



Energy Market Update

prepared for Lompoc City Council

Monty Hanks
February 2023

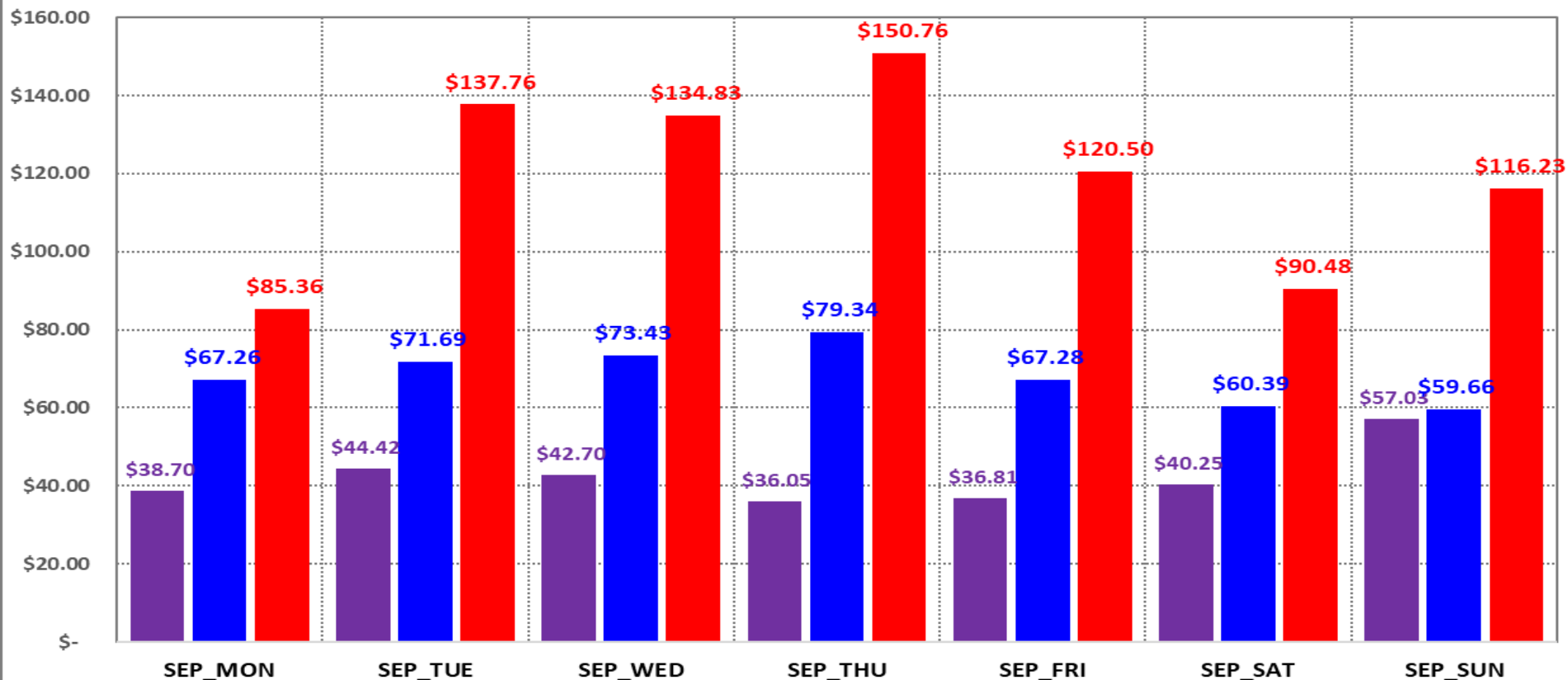
Recent Energy Market Pressures

Issues Impacting FY2023/24 Budget

- Forward Pricing - Energy

Day-Ahead CAISO Load Prices

PGAE_DLAP 2020 PGAE_DLAP 2021 PGAE_DLAP 2022

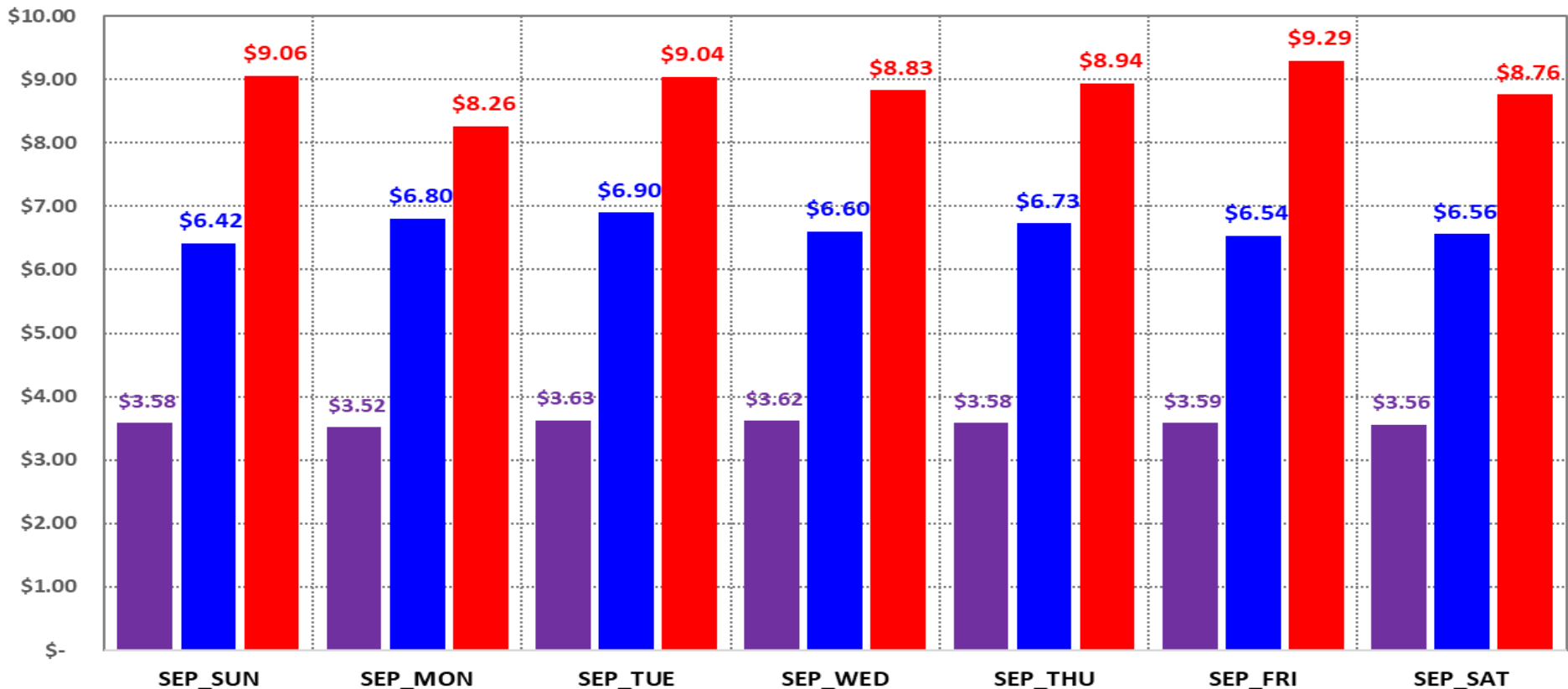


Issues Impacting FY2023/24 Budget

- Natural Gas – here to stay or soften?

Day-Ahead PG&E CityGate Price Yearly Comparison

■ DAILY GAS 2020
 ■ DAILY GAS 2021
 ■ DAILY GAS 2022







Issues Impacting FY2023/24 Budget

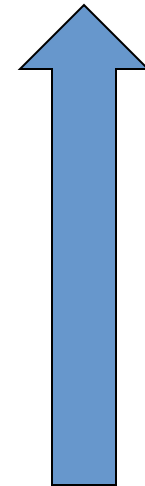
- Load Aggregation Budget

	LOAD AGGREGATION		
			% Inc
	FY20	FY23	
Alameda	13,573,417	22,740,622	68%
BART	16,795,172	28,908,137	72%
Biggs	643,421	1,188,159	85%
Gridley	1,396,750	2,500,543	79%
Healdsburg	2,999,706	5,019,438	67%
Lodi	16,635,027	32,170,245	93%
Lompoc	5,204,148	8,853,440	70%
Palo Alto	34,474,944	53,711,253	56%
Plumas Sierra	6,122,239	9,885,378	61%
Port of Oakland	4,445,473	8,435,618	90%
Ukiah	4,313,543	7,965,043	85%

