2023-2024 IRP Technical Conference
April 25, 2023

Dominion Energy®

2023 IRP Schedule

Jan 24, 2023 – 10:00 AM to Noon

- Review IRP Standards and Guidelines
- Review 2022 PSC Order regarding IRP
- Pricing Update

April 4, 2023 – 10AM to Noon

CONFIDENTIAL MEETING

- Wexpro Matters (Confidential)
- System Integrity
- Rural Expansion Update

April 25, 2023– 10:00 AM to Noon

- Heating Season Review
- Gas Supply Hedging
- Transportation and Storage Planning
- LNG Operations Update

May 2, 2023 – 1:30 PM to 3:30 PM

- RFP Review (Confidential)
- Sustainability Update
- Long-Term Planning
- IRP Project Detail Discussion

Jul 11, 2023 – 10:30 AM to Noon

- Final Presentation

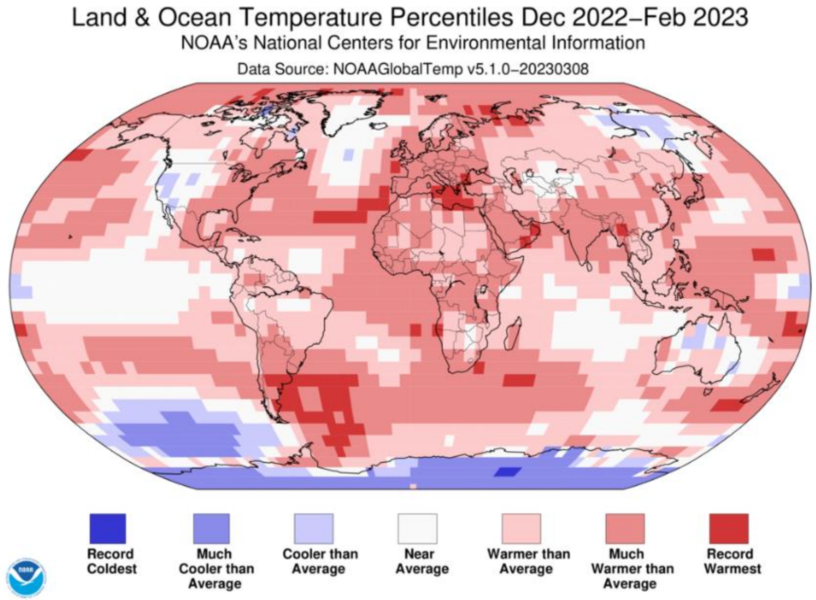
2022-2023 Heating Season Review

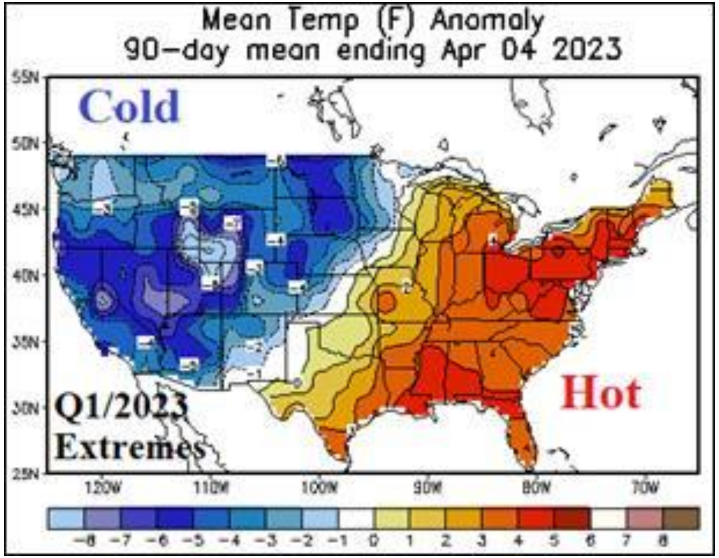
Will Schwarzenbach

Heating Season Summary

- High demand
- Increased volatility
- High costs

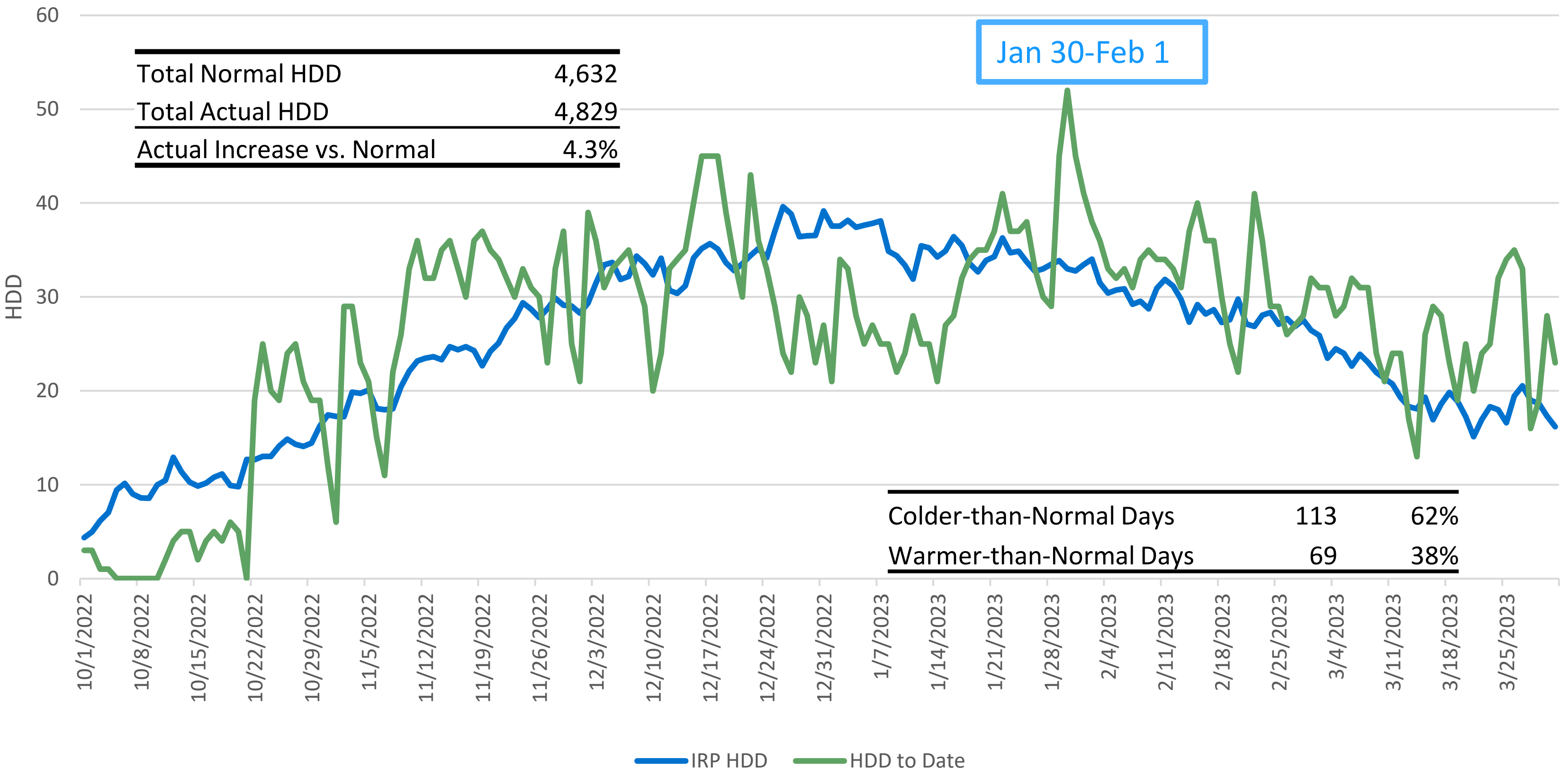
It was COLD!



