Utilities Quarterly Update

Second Quarter of Fiscal Year 2023

Table of Contents

Figures

1 Electric Utility

The City's electric utility serves all residential and non-residential electric demands in Palo Alto at a lower cost than PG&E in surrounding communities. Its electric supply portfolio is 100% carbon neutral. The City maintains and operates an electric distribution system and one small natural gas generator but does not operate any transmission lines or any significant generating capacity on its own. Instead, the City belongs to Northern California Power Agency (NCPA) which operates its Calaveras hydroelectric generating plant and provides power scheduling services for its other generating resources. This carbon free power is supplied through power purchase agreements with various generation operators.

1.1 Electricity Supply and Transmission

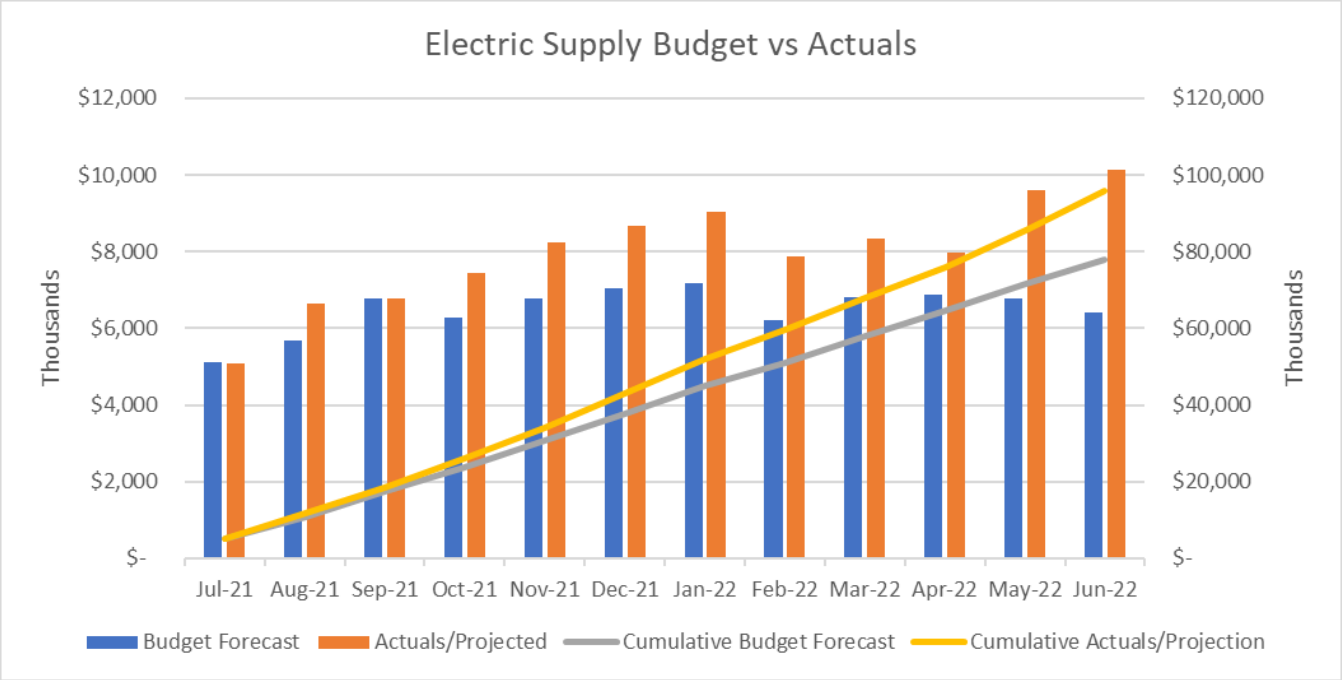
Below is an update on electricity supply and transmission services.

1.1.1 Forecasted Supply Costs

The actual net supply cost for FY 2022 was $95.2 M. This represents a $11.9 M (14%) increase over FY 2021 actuals and $17.3 M (22%) over the FY 2022 Adopted Budget amount, with the increase primarily driven by higher than historical forward energy prices, higher resource adequacy requirement levels and market prices, and much lower than historical average hydro generation levels.

The projected net supply cost for FY 2023 is $106.1 M, which is $22.5 M (27%) greater than the Adopted Budget amount, and $10.9 M higher than the actual net supply cost for FY 2022. This increase in cost relative to the Adopted Budget is due to the same factors noted above that explain the deviation in supply cost for FY 2022.

Figure 1: FY 2022 Financial Plan Supply Cost Forecast vs. Actuals



1.1.2 Hydroelectric Conditions

The City receives power from two hydroelectric projects, the Calaveras project and the Western Base Resource contract for Federal hydropower from the Central Valley Project.[1] The watershed for Western hydropower is primarily in the northern end of California, while the watershed for the Calaveras project is in the Central Sierras.

For water year 2021 to 2022 (October 2021 to September 2022), total precipitation was 63% of average for the Central Sierras watershed and 81% of average for the Northern Sierras watershed—the third straight year of well below average precipitation levels. Total hydropower generation for FY 2021 was 295 GWh, which is 183 GWh (38%) below the long-term average. Total hydropower generation for FY 2022 was 230 GWh, which is 250 GWh (52%) below the long-term average.[2]

However, water year 2022 to 2023 is on track to be one of the best precipitation years in memory, following the record storms across the state in December 2022 and early January 2023. As of February 13th, total precipitation was 153% of average for the Central Sierras and 125% of average for the Northern Sierras, and reservoir levels have returned to near average levels for this time of year. The current hydro forecasts have begun to reflect this

[1] The Calaveras project is a hydropower project located in Calaveras County that is maintained and operated by the Northern California Power Agency on behalf of the City and other project participants. The City is also one of several public entities with contracts with the Western Area Power Administration for "Base Resource" electricity, which is the hydroelectric power available from the Federal Government's Central Valley Project (operated by the Bureau of Reclamation) after accounting for power used for Central Valley Project operations and power delivered to certain "preference" customers.

[2]The long-term average forecast levels for both Western and Calaveras have been revised downward (about 10% each) in recent years to reflect the impact of climate change. These values may need to be revisited again in the coming years.

improved outlook, with total output projected to be 62% of the long-term average level for FY 2023, and 79% of the long-term average level for FY 2024.

Figure 2: Hydro Generation FY 2022 Actuals, FY 2023-24 Projected (GWh)

	FY 2022	FY 2023	FY 2024
Calaveras Generation (GWh)	61	108	129
Western Generation (GWh)	169	189	250
Total Hydro Generation (GWh)	230	297	379
% of Long-term Average Total	48%	62%	79%
Long-term Average Total Hydro (GWh)	481	481	481

1.1.3 REC Exchange Program

Under the REC Exchange Program, which was approved by Council in August 2020 (Staff Report #11556), staff sold a total of 184 GWh worth of in-state renewable energy (for $2.8M), and purchased 428 GWh worth of out-of-state renewable energy credits (RECs) costing $2.2M in CY 2022. The overall net revenue of $0.6M for CY 2022 was significantly lower than projected due to a narrowing of the in-state versus out-of-state REC price spread; this amount will be directed entirely towards the funding of local decarbonization efforts.

Net revenue for the REC Exchange program is projected to be significantly greater in 2023 than 2022, due to a sharp increase in in-state (Bucket 1) renewable energy prices over the past several months. So far for 2023, staff has contracted to sell 160 GWh worth of in-state renewable energy (for $4.0M) and purchased 200 GWh worth of out-of-state renewable energy credits (RECs) costing $1.2M. An additional round of REC Exchange transactions is planned for later this year, which should add to this initial $2.8M in net revenue.

1.1.4 Renewable Energy Procurement

Staff has been working with staff from the Public Works Department, the City of Santa Clara, and NCPA to negotiate a new power purchase agreement (PPA) to buy a small amount of electrical output (about 3 GWh/year in total) from an anaerobic digester facility, in order to satisfy the requirements of Senate Bill (SB) 1383. Similar to the Calpine Geothermal PPA, NCPA would be the counterparty to the PPA with the anaerobic digester facility, and the Cities of Palo Alto and Santa Clara would each receive a share of the output via Third Phase Agreements with NCPA. Staff plans to return to the UAC in the coming months to seek a recommendation to take these agreements to the City Council for approval.

1.2 Capital Improvement Plan Status

The following capital projects are currently in progress or have been recently completed:

- **EL-17001 (East Meadow Circles 4/12kV Conversion):** This project is scheduled to be completed in several phases. Phase 1 design is complete. Phase 2 & 3 (of 6) engineering design is currently in progress.
- **EL-11003 (Rebuild Underground 15):** This project is in the preliminary stages of engineering design. Project is delayed due to staffing shortage. This project has been put on hold due to other priorities.
- **EL-10006 (Rebuild Underground 24):** This project is in construction phase and scheduled to be completed in Dec 2023.
- **EL-16000 (Rebuild Underground 26):** This project is in the preliminary stages of engineering design. Project is delayed due to staffing shortage.

- **EL-19004 (Wood Pole Replacement):** 34 poles have been replaced since July 2022. CPAU staff and contract consultants are continuously working on pole replacement designs for construction although the output is delayed this year because of staffing shortages.
- **EL-16003 (Substation Physical Security):** This project is scheduled to be completed in several phases. Substation Security lighting contract was awarded in June 2022. The installation will be completed over a 2-year period. Construction is currently in-progress.
- **EL-17002 (Substation 60kV Breaker Replacement):** This project is in the preliminary stages of engineering design. Project is delayed due to staffing shortage.
- **EL-21001 (Foothills Rebuild):** This project will rebuild the approximately 11 miles of overhead line in Foothills Park, as necessary to mitigate the possibility of wildfire due to overhead electric lines. Staff has completed 7,000 feet of substructure work and design which will eliminate the corresponding 26 poles. Substructure for Phase 1 was completed in Spring 2022 and the substructure for Phase 2 is currently in progress. Phases 3 and 4 are currently in design phase.
- **EL-14005 (Reconfigure Quarry Feeders):** Staff completed the design phase this year. Construction has been Completed.
- **EL-02011 (Electric Utility Geographic Information System (GIS)):** The project scope includes maintenance/technical support of the existing GIS system and implementation of the new GIS platform (ESRI). Staff has completed the ESRI ArcGIS Portal, which is a web service for staff to view data and are currently working on final phase of the electric data migration to ESRI's Utility Network model.
- **EL-16002 (Capacitor Bank Installation):** This project is a multi-year effort for the procurement, design and installation of capacitor banks at several substation. Hanson Way and Park Blvd substation work is complete; Two capacitor banks at Hanover remain to be completed and will be completed in December 2023. The capacitor banks at Maybell have been installed and will be commissioned in the coming months.

1.3 Rate and Bill Comparisons

For the median consumption level, the annual residential electric bill based on current rates is $1000, about 37% lower than the annual bill for a PG&E customer with the same consumption and approximately 42% higher than the annual bill for a City of Santa Clara customer. The bill calculations for PG&E customers are based on PG&E Climate Zone X, which includes most surrounding comparison communities.

The figure below presents sample median residential bills for Palo Alto, PG&E, and the City of Santa Clara (Silicon Valley Power) for several usage levels. Rates used to calculate the monthly bills shown below were in effect as of January 1, 2023. The rates for Palo Alto include the current Electric Hydro Rate Adjuster (E-HRA) of $0.048/kWh to mitigate the high power costs cited above.

In an application submitted December 2022, PG&E has requested that the California Public Utilities Commission (CPUC) approve rate increases that would increase the PG&E residential bill by 19% in 2023. A decision is anticipated by the CPUC by June 2023. Also, over the next several years low usage customers in PG&E territory are expected to continue to see higher percentage rate increases than high usage customers as PG&E compresses its tiers from the highly exaggerated levels that have been in place since the energy crisis. This is likely to make the bill for the median Palo Alto consumer look even more favorable compared to most PG&E customers. Even with the compressed tiers, bills for high usage Palo Alto consumers are projected to remain substantially lower than the bills for high usage PG&E customers.

Figure 3: Residential Monthly Electric Bill Comparison (Effective 1/1/2023, $/mo.)

Season	Usage (kwh)	Palo Alto	PG&E	Santa Clara
Winter	300	57.74	94.11	42.45
	(Median) 453	94.42	143.32	64.89
	650	143.94	221.07	93.78
	1200	282.18	438.13	174.44
Summer	300	57.74	94.11	42.45
	(Median) 365	72.31	123.41	51.98
	650	121.19	233.16	86.65
	1200	282.18	438.13	174.44

1.4 Reliability

CPAU tracks electric outages. A summary chart of these outages can be found below.

Figure 4: Electric Outage Reliability, FY 2022 to FY 2023-Q2

Outage Reliability	FY 2022			
	Q1	Q2	Q3	Q4
System Average Interruption Duration Index (SAIDI)[3]	1.71	7.32	6.72	1.35
System Average Interruption Frequency Index (SAIFI)[4]	.01	.02	.16	.02
Customer Average Interruption Duration Index (CAIDI)[5]	180.18	323.65	41.48	88.70

Outage Reliability	FY 2023	
	Q1	Q2
System Average Interruption Duration Index (SAIDI)[3]	81.69	7.38
System Average Interruption Frequency Index (SAIFI)[4]	0.61	.04
Customer Average Interruption Duration Index (CAIDI)[5]	134.77	190.12

1.5 Financial Health

Below is a summary of the financial position for the electric utility.

1.5.1 Sales Forecasts vs. Actuals

Actual electric sales volumes through Q2 of FY 2023 were about 2% lower than forecasted, while actual sales revenues were about 3% higher than budgeted in the FY 2023 Financial Plan. The higher sales revenues were due

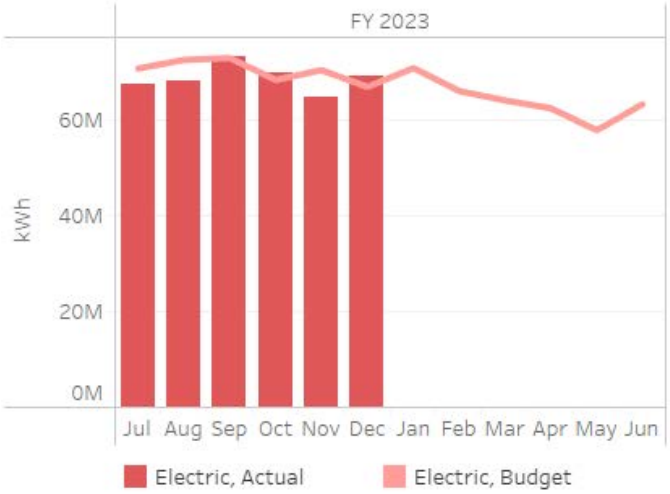
[3] System Average Interruption Duration Index (SAIDI) - Measure of the total duration of an interruption for the average customer during a given time frame. SAIDI = (Sum of Customer Minutes Interrupted) / (Total Customers Served)

[4] System Average Interruption Frequency Index (SAIFI) - the average number of times a customer will experience an interruption during a given time frame. SAIFI = (Total Customers Interrupted) / (Total Customers Served)

[5] Customer Average Interruption Duration Index (CAIDI) - the average time to restore service. CAIDI = (Sum of Customer Minutes Interrupted) / (Total Customers Interrupted)

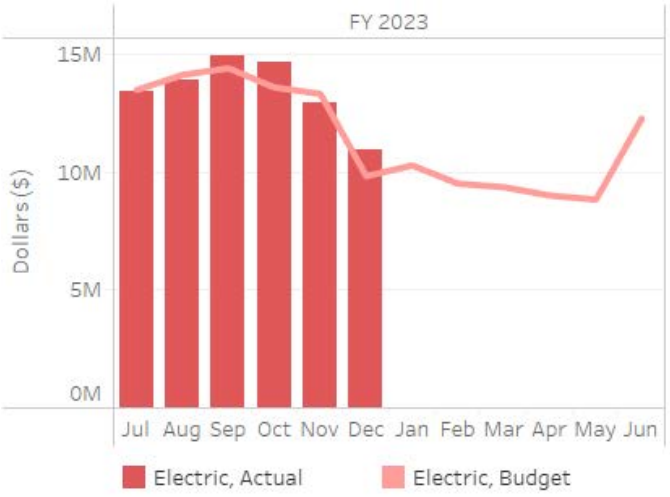
to additional revenue from the Electric Hydro Rate Adjuster (E-HRA) rate, which was implemented effective on April 1, 2022.