Issues Impacting FY2023/24 Budget

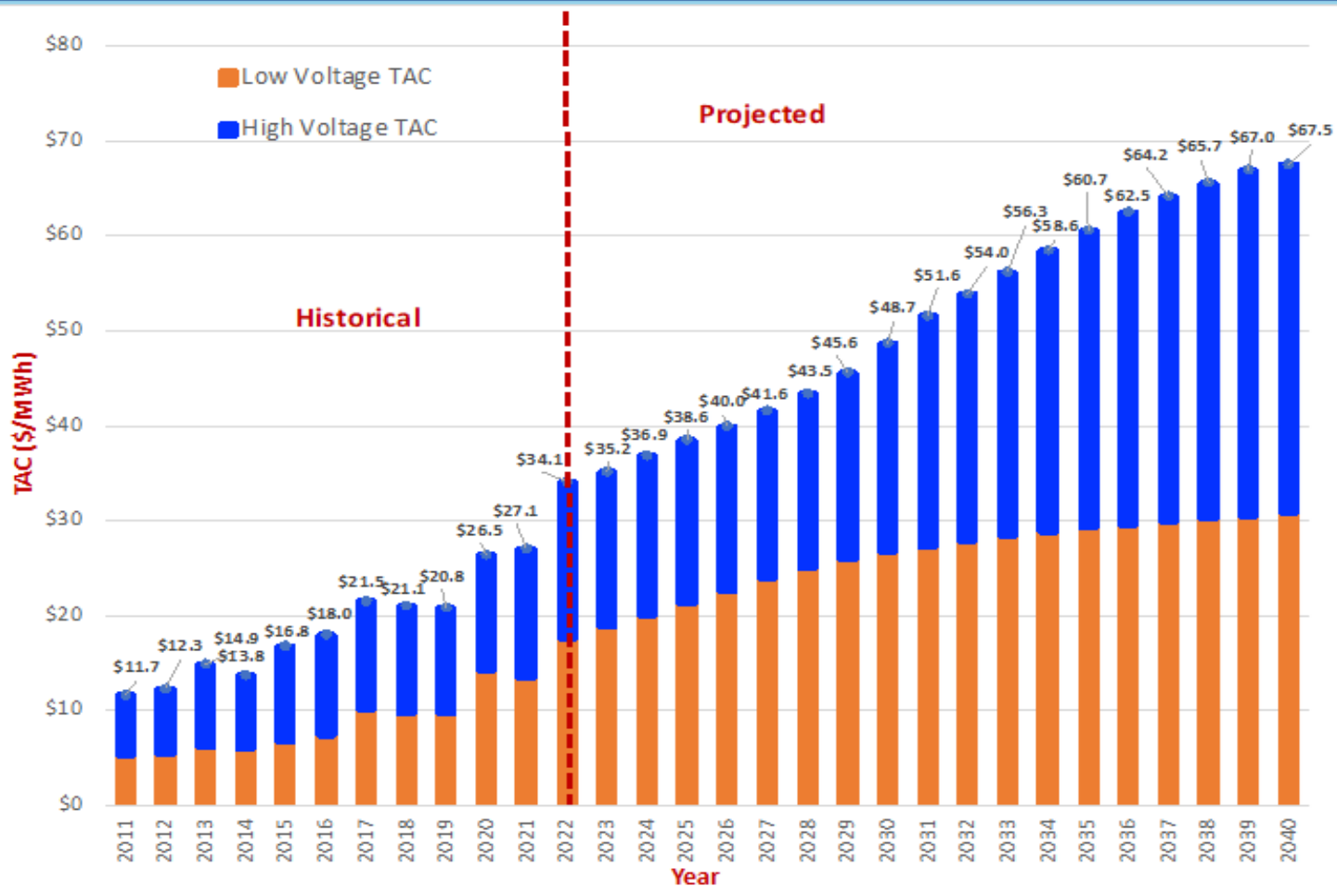
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Issues Impacting FY2023/24 Budget

- Transmission Charges



- Since 2010, Northern CA's combined TAC (LV+HV) has almost tripled.
- This trend continues. The projected combined TAC rates in 2030 and 2040 are projected to be approx. 43% and 98%, respectively higher than the current one.


Issues Impacting FY2023/24 Budget

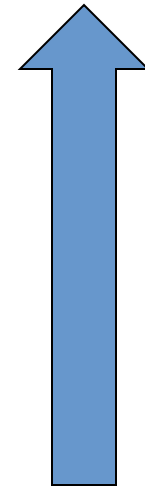
- Transmission Budget

	TRANSMISSION COSTS		
			% Inc
	FY20	FY23	
Alameda	8,282,225	12,344,303	49%
BART	10,149,719	15,812,059	56%
Biggs	404,184	614,576	52%
Gridley	750,320	1,237,807	65%
Healdsburg	1,832,335	2,561,862	40%
Lodi	10,048,791	16,504,113	64%
Lompoc	3,180,511	4,797,792	51%
Palo Alto	21,310,739	29,212,028	37%
Plumas Sierra	2,910,354	5,276,989	81%
Port of Oakland	2,800,377	4,657,303	66%
Ukiah	2,602,286	4,091,786	57%

Issues Impacting FY2023/24 Budget

- Transmission Budget

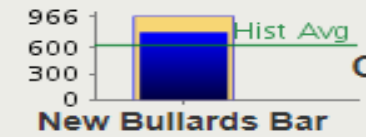
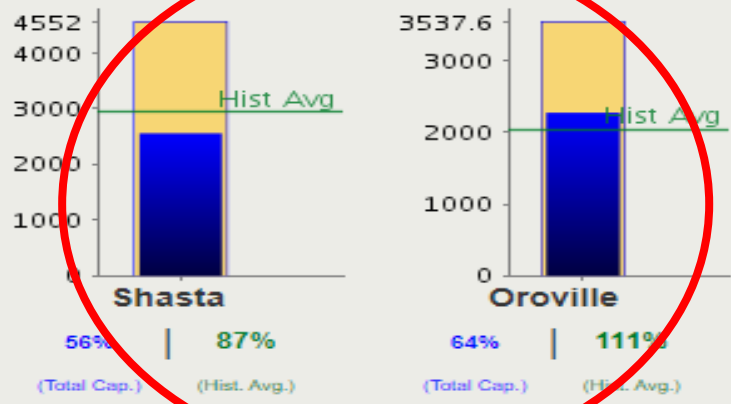
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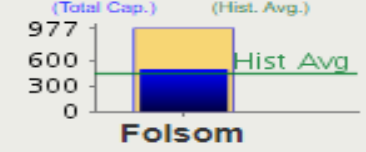
California Reservoir Levels

CURRENT CONDITIONS: MAJOR WATER SUPPLY RESERVOIRS: 29-JAN-2023

Midnight: 29-Jan-2023



Change Date: 29-Jan-2023

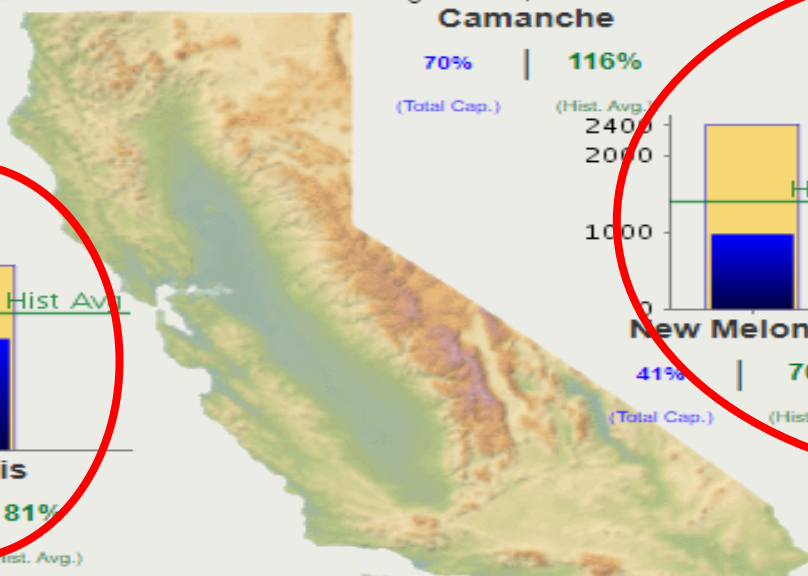
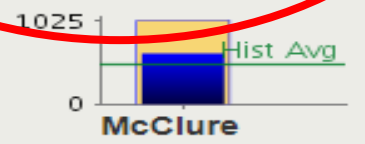
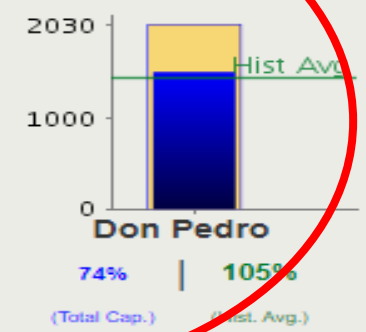
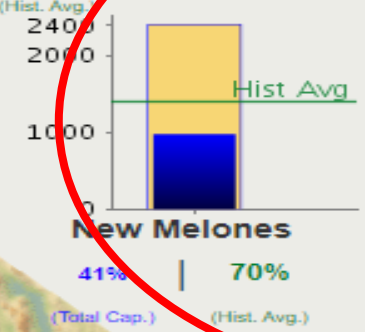
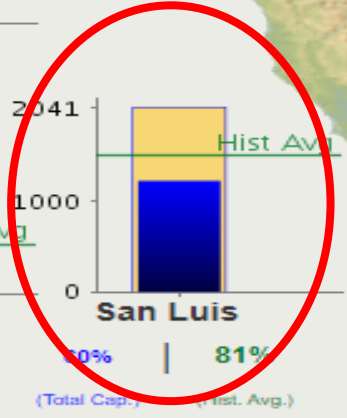
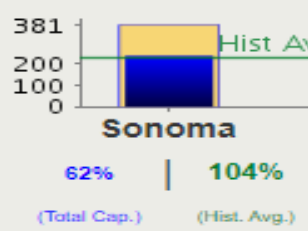
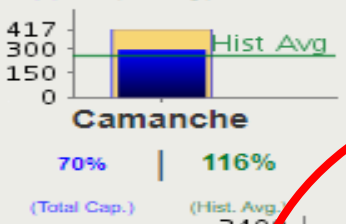
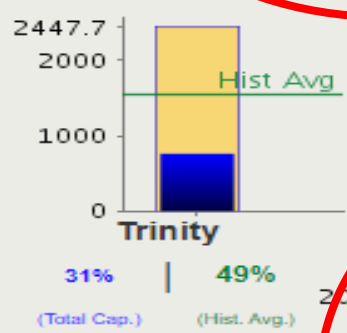


LEGEND

Blue Bar: Storage level for date
Gold Bar: Total reservoir capacity
Green Line: Historic level for date.