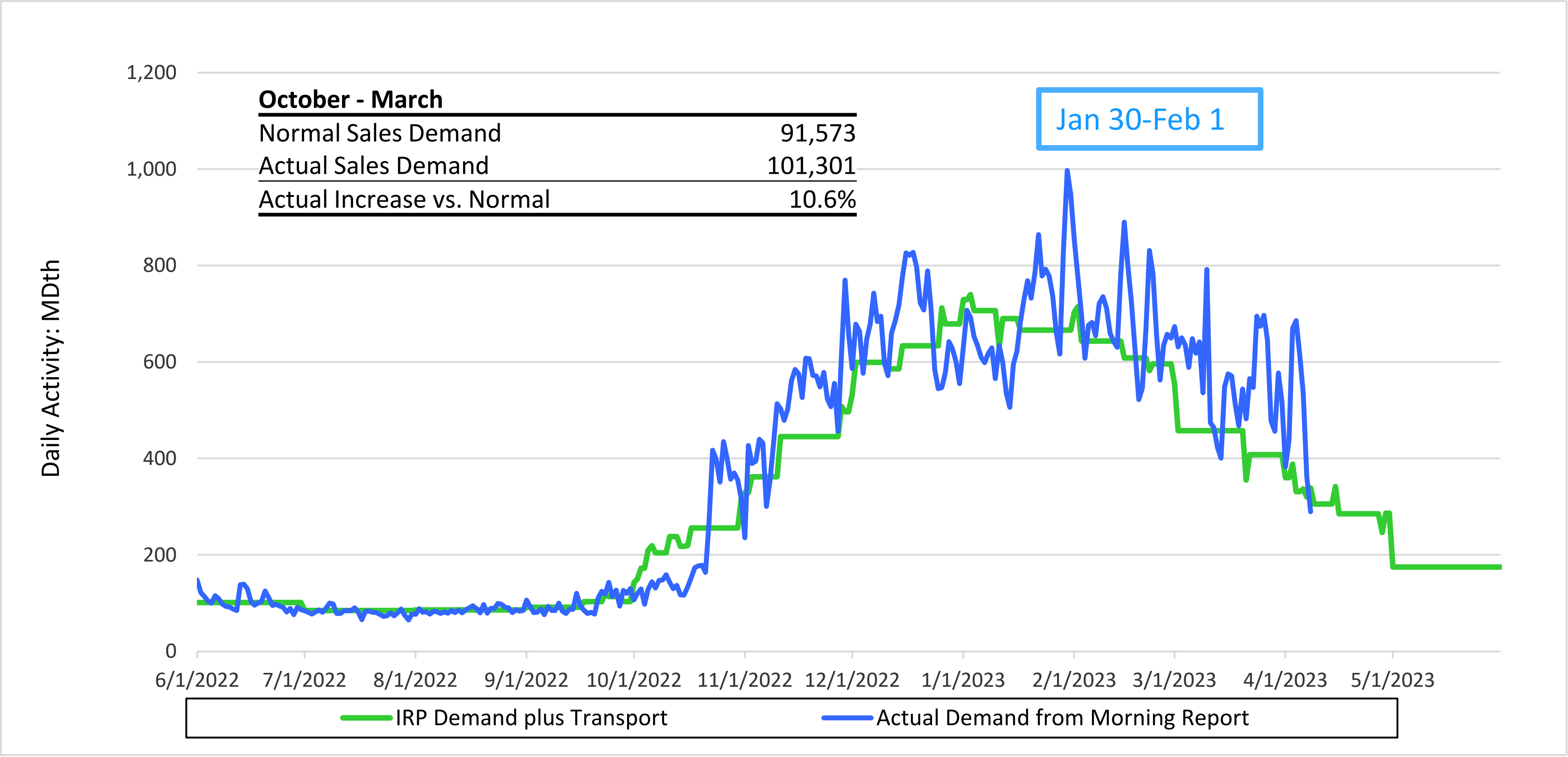


Source: Climate Impact Company U.S. Medium Range Report - April 6, 2023

Heating Degree Days – October through March



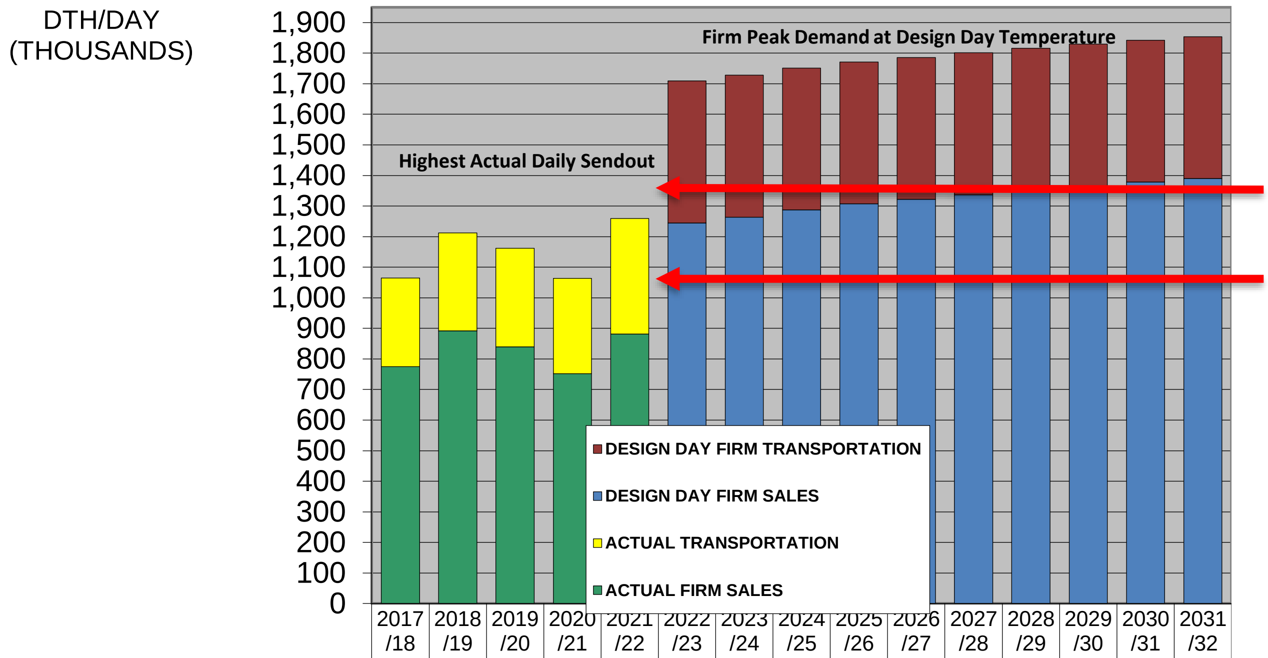
Demand


October - March
Normal Sales Demand 91,573
Actual Sales Demand 101,301
Actual Increase vs. Normal 10.6%
Jan 30-Feb 1
Daily Activity: MDth
1,200
1,000
800
600
400
200
0
6/1/2022
7/1/2022
8/1/2022
9/1/2022
10/1/2022
11/1/2022
12/1/2022
1/1/2023
2/1/2023
3/1/2023
4/1/2023
5/1/2023
IRP Demand plus Transport
Actual Demand from Morning Report

Historic Demand 2001-2023

Rank	Gas Day	Mean	Total System (Dth)	Total Sales (Dth)	Transport (Dth)
1	1/30/2023	15	1,376,642	1,010,737	365,905
2	1/31/2023	18	1,317,850	966,309	351,541
3	12/30/2014	12	1,280,215	1,003,869	276,346
4	2/23/2022	24	1,265,410	884,467	378,128
5	1/1/2022	17	1,246,748	890,092	358,348
6	1/6/2017	6	1,239,422	976,927	262,495
7	1/5/2017	13	1,238,534	920,364	318,170
8	1/2/2022	19	1,233,830	874,859	360,663
9	2/15/2023	27	1,231,673	897,420	334,253
10	2/2/2022	21	1,226,841	857,654	365,597
11	1/14/2013	7	1,225,730	993,326	232,404
12	1/2/2019	18	1,221,318	888,064	333,254
13	2/1/2023	25	1,216,717	871,483	345,234
14	1/1/2019	15	1,213,623	893,606	320,017
15	2/3/2022	22	1,209,649	841,690	364,324
16	1/22/2023	25	1,207,716	871,993	335,723
17	12/16/2022	23	1,196,272	845,660	350,612
18	2/1/2011	13	1,194,133	997,135	196,998
19	2/22/2023	26	1,192,963	839,588	353,375
20	12/9/2013	12	1,192,615	919,103	273,512

Highest Sendout vs. Peak Design Day

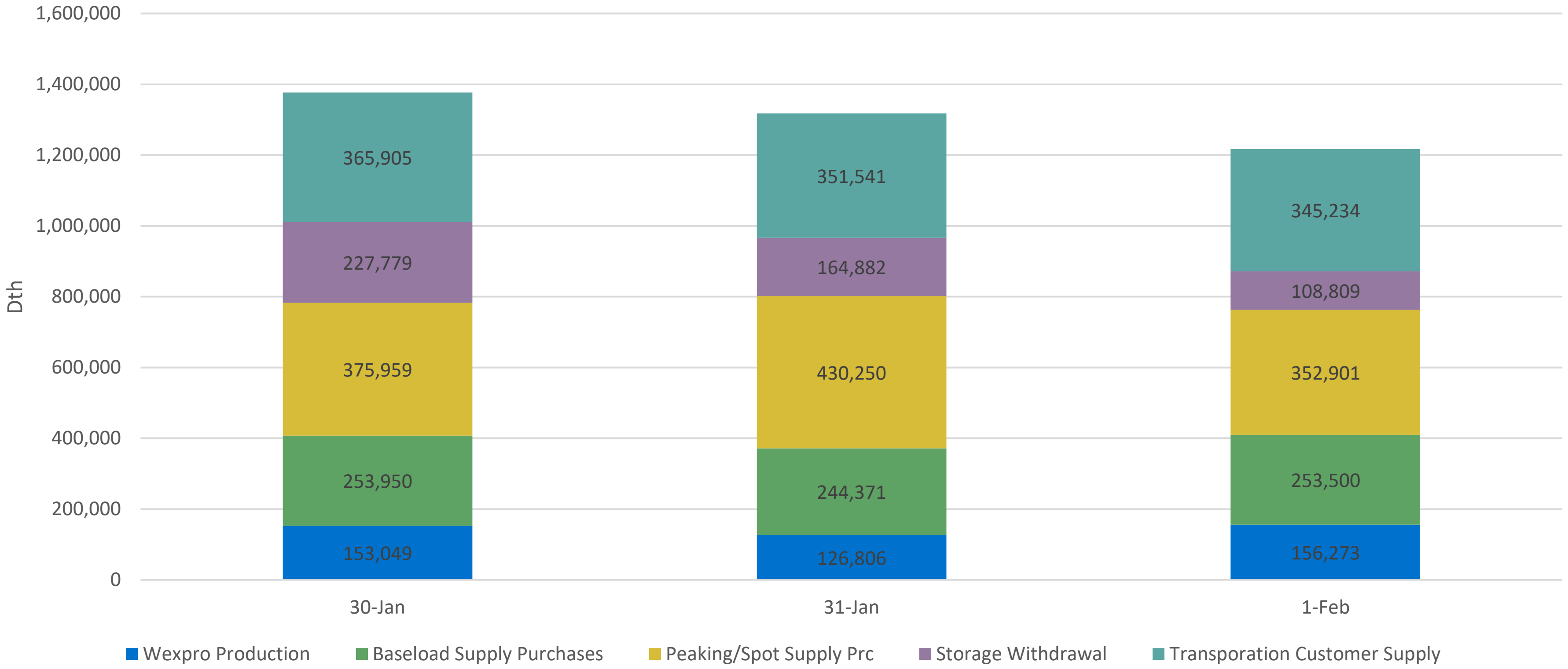


	2017 /18	2018 /19	2019 /20	2020 /21	2021 /22	2022 /23	2023 /24	2024 /25	2025 /26	2026 /27	2027 /28	2028 /29	2029 /30	2030 /31	2031 /32
DESIGN DAY FIRM TRANSPORTATION						464	464	464	464	464	464	464	464	464	464
DESIGN DAY FIRM SALES						1245	1264	1287	1307	1322	1337	1352	1365	1378	1390
ACTUAL TRANSPORTATION	290	320	323	311	378										
ACTUAL FIRM SALES	775	892	840	752	881										

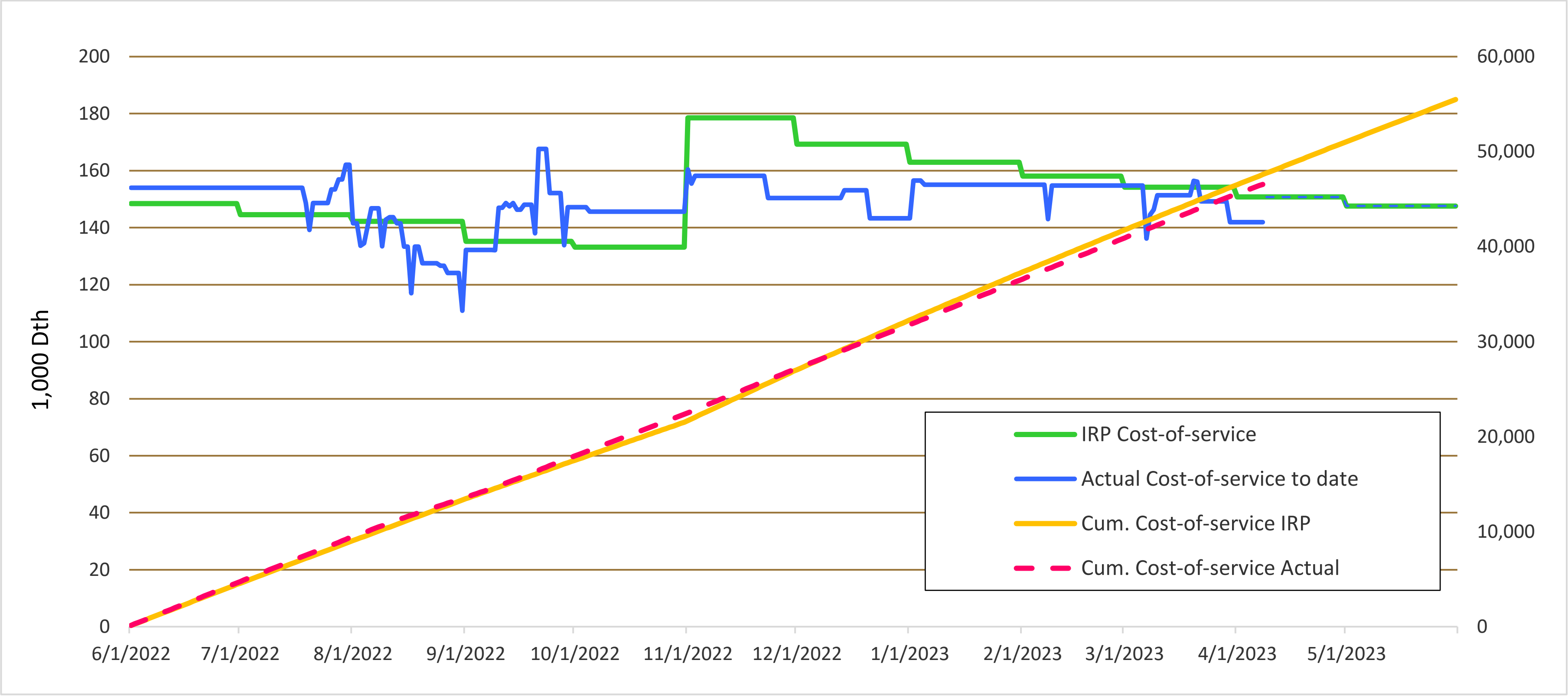
1/30/2023 - 15 Degree Mean

- 1,376,642 Dth – Total Sendout
  - Highest
- 1,010,737 Dth – Sales Sendout
  - Highest

