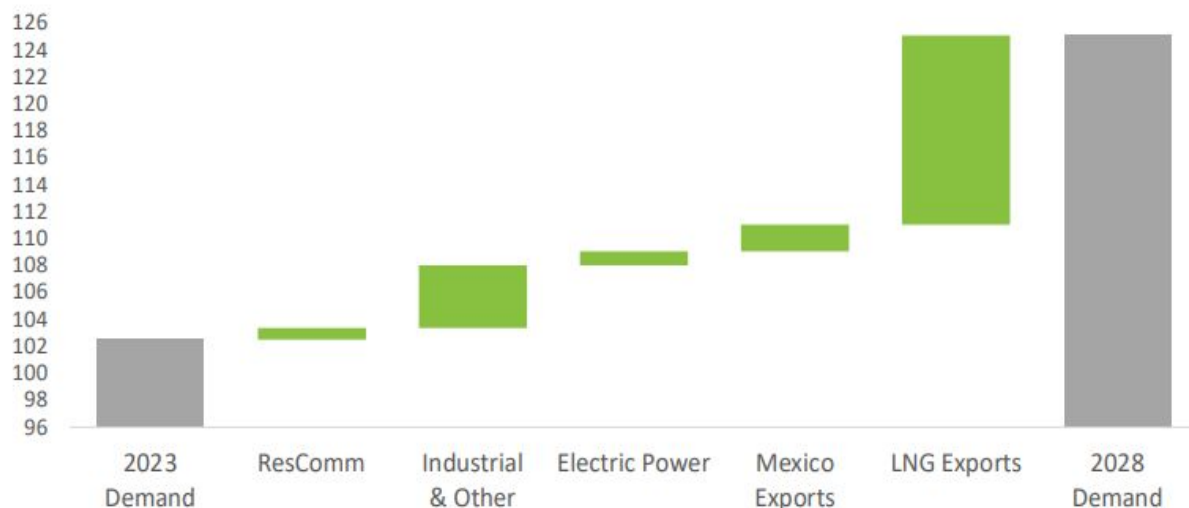
Sources: Antero Resources

Bullish on Natural Gas Demand in US

Future Natural Gas Fundamentals Remain Strong

Natural Gas Plays Key Role in Energy Transition, with a Supportive Demand Outlook

U.S. Supply and Demand Outlook (Bcf/d)



- Demand grows ~23 Bcf/d by 2028, driven by increased exports and industrial demand
- Upside to electric power demand from electrification load growth
- Industry focus on capital discipline reduces outlook for associated gas growth versus historical expectations
- Even if oil basin activity increases with rising oil prices, significant growth is still needed from gassy basins to meet future demand
- Additional infrastructure is needed for supply to meet demand

R RANGE RESOURCES® Note: Associated gas supply assumes 5% CAGR. Other supply represents legacy shale, conventional, offshore and imports.
Source: Range Resources