Figure 5: Electric Sales Volume (kWh), up to FY 2023-Q2



	Budget	Actual	Variance	Variance %
Jul	70,843,075	67,532,107	-3,310,968	-4.7%
Aug	72,647,339	68,059,406	-4,587,933	-6.3%
Sep	73,040,074	73,385,605	345,531	0.5%
Oct	68,469,891	70,026,235	1,556,344	2.3%
Nov	70,512,009	64,864,235	-5,647,774	-8.0%
Dec	67,009,286	69,288,102	2,278,816	3.4%
Jan	70,935,370			
Feb	66,143,772			
Mar	64,173,286			
Apr	62,524,419			
May	57,946,331			
Jun	63,400,963			

Figure 6: Electric Sales Revenue ($), up to FY 2023-Q2



	Budget	Actual	Variance	Variance %
Jul	13,513,230	13,477,951	-35,279	-0.3%
Aug	14,158,194	13,922,271	-235,923	-1.7%
Sep	14,441,943	14,974,332	532,389	3.7%
Oct	13,625,567	14,699,080	1,073,513	7.9%
Nov	13,352,666	12,967,497	-385,169	-2.9%
Dec	9,853,529	10,944,386	1,090,857	11.1%
Jan	10,311,382			
Feb	9,534,373			
Mar	9,385,476			
Apr	9,031,965			
May	8,856,182			
Jun	12,309,221			

Note: The electric Q1 revenues in the Utilities Quarterly FY 2023 Q1 report were incorrect. This report contains the corrected Q1 revenue numbers.

1.5.2 Financial Position

The Electric Operations Reserves were at the minimum guideline level at the end of FY 2022 and are expected to drop below minimum in FY 2023, given higher than budgeted purchase costs resulting from low hydro conditions (necessitating more expensive market purchases) as well as increasing transmission costs. City Council activated the E-HRA in April 2022 to help mitigate these rising costs. Over the summer of 2022, market prices began increasing over the level assumed in the E-HRA and Council again increased the E-HRA in December 2022 to bring revenues in line with costs.

Supply purchase costs for the first half of FY 2023 were roughly 36% over budget. As a result of the multi-year drought, the City's hydro generation resources produced well below average energy, forcing the utility to

purchase replacement market power. Market prices in Q1 of FY 2023 were roughly 165% of the previous three year average leading to much higher supply costs. In late November and through December, natural gas prices skyrocketed and were the primary driver for higher electricity prices, which were 457% higher than the prior three year average for the month of December. Total supply costs through December 2022 were $58.2 million vs a budgeted amount of $42.8 million, for a total variance of $15.4 million over budget.

Through the first two quarters of FY 2023, sales and revenues tracked close to budget, but purchase cost increases continue to put pressure on reserves. Overall sales continue to be at levels seen during the height of COVID, with sales to the commercial sector not recovering appreciably as COVID restrictions have eased. This lower sales profile, along with projected new capital projects for electrification, may put additional pressure on FY 2024 rates and beyond. Staff will provide financial forecast projections in March 2023.

2 Gas Utility

The City's gas utility serves all residential and non-residential gas demand in Palo Alto. The City maintains and operates a system of low-pressure gas lines for delivering gas but does not operate any transmission lines. Costs for the gas utility are split approximately two thirds for the operation, maintenance and one third for the cost of the gas commodity, PG&E gas transmission, compliance with the State's Cap and Trade Program and the City's Carbon Neutral Gas Program.

2.1 Gas Supply and Transmission

The gas market experienced substantial price increases in December 2022 and January 2023. The gas commodity monthly price at the PG&E Citygate hub was $14.1/mmbtu in December, and it skyrocketed to $49.5/mmbtu in January. Gas market prices rose dramatically across the western United States due to a confluence of factors, including: (a) the historically cold weather in this region in December, (b) unusually low gas storage levels across the region, (c) constraints on the availability of natural gas supplies flowing into California, and (d) an increased reliance on natural gas in the electric power sector as a result of the ongoing drought's impact on hydroelectric supplies. The monthly price decreased to $12.5/mmbtu in February.

The extreme market conditions this winter impacted most utilities throughout the Pacific and Rocky Mountain regions of the United States and were not unique to Palo Alto. Palo Alto's Mayor Lydia Kou sent a letter to Governor Newsom in support of the request for a federal investigation of high natural gas prices. From December 2022 to February 2023, our communications team utilized various channels to inform our customers about high gas prices and resources to help customers with higher than anticipated bills, and to promote gas conservation and home electrification. These channels included publishing articles on our city website, sending email newsletters/bill inserts, featuring an opinion column in Palo Alto Online, and utilizing social media channels.

Gas Commodity Cap Increase

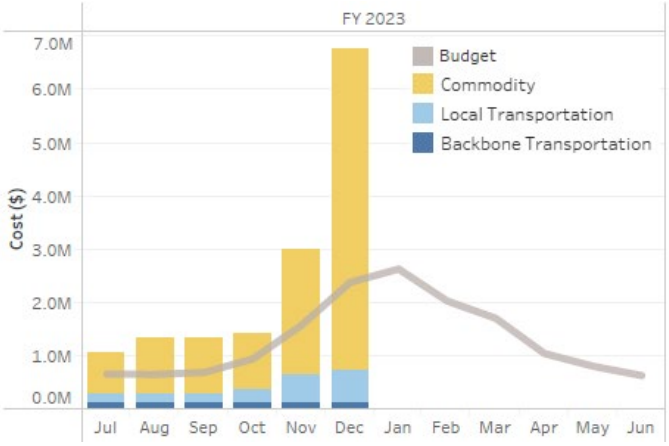
In early December, staff noticed the trend of rapidly increasing gas prices and suspected that the monthly market index price might surpass the gas commodity price cap of $2/therm. Staff recommended and the Council passed Resolution #10090, which doubled the gas commodity price cap to $4/therm, effective January 1, 2023. However, the actual January 2023 gas market commodity monthly price was approximately $0.95/therm higher than the updated price cap. Therefore, the gas utility will not be able to fully recover the pass-through rates from customers, which will have a negative impact on gas reserves. The figure below illustrates the actual and projected Palo Alto gas commodity rates and the Citygate price settled in January 2023. It is expected that the projected commodity rates beyond February 2023 will return to levels below $1/therm.

Figure 7: Palo Alto Gas Commodity Rates, Commodity Rate Caps, and Citygate Actual Prices

2.1.1 Actual and Forecasted Supply Costs

Actual gas demand through Q2 of FY 2023 was about 3% lower than forecasted, while actual supply and transportation costs were about 114% higher than budgeted in the FY 2023 Financial Plan. Gas commodity prices were much higher than predicted in the FY 2023 financial plan due to reasons mentioned in section 2.1 above.

Figure 8: Gas Supply Costs ($), Actual vs Budget, up to FY 2023-Q2



	Budget	Actual	Variance	Variance %
Jul	667,541	1,039,946	372,404	56%
Aug	659,409	1,332,201	672,791	102%
Sep	696,972	1,348,782	651,810	94%
Oct	949,560	1,407,786	458,226	48%
Nov	1,581,034	2,992,590	1,411,556	89%
Dec	2,387,025	6,750,434	4,363,408	183%
Jan	2,638,627			
Feb	2,036,749			
Mar	1,712,571			
Apr	1,051,643			
May	812,920			
Jun	638,236			

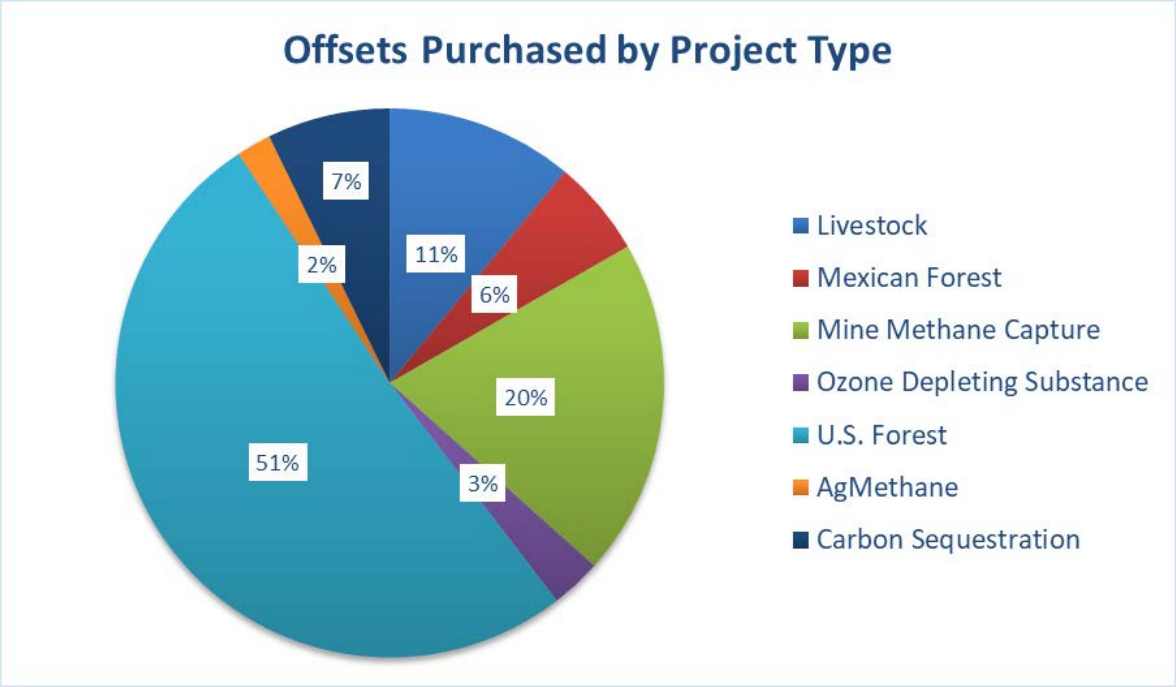
2.1.2 Carbon Neutral Gas Program

In December 2020, Council adopted Resolution #9930 maintaining the Carbon Neutral Natural Gas Plan to achieve carbon neutrality for the gas supply portfolio using high-quality carbon offsets with a cost cap of $19 per ton CO_2e.

Offsets are purchased to neutralize emissions equal to those caused by natural gas usage in Palo Alto. Staff purchased 60,000 carbon offsets for FY 2022 in January 2022 from a mixture of forestry and livestock projects at an average purchase price of $12.26 per metric ton, nearly double the price of historical average transaction prices. Staff purchased an additional 60,000 carbon offsets in June 2022 at an average price of $14.51 per ton CO_2e. As a result of the higher offset purchase costs, staff has updated the billing charge for offsets from $0.04/therm to $0.07/therm. The average purchase price of offsets purchased for the program is $7.66 per ton CO_2e. The figure below shows the composition of offset purchases. Staff is evaluating a process change to expedite

the approval of new Verified Emission Reduction (carbon offset) counterparties and has delayed its regular winter purchase while staff assesses the process change. Staff will issue an RFP to purchase offsets before the end of FY 2023.

Figure 9: Offset Portfolio Composition



The following table provides a description of the projects.

Figure 10: Offset Project Descriptions

Project Name	Project Type	Description
Grotegut Dairy	Livestock	Grotegut Dairy is a 3,900 milk-cow operation in Newton, Wisconsin with a methane capture system.
Green Trees	U.S. Forest	GreenTrees Advanced Carbon Restored Ecosystem is reforestation of agricultural lands into native hardwood forest in Mississippi, Louisiana, Arkansas, and Illinois
San Juan Lachao	Mexican Forest	Protection of forests located in High Biological Value Zones which contain flora and fauna listed in the Mexican Endangered Species List and the International Union for Conservation of Nature's Red List of Threatened Species. Project in San juan Lachao near Palo Alto's Sister City of Oaxaca.
Blandin Forest	U.S. Forest	Blandin Native American Hardwoods Conservation and Carbon Sequestration project in Minnesota.
Pocosin+	U.S. Forest	These projects are all forested land that will not be disturbed by human development. Without this protection, the forests would be converted to grow wheat or corn. Forest conservation plays a vital role in protecting freshwater systems like lakes. The forests around the lakes act as natural water filters and purify the water for all who use it. The projects also support healthy populations of red wolf, bald eagle, black bear, and various bird species.
Refex ODS	Ozone Depleting Substance	The RemTec facility in Bowling Green, Ohio uses an argon arc plasma destruction device to achieve 99.99 percent removal. The majority of refrigerants originated in California, and all were sourced within the United States. The RemTec facility uses an argon arc plasma destruction device to achieve the required destruction and removal efficiency of 99.99 percent. The majority of ODS refrigerants originated in California, and all were sourced within the United States.
Methane Capture	Mine Methane Capture	This project is the first of its kind. Peabody Natural Gas, LLC removed methane from the North Antelope Rochelle Coal Mine before mining. The methane was compressed and transported to a natural gas pipeline and distributed to a national gas grid for use as fuel. Before implementation of the project, all the methane was vented to the atmosphere.
Virginia Conservation Forestry Program	U.S. Forest	The Virginia Conservation Forestry Program - Clifton Farm and Rich Mountain is a 9000+ acre improved forest management project in which the timber and carbon ownership and management rights have been transferred to The Nature Conservancy's Conservation Forestry Program. The program manages for multiple goals to include: Water quality protection, habitat diversity, high value forest products, and carbon sequestration. Co-benefits: Biodiversity, Watershed Protection, Climate Resilience, and Connectivity
Riverview Farm Anaerobic Digester	Livestock	Riverview is a carbon offset project generating emission reductions thought the capture and destruction of methane at a dairy farm in Minnesota. Under the baseline, manure managed in open lagoons led to the fugitive emission of methane to the atmosphere. In the project scenario, this methane is captured by an anaerobic digester and destroyed on site in the production of electricity. Co-benefits include job creation and the improvement of local air and water quality.
Big River / Salmon Creek Forests IFM	U.S. Forest	The Big River and Salmon Creek Forests are located in Mendocino County, CA and cover 16,000 acres of redwood and Douglas-fir forest. This project is a conservation-based forest management project. Co-benefits include the creation of 140 jobs, protection of 37 miles of streams, and improved water quality for local fish and bird species.

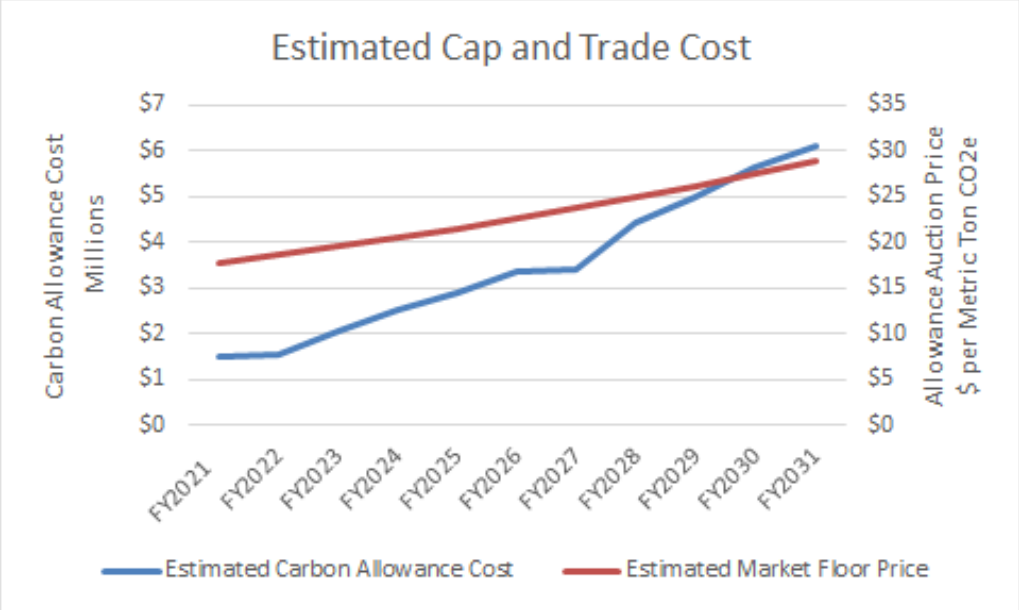
2.1.3 Cap and Trade Program

The gas utility has been regulated under California's greenhouse house (GHG) regulations since January 2015 with a GHG emissions cap that declines over time. The gas utility receives carbon allowances equal to the emissions allowed under the cap and is required to auction off a portion of the allowances (55% in 2022, increasing by 5% annually) through the state Cap and Trade Program. To meet its annual GHG compliance obligation, the City must purchase allowances based on actual gas use.