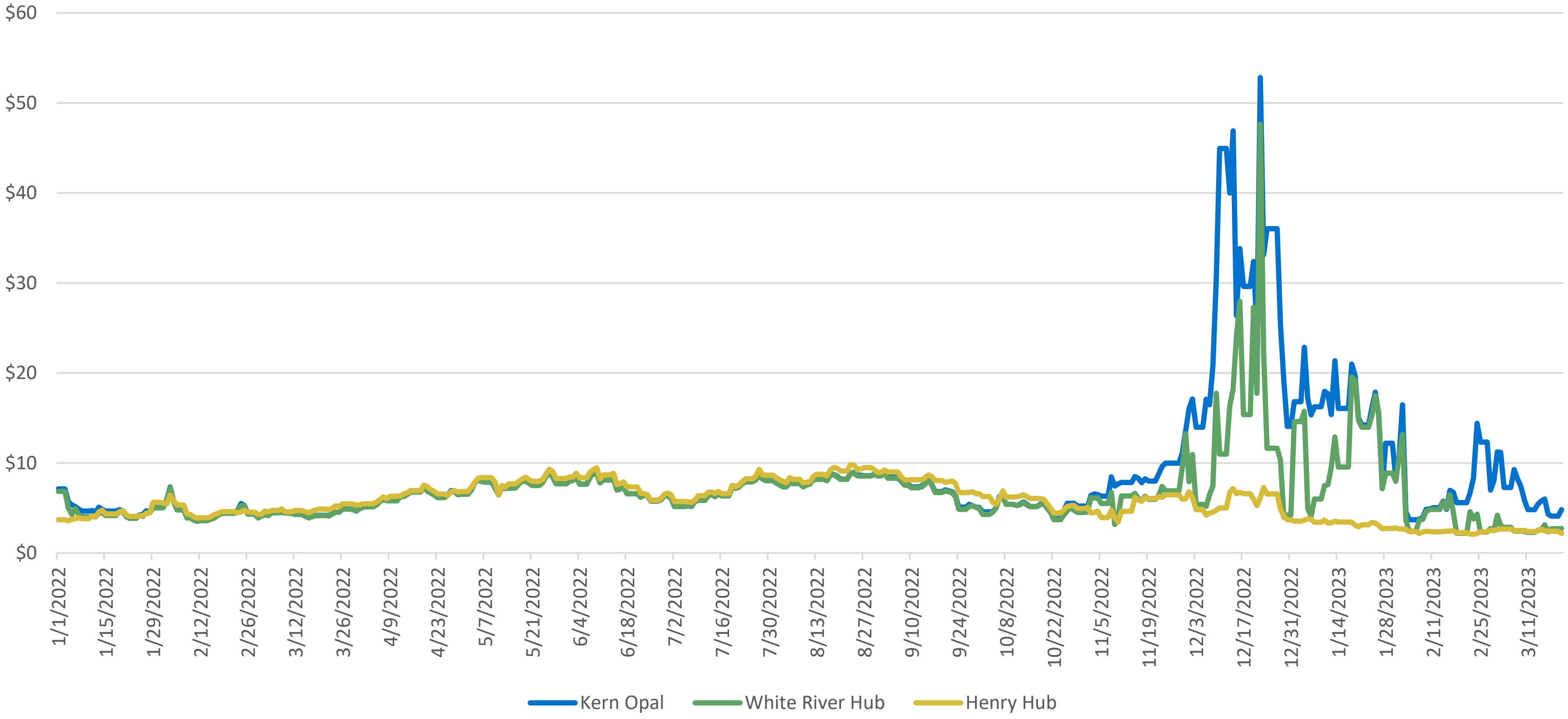
DEUWI Jan 30 – Feb 1 High Demand Event System Supply



Cost-of-Service Production

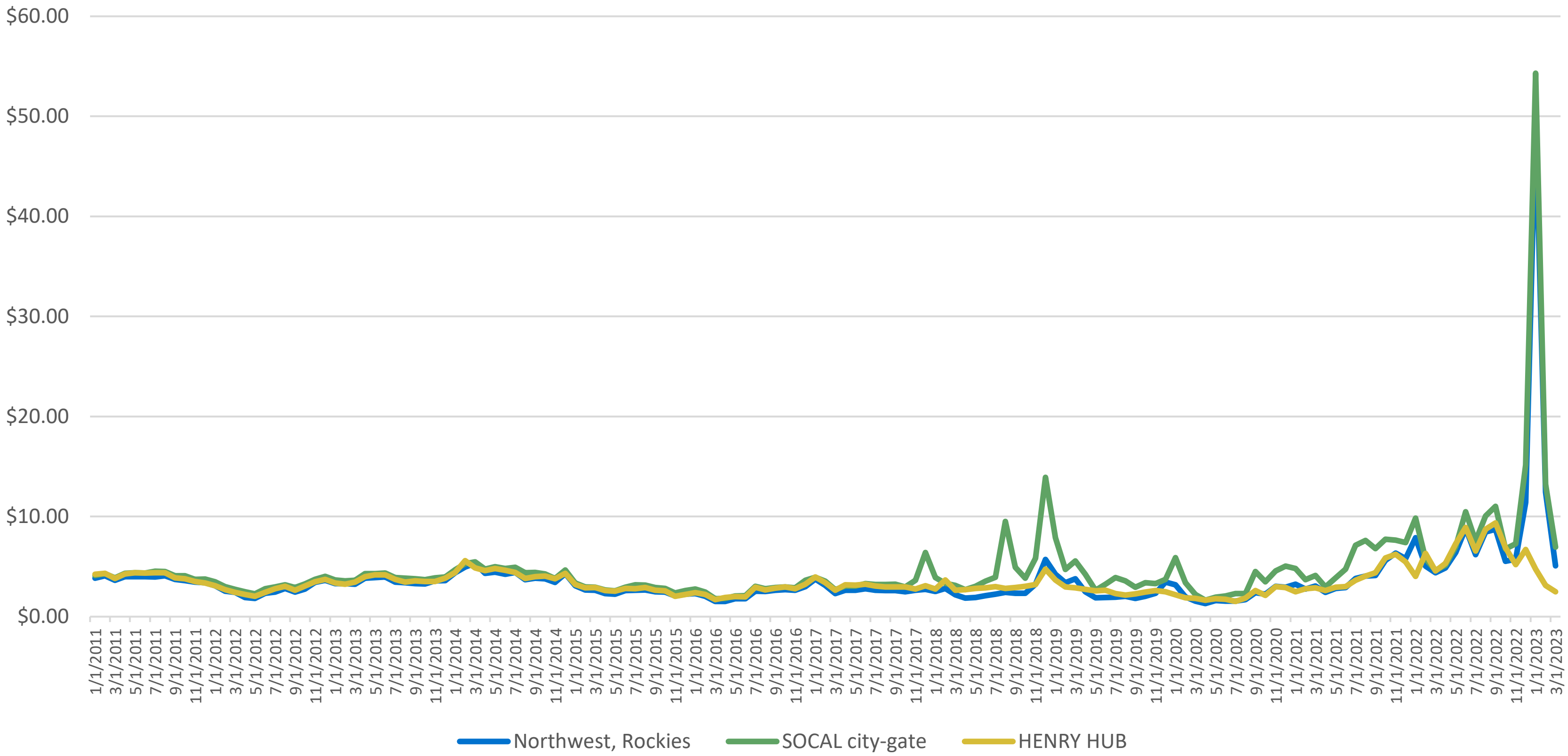


Daily Pricing



* Gas Daily - Kern Opal Midpoint

Monthly Pricing



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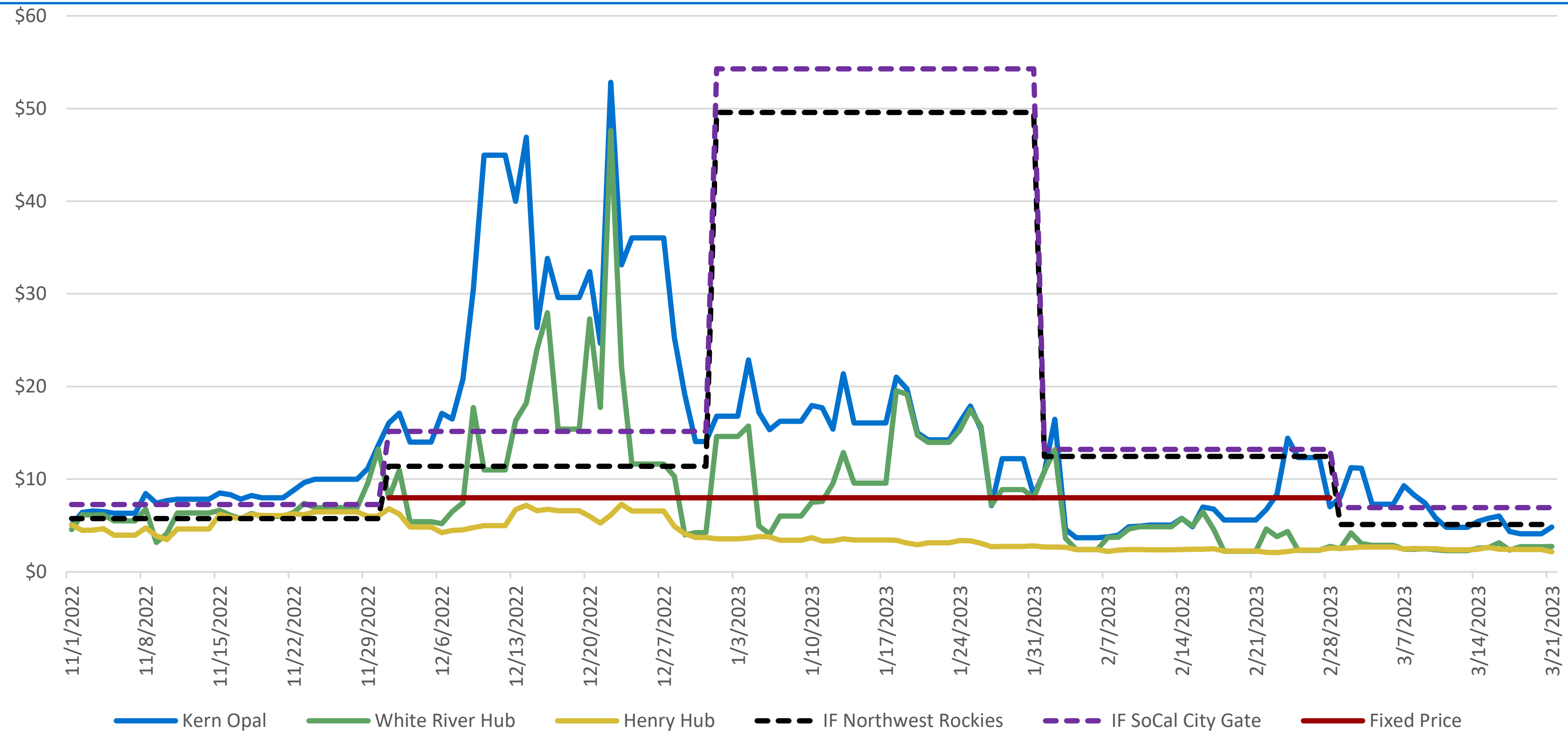
* Gas Daily - Kern Opal Midpoint