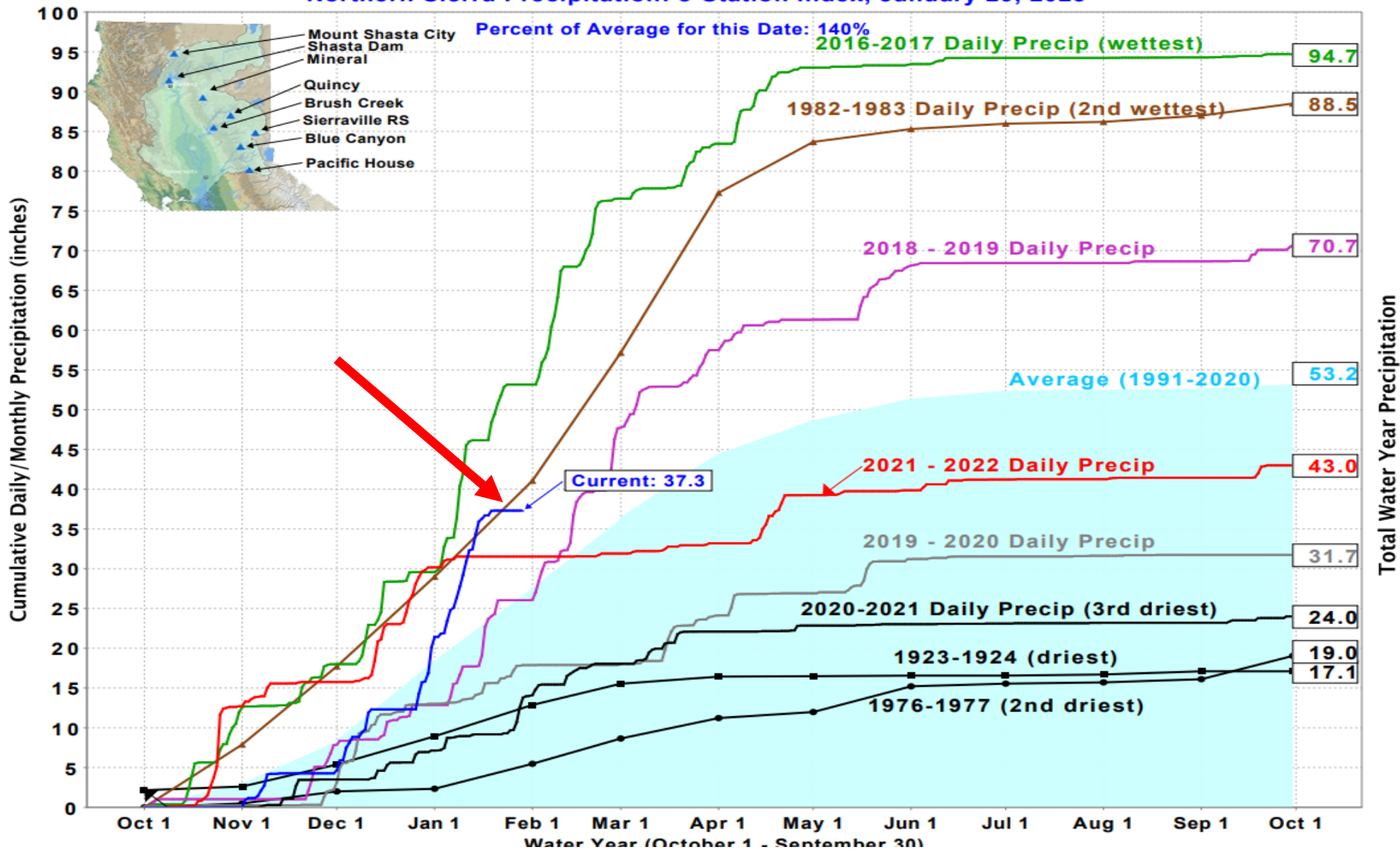
Capacity (TAF) | Historical Avg Mark

% of Capacity | % Hist. Avg.
 (Click res. 5 char. code for details)