The auction floor price to either purchase or sell allowances increases annually by 5% plus inflation. Historically, allowances have traded at or near the floor price, but the clearing prices for allowances in the auction have

increased significantly. The cost of compliance is anticipated to increase from $1.5 million in FY 2022 to $5.6 million in FY 2030, about an 18% increase per year on average, as shown in the following table:

Figure 11: Estimated Cap and Trade Costs



Revenues from the auction sale of gas utility allowances (currently about $1.2 million per year) must be used exclusively for the benefit of the ratepayers in that utility in accordance with California Code of Regulations (CCR Title 17, section 95893). Approved uses are 1) the funding of certain energy efficiency rebates, retrofits, and demand reduction programs, 2) funding for programs with demonstrated GHG reductions, 3) non-volumetric return to ratepayers, either on or off bill, and 4) certain administrative, outreach and educational costs related to items 1-3 above. Council adopted a policy on the use of allowance proceeds (Resolution #9487), generally mirroring the regulations and requiring additional Council approval for rebates. Per the current regulations, the utility must either spend or rebate the funds received in any given year within 10 years (for example, funds received in 2020 must be spent by 2030, etc.).

As of the end of FY 2021, unspent funds related to Cap and Trade revenues were placed in a Cap and Trade reserve, until such time as they can be utilized per the dictates of applicable regulations. There was $6.7 million in this reserve available for use at the end of FY 2022.

2.1.4 Gas Transmission Line Capacity Valuation

Palo Alto contracts for capacity on the Redwood pipeline, the path from the California-Oregon border to PG&E's mid-pressure transmission system, at a cost lower than the market value. During the summer months, Palo Alto does not need all of the capacity to serve demand. The excess capacity is monetized by purchasing gas at the California-Oregon border and selling an equal amount of gas at the terminus of the pipeline. The variable cost of transporting the gas is much less than the gas price difference between the two points. The net benefit to the Gas Utility through Q2 of FY 2023 was $169K, or a reduction of about 1.4% of the total gas commodity costs.

2.1.5 Gas Prepay Valuation

On September 15, 2014, Council adopted Resolution #9451 authorizing the City's participation in a natural gas purchase from Municipal Gas Acquisition and Supply Corporation (MuniGas) for the City's entire retail gas load

for a period of at least 10 years. The MuniGas transaction includes a mechanism for municipal utilities to utilize their tax-exempt status to achieve a discount on the market price of gas. The program has reduced about $385K, or 3.2% of the total gas commodity costs through Q2 of FY 2023.

2.2 Capital Improvement Plan Status

The following capital projects are currently in progress:

- **GS-14003 - GMR 24A (Gas Main Replacement 24A):** The GMR 24A project will replace approximately 2,450 linear feet of gas main along Shopping Center Way and Orchard Lane in Stanford Shopping Center. The City coordinated the schedule with Simon Property Group Inc. (shopping center's management) for construction work to occur between 6 AM and 3 PM. The project had a delayed start due to the significant weather events that occurred around the beginning of 2023; therefore, the revised completion date has been extended commensurately from 3/31/23 to 4/13/23.
- **GS-14003 - GMR 24B (Gas Main Replacement 24B):** The GMR 24B project will include gas pipes on University from Webster to 101 and surrounding streets, as well as Geng Rd and Town & Country Village. Staff is waiting for the final federal grant award determination, which will be available in February 2023.

2.3 Rate and Bill Comparisons

The figure below shows the bills for residential customers in Palo Alto and PG&E, at different levels of usage and rates, both on an annual and monthly basis. The PG&E bills are based on their Climate Zone X, which includes Menlo Park, Redwood City, Mountain View, Los Altos and Santa Clara. In 2022, the median residential customer in Palo Alto paid an annual gas bill of $821, which was 11% less than what a PG&E customer with the same usage would pay. However, in January 2023, Palo Alto bills were unusually high due to high gas commodity prices. But it is expected that Palo Alto gas bills will be lower than PG&E's gas bills for the rest of the year.

Figure 12: Residential Natural Gas Bill Comparison ($/month)

Year/Month	Median Usage[6] (therms)	Palo Alto	PG&E Zone X	% Difference
CY 2021	402	$ 631.28	$ 701.60	(14%)
CY 2022	402	821.33	868.62	(11%)
November 2022	32	62.64	76.93	(19%)
December 2022	69	175.06	171.96	2%
January 2023	76	393.57	217.25	81%
February 2023	60	141.08	178.91	(21%)

2.4 Reliability

The City of Palo Alto tracks all gas service interruptions. A summary chart of these interruptions can be found below. Gas service interruptions are usually due to repairs of broken or damaged gas services and mains. This kind of damage is often caused by excavation by outside parties digging in the City.

[6] Based on Palo Alto G-1 monthly median usage.

Figure 13: Gas Service Interruptions, FY 2023

Gas	Q1	Q2
Number of Breaks	9	4
Total Minutes	643	330
Customers Affected	20	5

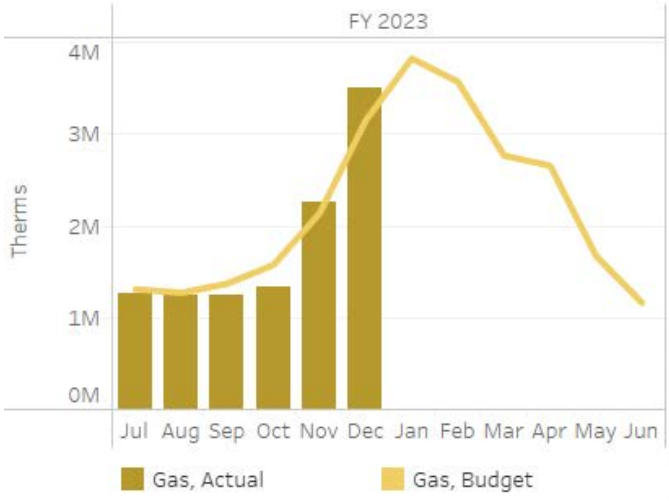
2.5 Financial Health

Below is a summary of the financial position for the gas utility.

2.5.1 Sales Forecasts vs. Actuals

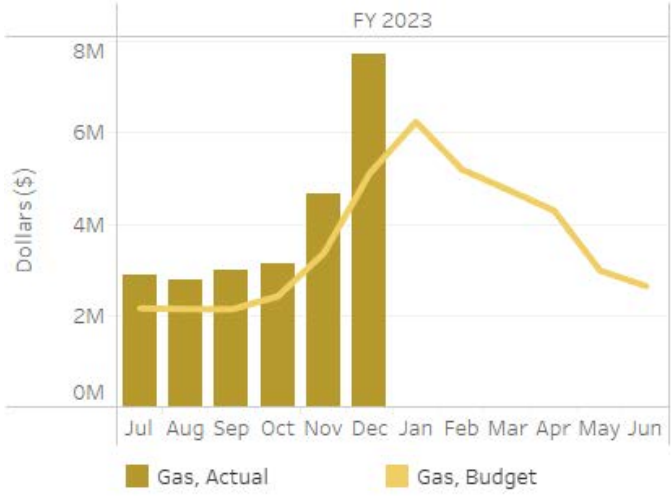
Actual gas sales volumes through Q2 of FY 2023 were about the same as forecasted, while actual sales revenue was about 39% higher than forecasted in the FY 2023 Financial Plan, due to high gas market commodity prices. Much of the revenue is pass-through in nature and offsets commensurately higher gas commodity purchase costs.

Figure 14: Gas Sales Volume (Therms), up to FY 2023-Q2



	Budget	Actual	Variance	Variance %
Jul	1,312,955	1,262,859	-50,096	-3.8%
Aug	1,273,056	1,250,771	-22,285	-1.8%
Sep	1,372,999	1,239,006	-133,993	-9.8%
Oct	1,577,927	1,335,181	-242,746	-15.4%
Nov	2,140,219	2,257,211	116,992	5.5%
Dec	3,153,598	3,500,110	346,512	11.0%
Jan	3,830,945			
Feb	3,575,685			
Mar	2,770,018			
Apr	2,660,158			
May	1,670,754			
Jun	1,162,461			

Figure 15: Gas Sales Revenue ($), up to FY 2023-Q2



	Budget	Actual	Variance	Variance %
Jul	2,158,795	2,880,043	721,248	33.4%
Aug	2,142,170	2,787,192	645,022	30.1%
Sep	2,136,412	2,993,352	856,940	40.1%
Oct	2,420,904	3,129,985	709,081	29.3%
Nov	3,371,129	4,669,267	1,298,138	38.5%
Dec	5,123,807	7,723,463	2,599,656	50.7%
Jan	6,241,688			
Feb	5,195,946			
Mar	4,753,158			
Apr	4,296,964			
May	2,984,368			
Jun	2,644,552			

2.5.2 Financial Position

The FY 2022 ending Operations Reserve balance was $11.3 million, above the minimum guideline level of $7.8 million. The Operations Reserve is expected to drop below the minimum guideline level in FY 2023, given higher than budgeted gas commodity prices that could not be passed through to customers. Through FY 2023 Q2, therm sales volume was approximately the same as budgeted, but sales revenues were almost 39% higher than budget. Because the gas commodity charge is a pass-through of market costs, typically, increased revenue offsets the increased cost; this year in January the revenue was not enough to offset the increased costs because the actual gas commodity price exceeded Palo Alto's price cap. This will put pressure on reserves in FY 2023. Staff will provide financial forecast projections in March 2023.

3 Water Utility

The Water Utility serves water to virtually all Palo Alto residential and non-residential customers. All potable water in the City is from the San Francisco Public Utilities Commission (SFPUC) Hetch Hetchy Water System. This system delivers high quality water from the Sierra Nevada and uses no pumping to deliver water to Palo Alto. Palo Alto uses a small amount of recycled water for irrigation of the Municipal Golf Course and a few other sites near the Regional Water Quality Control Plant. The City also maintains a system of reservoirs and wells that enable Palo Alto to serve water during an interruption of the Hetch Hetchy system. Costs for the Water Utility are split approximately half for the operation, maintenance and periodic replacement of Palo Alto's water system and half for the costs of the water purchased.

3.1 Water Supply and Transmission

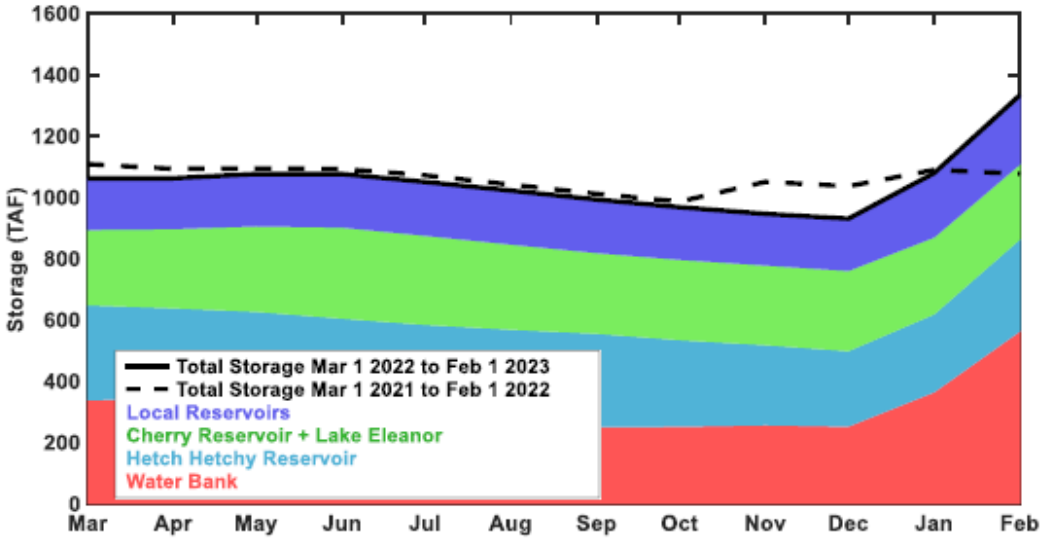
On November 10, 2022, Governor Newsom's senior Water-Policy Officials, the San Francisco Public Utilities Commission (SFPUC), and the Modesto and Turlock Irrigation Districts reached agreement on a Memorandum of Understanding to provide greater water flows and increased habitat for the Tuolumne River. The Bay Area Water Supply and Conservation Agency (BAWSCA) anticipates that this MOU will become a part of a larger voluntary agreement for the Sacramento-San Joaquin Delta. The agreement includes investments of $64M for habitat restoration. The next step is for the MOU signatories and others to work out the implementation details of a Bay-Delta-wide voluntary agreement for evaluation by the State Water Resources Control Board as an alternative to the adopted Bay-Delta Plan. The State Water Resource Control Board's schedule indicates development of the Tuolumne Specific Addendum Scientific Basis Report by fall 2023 and the Phase 1 Final Water Quality Control Plan by summer 2024.

In August 2018, Palo Alto's City Council voted to support the State Water Resources Control Board's Bay-Delta Plan to have 40 percent of natural water in the Central Valley to enter the Delta from February to June and associated Southern Delta salinity objectives; and send a letter expressing this policy position to BAWSCA, California State Water Resources Control Board, San Francisco Public Utilities Commission (SFPUC), and other stakeholders.

As a result of the above average precipitation in December 2022 and January 2023, storage in the San Francisco Regional Water System is above normal for this time of year. As of January 30, 2023, the Regional Water System total storage operated by the San Francisco Public Utilities Commission (SFPUC) was 90.8% full (normal system storage for this time of year is 80.3%). As of January 30, 2023, Water Bank was 99.2% full. In the figure below, the solid black line shows storage in the Regional Water System for the past 12 months (color bands show contributions to total system storage) and the dashed black line shows total system storage for the previous 12

months. Regional Water System Storage increased in December 2022 and January 2023 to 1.33 Thousand Acre Feet (TAF) as of February 1, 2023.

Figure 16: Regional Water System Storage



On August 20, 2021 the SFPUC received curtailment orders for Tuolumne River diversions. The curtailments eliminate access to the Water Bank which, as shown in the figure above, provides much of the system storage. From October 2021 through May 2022, the State Board suspended the curtailments and reinstated them on June 8, 2022. It is uncertain what action the State Board will take regarding curtailments during 2023.