Winter Pricing



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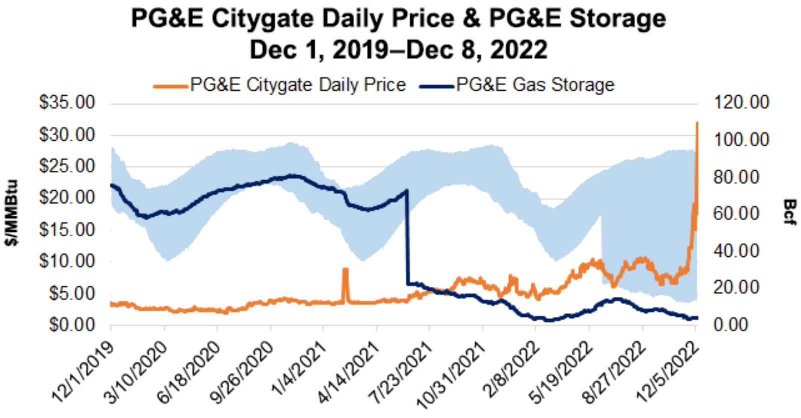
* Gas Daily - Kern Opal Midpoint

Pricing Drivers

- High summer pricing throughout the US due to global demand for natural gas
- Reduced storage inventories in California
  - High summer demand for natural gas in the West due to hot and dry conditions
  - Reduced hydro power generation in the West
  - PG&E working gas storage reduction in 2021
- Reduced supply into California due to El Paso Line 2000 outage
  - Line 2000 is now back in service
- High demand due to a cold winter

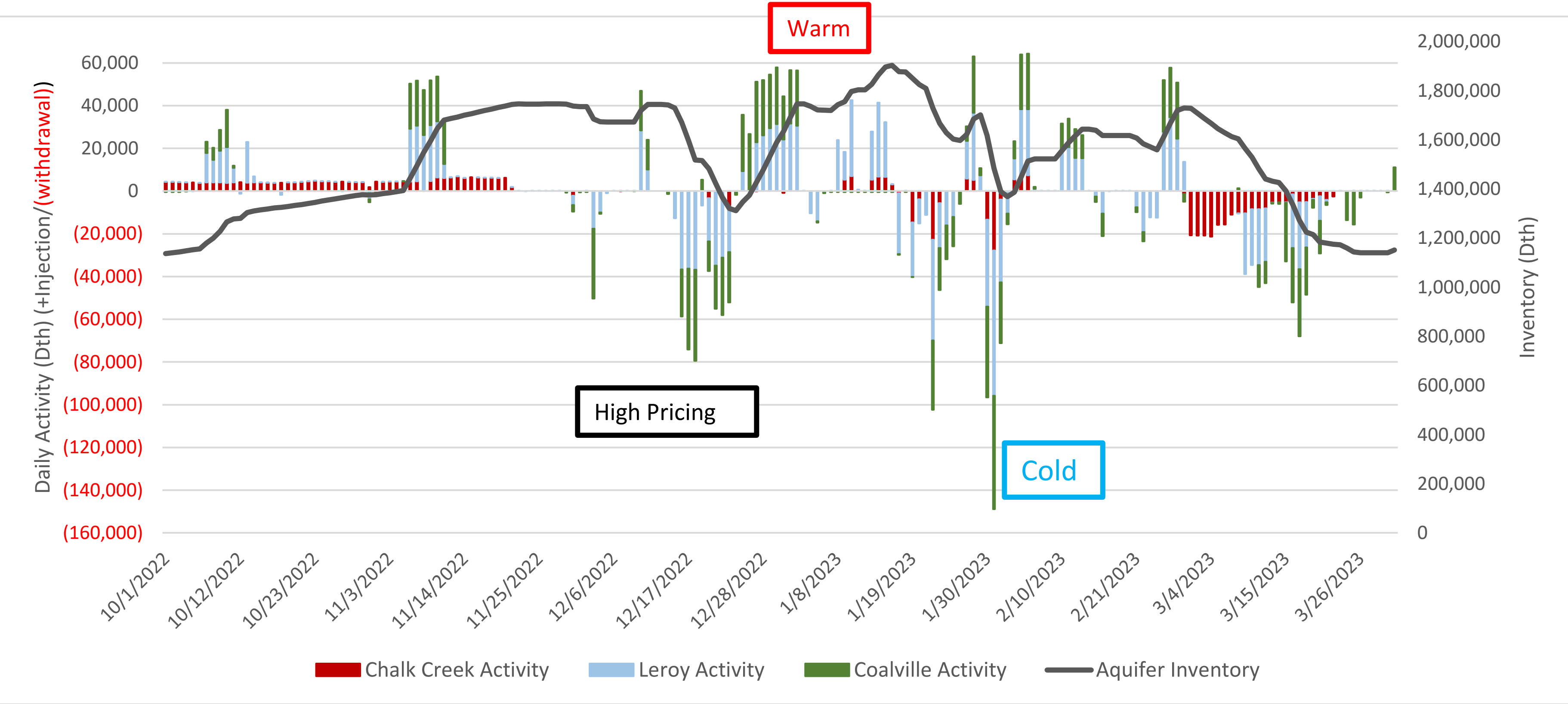


Note: PG&E's gas storage was reclassified in June 2021 as shown by the significant drop in storage volume.

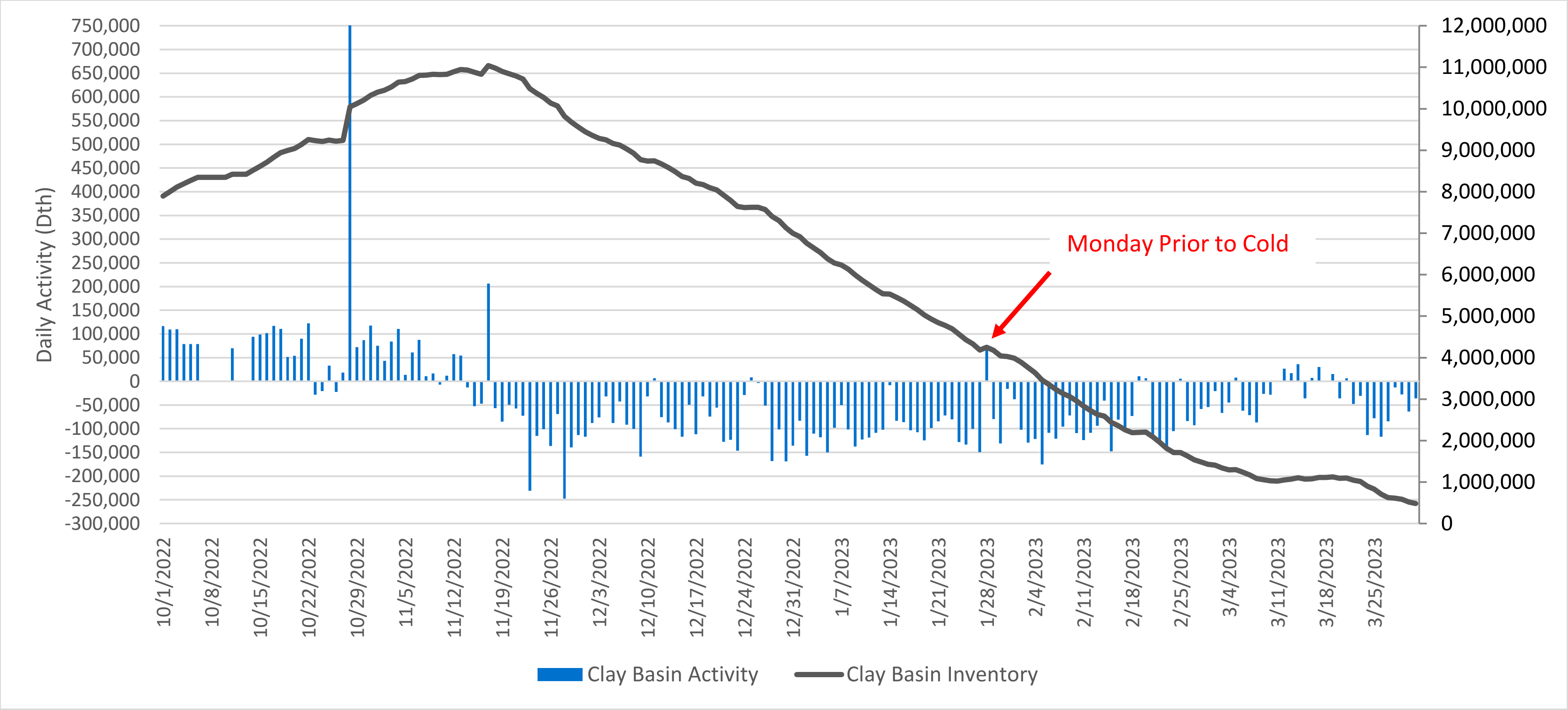
Source: NGI's Daily Gas Price Index, NGI calculations, PG&E Pipe Ranger