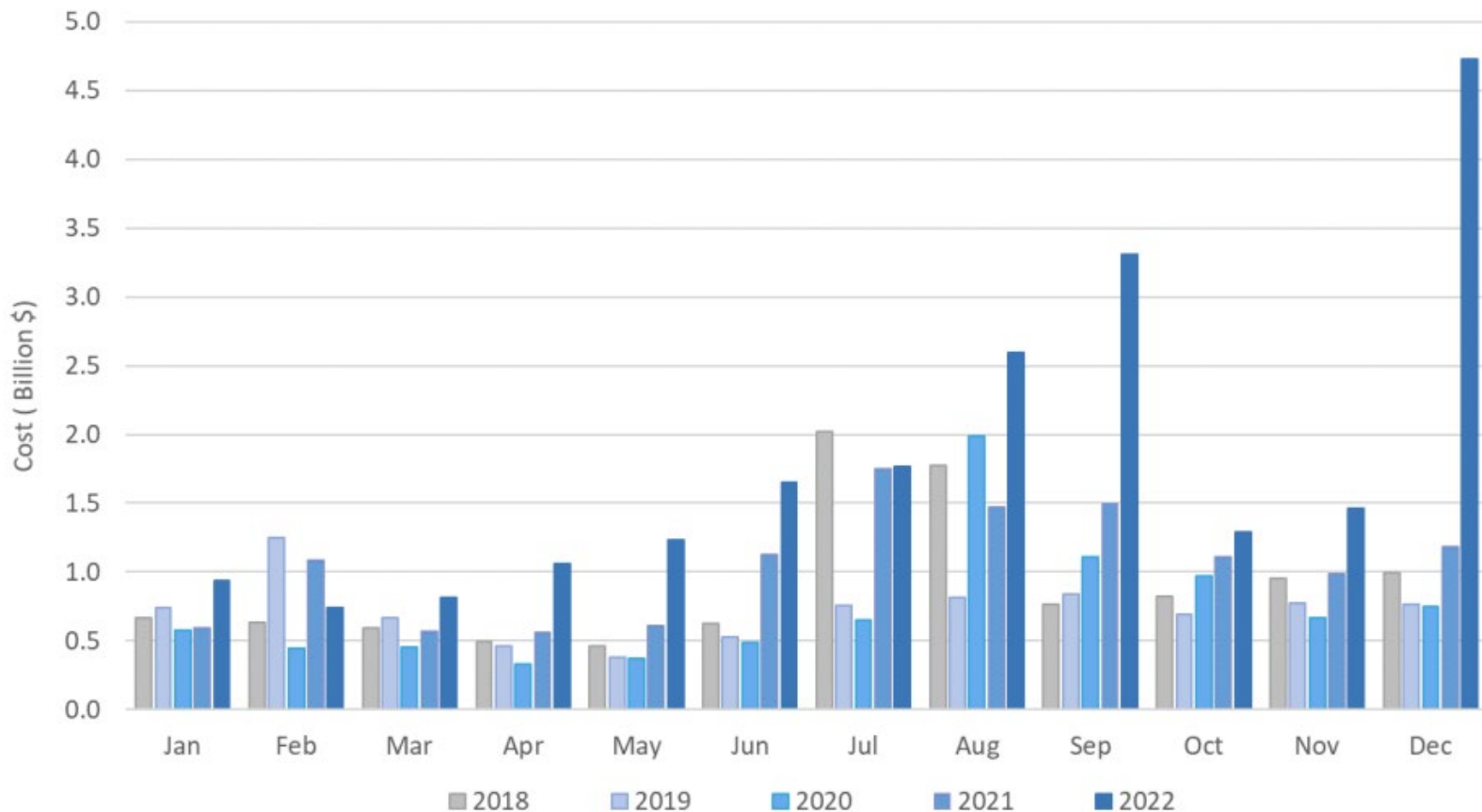
Accumulated Precipitation

Northern Sierra Precipitation: 8-Station Index, January 29, 2023



CAISO Costs Last Five Years

Figure 16: Monthly wholesale costs in CAISO electric market



Natural Gas Disruption

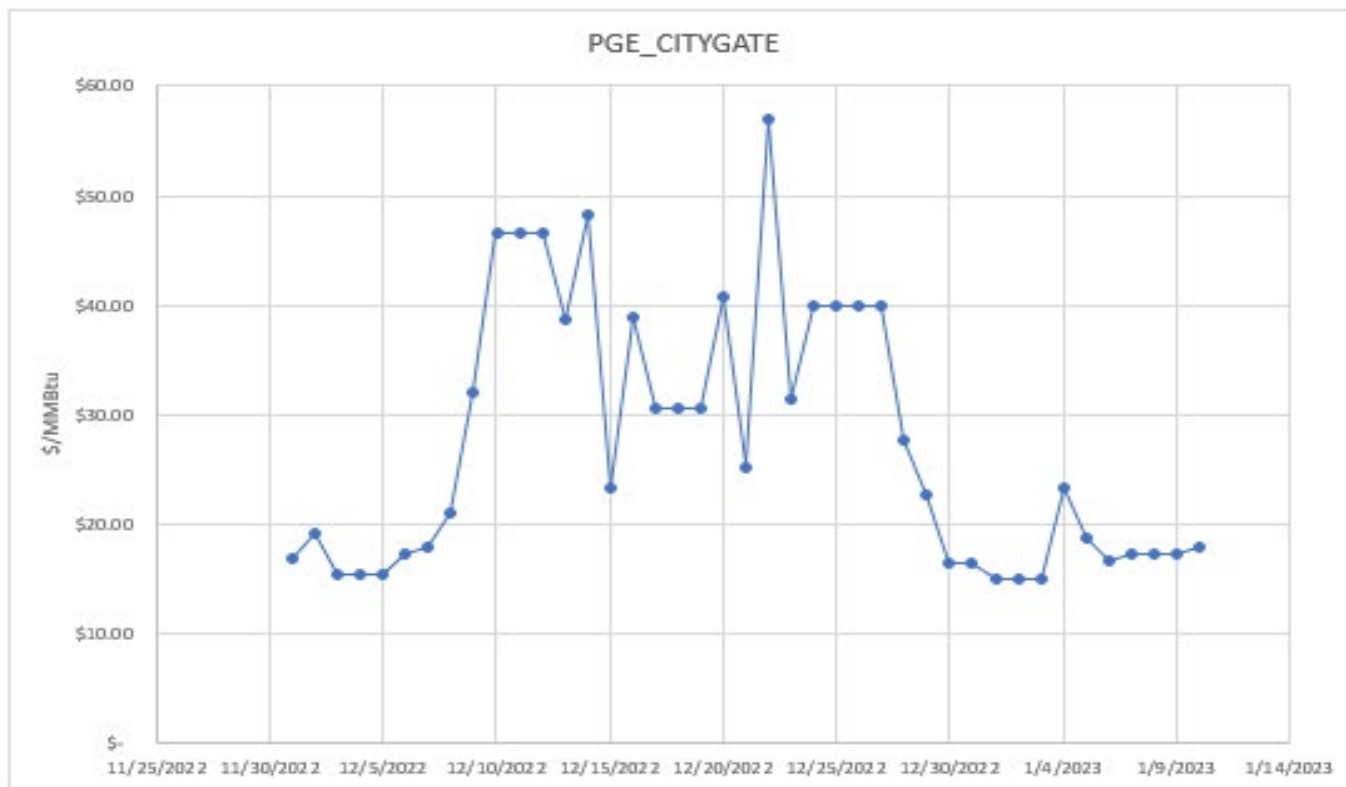
December 2022

Market Conditions

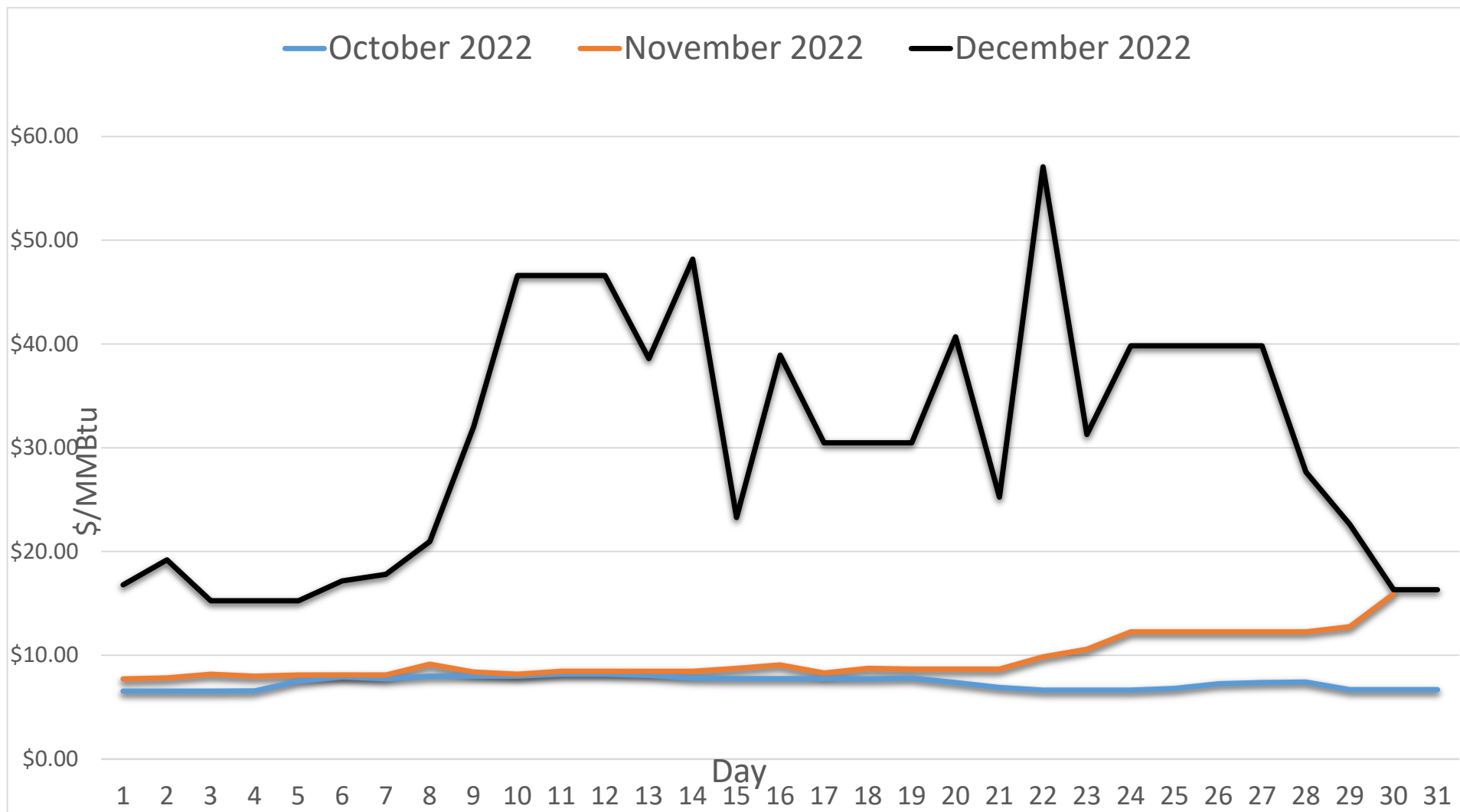
OPR_DATE	PGE_CITY
12/1/2022	\$ 16.80
12/2/2022	\$ 19.20
12/3/2022	\$ 15.25
12/4/2022	\$ 15.25
12/5/2022	\$ 15.25
12/6/2022	\$ 17.17
12/7/2022	\$ 17.80
12/8/2022	\$ 20.96
12/9/2022	\$ 32.03
12/10/2022	\$ 46.59
12/11/2022	\$ 46.59
12/12/2022	\$ 46.59
12/13/2022	\$ 38.59
12/14/2022	\$ 48.17
12/15/2022	\$ 23.29
12/16/2022	\$ 38.92
12/17/2022	\$ 30.49
12/18/2022	\$ 30.49
12/19/2022	\$ 30.49
12/20/2022	\$ 40.69
12/21/2022	\$ 25.24
12/22/2022	\$ 57.07
12/23/2022	\$ 31.28
12/24/2022	\$ 39.84
12/25/2022	\$ 39.84
12/26/2022	\$ 39.84
12/27/2022	\$ 39.84
12/28/2022	\$ 27.67
12/29/2022	\$ 22.61
12/30/2022	\$ 16.32
12/31/2022	\$ 16.32
1/1/2023	\$ 14.90
1/2/2023	\$ 14.90
1/3/2023	\$ 14.90
1/4/2023	\$ 23.30
1/5/2023	\$ 18.67
1/6/2023	\$ 16.67
1/7/2023	\$ 17.17
1/8/2023	\$ 17.17
1/9/2023	\$ 17.17
1/10/2023	\$ 17.81

Average PGE_CITYGATE Natural Gas Price

Dec 2021	Dec 2022	Delta	Delta
(\$/MMBtu)	(\$/MMBtu)	(\$/MMBtu)	(%)
\$ 5.74	\$ 30.53	\$ 24.79	432%