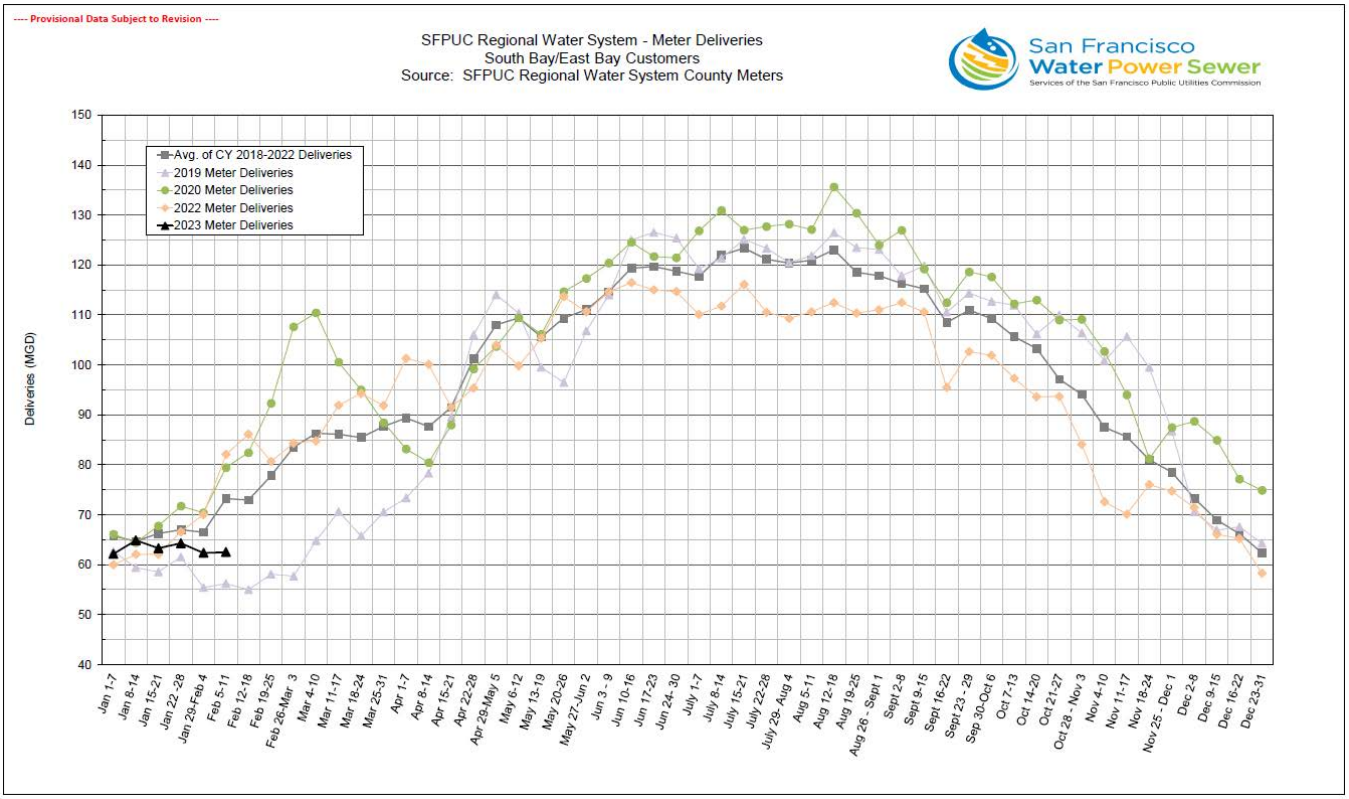
The SFPUC declared a local water shortage emergency by Resolution No. 21-0177 on November 23, 2021, calling for voluntary systemwide 10% water use reductions from FY 2019-2020 levels and increased the systemwide water use reduction to a voluntary systemwide 11% from FY 2019-2020 levels on May 24, 2022 via adoption of Resolution No. 22-0098. SFPUC increased the systemwide water use reduction in compliance with the State Water Resource Control Board's May 24, 2022 emergency regulation requiring urban water suppliers to implement the demand reduction actions associated with water shortage level of 10% to 20% by June 10, 2022. Each Wholesale Customer has its own requested cutback level; Palo Alto's voluntary water purchase cutback level is 8%. For January – December 2022, Palo Alto's cumulative monthly water budgets were 4,382,357 CCF while actual total purchases were approximately 4,652,227 CCF or 6% above the budget. This is in part because of the exceptionally dry conditions in January through March 2022. However, for the billing months July 2022 through December 2022, compared with the same period from July 2019 to December 2019, the Palo Alto community reduced water usage by 11%. On January 31, 2023, SFPUC sent Palo Alto the initial water supply availability estimate stating that while rainfall, snowpack, and reservoir storage indicate a strong probability that SFPUC will be able to meet full customer demand this year, at this time, SFPUC is not making any changes to its reduction request. For the moment, SFPUC is continuing to monitor both water supply conditions and State actions regarding its emergency drought declaration, which is still in effect. SFPUC plans to provide a final water supply availability memo in early April.

During droughts that require up to 20% cutbacks, water is allocated between San Francisco and the Wholesale Customers collectively based upon the Water Shortage Allocation Plan (or Tier One Plan) that is outlined in Palo Alto's water supply contract with San Francisco. The collective Wholesale Customer share from the Tier One Plan is then allocated among Wholesale Customers based upon a formula in a negotiated and adopted "Tier Two Plan."

Palo Alto's current water budget is based upon the results of the current Tier One and Tier Two Plans. Since January 2022, staff have been participating in a negotiation with the other Wholesale Customers to update the Tier Two Plan. Staff expects to finalize the updated Tier Two Plan in 2023.

The figure below shows water usage for the South Bay/East Bay (including Palo Alto) compared to several benchmarks including 2019. For the South Bay/East Bay region as well as systemwide, demand in the first six weeks of 2023 has been below or equal to the average of the last five years.

Figure 17: SFPUC Water Deliveries



Valley Water, the groundwater manager in Santa Clara County, declared a water shortage emergency and adopted a 15% mandatory water use reduction for water retailers its agency serves. Valley Water called for the County, water retailers and cities to restrict ornamental landscape and lawn irrigation with potable water within their service or jurisdictional areas to no more than two days per week. Although Palo Alto purchases all of its potable water from SFPUC, and does not purchase any water from Valley Water, Palo Alto partners with Valley Water on wide variety of water conservation programs. On June 20, 2022, the Palo Alto City Council restricted potable irrigation of ornamental landscapes and lawns to 2 days per week, except to ensure the health of trees and other perennial non-turf plantings. The State Water Resources Control Board also prohibited the use of potable water for the irrigation of "non-functional turf" at commercial, industrial, and institutional sites other than to the extent necessary to ensure the health of trees and other perennial non-turf plantings.

The Palo Alto City Council also implemented the water use restrictions in Stage II of the Water Shortage Contingency Plan which are 1) restaurants and other food service operations shall serve water to customers only upon request and 2) operators of hotels and motels shall provide guests with the option of choosing not to have towels and linens laundered daily. Palo Alto is working with Valley Water on messaging to customers in the county

to avoid confusion as much as possible. As such, the City's messaging will continue to emphasize the wise use of water rather than specific water usage targets. Palo Alto staff is continuing to focus on education and outreach and providing resources to eliminate water waste and achieve efficient water use and completed the process of hiring a Water Waste Coordinator in October. The Water Waste Coordinator is logging and following-up on water waste reports. Palo Alto is kicking off the WaterSmart Customer Portal and Residential Home Water Report Program and also re-engaging with Waterfluence software to target water efficiency for large landscape customers. Staff continues to promote rebate programs and resources through online outreach, bill inserts, and newsletters.

Palo Alto launched the One Water Plan with the goal of Council adoption of a One Water supply plan that is a 20-year adaptable roadmap for implementation of water supply and conservation portfolio alternatives. In June the City Council approved a contract for this work with Carollo Engineers, Inc. In September and December 2022, staff conducted stakeholder engagement meetings with community members and City staff focusing on One Water community needs and priorities and water supply and conservation options and draft evaluation criteria. The community can still weigh in on the evaluation criteria via this survey. Additional stakeholder engagement meetings are planned with City staff, community members, and regional partners in spring 2023 to share initial results. The UAC received a status update in February 2023 (Staff Report #14974) and staff plans to schedule a joint meeting with the UAC and Stormwater Oversight Committee in Q2 of 2023 to provide an update and share initial results.

3.2 Capital Improvement Plan Status

The following capital projects are currently in progress:

- **WS-14001 - WMR 28 (Water Main Replacement 28):** The WMR 28 project replaces approximately 18,763 linear feet of water main and 256 water services in the Crescent Park, Barron Park, and Charleston Meadows neighborhoods. Construction of this project started during April 2022 and the anticipated completion date is in December 2023.
- **WS-07000 – California Avenue and Page Mill Road Turnouts:** The California Avenue and Page Mill Turnouts project upgrades the California Avenue Turnout and adds seismic restraints to the pressure reducing valve at Page Mill Road Turnout. The construction is anticipated to start in March 2023 and be completed by June 2023 (before water demand increases during the summer).

3.3 Rate and Bill Comparisons

The figure below shows the water bills for single-family residential customers compared to what they would be under surrounding communities' rate schedules as of October 2022. CPAU is among the highest monthly bills of the group. Palo Alto's water bills at 9 CCF per month are 17% higher than the comparison group average.

Figure 18: Residential Water Bill Comparison ($/month)

As of October 2022						
Usage CCF/month	Palo Alto	Menlo Park	Redwood City	Mountain View	Santa Clara	Hayward
4	$50.74	62.83	$54.04	$43.47	$29.32	$41.03
(Winter median) 7	76.54	87.32	76.09	67.29	51.31	63.23
(Annual median) 9	98.46	103.65	90.79	83.17	65.97	78.03

(Summer median) 14	153.26	148.02	138.94	122.87	102.62	123.48
25	273.82	257.41	267.39	257.81	183.25	223.47

3.4 Reliability

The City of Palo Alto tracks all water service interruptions. A summary chart of these interruptions can be found below. Water service interruptions are usually due to repairs of broken or damaged water services and mains.

Figure 19: Water Service Interruptions, FY 2023

Water	Q1	Q2
Number of Breaks	10	12
Combined Minutes	1007	1050
Customers Affected	46	249

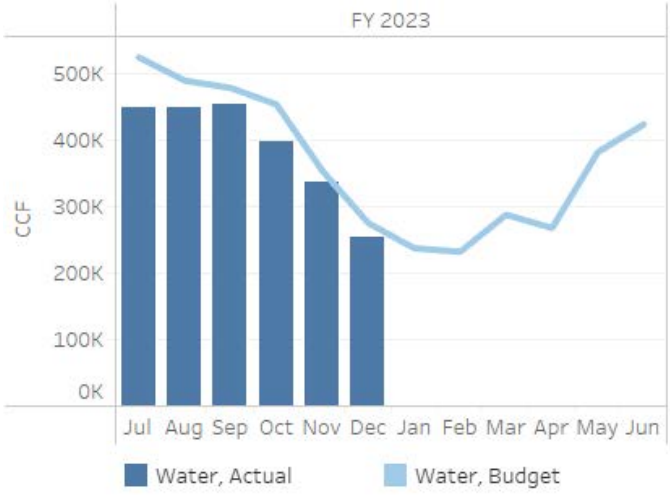
3.5 Financial Health

Below is a summary of the financial position for the water utility.

3.5.1 Sales Forecasts vs. Actuals

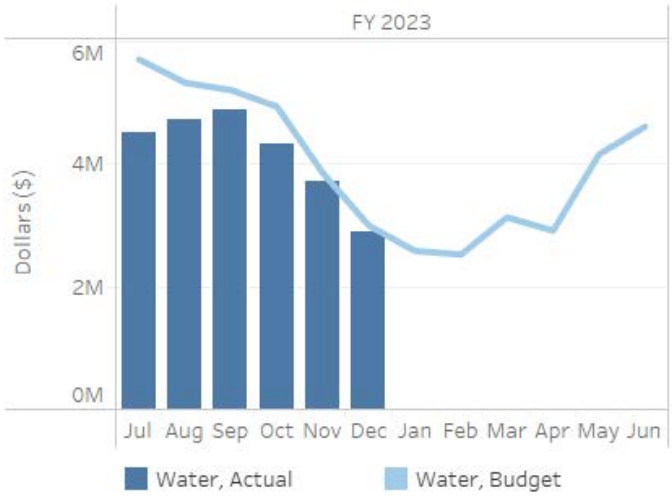
Actual water sales volumes through Q2 of FY 2023 were about 9% lower than forecasted, while actual water sales revenues were about 11% lower than forecasted in the FY 2023 financial plan. Sales were lower likely due to the water conservation efforts made throughout the drought periods, coupled with rainy weather during the winter. Staff will continue to promote drought-related and water savings communication through the rest of FY 2023.

Figure 20: Water Sales Volume (CCF), up to FY 2023-Q2



	Budget	Actual	Variance	Variance %
Jul	525,621	449,495	-76,126	-14.5%
Aug	490,256	449,699	-40,557	-8.3%
Sep	479,291	454,552	-24,739	-5.2%
Oct	454,425	398,947	-55,478	-12.2%
Nov	354,487	335,898	-18,589	-5.2%
Dec	275,706	254,318	-21,388	-7.8%
Jan	237,777			
Feb	232,409			
Mar	288,269			
Apr	268,185			
May	382,762			
Jun	424,508			

Figure 21: Water Sales Revenue ($), up to FY 2023-Q2



	Budget	Actual	Variance	Variance %
Jul	5,702,307	4,505,935	-1,196,372	-21.0%
Aug	5,318,642	4,707,270	-611,372	-11.5%
Sep	5,199,686	4,867,131	-332,555	-6.4%
Oct	4,929,922	4,317,455	-612,467	-12.4%
Nov	3,845,724	3,708,580	-137,144	-3.6%
Dec	2,991,053	2,892,403	-98,650	-3.3%
Jan	2,579,572			
Feb	2,521,336			
Mar	3,127,345			
Apr	2,909,460			
May	4,152,472			
Jun	4,605,362			

3.5.2 Financial Position

The Water Operations Reserve was filled to the maximum guideline level at the end of FY 2022 as higher bid costs and delays in project schedules resulted in deferred main replacement projects over the past few years. There are additional funds in the Operations Reserve above the maximum guideline level that will continue to be used to cover water utility operational and capital costs in FY 2023. At year end FY 2022 there was approximately $12.2 million in Water CIP Reappropriations and Commitments reserves. The FY 2023 Water Utility CIP includes a main replacement (WMR 28) as well as one-time seismic reservoir upgrades (one upgrade is complete and a second and third are planned in FY 2023 and FY 2026). At year end FY 2022, there was also $10.7 million in the CIP Reserve and $9.07 million in the Rate Stabilization Reserve. Due to the ongoing drought and water conservation efforts, the water utility's sales revenue declined in FY 2022 by approximately $3.4 million compared with sales revenue in FY 2021. The water utility used reserves to cover costs in FY 2022 and plans to continue to use reserves in FY 2023 while ongoing drought or drought recovery continues to reduce sales revenues. Staff's preliminary projection of expected revenues and expenses together with transfers from the CIP Reserve, estimates the Operations Reserve will reach approximately target levels by the end of FY 2024. Staff will continue to monitor drought conditions and respond to calls for voluntary or mandatory conservation. Staff will evaluate and propose reserve transfers between the Rate Stabilization Reserve, CIP Reserve, and Operations Reserve in the annual Financial Plans in March 2023.

4 Wastewater Utility

The Wastewater Utility includes the system of sewer pipes that collect and transport wastewater to the Regional Water Quality Control Plant (RWQCP) operated by the City of Palo Alto under a partnership agreement with several surrounding communities, as well as Palo Alto's share of the cost of operating the RWQCP. The RWQCP provides treatment and disposal of wastewater for Palo Alto. Costs for the Wastewater Utility are split approximately half for the operation, maintenance and periodic replacement of Palo Alto's sewer collection system and half for the costs of wastewater treatment at the RWQCP.

4.1 Wastewater Treatment Updates and Capital Planning Status

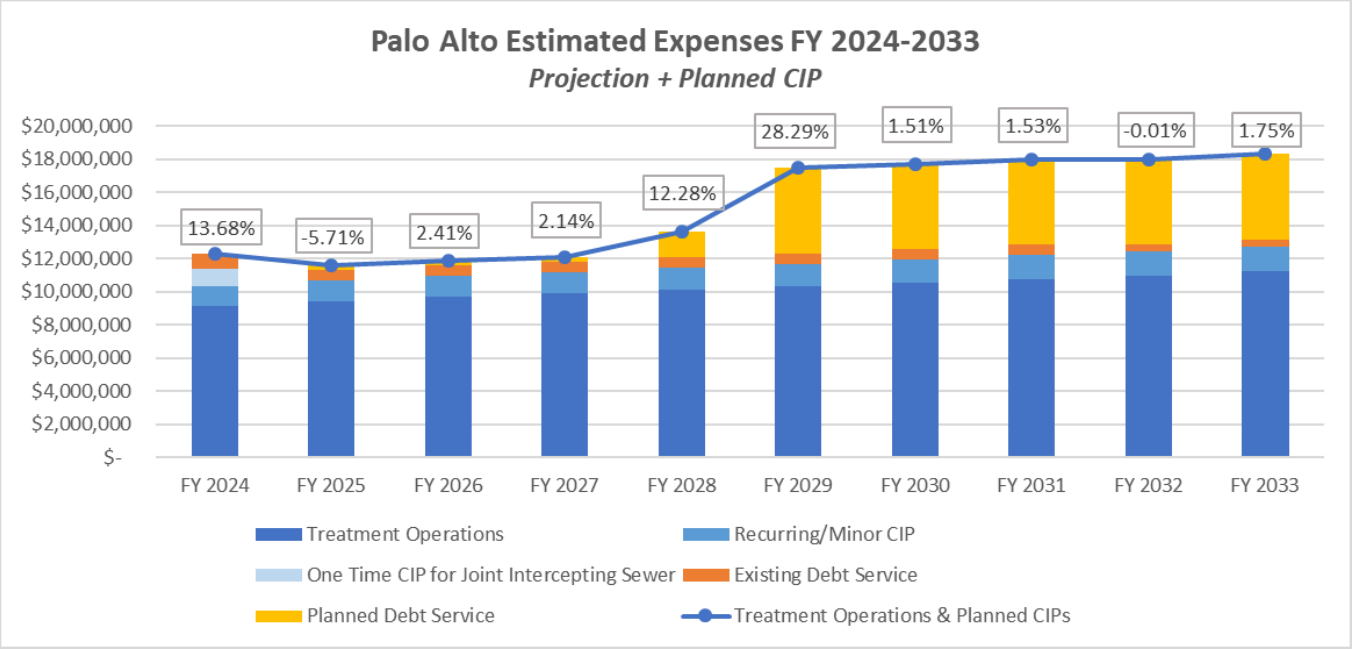
The Regional Water Quality Control Plant is operated by Palo Alto's Public Works Department and provides wastewater treatment to Palo Alto, Mountain View, Stanford, Los Altos, East Palo Alto and Los Altos Hills. The Palo Alto Wastewater Collection Utility pays its share (approximately 30% projected in FY 2024) of the costs for wastewater treatment and disposal. Capital costs for wastewater treatment are a major driver for cost increases for the Wastewater Treatment Utility and by extension for the Wastewater Collection Utility. The RWQCP is facing the need for major upgrades in coming years, due to aging equipment and changing environmental regulations. Rehabilitation and replacement of plant equipment that has been in use for over 40 years is necessary to ensure the city can continue to provide wastewater treatment operations safely and in compliance with regulatory requirements for the discharge of treated wastewater 24 hours a day.