* Gas Daily - Kern Opal Midpoint

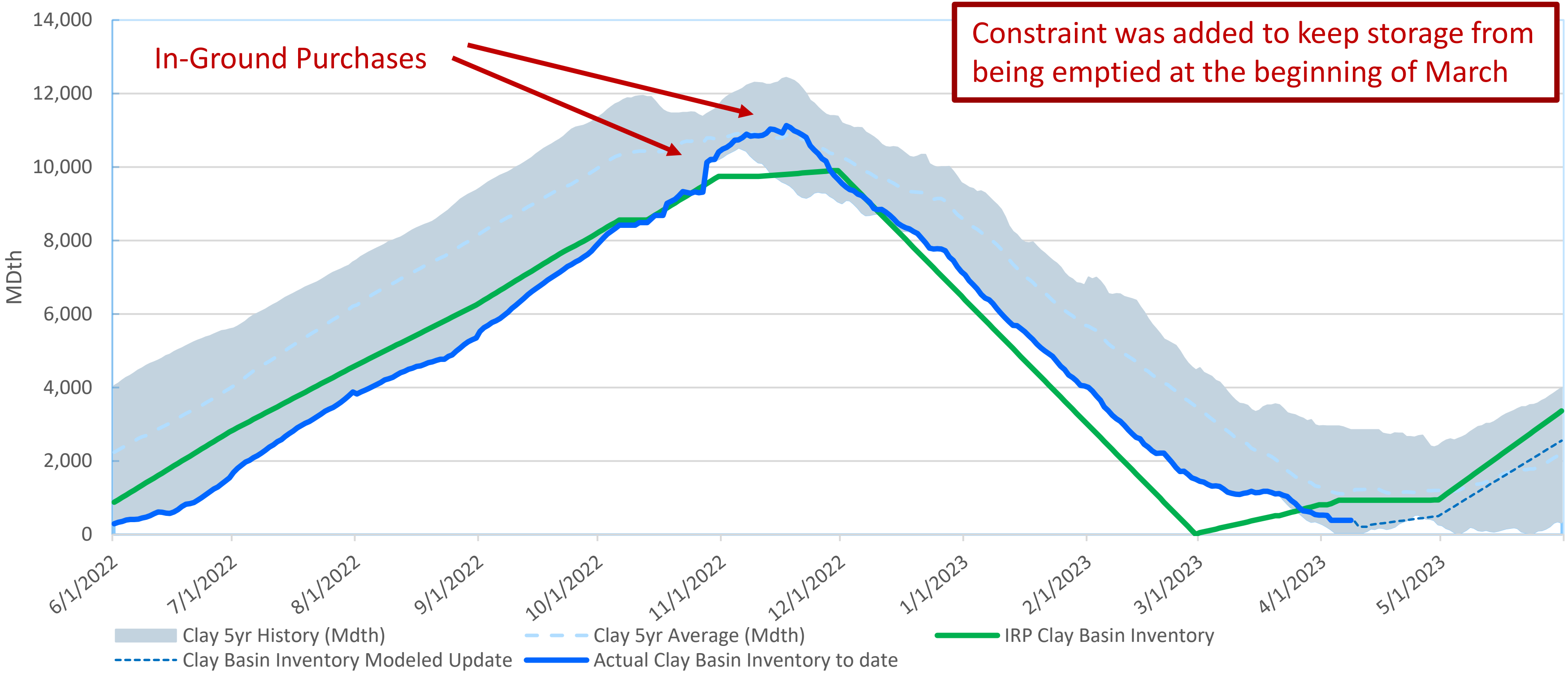
Aquifer Usage



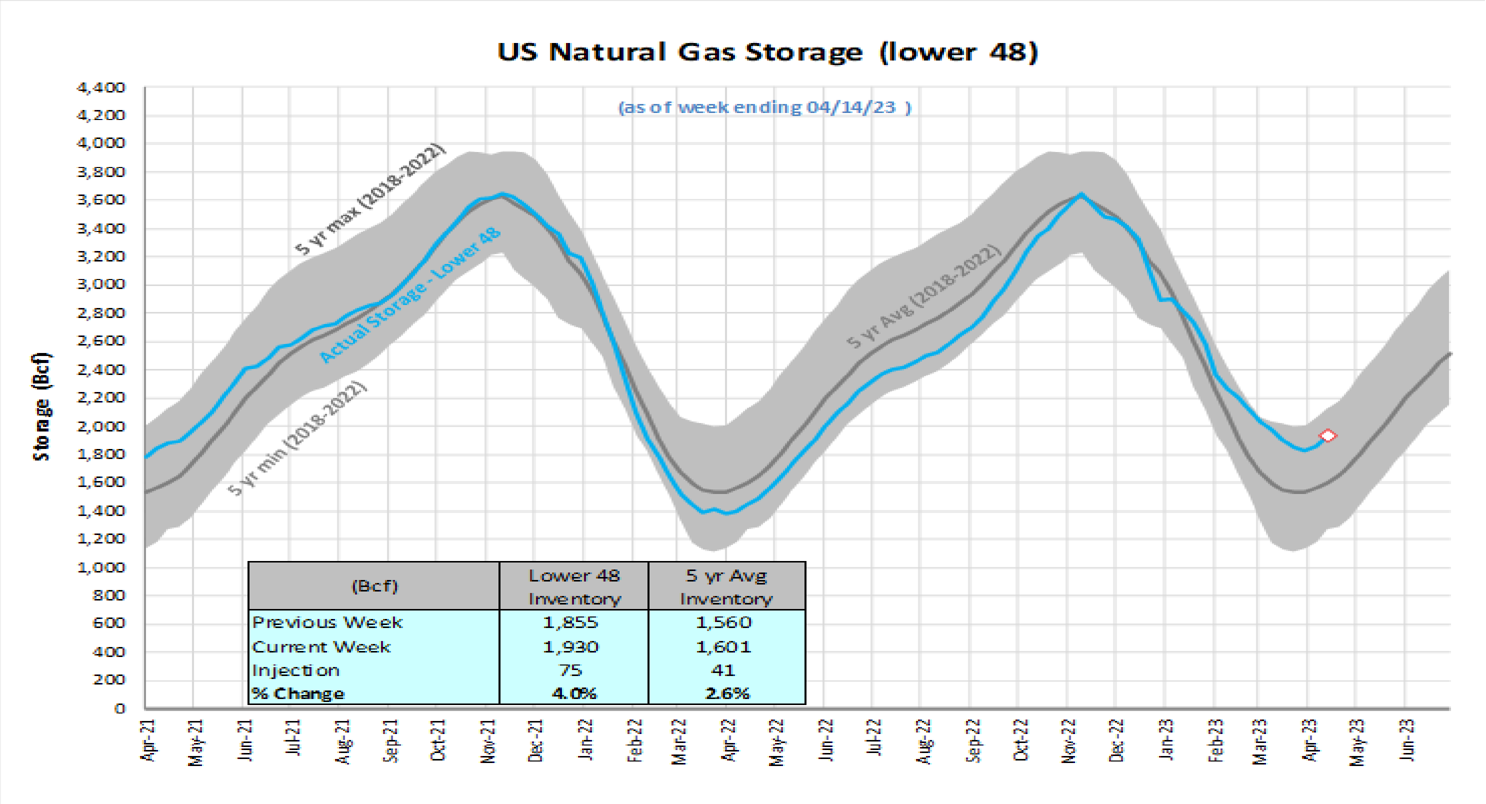
Clay Basin Usage



Clay Basin Inventory



Storage Picture – Week Ending 4/14/23



(Bcf)	Lower 48 Inventory	5 yr Avg Inventory
Previous Week	1,855	1,560
Current Week	1,930	1,601
Injection	75	41
% Change	**4.0%**	**2.6%**

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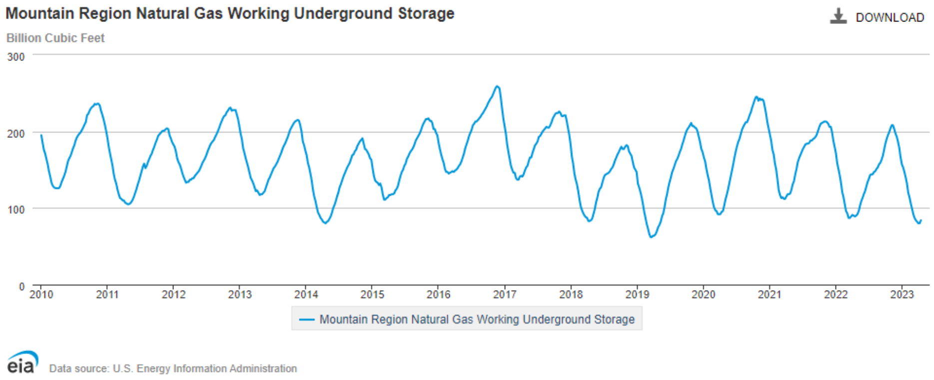
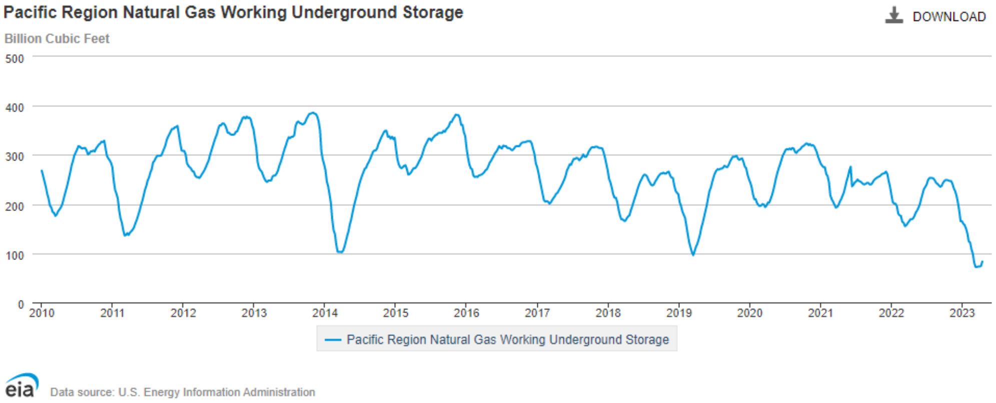
Storage Picture – Week Ending 4/14/23





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Heating Season Takeaways

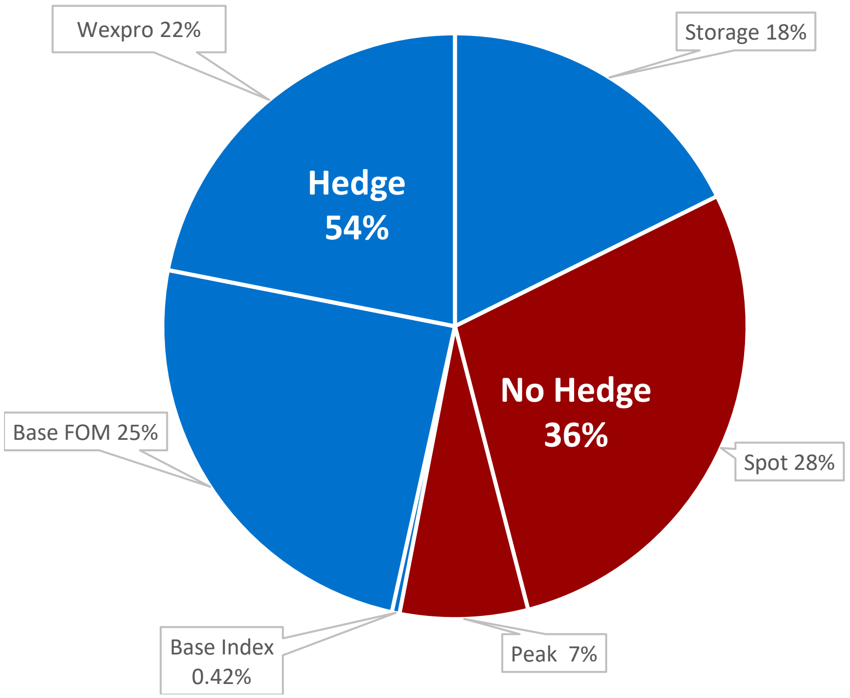
- High demand due to prolonged cold throughout the heating season
  - Two highest sendout days (January 30th and 31st)
  - Additional high sendout days
- Cost-of-service production is lagging slightly behind IRP forecast
- Increased price volatility isolated to the west
- National storage is near the top of the 5-year average band
  - Regional storage is low compared to historical

2022-2023 Hedging Review

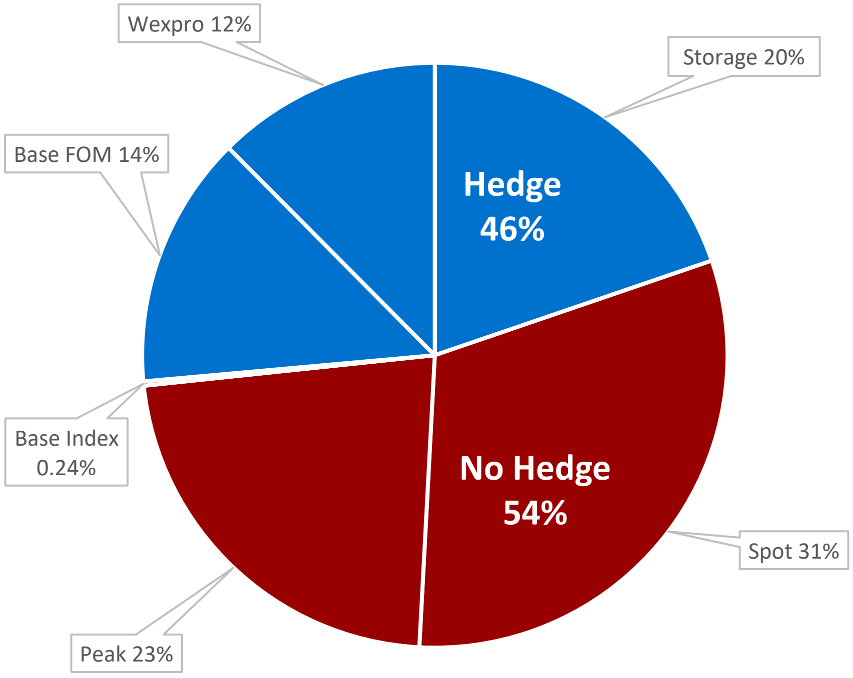
Will Schwarzenbach

Supply Exposure – 2022-2023 IRP

Typical Winter Day (34 Deg/707 MDTH Demand)