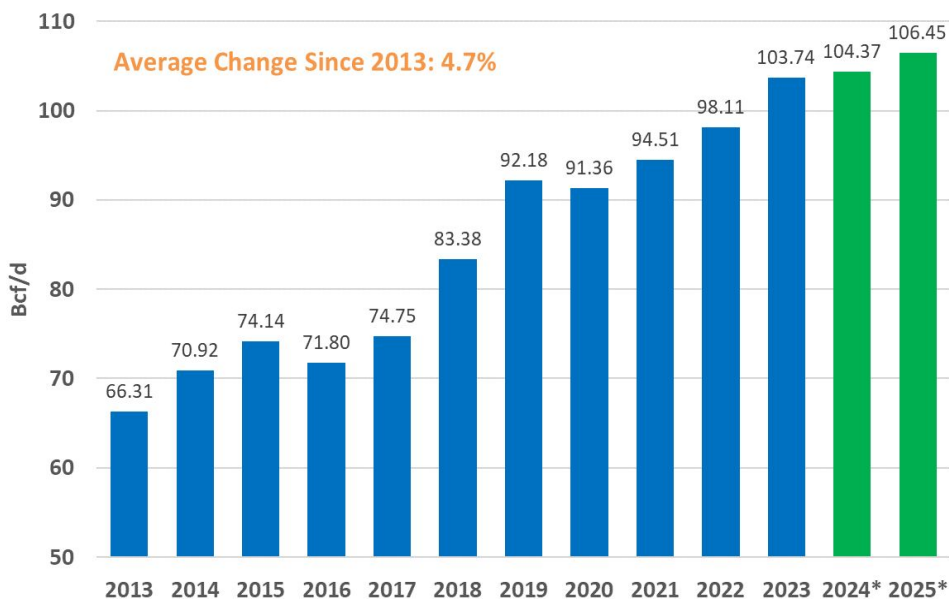
Sources: Range Resources

Producers Expect Budget Cutbacks in 2024

Public Producer 2024 Spending Outlooks

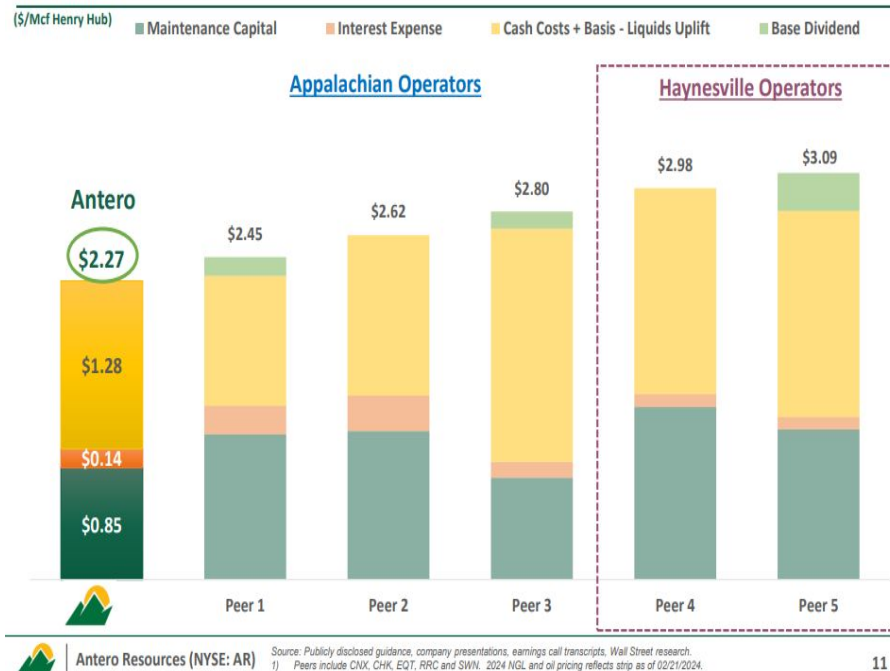
- Coterra Energy: **55%** drilling budget cut, 6% production cut from 2023
- Chesapeake Energy: **20%** capital spending cut, 20% production cut

Dry Gas Production Annual Average vs. Y-o-Y Change



* EIA Forecast

2024E Unhedged FCF Natural Gas Price Breakeven ⁽¹⁾



Public Producer 2024 Spending Outlooks

- Antero Resources: **26%** drilling and completions spending cut, flat production
- Range Resources: 4% capital spending increase, flat production

Sources: EIA, Antero Resources, Range Resources, Chesapeake Energy, Coterra Energy

Key New England Strategic Takeaways

Short-Term



- Domestic/Henry Hub natural gas prices have sunk under \$2/MMBtu and the lowest since 2020 (when LNG export cancellations kept supply in the US) as March temps are expected to be absent of material cold.



- Underground storage has benefited from bearish fundamentals as expectations of end-of-season stocks are at or over 2,000 Bcf mark (which would be ~30% over the 5-year average).
 - Production has rebounded to 105 Bcf/d after mid-January freeze-offs briefly disrupted natural gas extraction
 - Freeport LNG train 3 remains offline (now for ~40 days) from Winter Storm Heather and means 0.7 Bcf/d is not being liquefied and shipped to global destinations.



- Global markets look well supplied despite an abundance of geopolitical risks.
 - European storage has benefited from a warm winter now 64% full as we reach the homestretch of winter.
 - Link to New England energy prices still exists because of winter LNG imports into the region.
- Milder outlooks for March which should keep overall heating demand tempered.