4.1.1 Treatment Cost Trends

RWQCP staff project treatment costs paid for by Palo Alto's Wastewater utility to increase by approximately 4.5% annually on average from FY 2024 through FY 2033. A key driver of the increases are capital projects, parts, materials and debt. The treatment capital expenses, including debt service costs, are increasing at an average of about 9.5% per year from FY 2024 through FY 2033 to keep up with ongoing replacement of aging equipment. Larger increases to capital expenses are expected to begin in FY 2024 in the form of new debt service for major projects to implement the Plant's capital program. The figure below shows Palo Alto's share of each component of estimated treatment costs. Major upcoming capital projects and estimated years for debt service to begin are reflected in the "Planned Debt Service" bar in the figure below and include:

- Joint Interceptor Sewer Rehabilitation (FY 2024)
- 1900 Embarcadero Road Purchase; Primary Sedimentation Tank Rehabilitation (FY 2025)
- Outfall Line Construction, Operation Center and Laboratory (FY 2028)
- Secondary Treatment Upgrades, Headworks Facility (FY 2029)

Figure 22: Palo Alto's Share of Estimated Wastewater Treatment Expenses (Projection and Planned CIP)



The figure above shows the ongoing annual CIP reinvestment ("Recurring/Minor CIP" and "Existing Debt Service") as well as treatment operations costs, which make up the majority of the treatment costs but are not growing as quickly as the planned debt service. Factors that are contributing to cost increases for treatment operations are rising salary and benefits costs, allocated charges for centralized city services needed to support wastewater treatment fund operations, increased water and air permitting fees from the Regional Water Quality Control Board and Bay Area Air Quality Management District, commodity rates to operate the facility, and chemical expenses.

4.1.2 Regional Water Quality Control Plant Capital Planning Status

The Long-Range Facilities Plan, completed in 2012, guides the capital plans for the RWQCP. The RWQCP's current capital work in-progress includes an estimated $398 million in projects. The following table summarizes these ongoing projects and provides their status and costs.

Figure 23: Current RWQCP Capital Work In-Progress (based on RWQCP November 2022 Partners Meeting)

Project	Status	Expense (million $)
Primary Sedimentation Tanks Rehabilitation and Equipment Room Electrical Upgrade	Construction	$19.4
New Outfall Pipeline	90% Redesign	$17.4
Secondary Treatment Upgrades	Awarding Construction	$193
Advanced Water Purification System	90% Design	$56
Technical Services Building/Lab Building, Ops Building Remodel	Advanced Planning	$41.4
Buy 1900 Embarcadero Road	Planning	$6.0
Headworks Facility Replacement	Budgeted	$48.6
Joint Interceptor Sewer Rehabilitation	30% Design	$5.6
Projects in Progress	Various	$10.6
	Subtotal	**$398**

The largest projects listed above include the Headworks Facility Replacement which involves replacement or rehabilitation of the parts of the facility that pump raw sewage to the main treatment works (the headworks), and rehabilitation of primary sedimentation tanks that separate out primary sludge. Additionally, the RWQCP anticipates regulations to limit nutrient discharges (on total nitrogen) into the San Francisco Bay. The current secondary treatment design cannot remove nitrogen and the Secondary Treatment Upgrades will address this regulatory change as well as address aging mechanical and electrical equipment that must be replaced.

The RWQCP plans to fund these capital projects through a combination of mechanisms including State Revolving Fund loans, and revenue bonds. In addition, Valley Water will be providing $16 million of funding for the Advanced Water Purification System. Additionally, Palo Alto was awarded a $12.9 million grant for the Advanced Water Purification System from the United States Bureau of Reclamation's WaterSMART program, which allocates Title XVI Program funding under the Water Infrastructure Improvements for the Nation (WIIN) Act .

4.2 Collection System Capital Improvement Plan Status

The following capital projects are currently in progress:

- **WC-17001 - SSR 30 (Sanitary Sewer Replacement 30):** The SSR 30 project replaced approximately 9,649 linear feet of wastewater main and 195 sewer laterals in the Ventura, Research Park, Fairmeadow, and Midtown West neighborhoods. The construction will be substantially completed in early February 2023.
- **WC-19001 - SSR 31 (Sanitary Sewer Replacement 31):** The SSR 31 project replaces approximately 11,000 linear feet of wastewater main, sewer laterals, and manholes on El Camino Real and Page Mill Road. The bids are due in early February and construction is anticipated to start in July of 2023. 40% of the work will be performed during nighttime due to Caltrans' restriction to close 2 traffic lanes during daytime. Staff is coordinating with Caltrans and County of Santa Clara to stay ahead of their street improvement/paving projects. The SSR 31 contractor is expected to work 2 shifts during the day and night to expedite the sewer replacement and avoid digging into Caltrans or County's newly paved streets.

4.3 Rate and Bill Comparisons

The figure below shows the wastewater monthly bill for residential customers in Palo Alto compared to what they would be under surrounding communities' rate schedules as of November 2022. Palo Alto's monthly sewer bill is

lower than four of the six neighboring communities. Menlo Park in this table refers to the West Bay Sanitary District. Staff will report on future rate increases once they are adopted by the wastewater utilities.

Figure 24: Residential Wastewater Bill Comparison ($/month)

As of November 2022						
Palo Alto	Menlo Park	Redwood City	Mountain View	Los Altos	Santa Clara	Hayward
$44.62	$106.67	$89.28	$50.10	$42.05	$46.82	$38.58

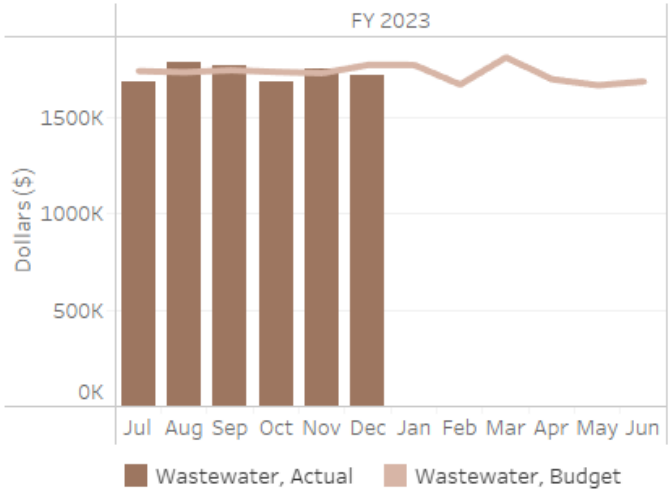
4.4 Financial Health

Below is a summary of the financial position for the wastewater utility.

4.4.1 Sales Forecasts vs. Actuals

Actual wastewater sales revenues through Q2 of FY 2023 were around expectation, at about 0.7% lower than forecasted in the FY 2023 Financial Plan.

Figure 25: Wastewater Sales Revenue ($), up to FY 2023-Q2



	Budget	Actual	Variance	Variance %
Jul	1,739,132	1,685,896	-53,236	-3.1%
Aug	1,733,213	1,786,224	53,011	3.1%
Sep	1,743,637	1,763,529	19,892	1.1%
Oct	1,734,767	1,682,448	-52,319	-3.0%
Nov	1,728,399	1,745,624	17,225	1.0%
Dec	1,771,013	1,716,142	-54,871	-3.1%
Jan	1,770,711			
Feb	1,669,155			
Mar	1,810,061			
Apr	1,696,732			
May	1,665,374			
Jun	1,684,910			

4.4.2 Financial Position

The Wastewater Collection Operations Reserve was within the guideline range at year end FY 2022; the CIP Reserve had a balance of approximately $3.2 million at year end FY 2022 and staff will seek Council approval in the FY 2024 Wastewater Collection Financial Plan to access funds in the CIP Reserve if they are needed for CIP projects in FY 2023. The Wastewater Collection Utility CIP Reappropriation and Commitment Reserves totaled $4.6 million at the end of FY 2022. Rising main replacement costs as well as the need to accelerate main replacement to prudently manage the City's infrastructure together with rising wastewater treatment costs is placing pressure on the wastewater utility's reserves. Staff will provide financial forecast projections in March 2023.

5 Fiber Utility

The City offers a "Dark" fiber service providing a fiber connection from Palo Alto businesses to the downtown Internet Exchange. At the exchange businesses select an internet service provider (ISP) for bandwidth and connection speed.

5.1 Fiber Utility Strategic Planning

On December 22, 2022 the Council approved construction of the fiber backbone and Fiber-to-the-Premises (FTTP) under a phased approach without debt financing (Staff Report #14800, Packet Pg. 268). Utilities will allocate approximately $34M from the Fiber Fund and $13M from the Electric Fund to build the fiber backbone and build phase one of the FTTP distribution network under a phased approach. Under this approach the City can build a dedicated fiber backbone for the Electric utility to enhance reliability, security, redundancy, and future electric-related initiatives such as automated SCADA sensors. The City will also be able to provide internet access to approximately 20% - 30% of homes and residents who prefer to switch to City-owned ISP. Council can decide whether to accelerate or decelerate the FTTP expansion plan in one or two years based on the results of phase one. In addition, the City will evaluate the feasibility of integrating FTTP expansion into future capital improvement projects such as electric grid modernization, electrification and undergrounding.

Staff recommends amending the contract with Magellan to provide professional consulting and technical services for construction of the fiber backbone build, construction of phase one of FTTP, and provisioning of City-owned ISP business. However, due to procurement conflict-of-interest rules, Magellan is precluded from offering services for construction and construction management.

Utilities will be bringing forward a recommendation to add four (4) new FTE positions for the dark fiber expansion and implementation of FTTP as part of the FY 2024 Utilities Proposed Budget. The titles of these positions are Assistant Director, Outside Plant Manager, Marketing and Sales Manager and Network Architect/Senior Engineer. These positions will be recruited and filled as needed during the various stages of the project

5.2 Capital Improvement Plan Status

Given Council's approval of construction of phase one of FTTP, CPAU will create a new FTTP CIP project under the fiber utility in the FY 2024 Fiber CIP Budget. Staff will return to UAC and Council to determine potential areas for phase one construction. Staff will identify synergies to reduce construction costs and minimize community disruption between the fiber FTTP and electric Grid Modernization CIP projects.

5.3 Reliability

There were no unplanned fiber outages or events to report in Q3 of FY 2023.

5.4 Financial Health

Below is a summary of the financial position for the fiber utility.

5.4.1 Fiber Sales

Actual dark fiber revenues for Q1 FY 2023 were $1.6 million, which is within the FY 2023 revenue forecast of $3.6 million. Based on the number of new dark fiber applications, staff projects annual fiber revenues will return to pre-pandemic level of $4.5 million by end of FY 2024. To expand the dark fiber business, CPAU has a hired a full-time Fiber Market Analyst to promote dark fiber and reduce fulfillment time for new applications. In addition, CPAU is recruiting for a dedicated Fiber Engineer to support the fiber expansion project.

Actual fiber expenses for Q1 FY 2023 were $1.3 million which is comprised of salaries and benefits ($0.7 million), contract expenses ($0.1 million), administration overhead ($0.4 million), and transfers to other utilities ($0.1 million).

5.4.2 Financial Position

The projected ending FY 2022 Fiber Optic Utility Rate Stabilization Reserve is $34.0 million.

6 Customer Programs (Efficiency and Sustainability)

The City's Utilities Department maintains a number of programs to help customers save money, use energy and water efficiently, and reduce carbon emissions. These programs are funded through a variety of funding sources, some of which are summarized below.

6.1 Customer Programs Updates

Below is a summary of the City's energy and water efficiency programs, as well as programs to encourage building electrification and adoption of electric vehicles.

6.1.1 Energy and Water Efficiency

Energy & Water Efficiency Workshops

The City in partnership with the Bay Area Water Supply and Conservation Agency (BAWSCA) held three landscape efficiency workshops in fall 2022. The workshops covered topics on harvesting rainwater, steps to take to design and convert lawns into drought-tolerant landscapes, and available rebates. Attendance was strong, with more than 91 residents total participating in the workshops.

Figure 26: Schedule of CPAU Workshops September - November 2022

Event #	Date	Event
1	9/24/2022	Rain Barrel Workshop
2	10/18/2022	Landscape Design 101
3	11/1/2022	Lawn Conversion 101

Please visit the BAWSCA website for a complete list of available classes and events at: https://bawsca.org/conserve/programs/classes. All past Landscape Class Videos are available online at: https://bawsca.org/conserve/landscaping/videos/. For updates on future events and workshops, please visit http://cityofpaloalto.org/workshops

With collaboration from the City Manager's Office, Planning and Development Services and the Utilities Department, a Making Better Choices in Your Home Workshop was held on Saturday, October 15 from 10 a.m. – 1 p.m. at Mitchell Park Community Center. Over 200 attendees learned about different climate-friendly choices they can make in their home, including displays of heat pump water heaters, and experts answering questions about induction cooktops, electric vehicles, e-bikes, water saving and the advantages of going all electric.

Residential Energy and Water Programs

The Home Efficiency Genie program continues to provide residents with professional advice and information to improve their home's efficiency and comfort, lower their energy and water usage and get guidance on home electrification options. Even with the Genie returning to in-home comprehensive and diagnostic assessments in the fall of 2021, the virtual option developed during COVID continues to be a service that residents are interested in. The Home Electrification Readiness Assessment (HERA) was also amended to include a virtual version during COVID. Both the in-home and virtual versions continue to help residents assess home electrification upgrades that their home can accommodate and provide actionable next steps. Between October and December of 2022, the Genie performed 14 comprehensive in-home assessments, 11 HERAs and 3 virtual assessments.

CPAU's Residential Energy Assistance Program (REAP) for income-qualified customers continues to reach our most vulnerable population offering energy and water efficiency improvements at no cost to the customer. Residents who are newly qualified for CPAU's Rate Assistance Program (RAP) are notified each month of their eligibility for these free upgrades installed by CPAU's vendor, Synergy. Between October and December of 2022, 6 new REAP customers have taken advantage of the free efficiency upgrades, with projects including building envelope improvements, furnace replacements with high efficiency models, and lighting upgrades to LEDs.

For our multifamily (MF) property owners, CPAU continues to offer the Multi Family Plus (MF+) program which offers free energy efficiency upgrades installed by our vendor, Synergy. These upgrades include lighting upgrades to LEDs and whole building envelope upgrades.

CPAU partners with Valley Water to offer a robust portfolio of water conservation programs and rebates for residents and businesses. On July 1, 2022, the City entered into a new cost-sharing agreement with Valley Water which increases rebate amounts for converting turf into drought-tolerant landscapes and includes a new Lawn to Mulch rebate program for commercial customers. As drought conditions continue, CPAU is focusing outreach on reducing outdoor water use and continues to encourage participation in rebates and resources.