December 2022 Daily PG&E City Gate Gas Index



Market Conditions – PGE Activity

OFO/EFO Outlook

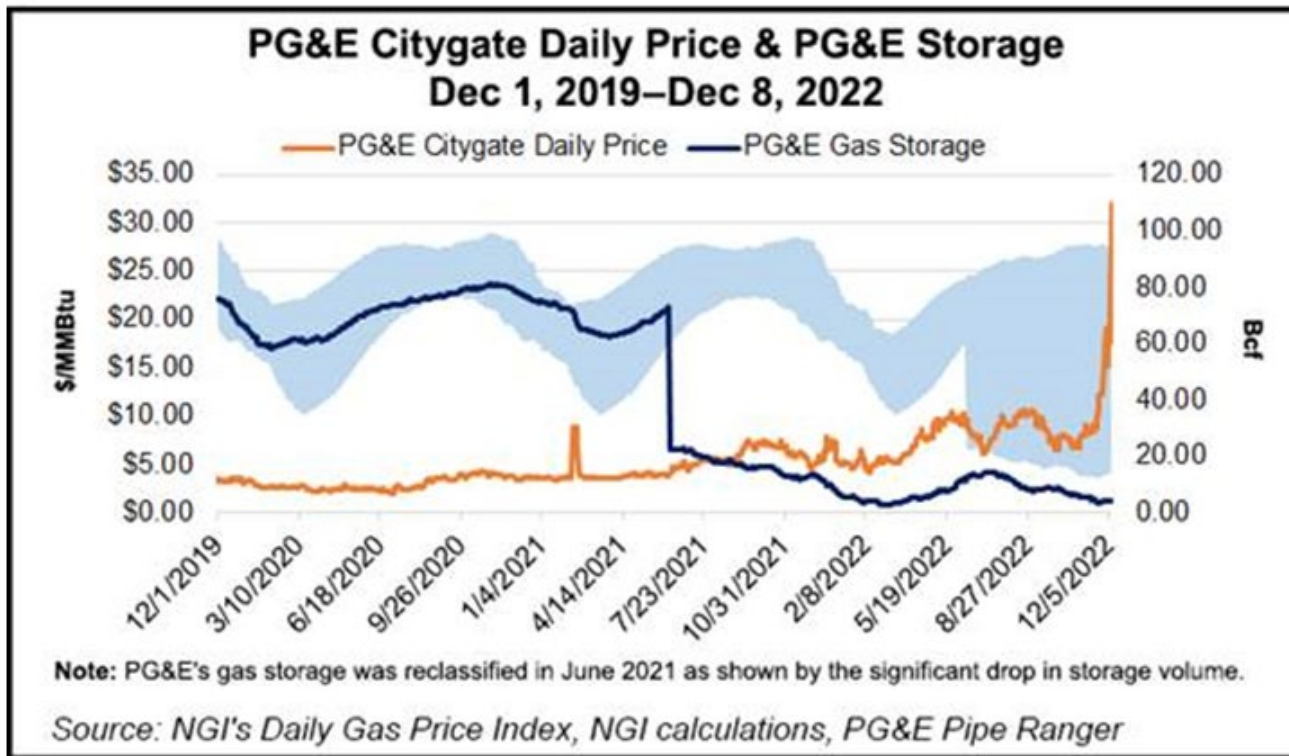
Last Updated Thursday, December 22, 2022 at 7:32 AM

Gas Day	Activity	Tolerance	Stage/Noncompliance Charge	Reason
12/20/2022	System Wide OFO in Effect	5%	Stage 3.1 at \$ 10.00 /Dth	Low Inventory
12/21/2022	System Wide OFO in Effect	9%	Stage 3.1 at \$ 10.00 /Dth	Low Inventory
12/22/2022	System Wide OFO in Effect	5%	Stage 3.2 at \$ 15.00 /Dth	Low Inventory
12/23/2022	No OFO in Effect			

System Inventory Summary

	Forecast for 12/22/2022	Forecast for 12/23/2022	Forecast for 12/24/2022	Forecast for 12/25/2022
Beginning Inventory	4375	4360	4484	4619
Ending Inventory	4360	4484	4619	4839
Inventory Change	-15	124	135	220
Upper Limit				
Upper Limit	4500	4500	4500	4400
Difference* (Upper Limit - Ending Inventory)	140	16	-119	-439
Lower Limit				
Lower Limit	4100	4100	4100	4000
Difference* (Ending Inventory - Lower Limit)	260	384	519	839

Market Conditions – PGE Reserve Change



As of Dec. 2, **Pacific stocks stood at only 217 Bcf**, which is more than 18% below year-earlier levels and nearly 24% below the five-year average, according to the U.S. Energy Information Administration.

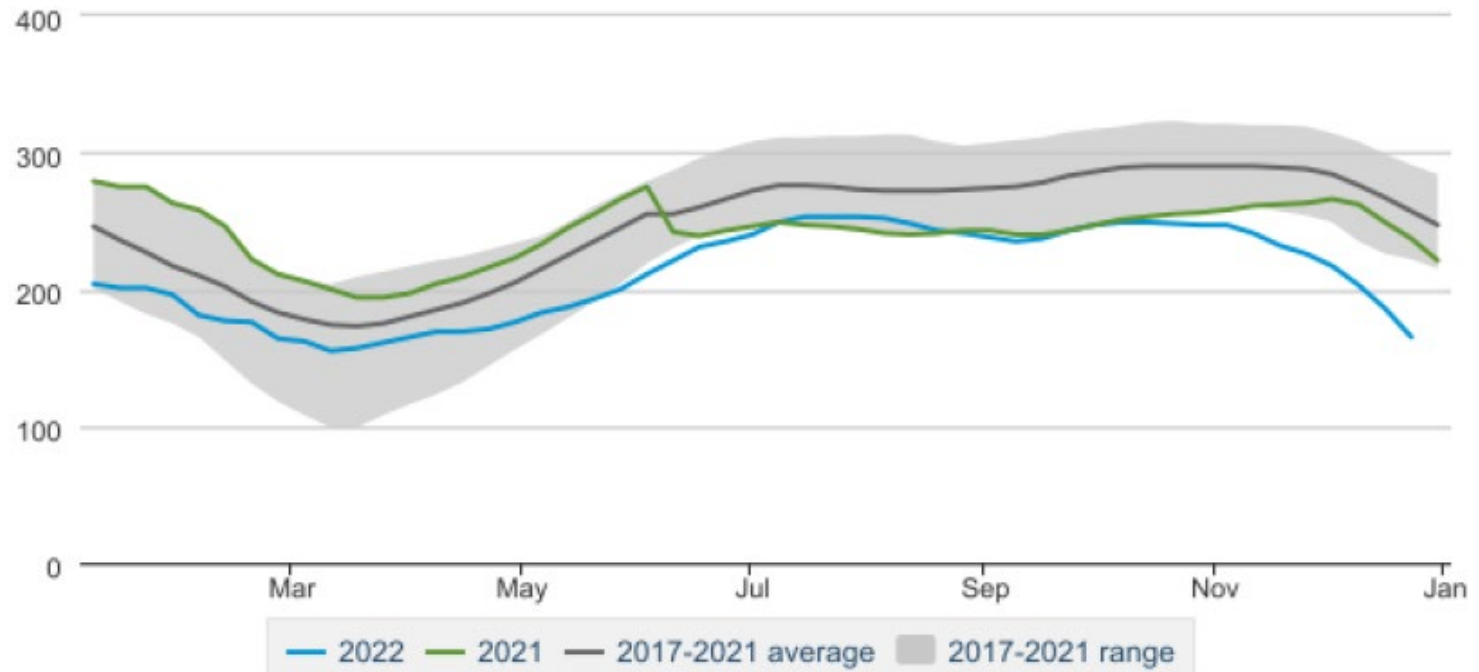
•Source: <https://www.naturalgasintel.com/perfect-storm-fuels-massive-natural-gas-price-spikes-on-west-coast-northern-california-hits-55-mmbtu/>

Market Conditions

Gas Storage – Pacific Region

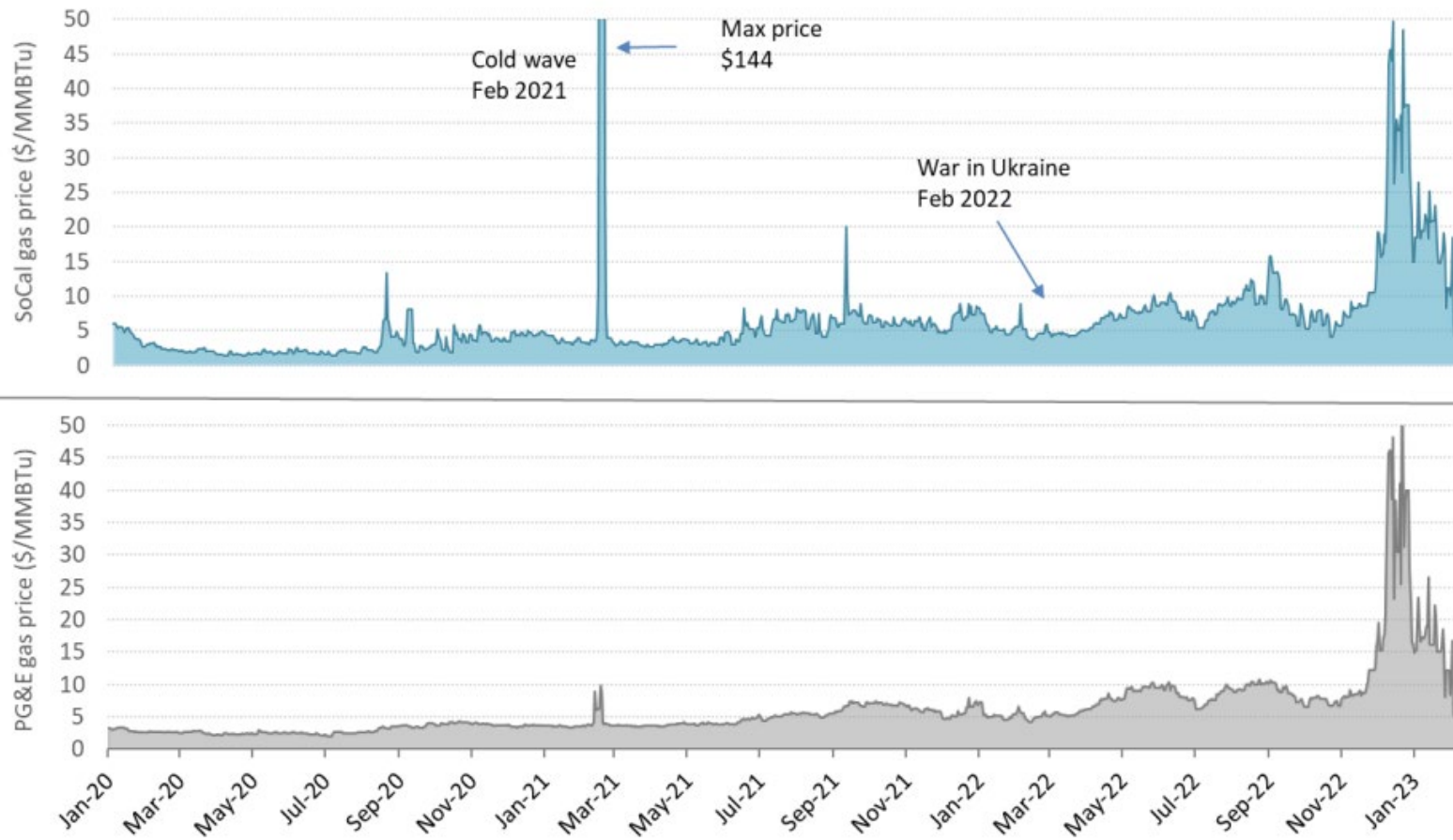
Pacific region weekly working gas in underground storage