- Lowest price points in a calendar year have occurred in the first quarter 4 out of the last 6 years.



Medium- and Long-Term



- Long-term demand for natural gas seems like a given as LNG exports and power burn growth continue, while production has proved over the past several years its up to the task. Beware of budget cuts in 2024.

Sources: Constellation

MMA MunEnergy Program Benefits

Price is only one criteria when reviewing and comparing quotes for energy procurement

- The MMA contract has been **negotiated and carefully vetted by the MMA's municipal energy attorney** who specializes in municipal energy issues, and is available for questions about the benefits of their fully-vetted energy contract **at no cost**.
- Chapter 30b
- Ability to **add or delete accounts without penalty** (add 15% usage at same contract price during the term of the contract) without penalty during the term of the contract as long as one account remains active.
- Ability to **add solar, wind and other co-generation** during the contract term **without penalty**.
- **No bandwidth/penalty for variations in usage** over the contract term.
- **55-day payment terms**
- Utility billing for Fixed price contracts.
- **Dedicated Business Development Manager (BDM)** to help cities and towns manage their energy costs and develop an energy strategy to minimize risk for electricity procurement.
- Constellation **elected to NOT pass through two changes in law costs** (Winter Reliability & Clean Peak Standard) to MMA customers, resulting in **avoided costs for municipalities under contract with us at the time**.
- Invitations to all MMA MunEnergy sponsored **educational energy seminars and webinars** as well as having energy specialists available to speak at Energy Advisory committee meetings and other board meetings.
- Constellation Solutions team can assist with **solar projects** and **EV charging station** implementation

Sources: Constellation
Financing

Thank you

Aiste Dacys

Senior Business Development Manager
Constellation
781-203-2711
aiste.dacys@constellation.com

Charlotte Diogo

Senior Business Development Manager
Constellation
508-208-4387
charlotte.diogo@constellation.com

Brandon Fong

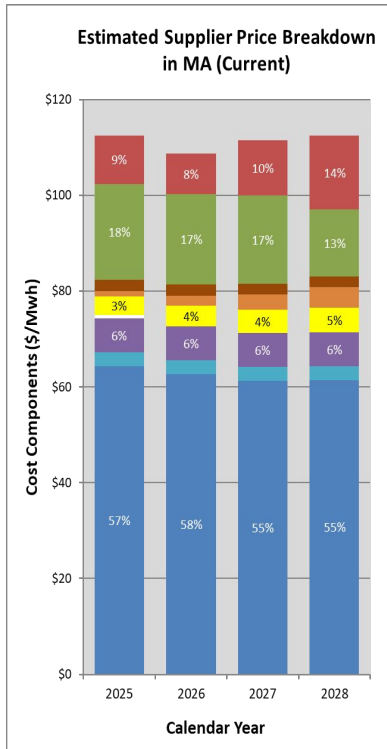
Commodities Management Group
Constellation
617-694-7048
brandon.fong@constellation.com