Bay Area SunShares Program

For the seventh year in a row, the City of Palo Alto is an outreach partner for Bay Area SunShares, a solar and battery storage group-buy program administered by Building Council for Climate Change (BC3). Palo Alto's participation as an outreach partner helps CPAU customers receive information and discounted prices from vetted contractors. Three solar installers (Solar Technologies, SkyTech Solar, and Infinity Energy) have been vetted and selected through an RFP process. CPAU Palo Alto had the highest number of SunShares registrations with 161 registered residents and number of solar and storage contracts signed (32 contracts). Of the 32 contracts signed, 23 contracts were for solar only, 8 for solar and storage, and 1 for storage only.

Business Advantage Program

As of February 3, 2023 the Business Advantage Program (BAP) has ended. The decision to sunset the program was based on lower customer participation, long lead times of installers, growing customer complaints and key staff turnover. During the last full quarter of the program only two installations were completed. In contrast, the program's monthly average in first three quarters was 9 installations. Also, the BAP customer implementor Gridpoint had an ongoing issue with program installers. During the second and third quarter of CY 2022 the installer resigned and then renegotiated the install fee causing long lead times for installation and equipment commissioning. The program received a steady stream of customer dissatisfaction with the Honeywell provided thermostat. Customers complained of the lack of functionality and frustration with interface. Customer

dissatisfaction in the last quarter of CY 2022 caused several businesses to request uninstalls. Lastly, key program staff, lead salesperson and program manager, left the company. The new sales staff was 100% remote with no plans for face-to-face sales. Despite CPAU's decision not to continue offering the HVAC system controller, the program was a success. The program was designed for relief during the COVID 19 pandemic. Seventy-five small business customers took advantage of the GridPoint Energy Management system (GEM). Staff is considering replacement program with stricter alignment of S/CAP goals and electrification.

Commercial & Industrial Energy Efficiency Program

As of February 1, 2023, Enovity has 15 projects in process with 362,000 kWh savings. The Key Account Representatives have been actively reaching out to engage customers with direct email contacts and setting up face to face meeting.

Figure 27: Energy Efficiency Program Energy Savings

Project Name	Date	Facility Address	kWh Savings
1050 Arastradero LED Phase 2	09/21/21	1050 Arastradero	38,211
3165 Porter LED Phase 2	09/21/21	3165 Porter St	54,070
801 Welch LED	09/21/21	801 Welch	42,457
3375 Hillview Chlr Replacement	10/21/21	3375 Hillview	0
855 CA Chlr RCx	10/25/21	855 California	48,600
LPCH Main LED	12/10/21	725 Welch Rd	0
Tesla 3500 Deer Creek	02/14/22	3500 Deer Creek	0
1189 Welch LED	03/07/22	1189 Welch	178,844
Stanford Shopping Center LED	05/18/22	660 Stanford Shopping Center	0
CPI	06/10/22	811 Hansen Way	0
CPI Power Supply	06/10/22	811 Hansen Way	0
LPCH Main Ventilation Reduction	09/30/22	725 Welch Rd	0
1050 Arastradero Economizer	09/30/22	1050 Arastradero	0
855 CA Chlr RCx Phase II	09/30/22	855 California	0
875 Blake Wilbur Controls Upgrade	01/11/23	875 Blake Wilbur	0
			362,182

Business Customer Rebates, formerly Commercial Advantage Program

The Business Customer Rebate (BCR) remains the primary program for customers to apply for rebates for energy efficiency and electrification projects installed at customers sites. City of Palo Alto Utilities (CPAU) offers rebates to commercial, industrial, and public sector customers to upgrade their equipment to energy-efficient products. In May 2022, BCR was expanded to offer electrification rebates to incentivize customers to retrofit gas space heating, water heating and cooking equipment with efficient electric alternatives. This program has limited participation as business customers continue to implement projects at a slow pace. As of February 1, 2023, only two projects have been implemented, with approximately 185,00KWH saved.

Business Energy Advisor

The Business Energy Advisor program is progressing, having 7 new site assessments and 2 project feasibility studies completed in Q2 FY 2023. There continues to be a heavy focus on outreach and promotion of this new

program with the CLEAResult call campaign reaching over 600 customers, direct emails to 115 past CPAU program participants, and 2 e-newsletters sent to 8,073 subscribers. We have continued in person outreach, making numerous visits to businesses on California Ave., University Ave., and San Antonio Rd. The next steps for this program include more outreach via a direct postcard mailer, resuming in person outreach and implementing this program into the EECP database system for tracking and reporting.

6.1.2 Building Electrification

With sustainability continuing to be a Council priority, staff recognizes the need to promote the importance and benefits of building electrification (BE) while removing barriers to voluntary electrification efforts in existing buildings. Current work covers three areas of activities: public outreach, customer program development and implementation, and strategy and policy development.

For public outreach, staff participated throughout 2022 in meetings with Working Group teams developed through the Council's Ad Hoc Committee.

For residential customer programs, staff negotiated a 3rd party program administrator for the implementation of a full-service heat pump water heater (HPWH) installation program. The program aims to retrofit 1,000 gas water heaters in single family homes in a year; customers can choose to pay for the project upfront or select an on-bill financing option with 0% interest rate. The program contract with 3rd party vendor Synergy was approved by Council on October 3, 2022. Enthusiasm in this program has been high with 382 residents having signed up on the online interest list as of March 6, 2023. Synergy began site assessments for HPWH installation in late February and have scheduled 12 assessments through March 9, 2023. Lessons learned from this program will include understanding challenges with deploying a large-scale electrification effort, which will be used to inform the development of future electrification programs.

For strategy and policy development, Utilities staff collaborated with Planning & Development Services to develop building electrification requirements as part of the City's Green Building Ordinance for the 2023-2025 building code cycle. Staff solicited stakeholder inputs in multiple public meetings between June and August 2022. Staff presented the proposed requirements to City Council in October; Council unanimously approved the requirements in November 2022. The following building electrification requirements became effective on January 1, 2023:

- All-electric design for new construction projects; this applies to low-rise residential buildings, detached ADUs, multifamily buildings, and nonresidential buildings.
- Addition/alteration projects that meet the "Substantial Remodel" definition will trigger the all-electric requirements. For the purposes of electrification, substantial remodel shall mean the alteration of any structure, including cumulative projects or additions to the existing structure within any three (3) year period, that affects the removal or replacement of 50% of the linear length of the exterior weight-bearing walls of the building, 50% of the wall plate height is raised, and/or 50% of the roof structural framing.
- Prohibit the extension of gas infrastructure in existing buildings to outdoor amenities such as pools, spas, fireplaces and grills in order to minimize the carbon footprint of these equipment.
- Require heat pump water heater when the existing water heater is replaced, or new water heater is added as part of a residential addition or alteration project.

Collectively these proposed requirements will avoid over 3,420 MT CO_2-e per year, about 1% to 1.5% of the remaining emissions reductions needed to achieve the 80x30 goal (about 1.5% to 2% when upstream emissions from fuel use are included).[7]

Business Electrification Technical Assistance Program **(BE TAP)**

For commercial customers, staff partnered with CLEAResult in the launch of the Business Electrification Technical Assistance Program (BE TAP) in August 2022. This program offers free electrification assessment and technical assistance to implement building electrification projects to a variety of business types including but not limited to hotels, restaurants, churches, and office buildings. To date, program outreach activities include call campaigns, e-newsletters, and utility bill inserts. A total of 5 site assessments have been completed in Q2 FY 2023.

6.1.3 Electric Vehicles

Palo Alto continues to facilitate the installation of EV charging infrastructure throughout the City to support mass EV adoption, with equitable access for multifamily and income-qualified residents, as well as workplaces, public parking lots and retail areas. Correspondingly, cross-departmental work is progressing on proposals for fleet electrification.

Financial Overview

FY 2022 EV program related expenses were $1.3M, of which $0.465M was for the second installment of the CALeVIP program, $286k was contribution to the Clean Fuel Rebate (CFR) program, $121k for EVTAP (Electric Vehicle Technical Assistance Program) management by CLEAResult, and $170k in customer rebate payments. Revenues for the year is $1 M, lower than anticipated a year ago due to declining market prices for LCFS credits. As of 6/30/2022, the LCFS program fund had a reserve balance of $7.23M.

Summary of All EV Programs for Multi-family (MF) Properties and Workplaces

- **Mission:** The EV team's mission is to facilitate the installation of EV chargers to support increased EV adoption with a priority on MF properties. To reach 80 by 30 S/CAP goals, it is imperative that there is enough charging infrastructure for residents, commuters and visitors. For residents, the priority is to close the MF EV access gap, as only 13% of EVs in Palo Alto are registered at MF buildings, while MF makes up 42% of households.
- **Goal of EV Programs:** Expand EV charging accessibility to 10% of MF households (about 1,100 homes) by 2025.
- **Why:** Most middle-income and low to moderate-income residents in Palo Alto live in MF housing. EVs provide significant lifetime household savings, and yet those who most need those savings have the hardest time gaining EV charging access due to the challenges associated with installing chargers at MF properties. Private industry is not adequately serving this market, whereas the City is well-positioned to support this hard to reach and slower to move customer segment, making meaningful use of available City funding sources for EV promotion.
- **Target Customer Segment:** MF property owners, Home Owners Associations (HOAs), nonprofits, owners of small medium businesses and buildings, as well large C&I customers.
- **What CPAU can provide:**
    - Trusted, neutral advisory services (rather than vendor sales services) with a direct connection to internal City staff to facilitate problems.

[7] Using 20-year global warming potentials.

  - Technical assistance (site evaluation, including electrical capacity, business case development, project design, obtaining bids, preparing permit packages)
  - Incentives (both for charging equipment and distribution upgrades)

- **Strategy:** Facilitate development of shared Level 2 chargers in multi-family buildings as well as, as many Level 1 chargers as can be installed. Size electrical infrastructure to enable the building owner to add more EV charging ports in the future. Also, encourage the installation of low-power Level 2 chargers when appropriate as a grid-friendly strategy to increase EV charging options for as many EVs as possible.

Aggregated Results to-Date for All EV Programs Targeting Multi-family (MF) Properties and Workplaces

- **Program Commencement:** December 2017 (multi-family rebates), October 2019 (multi-family/nonprofit technical assistance), December 2019 (workplace charging rebates)
- **Leads:** Over 130 sites have enrolled in the programs, of which 86 are multi-family properties representing over 3400 units
- **Results:** When the active projects are completed, the City will have:
  - Facilitated access to EV charging for over 1500 multi-family housing units. Without accessible charging facilities these residents are unlikely to consider an EV.
  - Access to EV charging for employees of several non-profits and workplaces.
- **Marketing Strategy:** Of Palo Alto's 803 multi-family (MF) buildings, focus on the largest 5% (44 sites) which represent 32% of total MF units (about 3800 households). Also, partner with affordable housing providers which represent over 1600 low-income households at 35 sites of which 5 properties have 100 units or more. Outreach consists of direct outreach to property owners via call campaigns, with marketing done by the 3rd party program provider, CLEAResult.

Updates by EV Program

- **EV Technical Assistance Program (EVTAP)**

  Goal: Facilitate the installation of 180-360 ports @ 60-90 sites (By 2024)

  Offer technical assistance for the installation of EV chargers at Non-Profit and MF properties, involving a series of site visits, technical evaluations, engineering reviews, and design proposals, culminating in the landlord receiving contractor bids, followed by assistance submitting a building permit, applying for incentives and project management of the installation. Completed projects have taken up to 2 years to reach completion.

  As of the end of February 2023:

  - 85 signed Program Participation Agreements sites enrolled and working through the program
  - 34 sites with contractor bids
  - 11 permit applications submitted
  - 3 installations complete
  - 35 new EV charging ports installed
  - Currently proposed EVSE installations
    - 208 Level 1 charging ports
    - 505 Level 2 charging ports

- **EV Charger Rebate Program**

  Goal: Incentivize the installation of EV chargers at Non-Profits and Multifamily properties. CPAU currently offers up to $8,000 per port for up to 10 ports. Currently looking into lowering rebate levels due to

increased demand for rebates and a decreased income from Low Carbon Fuel Standard credits (see 6.2.1). The program is also considering putting a time limitation on fund reservations, to accelerate projects reaching completion.

As of the end of February 2023:

- 32 ports installed in CY2022
- Since the launch of this program in 2017, CPAU has facilitated the installations of 126 new EV charging ports/connectors at 16 sites. The breakdown of the installation sites: 7 MF and 9 non-profits (including 3 schools). Avg. cost of each port: $10k and projects have averaged 12 months to complete.

- **California Electric Vehicle Infrastructure Project (CALeVIP)**

  Goal: Facilitate and Incentivize the installation of EV chargers at commercial sites.

  As of January 2023, a total of $1.6M (out of $2M) has been reserved by 10 site owners through CALeVIP, a commercial EV charging, matching grant program sponsored by the California Energy Commission (CEC). The proposed installations could lead to the installation of 165 Level 2 ports and 12 DC Fast Chargers.

  - 0 installations completed
  - 10 sites enrolled and working through the program (1 hotel, 7 office sites, 1 retailer and 1 multi-unit dwelling)
  - 6 Permit Applications Submitted
  - 5 Permits Issued
  - Potential for 165 Level 2 ports and 12 DC Fast Chargers

- **EV Awareness and Outreach**

  Goal: Raise awareness, answer questions and encourage residents to consider transitioning to electrified modes of transportation, including electric cars, e-Bikes and other modes of clean transportation. CPAU is offering a wide array of EV classes and events, partnering with multiple vendors and organizations. In 2022, CPAU hosted over 30 EV and electrification online workshops and in-person events with over 2,000 attendees. From January through mid-February 2023, CPAU hosted three virtual EV educational workshops with a total of 264 participants in attendance. CPAU anticipates offering over two dozen online and in-person workshops and events during calendar year 2023.

  January – mid-February 2023:

  - 3 EV education and outreach events completed

Figure 28: Tentative Schedule of CPAU EV Workshops and Events, February - April 2023

Event #	Date	Event
1	2/28/2023	E-Bike 101 (online workshop)
2	3/8/2023	E-Bike 101 (online workshop)
3	3/15/2023	EVs for Backup Power (online workshop)
4	3/26/2023	EVSpecial EVent: EV ScaEVenger Hunt @ Cal Ave. Farmers' Market
5	3/28/2023	EVs for Backup Power (online workshop)
6	4/5/2023	Trilingual EV Financial Incentives Clinic (online workshop)

7	4/15/2023	E-Bikes in the Park w/ EV Expo @ Mitchell Park
8	4/30/2023	EV Expo @ Congregation Etz Chayim

Visit http://www.cityofpaloalto.org/workshops for information on upcoming classes.

- **City-Owned EV Chargers**

  Goal: Install EV Charging Infrastructure for the public as well as City-fleet.

  As of the End of December 2022:

  - 124 - City-Owned Ports
  - 120 - Publicly accessible EV Charging ports
  - Newest chargers: 6 ports at renovated Junior Museum on 1451 Middlefield Rd.

- **Transformer Upgrade Rebate Program**

  Goal: Provide discounts to defray the cost of utility distribution system upgrades triggered by EV applications, costs that would otherwise be borne by the customers. With this program we are offering up to $100K for MF & non-profits and up to $10K for Single Family Homes

  As of the End of December 2022:

Many older properties in Palo Alto, especially multifamily buildings, have limited electric capacity to accommodate EV chargers and building electrification. Yet, there is a nationwide transformer supply shortage, potentially delaying customer EV projects. In the meantime, the EV team is working closely with Engineering and is conducting a pre-screening of transformer loading for all commercial EV projects enrolled in EVTAP as well as proposing designs utilizing existing electric capacity.