billion cubic feet



Market Conditions

Figure 1: Gas prices for main gas hubs in California area



Market Conditions

Figure 17: Wholesale costs for CAISO's electric market

350

56

Average DLAP_PGAE-APND LMP

Dec 2021
(\$/MWh)

Dec 2022
(\$/MWh)

Delta
(\$/MWh)

Delta
(%)

\$

63.54

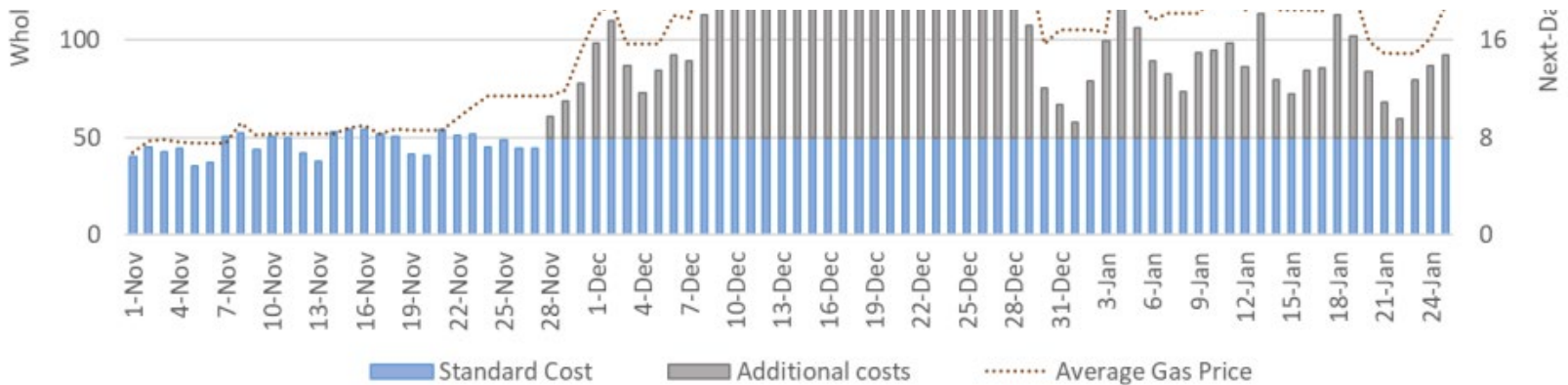
\$

270.81

\$

207.28

326%



Market Conditions

- **Wholesale costs in the CAISO's energy market saw additional costs of \$3 billion in December and about \$0.9 billion for the first 25 days of January.** These wholesale costs reflect the impact of higher electricity and gas prices. Market participants may have different mechanisms to hedge and manage these volatile prices and costs.
- **CAISO electricity prices increased as a result of higher gas prices, with December seeing a fivefold increase since last year, at an average price of more than \$250/MWh.** Prices in all CAISO electric markets have trended higher during the period of high gas prices.
- **Across the West, natural gas futures prices spiked for January 2023 but have since traded at lower prices for February 2023.** January 2023 futures prices spiked twice during trading in December 2022, corresponding to spikes in next-day or spot market prices, and reached a maximum of \$52/MMBtu at the SoCal Citygate hub. Futures gas prices at hubs including Henry Hub, Alberta AECO, and El Paso Permian stayed relatively insulated from price spikes observed in the West.



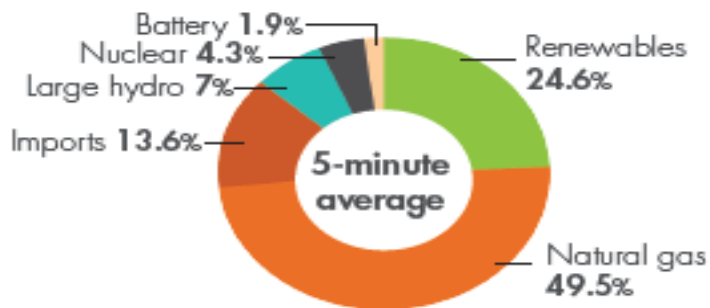
2022 Statistics



Peak demand
NEW RECORD

52,061 MW

September 6 at 4:57 p.m.



Previous year:

43,982 MW on September 8 at 5:50 p.m.

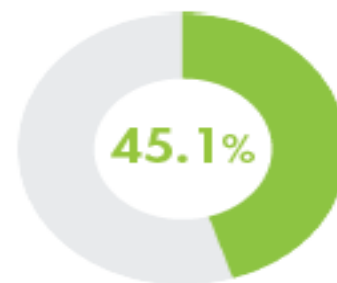
More on [Today's Outlook](#)



Peak demand served by renewables
NEW RECORD

16,587 MW

June 30 at 5:48 p.m.



Previous year:

14,329 MW [43.5%] on August 18 at 5 p.m.

This indicates the highest amount of renewables serving peak electricity demand on any given day.

Operational Activities

- 12/15 & 12/22 – Held Emergency UD Meetings
 - Provided market condition updates, awareness, and financial impacts including deposits with CAISO
- January 2023 Lodi Energy Center Planned Outage Canceled
 - Kept unit running without any risk of damage, etc.
 - Provided owners with an energy resource to hedge against market pricing
- Ramped Hydro using ‘free rain’ and some discretionary supply
 - Pennies from heaven
 - Snow pack is/was a little greater than average
 - Another energy resource for hedging purposes

Hydro Example

Generator Market Performance Daily Report

Collierville

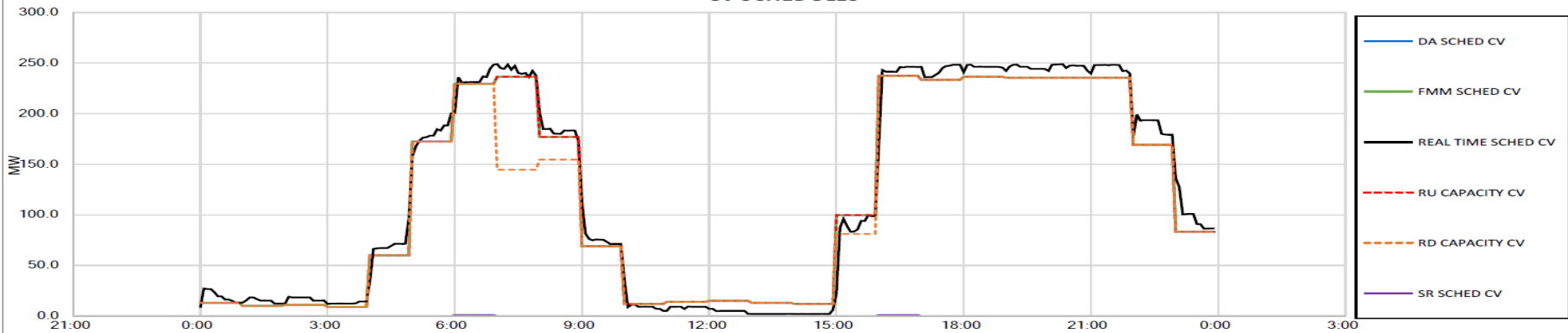
v302

Date:	1/19/23 0:00
End Date	1/19/23 23:59

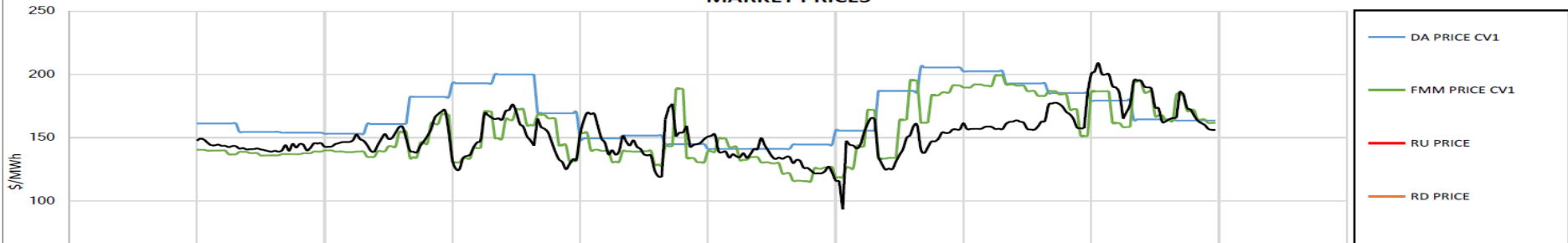
Scheduled MWh	2,820
Actual MWh	2,916

Margin	\$538,609
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CV SCHEDULES