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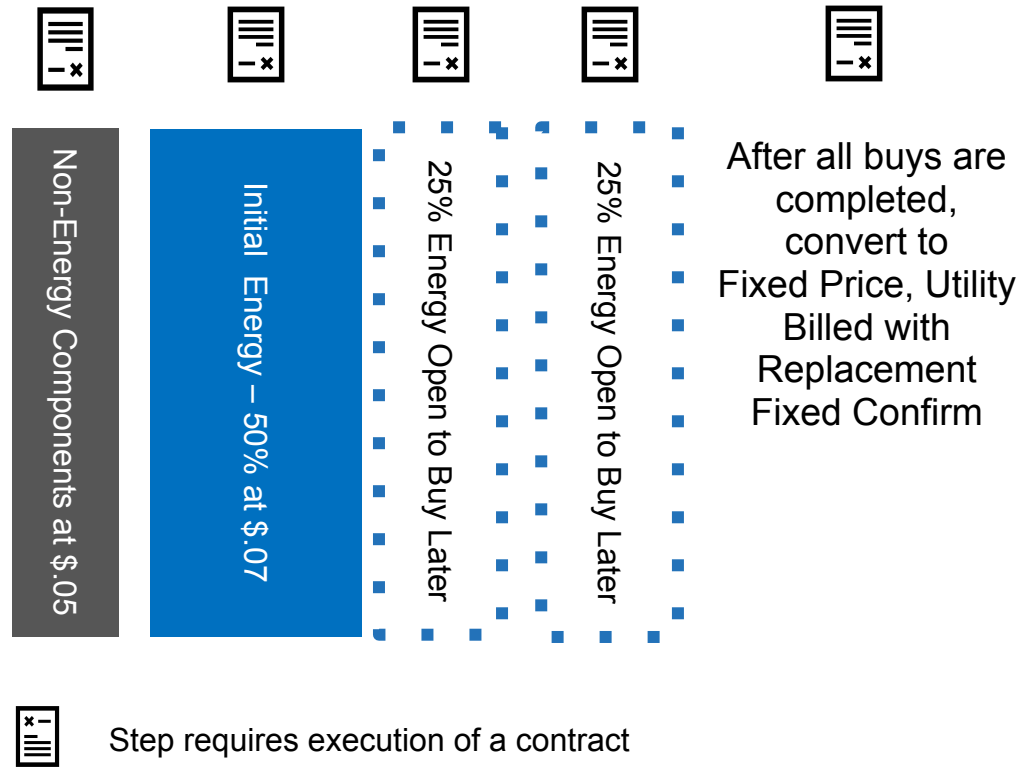
Appendix

Manual Buying Over Time: One Simple Example



Initial lock-in of non-energy components

Layer energy over time

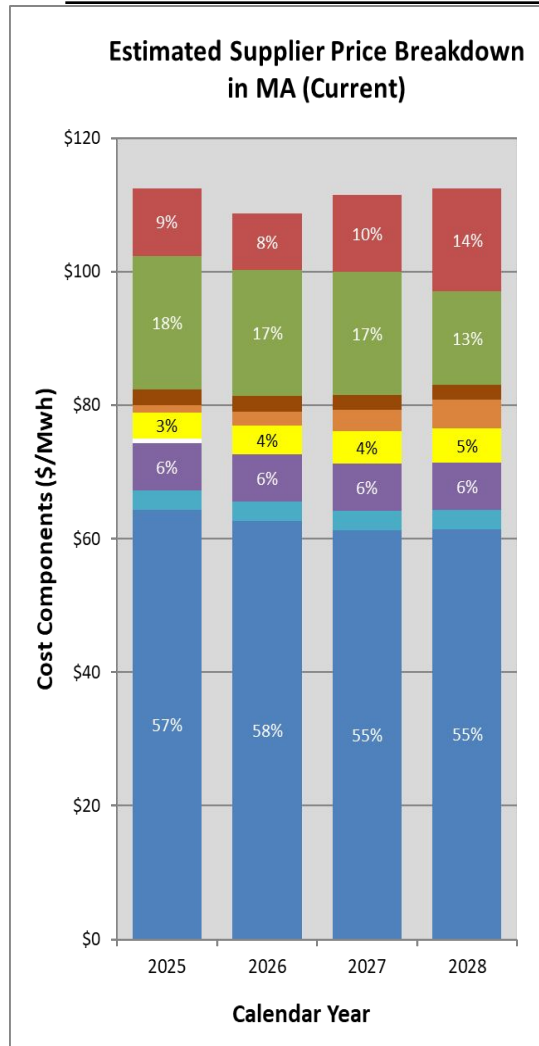


If customer is open to being billed by Constellation, more optionality is available:

- Multi-year base non-energy and energy terms (no deadline to flip for rate ready billing)
- Ability to float some % of energy on the open (index) market
- Longer buying windows