6.2 Funding Sources for Emissions Reductions

Energy efficiency and water efficiency programs have traditionally been funded by electric, gas, and water rate revenues. To fund emissions reduction programs, the City has developed multiple alternative funding sources

6.2.1 Low Carbon Fuel Standard (LCFS) Program

LCFS base credits are allocated by the California Air Resources Board (CARB) to CPAU, based on the number of EVs registered in Palo Alto, the estimated miles travelled and the difference in carbon intensity of transportation fuels and electricity. Credits are also allocated based on CNG dispensed and electricity dispensed at city owned EV chargers. The sales proceeds of these credits are the source of funds for CPAU's customer programs related to EVs. In CY2022, Palo Alto received approximately 15,000 credits and is expected to result in a revenue of about $0.9M. LCFS credit prices have declined substantially in in 2022 compared to 2021, down from approximately $130/credit to $60/credit.

6.2.2 Cap and Trade Program, Revenue from Allocated Allowances

The Global Warming Solutions Act of 2006, also known as Assembly Bill (AB) 32, authorized CARB to develop regulations to lower the state's greenhouse gas (GHG) emissions to 1990 levels by 2020. CARB developed a cap-and-trade program as one of the strategies to achieve the 2020 goal. Under the cap-and-trade program, an overall limit on GHG emissions from capped sectors is established and facilities subject to the cap are able to trade permits (allowances) to emit GHGs. Senate Bill 32 (2016) expanded upon AB 32 by requiring a 40% reduction in GHG emissions below the 1990 levels by 2030.

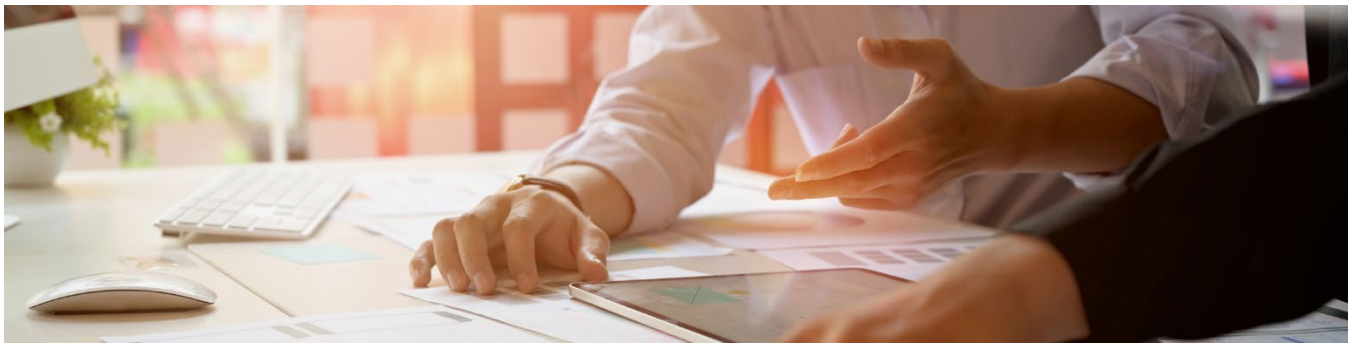
In 2012, CARB's cap-and-trade program commenced and certain covered entities, such as electricity generators and other stationary sources of GHGs, had a compliance obligation under the new program. The City of Palo Alto Utilities' (CPAU's) electric utility does not own or operate fossil fuel-based electricity generation covered by the cap-and-trade regulations. CPAU also received free allowances from CARB to mitigate the costs of reducing its GHG emissions. Since CPAU's electric utility is carbon neutral and typically has no need to use the allowances for compliance, it must sell them into the cap-and-trade auction.

Allowance revenues, estimated to be around $3 million in 2022 and onward, can be used for several approved purposes, including: a) purchases or investment in renewable resources (outside Palo Alto or locally) for the electric portfolio; b) investment in energy efficiency programs for the electric portfolio and retail customers; c) investment in other carbon reduction activities, including those required to achieve a carbon-neutral electric portfolio; and d) rebates to electric retail ratepayers.

As of 2021 reporting, some allowances have been utilized to purchase renewable resources while others have been earmarked for future electrification programs (about $1.2 million). Staff is investigating using more of these funds for investments in emissions reduction programs.

6.2.3 Electric Public Benefit Funds

Locally owned municipal utilities like CPAU must collect Public Benefit funds from their electric utility customers as required by section 385 of the Public Utilities Code, to be used on cost-effective energy efficiency and conservation, low-income programs, investments in renewable energy resources and technologies, and research and development. CPAU currently has an Electric Public Benefit surcharge of 2.85% of the electric utility bill for all customers. A portion of this fund can be used for building electrification pilot programs and projects.



7 Communications

This section summarizes communications highlights, updates on major campaigns and noteworthy events. Copies of ads and bill inserts are available online at http://cityofpaloalto.org/UTLbillinsert.

Winter Storms and Power Outages: In January, the Bay Area experienced a series of storms and atmospheric rivers over the course of a few weeks. The City of Palo Alto responded to flooding and other storm-related impacts, including power outages for City of Palo Alto Utilities (CPAU) customers. Director Batchelor shared slides during the Utilities Director report to the UAC in February with an overview of the storm impacts and response. It is important to note that CPAU is currently working with a vendor to launch a new Integrated Voice Response (IVR) and Outage Management Service (OMS) to improve customer communications for outages.

Extreme Energy Prices and High Utility Bills: As discussed with the UAC in December, utilities across the region were impacted by extremely high natural gas prices during the FY 2022-2023 winter. Gas market prices can fluctuate greatly from month to month due to factors such as national weather, gas production, storage levels, as well as national and international trade and demand. Since learning of these higher prices in late November and early December, CPAU has been attempting to inform customers in advance to take action and save energy to try to avoid surprisingly high utility bills in January and February. The City is offering resources to help customers with high utility bill costs, including free energy assessments through the Home Efficiency Genie, bill payment arrangements, and efficiency tips. City Council also recently voted in February to offer rebates to customers for high bills. Customers are asked to contact Utilities Customer Service Call Center for bill assistance.

Ribbon-Cutting for Stanford Health Care EV Chargers: Stanford Health Care recently installed 15 new electric vehicle (EV) charging stations at the Hoover Pavilion garage through participation in the City's Electric Vehicle Technical Assistance Program. Stanford is also in the permitting phase for installing EV chargers at two other garages. The facility held a ribbon-cutting ceremony on February 9 to celebrate this sustainability milestone.

Water Supply and Drought: Staff have been proactive about communicating the current situation of water supply conditions and ever-changing water shortage emergency declarations. While recent storms throughout the Bay Area provided some relief from dry conditions, the state's water supply and snowpack are still below average for this time of year. As a result of the ongoing drought conditions, CPAU continues a robust outreach campaign about water supply conditions, water use restrictions, and resources for water use efficiency. Staff are working with the Bay Area Water Supply and Conservation Agency (BAWSCA) and Valley Water to coordinate public education events. Updates are available at cityofpaloalto.org/water

8 Legislative and Regulatory Activity

8.1 State legislation

At the time of this writing, the 2023 legislative session began six weeks ago and the deadline to introduce new bills is a few days away. Thus far, the legislature has introduced some potentially relevant spot bills, which count as an introduced bill for deadline purposes, while allowing a legislator time to develop substantive language. We are also tracking some fully developed bills that will undergo amendments as part of the regular process. Tracked bills as of February 2023 include those listed below.

Additionally, CPAU partnered with the California Municipal Utilities Association (CMUA) to successfully request that Assemblyman Berman author a bill related to increasing the utility workforce. (Reference Utilities Department Legislative Guideline number 13, "Support government action to expand the workforce in trades and technical disciplines necessary to support building and vehicle electrification and grid modernization.") The bill is in development now and should be formally introduced shortly.

- **AB 9 (Muratsuchi) and SB 12 (Stern)** |*California Global Warming Solutions Act of 2006: emissions limit*. Both bills, repeats of prior failed bills, set the state's 2030 GHG reduction goal from 40% below 1990 levels to at least 55% below 1990 levels.
- **AB 65 (Mathis)** | *Energy: nuclear fission thermal powerplant*. Allows for the development of new nuclear energy facilities in California by removing the current legal prohibition.
- **AB 66 (Mathis)** | *Natural Resources Agency: water storage projects: permit approval*. A spot bill creating a 'water project shot clock' by requiring timely *state* permitting decisions for water supply projects.
- **AB 249 (Holden)** | *Water: school sites: lead testing: conservation*. Requires a water system serving a public or private school with a building constructed before January 1, 2010 to test for lead by January 1, 2027, and to prepare a sampling plan.
- **SB 48 (Becker)** | *Building performance standards.* Spot bill to create building performance standards for improvements in energy efficiency and GHG reductions in large buildings
- **SB 49 (Becker)** | *Tax incentives: solar canopies.* A spot bill to provide tax incentives for the construction of solar canopies over large parking lots to boost the local generation of clean electricity.

8.2 State Regulatory Proceedings

Below are issues currently before state regulatory bodies that CPAU is monitoring, primarily through our work with CMUA and NCPA.

8.2.1 Energy Commission

A 2022 bill required the California Energy Commission to produce a report in January 2023 evaluating how the state, load-serving entities, publicly-owned utilities (POUs), and balancing authority areas managed summer reliability during 2022. In advance of the report's release, CMUA submitted comments related to challenges and opportunities moving forward.

8.2.2 State Water Resources Control Board

The federal EPA anticipates drafting proposed updates to the federal Lead & Copper Rule Standards this fall; the Water Board may develop proposed state standards once the draft federal rule is released.

8.2.3 Air Resources Board

CARB released the final version of the 2022 Scoping Plan update here, with an associated press release here.

8.2.4 Natural Resources Agency

Staff is currently working on our 2023 Wildfire Mitigation Plan, due by July 1. Staff expects to present the draft plan to the UAC in June.

8.2.5 California Public Utilities Commission

The CPUC has a pole database proceeding that CMUA is following, with CPAU participating on workgroup calls. The Administrative Law Judge in the proceeding asks if POUs should be included in possible mandates for development of a pole database, providing information about pole loading and assets to pole attachers.

8.2.6 California Independent System Operator

As mandated by a 2022 Assembly Resolution, CAISO developed a draft report summarizing possible impacts of regionalization. CPAU participated in a stakeholder call discussing the report.

Appendices

9 Appendix A: Energy Risk Management Program

This appendix provides a quarterly update on the City's Energy Risk Management Program.

9.1 Overview of Hedging Programs

The City's Utilities Department maintains a hedging program for its Electric and Gas Utilities. In the Gas Utility the program protects against short-term (intra-month) price spikes caused by weather or major incidents on the Western gas system. However, the City does not hedge its gas supply more than one month in advance, choosing instead to protect the Gas Utility's financial position by passing gas supply costs through to customers via a charge that varies monthly based on gas market prices. As a result, the Gas Utility's only market exposure is the amount by which gas demand deviates from forecasts within the month. This exposure is relatively small and can be managed using Gas Utility Operating Reserves. A risk assessment is performed each year as part of the Gas Utility financial planning process to ensure adequate reserves to cover all risks. The most recent Gas Utility Financial Plan was adopted June 21, 2021 (Staff Report #12240).

The City has entered into long-term contracts for its Electric Utility to ensure that the City has carbon free electricity supplies equal to 100% of Palo Alto's annual electric demand. However, the output from these generating sources does not match Palo Alto's electric load. In the summer, the City has a surplus of carbon free energy and it has a deficit in the winter. This exposes the City to market risk, and staff maintains a hedging program to protect against this risk. In addition, hydroelectric generators make up approximately half the City's energy supply. During dry years these resources do not generate as much energy, creating an additional market exposure that must be hedged. Unlike the gas hedging program, which is operated by City staff, the electric hedging program is operated by the Northern California Power Agency (NCPA), a joint powers agency the City formed in partnership with several other California publicly owned electric utilities, with oversight by City staff.

9.2 Overview of Energy Risk Management Program

The hedging programs described above are conducted in accordance with the City's Energy Risk Management Program, which includes a set of Program Policies adopted by the City Council, Guidelines adopted by the City's Utilities Risk Oversight Coordinating Committee (UROCC), and Procedures approved by the Utilities Director. In addition, for the electric hedging program, NCPA maintains its own Risk Management Program. The City is able to provide policy level oversight of this program through its seat on the NCPA Risk Oversight Committee, which is held by the City's Risk Manager.

Per the Energy Risk Management Policies, the City Council must receive quarterly reports on the City's forward contract purchases, market exposure, credit exposure, counterparty credit ratings, transaction compliance, and other relevant data.

9.3 Forward Deals

Below is a table of forward Electric Resource Adequacy deals and Gas Commodity deals made in Q2 of FY 2023. Palo Alto did not transact any Electric Energy deal in Q2 of FY 2023.

Figure 29: Electric Resource Adequacy Contracts

Delivery Month	Deal Type	Avg Capacity (MW/Mo.)	Avg Price ($/kW/Mo.)	Amount ($)
Jan - Dec '23	Sale	21.15	12.67	$ 3.2M
Jan - Apr, Oct - Dec '23	Sale	14.57	3.79	$0.4M
Jan - Dec '23	Sale	29.29	10.50	$3.7M

Figure 30: Gas Deals (FY2023-Q2)

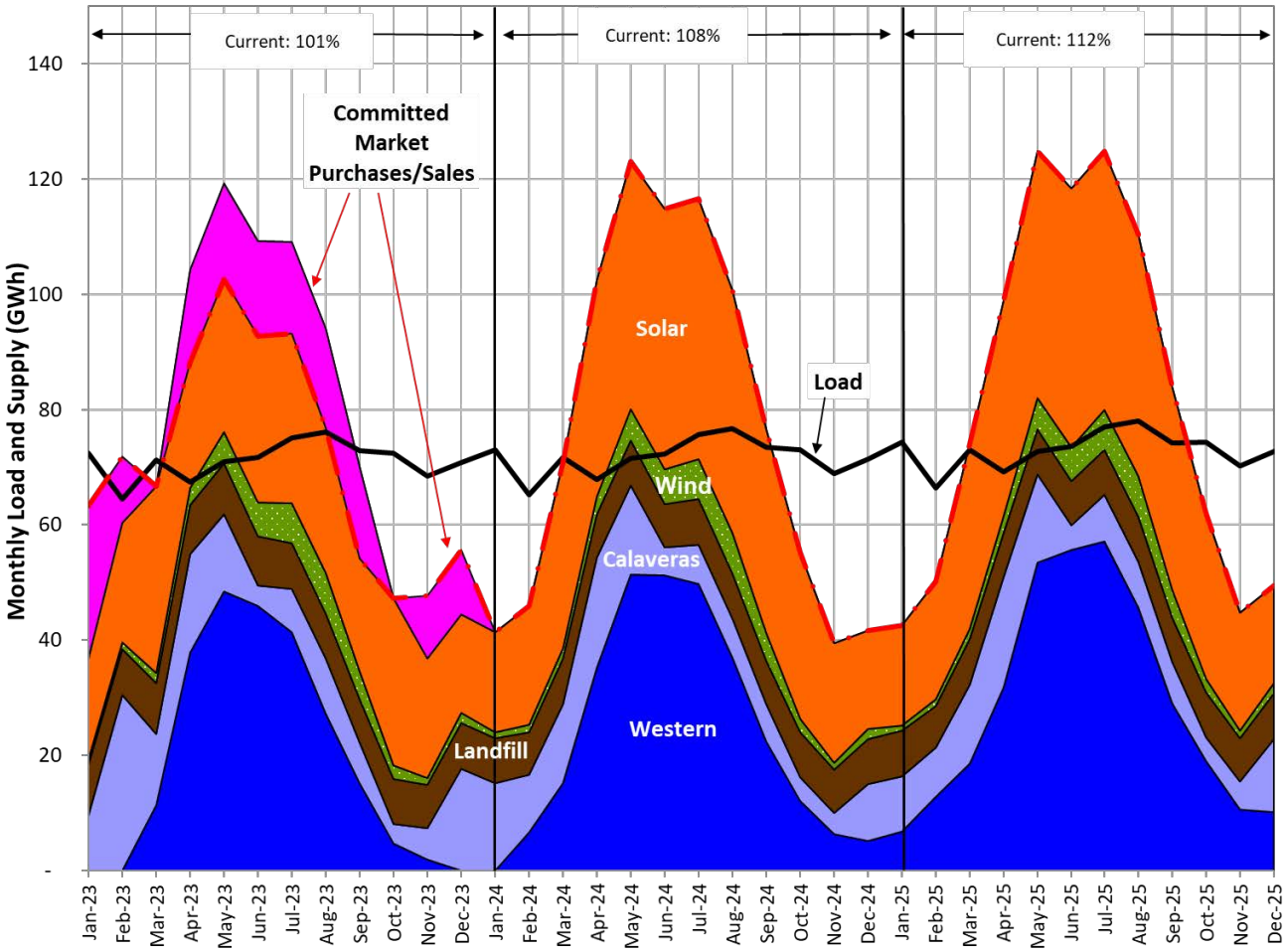
Delivery Month	Deal Type	Delivery Location	Total Volume (MMBtu)	Price ($/MMBtu)	Amount ($)
Nov '22 - Apr '22	Baseload Purchase	Malin	1,081,656	Bidweek Index	Varies
Nov '22 - Apr '22	Baseload Purchase	PG&E Citygate	731,800	Bidweek Index	Varies
Nov '22 - Oct '23	Swing Purchase	Malin	2,181,240[8]	Daily Index	Varies
Nov '22 - Oct '23	Swing Purchase	PG&E Citygate	7,300,000[8]	Daily Index	Varies
Nov '22 - Oct '23	Swing Sale	Malin	(2,181,240)[8]	Daily Index	Varies
Nov '22 - Oct '23	Swing Sale	PG&E Citygate	(1,630,900)[8]	Daily Index	Varies

9.4 Market Exposure

The chart below shows the City's market exposure and committed and planned purchases and sales to cover exposed positions.