MARKET PRICES

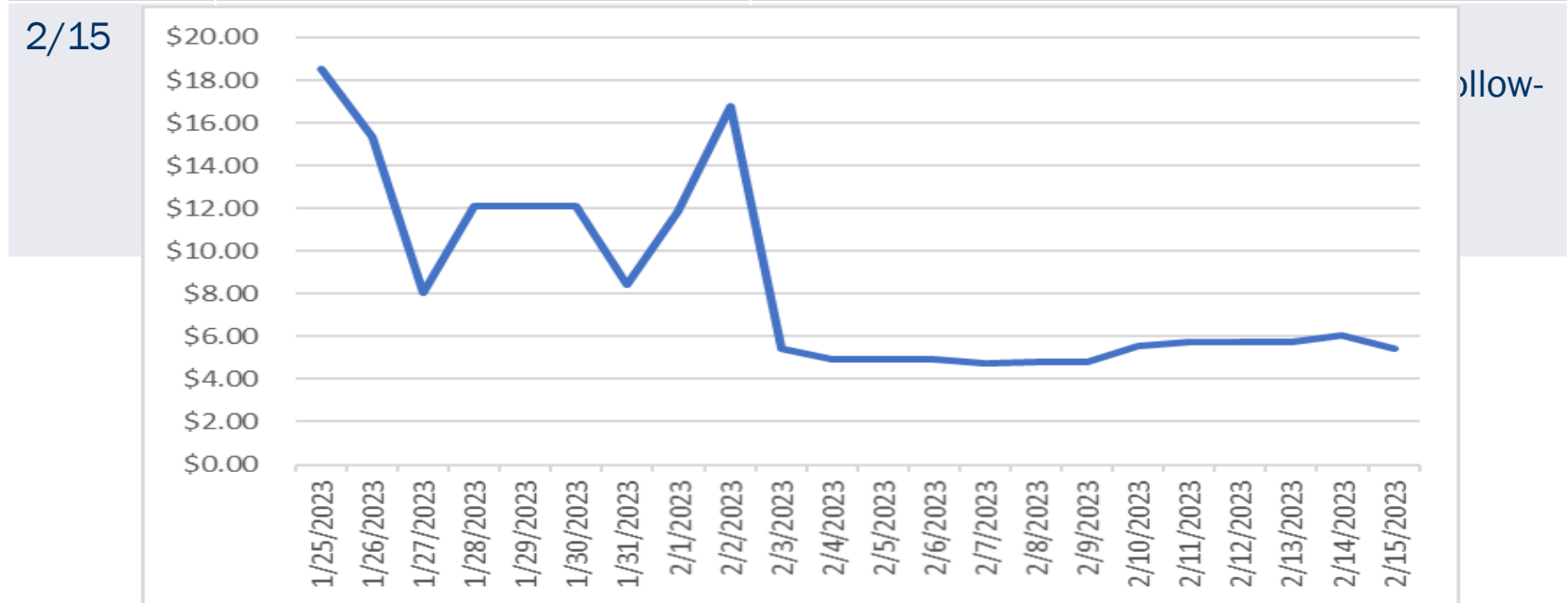


Legislative & Regulatory Actions

Date	Action	Results
12/14	<p>NCPA raises issue with Karen Douglas (Chief Energy Advisor for Governor Newsom)</p> <p>NCPA reaches out to CEC Vice Chair Gunda</p>	<p>NCPA advised to reach out directly to the CEC.</p> <p>Vice Chair Gunda indicates he would raise the issue with the CPUC and the Governor’s office. CEC and CPUC prepare strategy memo for Governor’s consideration.</p>
12/16	<p>NCPA reaches out to State Legislature (Chief Consultant to the Senate Energy Committee)</p>	<p>Leads to additional discussion, and a 1/26 letter from Senator Bradford to CPUC President and CEC Chair calling for an investigation into high natural gas prices.</p>
1/3	<p>NCPA reaches out to FERC</p>	<p>Raises awareness of issue with FERC, Gets immediate response, leading to 1/11 meeting between NCPA and key staff from the FERC Office of Enforcement, Pipeline Safety, and Office of Energy Market Regulation.</p>

Legislative & Regulatory Actions

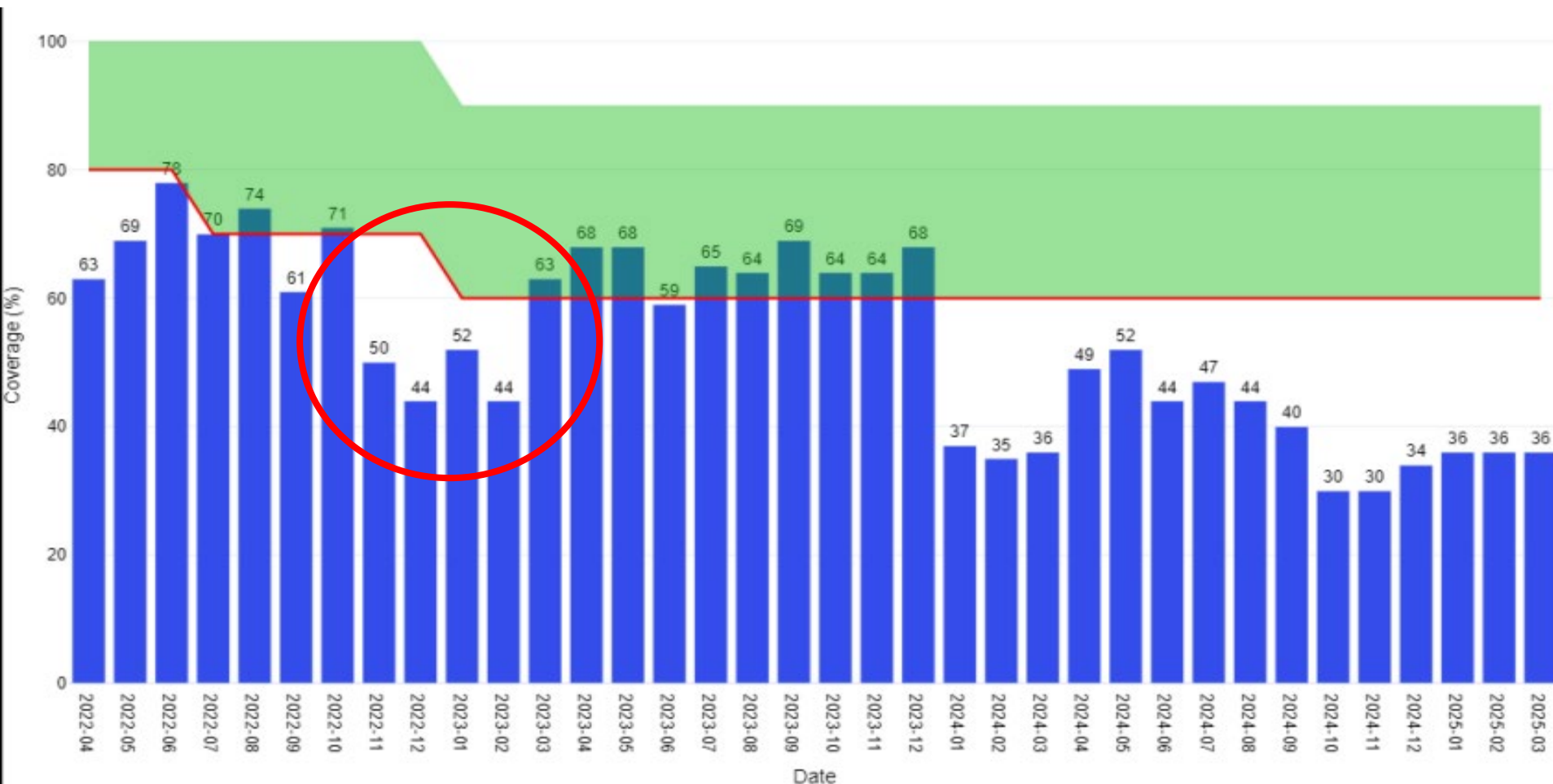
Date	Action	Results
2/6	<p>CPUC holds en banc session</p> <p>Newsom sends letter to FERC calling for federal investigation</p>	<p>First public vetting of issue. Sets foundation for additional action, including 2/6 letter from Governor Newsom to FERC Chairman.</p>



What is NCPA doing to minimize volatility?