Sources: Constellation

Layering Your Energy Costs



Initial lock-in of non-energy components

Layer energy over time

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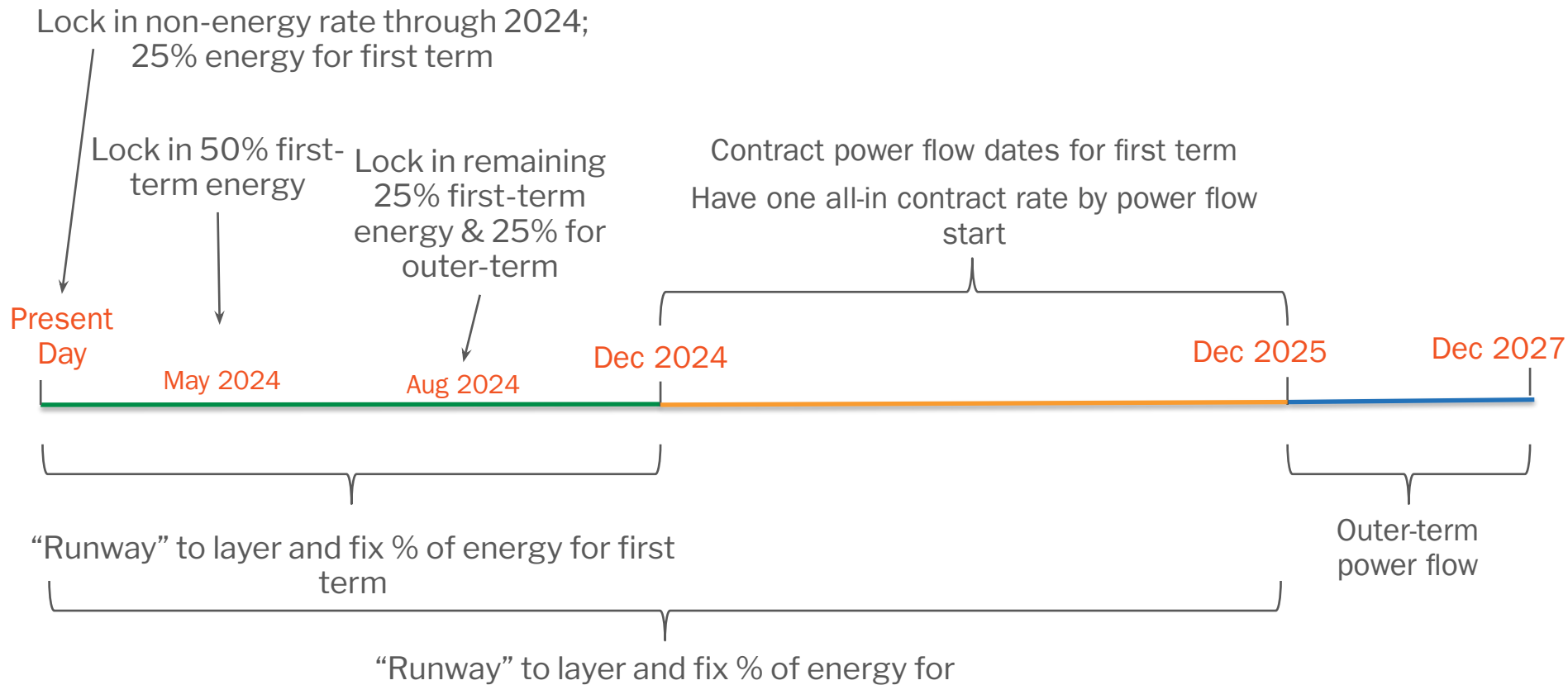
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How To Time Your Layering Strategy



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

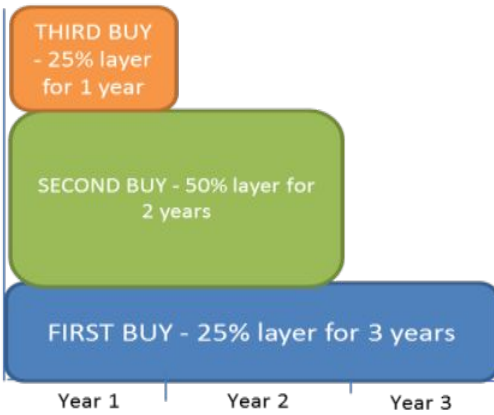
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Manage Energy Through a Long-Term Strategy

What Does a Purchasing Strategy Look like?