[8] Maximum allowed volume

Figure 31: Electric Load Resource Balance, 2023 - 2025



9.5 Transaction Compliance

There are no transaction exceptions or violations to report.

10 Appendix B: Staffing and Vacancies

As of Q2 FY 2023, the Utilities Department has 50 vacant positions out of 253 authorized positions or a 20% vacancy rate. Below is a breakdown of the vacancies by division. The Electric Engineering and Operations (E&O) division continues to have the highest number and hardest positions to fill. Electric Engineering and Operations has a total of 26 vacancies or 29% vacancy percentage (compared to 32% vacancy rate in Q1 2023). The City is actively recruiting for 40 vacant positions. Due to HR staffing constraints, Utilities has designated three HR liaisons from Utilities Administration to assist HR with some of the recruitments. CPAU have attended or will be attending engineering career fairs at Sacramento State University, Cal Poly San Luis Obispo, and San Jose State University.

Figure 32: Utilities Vacancies and Position Movements by Division, up to Q2 FY 2023

Division	Authorized FTEs	Vacant FTEs	Active Recruitments	Vacancy %
Administration	20.5	3	1	15%
Customer Service	23	3	1	13%
Resource Management	25.5	4	1	16%
Electric Operations	69	18	16	26%
Electric Engineering	21	8	8	38%
WGW Operations	70	10	9	14%
WGW Engineering	24	4	4	17%
Total	**253**	**50**	**40**	**20%**

11 Appendix C: Wastewater Utility Annual Infrastructure Maintenance and Replacement Report

In each Quarterly Update the Utilities Department will provide a detailed overview of a single utility's investment and maintenance activity. An update on the wastewater utility was scheduled for this report, it is presented as Attachment B.

Wastewater Utility

Management Overview - 2022

Executive Summary

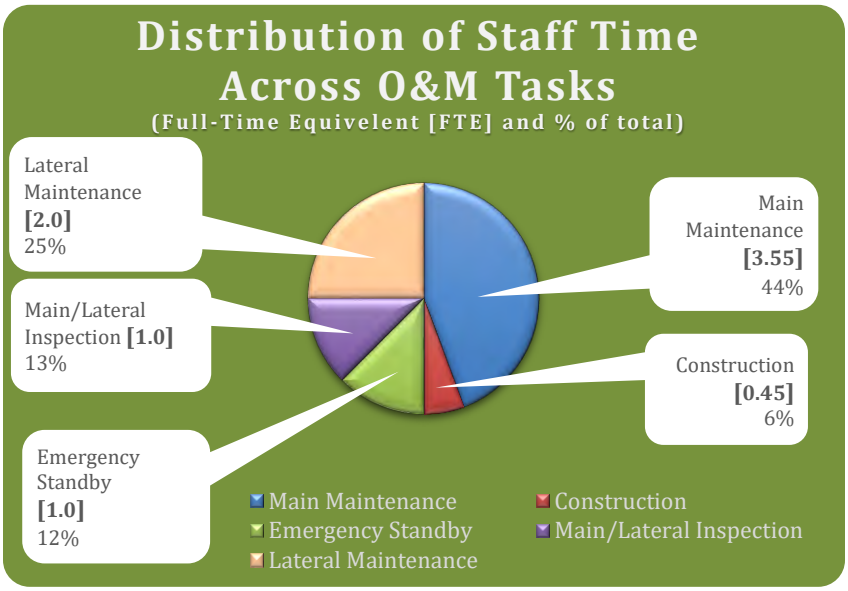
- The City continues to implement scheduled routine preventive maintenance
- Emergency standby team is responding to fewer calls for after-hours activities
- Sanitary Sewer Replacement program continues as proposed in the 5-year CIP budget
- Proposing an improved sanitary sewer replacement program in the FY 2024 Financial Plan to replace aging sewer infrastructure before reaching the end of its useful life

Infrastructure Overview

See Table 2 in this report for an overview of all assets. Infrastructure replacement and maintenance efforts in the next five years include:

- Completion of SSR 31 to replace deteriorated and failed sewer mains and laterals along El Camino Real
- Finalize scope and start design of SSR 32
- As-needed manhole rehabilitation/replacement
- Replacement of problematic laterals with structural defects or recurring issues
- Routine maintenance program for main, laterals, siphons, and lift station
- Routine testing/maintenance of SCADA overflow monitoring devices

System Operations and Maintenance Overview



Asset Management Goals

What are our goals?

- Properly manage, operate, and maintain the wastewater collection system
- Maintain our ability to reliably deliver service to our community
- Repair, rehabilitate, replace, and upgrade system components as needed
- Minimize Inflow and Infiltration (I/I) that takes up system capacity
- Minimize preventable sanitary sewer overflows (SSO) in dry and wet weather
- Maintain an effective SSO response time to reduce overflow impact to public health and the environment
- Provide relevant training for City of Palo Alto Utility staff and contractors in wastewater collection system maintenance, operations, and emergency response

How do we achieve the goals?

- Regularly inspect and maintain the collection system to make sure sewage is flowing properly
- Perform necessary repairs in a timely manner
- Analyze and evaluate historical SSOs to provide recommendations to reduce future risk
- Identify system blockages due to fats, oil, and grease (FOG) and develop strategies to decrease sewer blockages and backups
- Replace assets as they reach end of service life or as their condition deteriorates
- Identify capacity constraints and risks to our collection system and mitigate these issues promptly through appropriate capital improvement projects
- Seek ways to increase our productivity and control costs by completing the work more efficiently

- **Main Maintenance* (3.55 FTE):**
  - **Hydro-flushing:** High-velocity hydroflushing/vacuum truck.
  - **Root/Grease Treatment:** Herbicides, along with grease emulsifying agents are used to control root and Fat, Oils, and Grease (FOG) issues.
- **Lateral Maintenance* (2.0 FTE):**
  - **SOAP** (Sewer Overflow Alternative Program): Using an electric power rodder to clear the roots.
  - **AJAC** (Advanced Jetting and Cleaning): Using a hydrojetting tool to clear sewer blockages.
- **Main/Lateral Inspections (1.0 FTE):** Routine field inspections of mains, laterals, siphons, manholes, and other sewer components (e.g., lift station) using remote Closed-Circuit Television (CCTV) cameras and visual inspections.
- **Emergency Response Team (1.0 FTE):** The emergency response team (ERT) of 2 installers and 1 heavy equipment operator is on standby at all times. The ERT responds promptly to investigate and mitigate sewer issues when calls are received from the City's Dispatch.
- **Construction (0.45 FTE):** Installation of new laterals, pipe repairs, and manhole replacements.

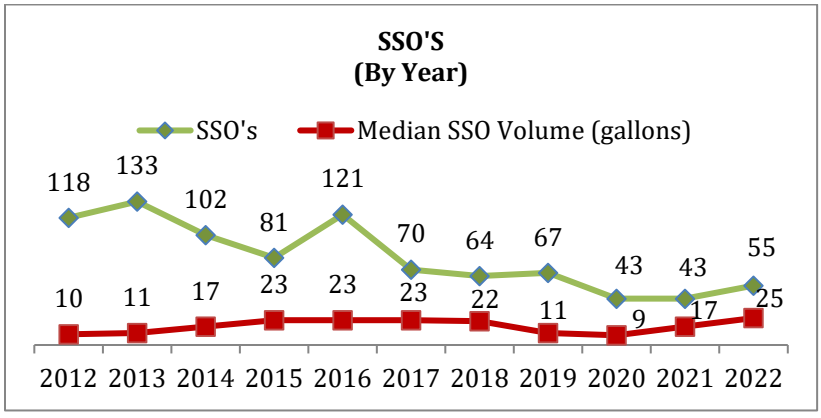
**First priority programs, critical to daily operation*

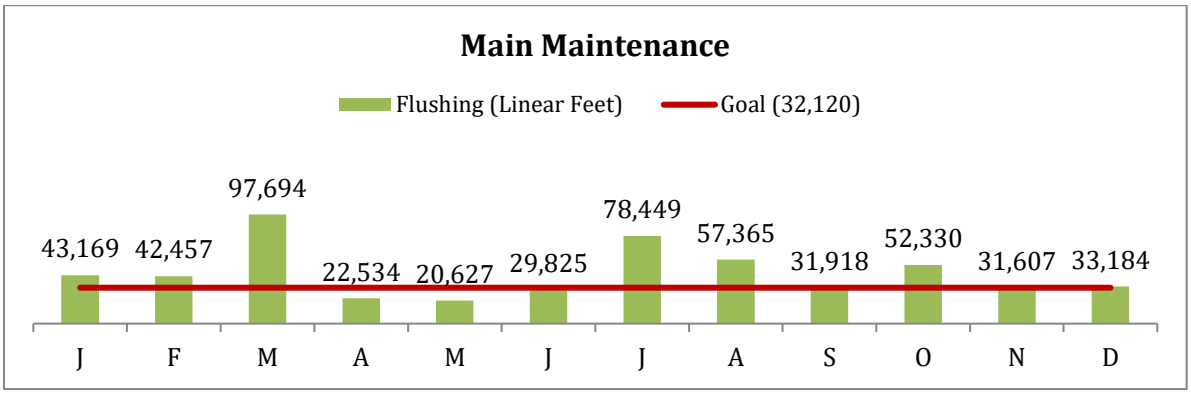
Maintenance Status:

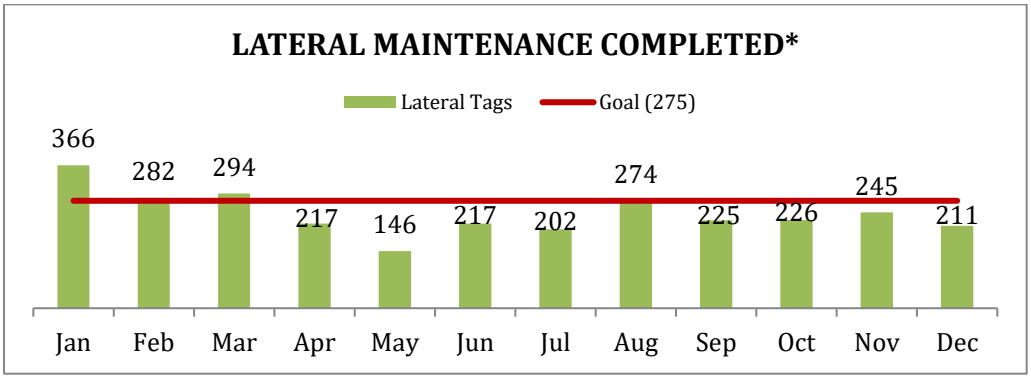
- Essential maintenance programs continue as Operation's primary routine daily task.
- Main/lateral inspection program continues to provide Engineering Division with valuable data from pipe assessment for CIP project prioritization.
- Aging monitoring devices in 39 sewer manholes, used to monitor sewer overflows remotely, are being replaced with new reliable units for accuracy and performance.

Wastewater Maintenance and Construction Charts

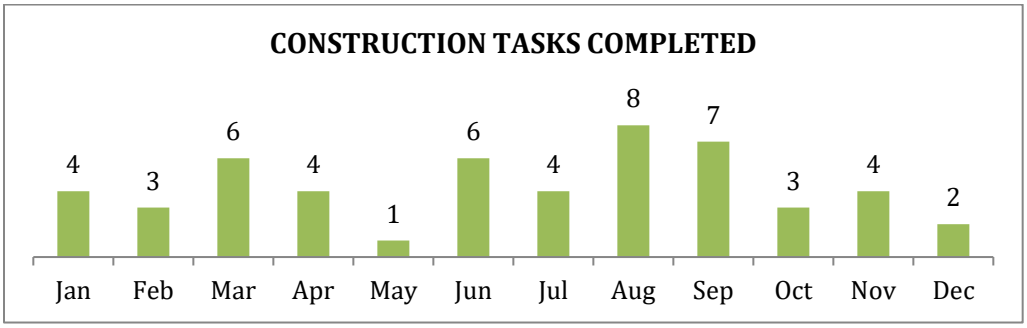
In the past 10 years, sanitary sewer overflows (SSO) have noticeably decreased due to annual maintenance programs and biennial sewer main/lateral replacement projects.







**See Table 1 for explanation.*



Note: The tasks shown include as-needed repair work performed on sewer mains or laterals, as well as new laterals installed or replaced for development services projects.

Table 1: Status of Collection System Operation and Maintenance Programs

System Operation or Maintenance Program	**Status** Green = good Yellow = room for improvement	**Comments**
Lateral Maintenance		SOAP/AJAC tags are completed daily throughout the year. The monthly goal of 275 tags was not consistently met due to staffing issues and scheduling inefficiency. Management continues to make efforts to fill vacant positions. The monthly goal of performing maintenance on 275 laterals per month is also being evaluated to ensure the goal is appropriate and achievable. In addition, staff is evaluating potential opportunities to improve efficiency by scheduling lateral maintenance work by drainage basin to reduce travel time/mobilization between neighborhoods.
Main Maintenance		Flushing of the sewer mains is performed on a regular schedule throughout the year and the City is consistently achieving its overall flushing goal. The monthly goal was not met on three occasions during 2022, but the annual goal of 385,440 L.F. of mains was surpassed this year with City completing 541,159 L.F. of main flushing.
Main/Lateral Inspections (CCTV)		Operations typically implement a scheduled inspection program, however there are times when scheduled work was postponed to focus on special requests in support of capital or development service projects.
Emergency Standby		Wastewater Operations maintains continuous system monitoring program to respond emergency events. A wastewater ERT is assigned to be ready for any on-call emergencies and responds promptly to mitigate any wastewater issues during office and non-office hours.
Construction (Repair main/laterals, new laterals)		An Operations crew is assigned the task to perform construction work for new Development Services installations and emergency repair work for our sewer mains and lower laterals, when work is needed and not included in our Capital Improvement Projects (CIP).

Table 2: Overview of Collection System Assets

Asset Class	**Quantity**	**Maintenance**	**Asset Condition**
Manholes	3,870	Hydro-vacuuming manhole bases for excessive debris and visually inspecting manhole walls for I & I, report to Engineering with recommendations for future replacement.	Old brick manholes are typically replaced with more reliable pre-cast concrete structures. Over time brick manholes introduce groundwater via cracks in bases or wall structures.

Mains and Lateral service	~ 140 miles of mains, ~2,988 services	Most mains/laterals are flushed annually, where as some less severe areas are flushed every 36 months. For high frequency lines, flushing happens every 6 months.	With routine maintenance, our mains and lateral services can be easily assessed by our Operations crew for remaining useful life of our aging sewer assets.
Lift Station / Force main	1 station / ~900 linear feet of 10-inch force main	Wastewater Operations perform routine operational checks of the station once a month and the wet well is cleaned quarterly. Preventive maintenance for mechanical and electrical equipment is done annually by WGW Operations. The station has an audible alarm and is connected through a SCADA system to the Utilities Dispatch Center. The station serves approximately 25 homes and a portable generator is available in the event of power outages.	The Foothill Lift Station currently requires only minor and routine maintenance and is in good condition overall.