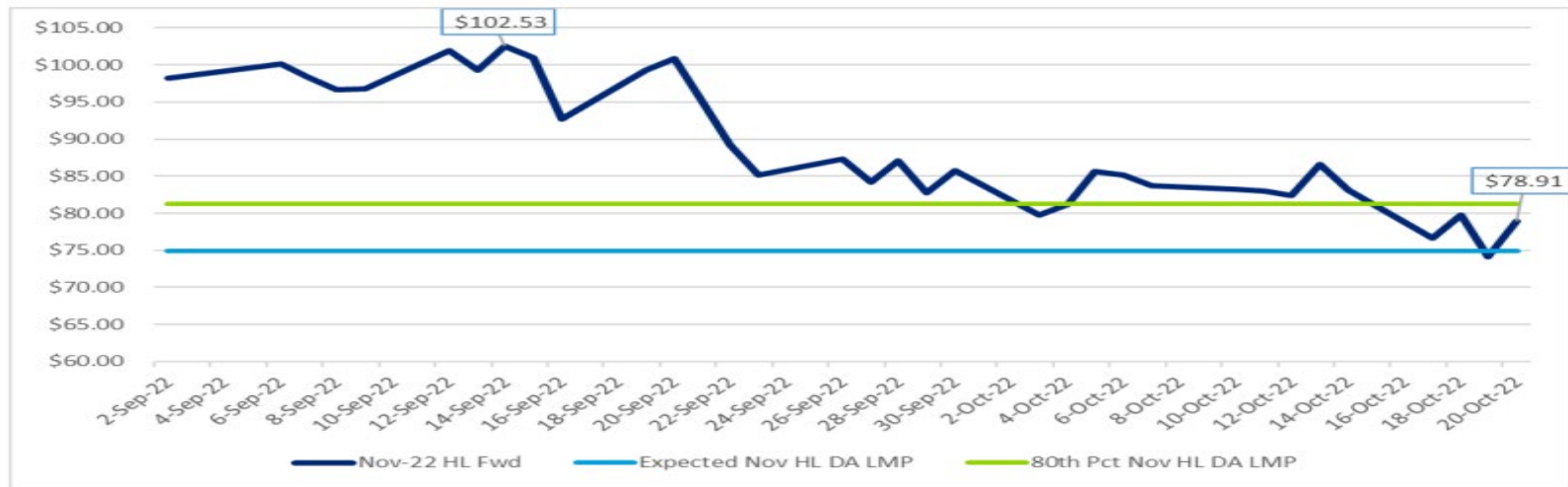
Power Management Services

- Load Resource Balance for Lompoc



Power Management Services

- Pricing and Solicitation for NCPA Pool

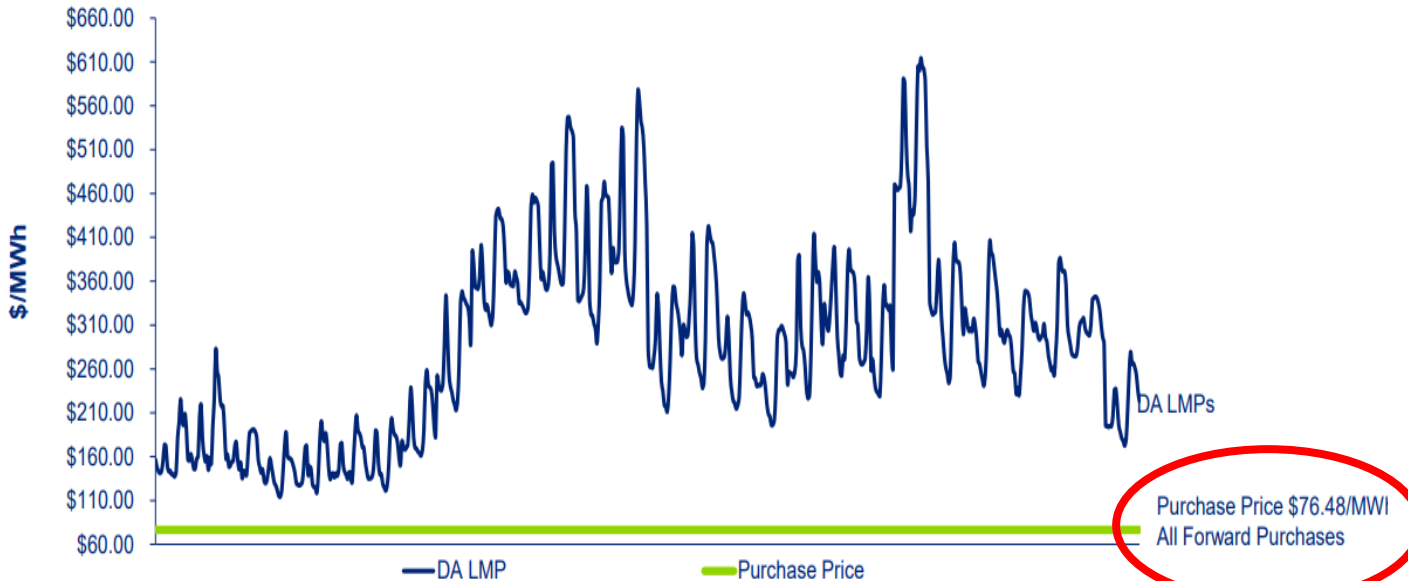


	BIGS		GRI		HEA		LOD		LOM ¹		PORT		TOTAL	
	HLH	LLH	HLH	LLH	HLH	LLH	HLH	LLH	HLH	LLH	HLH	LLH	HLH	LLH
Oct-22	-	-	-	-	2	-	-	-	2	-	1	1	5	1
Nov-22	-	-	-	-	1	-	-	-	4	4	2	2	7	6
Dec-22	-	-	-	-	1	-	-	-	5	5	2	2	8	7
Jan-23	1	1	2	1	-	-	-	-	2	2	5	5	10	9
Feb-23	1	-	-	1	-	-	2	2	2	2	5	5	10	10
Mar-23	-	-	-	-	-	-	-	-	-	-	5	5	5	5

Power Management Activities

- December Hedging Strategy Performance

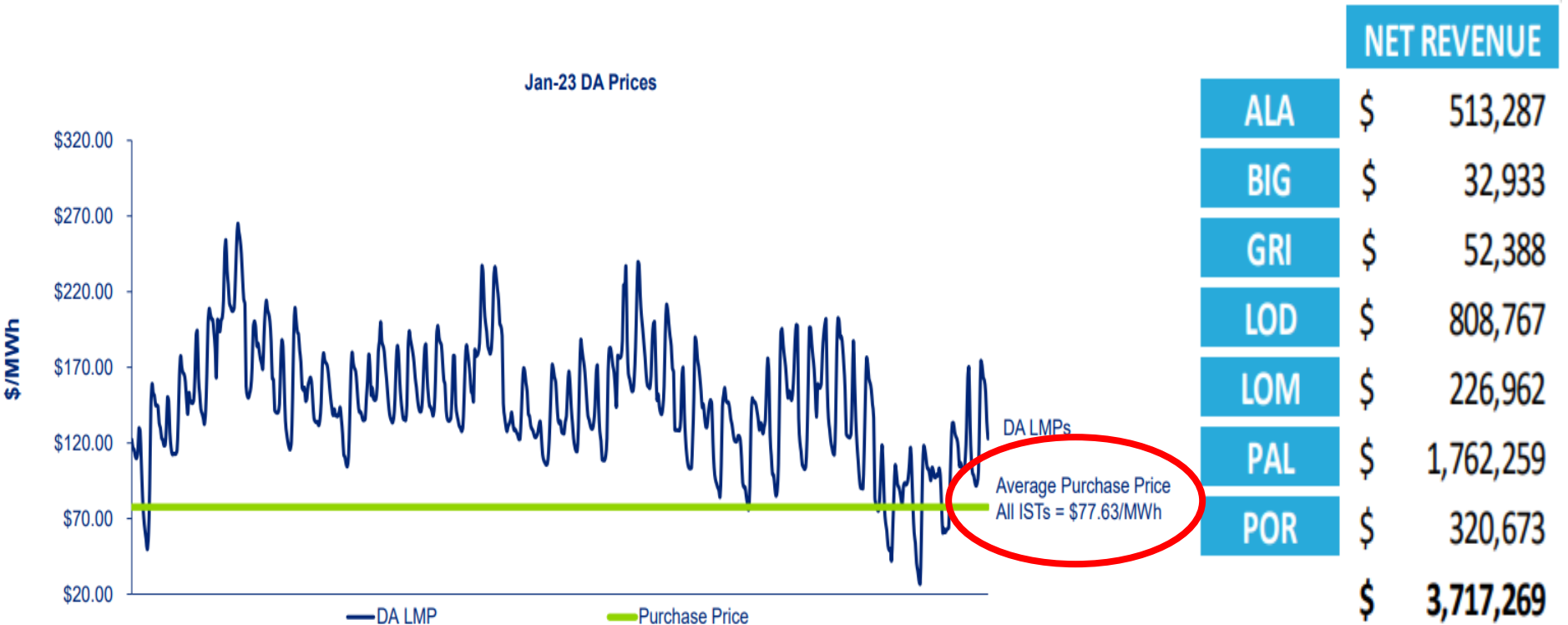
Dec-22 Prices and Avg. Purchase Price of all Dec-22 firm fixed-price purchases



NET REVENUE	
ALA	\$ 1,402,019
BIG	\$ 141,039
GRI	\$ 140,055
HEA	\$ 67,448
LOD	\$ 2,541,955
LOM	\$ 976,800
PAL	\$ 4,998,604
POR	\$ 935,801
UKI	\$ 358,449
PLU	\$ 8,298
\$	11,570,468

Power Management Activities

- January Hedging Strategy Performance



Questions / Comments