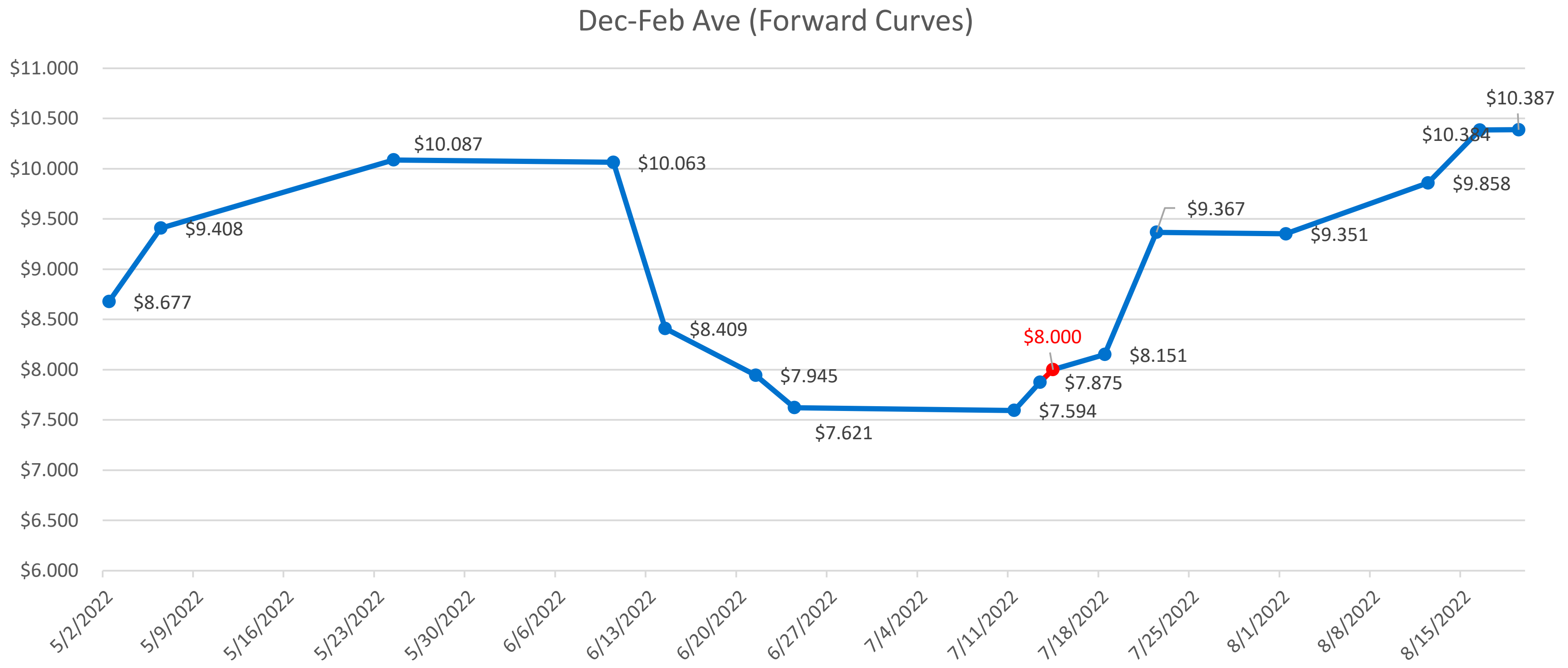
Peak Day



Options Considered for Increasing Hedged Amount

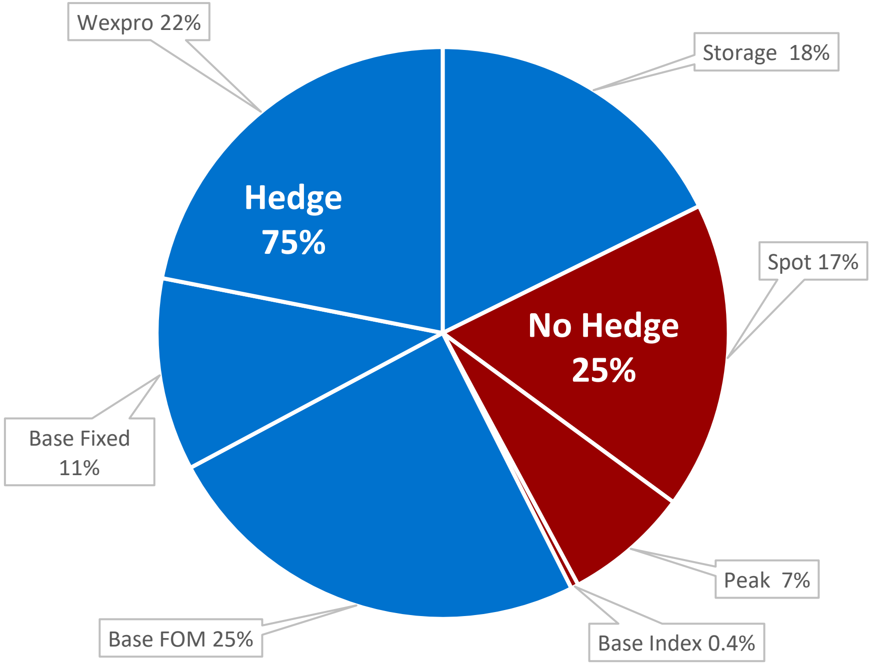
- Increase Wexpro - cost-of-service production
- Increase storage contracts
- Purchase financial instruments
- Increase first-of-month (FOM) priced baseload contracts
- Increase fixed price baseload contracts
  - Purchased 77,000 Dth of fixed price baseload supply
    - RFP sent out July 13, 2022
    - Bids due 9:00 am July 14, 2022
    - Proposals open until 12:00 pm July 14, 2022
    - Sent to select suppliers

Fixed Price RFP - Timing

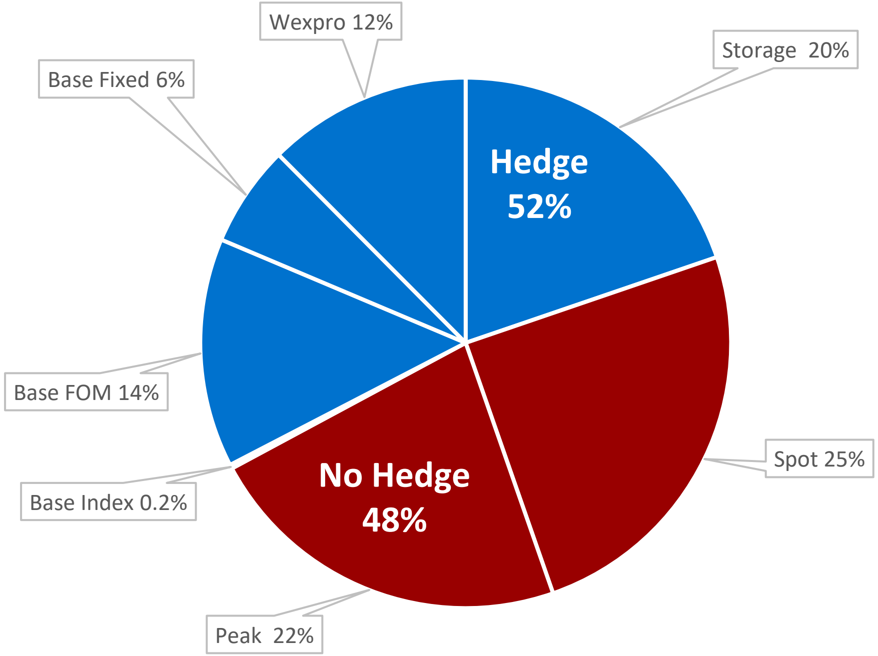


Supply Exposure – 2022-2023 IRP (with added 77,000 Dth fixed price)

Typical Winter Day (34 Deg/707 MDTH Demand)



Peak Day



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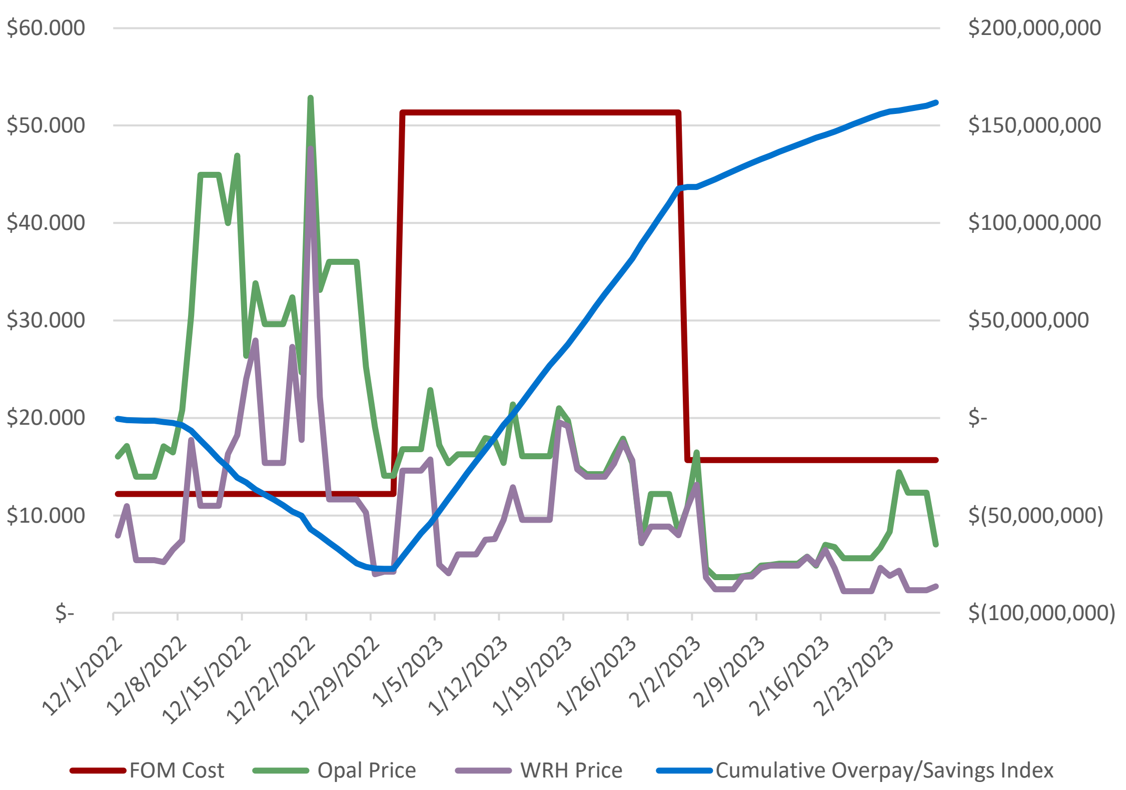
Review - Fixed Price Baseload Contracts

- Total cost of fixed price contracts
  - $55,451,700
- Total cost of index priced spot gas
  - $99,422,060
    - Same 77,000 Dth
    - Kern Opal flat pricing
    - White River Hub flat pricing
- Savings of fixed price hedge vs. index
  - $43,970,360
- Risk still exists that fixed price could be higher than the daily index price