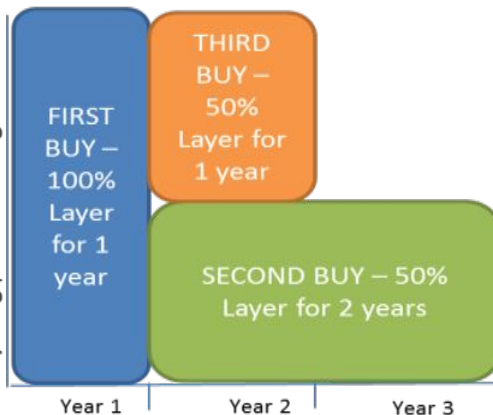
Layering purchases to get to 100% load locked



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

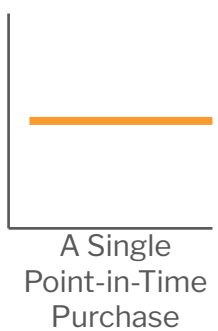


3 year Strategy

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.

A Better Approach to Fixed Price: Extend Your View

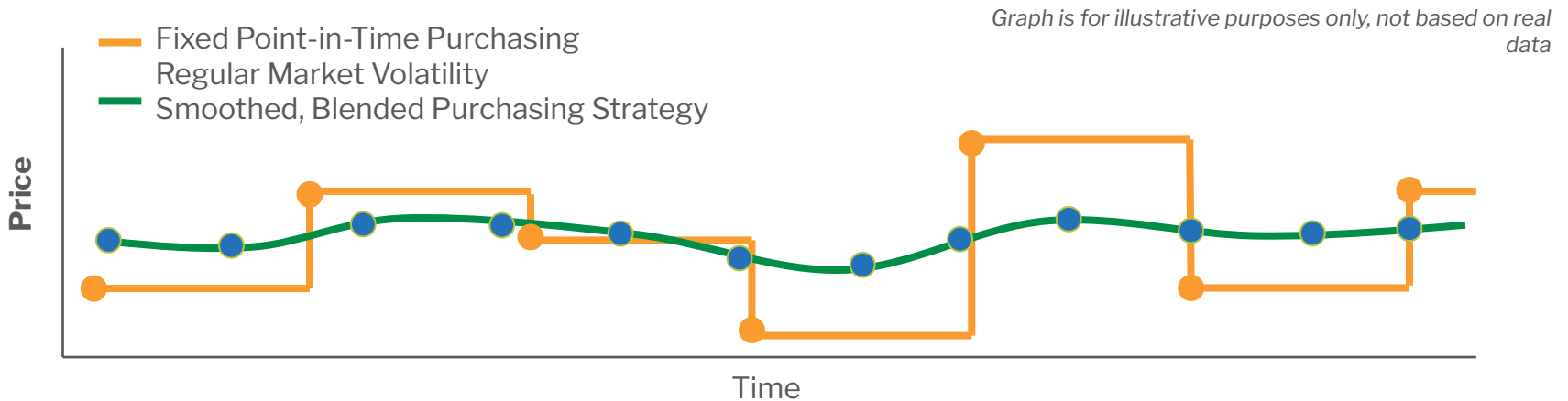


EXAMPLE: A Company makes a Fixed Price, 1 year purchase.

Power is purchased on a day that successfully achieves an energy price within this company's budget.

— Fixed Point-in-Time Purchasing
— Regular Market Volatility

By thinking and acting long term, you can have the security of a fixed price and the flexibility to respond to market conditions over time.



Percentages of load are purchased at regular intervals over a longer time horizon to smooth the curve and manage to the mean.

Major Infrastructure Projects Under Contract/Development in New England

State RFPs	Project & Developer	Capacity Under Contract (MWs)	Estimated In-Service Date	MW Remaining Under State Statute	Status
CT	Park City Wind (Avangrid)	804	2027	892	Contract terminated on 10/3/23, waiting for CT PURA approval
RI	Revolution Wind 2	884*	N/A	0	7/8/23: RI Energy Rejects Bid
MA	South Coast/Mayflower Wind (Shell and Ocean Winds)	804	2027-2028	2,359	Developer trying to cancel PPAs, RI siting paused until PPAs attained
MA	Commonwealth Wind (Avangrid)	1,232*	2028	2,359	Contract cancellation approved by MA DPU
MA	Southcoast Wind/Mayflower	405*	2028	2,359	Contract cancellation awaiting approval by MA DPU
MA	New England Clean Energy Connect (Avangrid)	1,200	2023	0	Construction paused, contracts legally open to re-negotiation
MA/ME	Northern Maine Renewables Energy	1,000 wind 1,200 transmission	2029	N/A	Contracts cancelled in ME on 12/28/23, TBD in MA