Review - Hypothetical FOM Price Baseload Contracts



- Total cost of if we had done 77,000 Dth FOM baseload contracts
  - $176,293,040
  - Kern Opal (FOM)
- Total cost of index priced spot gas
  - $99,422,060
    - 77,000 Dth
    - Kern Opal flat pricing
    - White River Hub flat pricing
- Cost of (hypothetical) FOM hedge
  - $76,870,980

Options for Increasing Hedged Amount

- Increase Wexpro - cost-of-service production
  - Wexpro is increasing drilling program and looking for additional existing production
- Increase fixed price baseload contracts
  - Converting annual RFP contracts from FOM to fixed price
  - Adding additional fixed-price baseload contracts
  - Current forward curves show:
    - Summer $2-$3
    - Winter $4-$7
- Increase storage capacity
- Geographic diversification of supply locations
  - Including access to additional storage facilities

Increase Storage - Action

- Spire Storage West
  - DEUWI participated in an open season for capacity in the Spire Storage West facility
    - Open season open until April 14, 2023
    - Bid submitted for up to 6,000,000 Dth of storage capacity
      - 66,000 Dth/day of max withdrawal capability
      - 54,000 Dth/day of max injection capability
    - DEUWI awarded 2,000,000 Dth of storage capacity
      - 22,000 Dth/day of max withdrawal capability
      - 18,000 Dth/day of max injection capability
      - 5-year term


Holds 35 billion cubic feet of working gas


Interconnects with five interstate pipes and access to REX


Strategically located near Opal Hub


Positioned to serve multiple regions and customers

*source: https://www.spireenergy.com/spire-storage/spire-storage-west

Increase Storage – Potential Options

- Extend Aquifer contracts
  - Current expiration is August 31, 2023
    - Extend additional 5-years

- Additional LNG Capacity
  - Potential to build additional storage on Magna site
  - Costs would be lower due to existing site location and economies of scale
    - Control room
    - Some existing equipment
    - Piping

Reliability - Not Just Pricing

- Baseload contracts and storage capacity provide by price hedging and physical supply reliability during high-demand events
  - Baseload contracts secure the supply for DEUWI customers
  - Storage contracts provide physical supply

Transportation and Storage Planning

Will Schwarzenbach

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Transportation Contracts

Transportation

Pipeline	Contract #	Service	Rate Schedule	Volume	Begin Date	End Date
MWP	241	Firm Transportation	T-1	798,902	7/1/2017	6/30/2027
MWP	2945	Firm Transportation	T-1	12,000	11/1/2021	3/31/2027
MWP	2945	Firm Transportation	T-1	75,000	11/1/2021	3/31/2027
MWP	2361	Firm Transportation	T-1	30,000	11/1/2022	10/31/2027
MWP	6136	Firm Transportation	T-1	100,000	11/1/2019	6/30/2027
MWP	6546	Firm Transportation	FT	8,542	6/1/2021	6/30/2027
KERN	20029	Firm Transportation	KRF-1	50,000	5/1/2018	4/30/2028
KERN	20029	Firm Transportation	KRF-1	33,000	5/1/2018	4/30/2028
KERN	20039	Firm Transportation	KRF-1	1,885	11/1/2020	10/31/2030
CIG	211257	Firm Transportation	TF-1	400	11/1/2015	10/31/2025
NWPL	144689	Firm Transportation	TF-1	2,016	5/1/2022	4/30/2025
NWPL	139525	Firm Transportation	TF-1	2,295	5/1/2022	4/30/2028
NWPL	144690	Firm Transportation	TF-1	2,016	5/1/2022	4/30/2025
Citadel	70791	Capacity Release	KRF-1 (Capacity Release)	27,000	11/1/2017	3/31/2032
Citadel	70792	Capacity Release	KRF-1 (Capacity Release)	6,000	11/1/2017	3/31/2031
Citadel	70793	Capacity Release	KRF-1 (Capacity Release)	50,925	11/1/2017	2/28/2031

Firm Peaking

Kern	1692	Firm Peaking	KRF-PK	28,752	11/15/2021	2/14/2024
MWP	241 ADNM 3/5	Firm Peaking	FP	170,000	11/15/2021	2/14/2024
MWP	241 ADNM 4/6	Firm Peaking	FP	54,000	11/15/2021	2/14/2024

No Notice

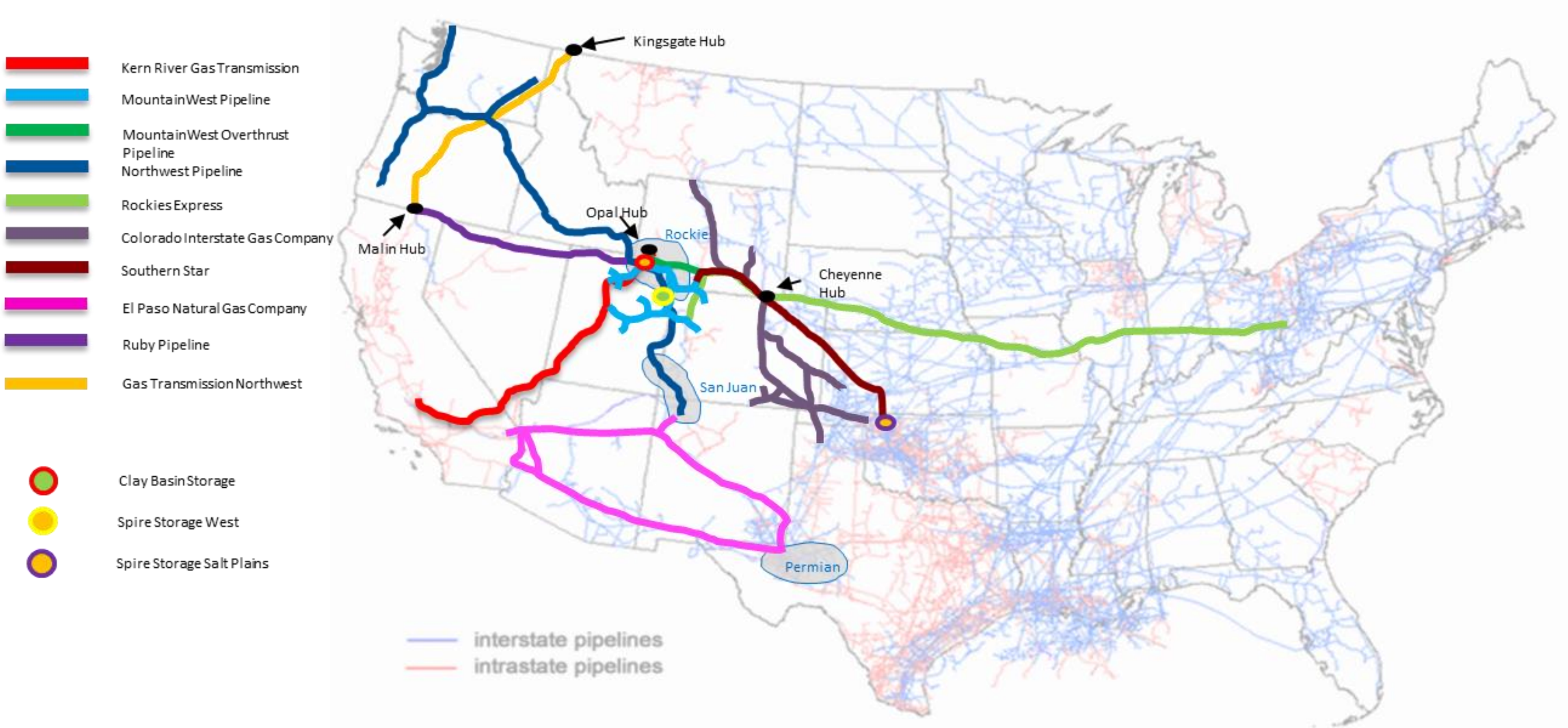
MWP	987	No Notice	NNT	203,542	7/1/2022	6/30/2027

Storage Contracts

Storage

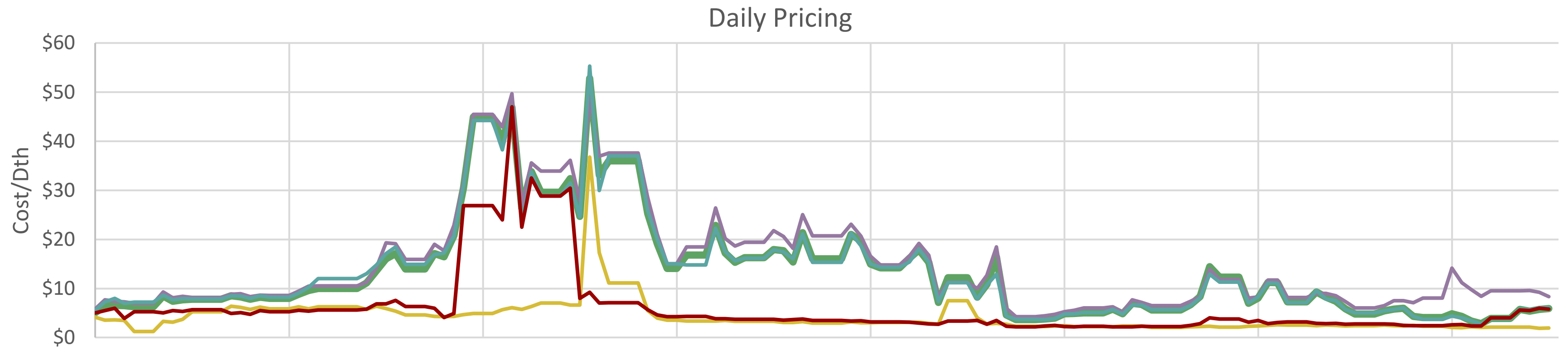
Facility	Contract #	Service		Capacity	Latest Term Begin Date	End Date
Clay Basin	935	Firm Storage	FSS	5,964,000	1/1/2020	4/30/2024
Clay Basin	997	Firm Storage	FSS	3,727,500	4/1/2020	3/31/2025
Clay Basin	988	Firm Storage	FSS	3,727,500	5/1/2022	4/30/2027
Leroy	985	Peaking Storage	PKS	886,996	9/1/2018	8/31/2023
Coalville	986	Peaking Storage	PKS	720,372	9/1/2018	8/31/2023
Chalk Creek	984	Peaking Storage	PKS	321,000	9/1/2018	8/31/2023
Spire Storage West		Firm Storage		2,000,000	4/1/2024	3/31/2029