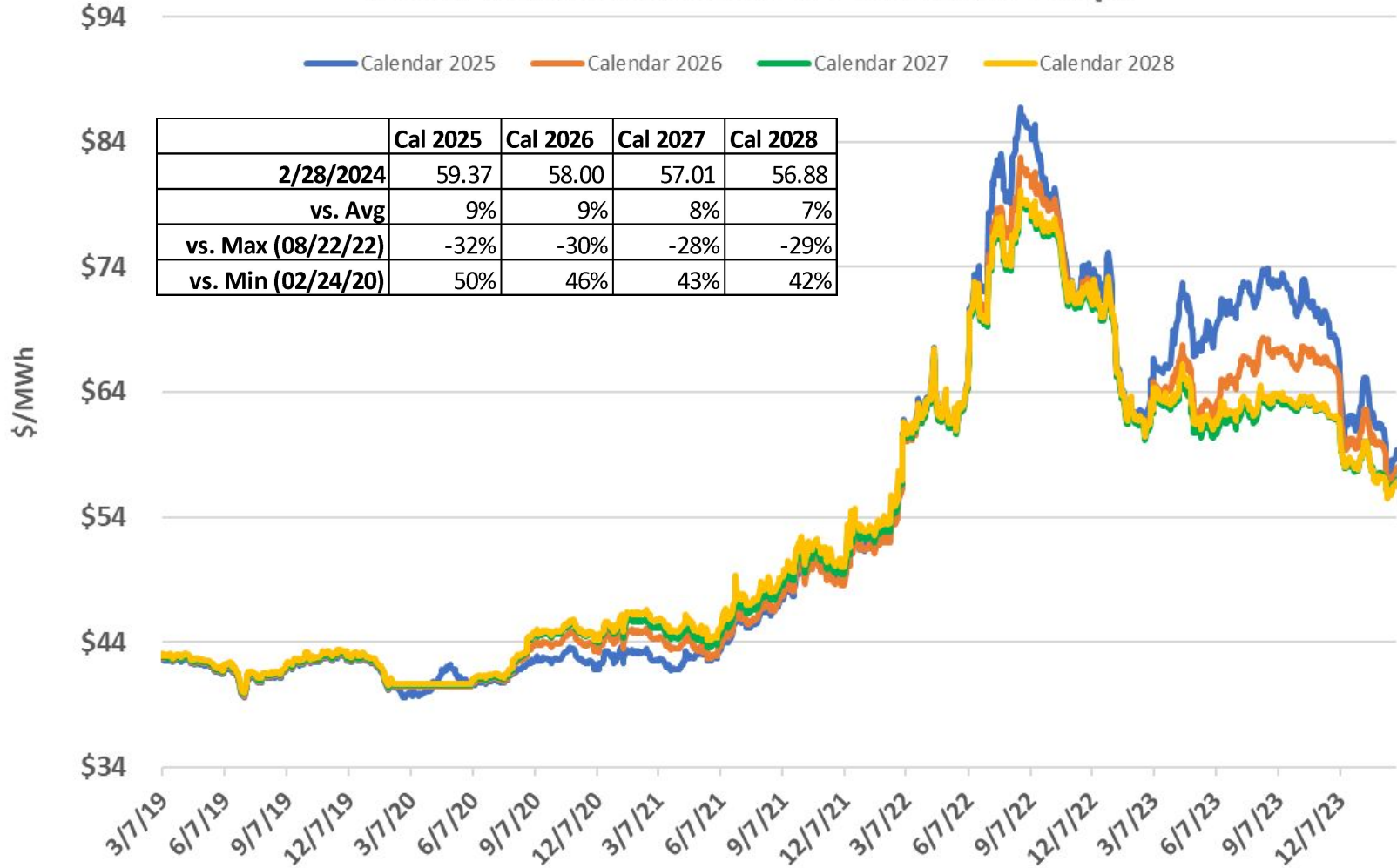
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Forward Energy Calendar Strip – Historic 5 Year Lookback

ISONE Mass Hub Historic Calendar Strips



Source: Constellation