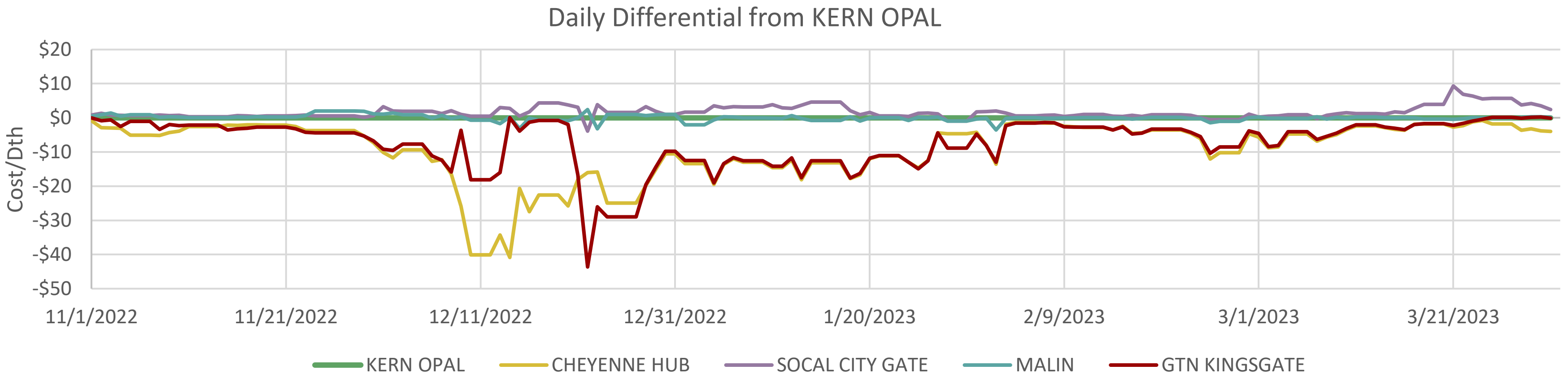
Western Pipelines and Storage



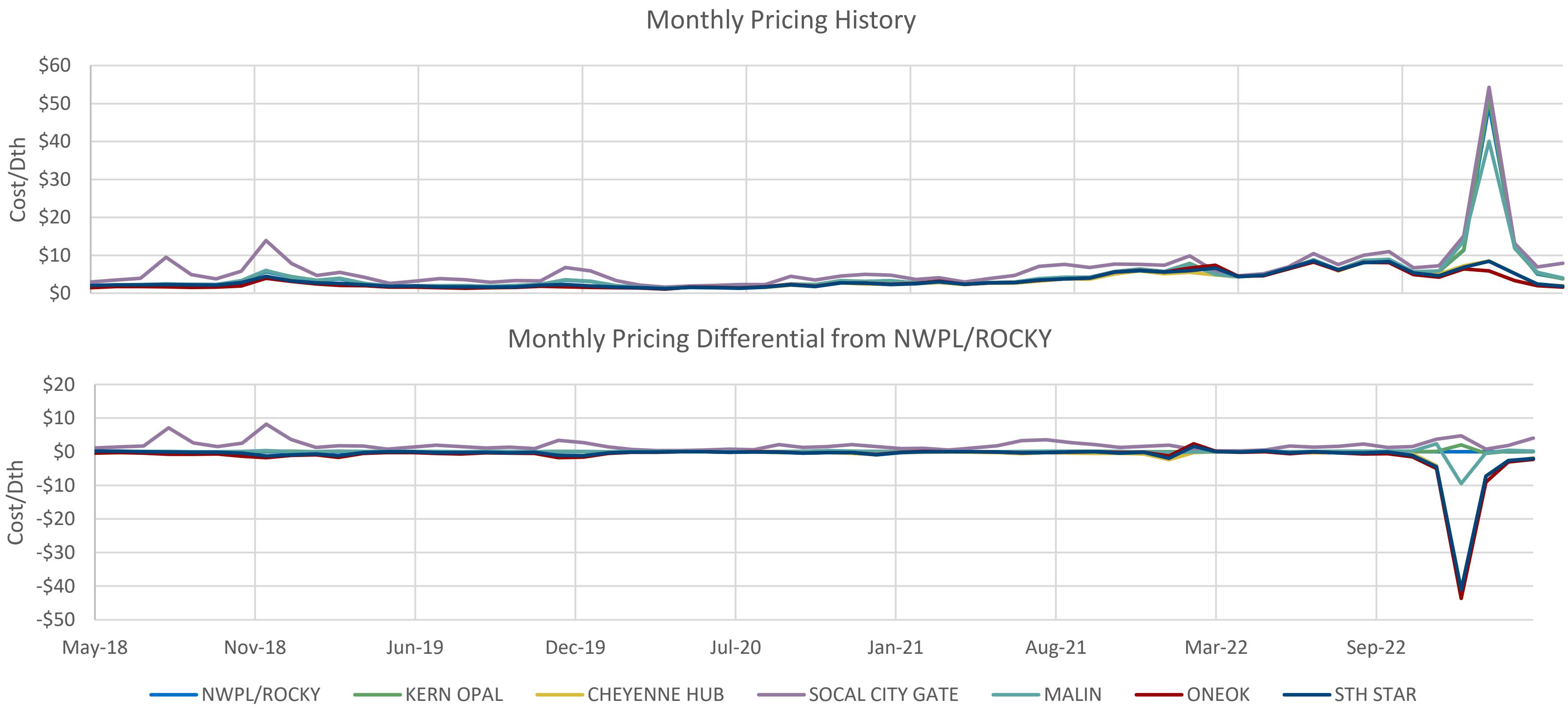
Source: U.S. Energy Information Administration, *About U.S. Natural Gas Pipelines*

Geographic Diversification of Supply – Daily (winter 22-23)





Geographic Diversification of Supply – Monthly (5 year)



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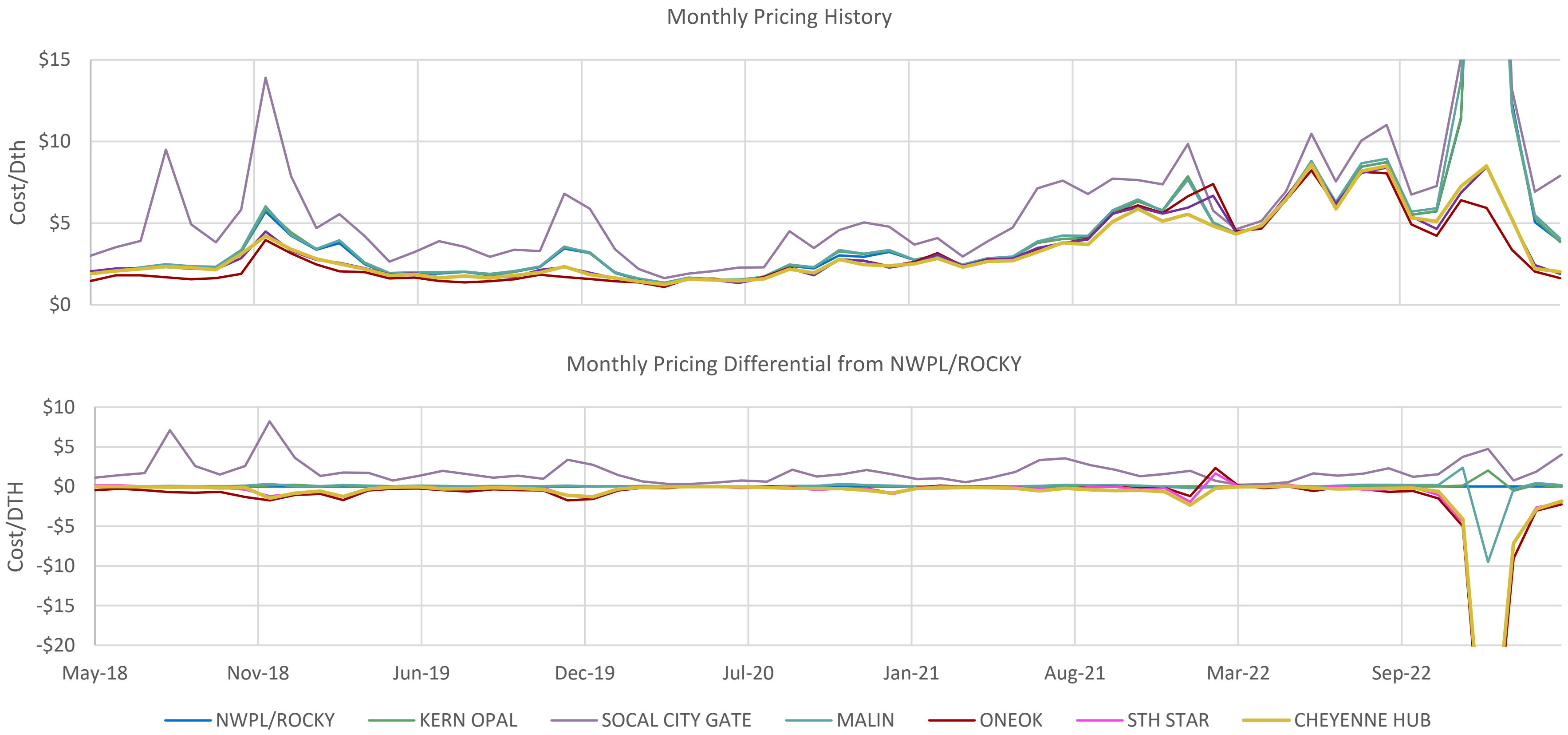
Geographic Diversification of Supply – Monthly (5 year)



Going Forward

- Working with upstream pipelines to access additional supply locations
  - Rockies Express - Tallgrass
  - Ruby Pipeline - Tallgrass
  - Southern Star Central Gas Pipeline
  - MountainWest Pipeline – Williams
  - Northwest Pipeline - Williams

- Get access to additional storage
  - Spire Storage
    - West (Wyoming) ✅
    - Salt Plains (Oklahoma)

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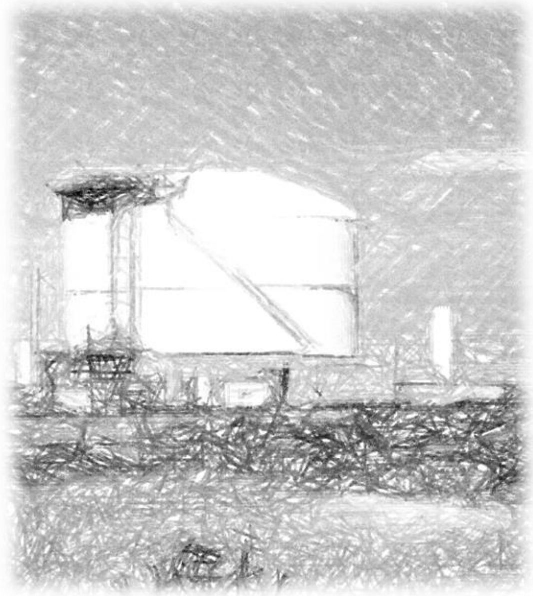
Magna LNG Facility

Facility Overview

- LNG production
  - — 100,000 gal/day (341 mcfh)
- On-site LNG storage
  - — 15,000,000 gallon (1.2 bcf)
- Re-vaporization
  - — 150 mmcfd (6,250 mcfh) @ 720 psig
    - ~10% of Wasatch front design day load
- 7.2 MW power service
- 24-7 manned facility



Process Overview

Pipeline

Gas delivered at ~300 psig, plant boosts pressure to 640 psig

Pretreatment

Remove CO_2, H_2O, H_2S & Hg

Liquefaction

N_2 refrigeration cycle lowers temp to -265 F, producing LNG

Storage

LNG constantly vaporizing, producing boil-off gas (BOG). BOG sent to intermediate high pressure distribution system

Vaporization

Pump LNG out of tank at up to 720 psig and re-vaporize with heat exchangers to 70 F

Pipeline

Re-odorize and deliver back to high pressure pipeline

2022 Summary

- Completed facility staffing: 1 Supervisor and 10 Technicians
- Successfully tested and commissioned all plant systems, awarding provisional acceptance to General Contractor December 16th.
- Injected ~200 MMCF (2.4 million gallons) into storage
  - Attained 12-foot level necessary for vaporization system testing in December
  - Discontinued filling due to high gas prices
- Withdrew 0.7 MMCF (BOG and vaporization tests)

LNG Costs Nov 2022-Mar 2023

Natural Gas

- 130,324 Dth = $2,390,667

Liquefaction Power Consumption

- $1,105,546

Other Consumables (Nitrogen, Amine, DI Water)

- ~$100,000

2023 Plan

- Started liquefaction in April
- Liquefaction continues through summer until tank is full (October)
  - Anticipate minor outages for equipment maintenance
- Additional vaporization testing to ensure plant is ready for heating season
- Plant to be in standby mode by November