



UTILITIES ADVISORY COMMISSION
Regular Meeting
Wednesday, April 03, 2024
Council Chambers & Hybrid
6:00 PM

Utilities Advisory Commission meetings will be held as “hybrid” meetings with the option to attend by teleconference/video conference or in person. To maximize public safety while still maintaining transparency and public access, members of the public can choose to participate from home or attend in person. Information on how the public may observe and participate in the meeting is located at the end of the agenda. Masks are strongly encouraged if attending in person. The meeting will be broadcast on Cable TV Channel 26, live on YouTube <https://www.youtube.com/c/cityofpaloalto>, and streamed to Midpen Media Center <https://midpenmedia.org>.

VIRTUAL PARTICIPATION [CLICK HERE TO JOIN](https://cityofpaloalto.zoom.us/j/96691297246) (https://cityofpaloalto.zoom.us/j/96691297246)
Meeting ID: 966 9129 7246 Phone: 1(669)900-6833

PUBLIC COMMENTS

Public comments will be accepted both in person and via Zoom for up to three minutes or an amount of time determined by the Chair. All requests to speak will be taken until 5 minutes after the staff’s presentation. Written public comments can be submitted in advance to UACPublicMeetings@CityofPaloAlto.org and will be provided to the Council and available for inspection on the City’s website. Please clearly indicate which agenda item you are referencing in your subject line.

PowerPoints, videos, or other media to be presented during public comment are accepted only by email to UACPublicMeetings@CityofPaloAlto.org at least 24 hours prior to the meeting. Once received, the Clerk will have them shared at public comment for the specified item. To uphold strong cybersecurity management practices, USB’s or other physical electronic storage devices are not accepted.

Signs and symbolic materials less than 2 feet by 3 feet are permitted provided that: (1) sticks, posts, poles or similar/other type of handle objects are strictly prohibited; (2) the items do not create a facility, fire, or safety hazard; and (3) persons with such items remain seated when displaying them and must not raise the items above shoulder level, obstruct the view or passage of other attendees, or otherwise disturb the business of the meeting.

TIME ESTIMATES

Listed times are estimates only and are subject to change at any time, including while the meeting is in progress. The Commission reserves the right to use more or less time on any item, to change the order of items and/or to continue items to another meeting. Particular items may be heard before or after the time estimated on the agenda. This may occur in order to best manage the time at a meeting to adapt to the participation of the public, or for any other reason intended to facilitate the meeting.

CALL TO ORDER 6:00 PM - 6:05 PM

AGENDA CHANGES, ADDITIONS AND DELETIONS 6:05 PM - 6:10 PM

The Chair or Board majority may modify the agenda order to improve meeting management.

PUBLIC COMMENT 6:10 PM - 6:25 PM

Members of the public may speak to any item NOT on the agenda.

APPROVAL OF MINUTES 6:25 PM - 6:30 PM

- 1. Approval of the Minutes of the Utilities Advisory Commission Meeting Held on March 6th, 2024
- 2. Approval of the Minutes of the Special Utilities Advisory Commission Meeting Held on March 14, 2024

UTILITIES DIRECTOR REPORT 6:30 PM - 6:45 PM

NEW BUSINESS (a 10 minute break will be imposed during this section)

- 3. Approval of Chair and Vice Chair to Serve a Short Term of April 3, 2024 through April 2, 2025 (**ACTION 6:45 PM – 6:55 PM**)
- 4. Continuation of Staff’s Request for Utilities Advisory Commission’s Recommendation for City Council to Approve the Phase IV Cross-Bore Verification Program (**ACTION 6:55 PM – 7:40 PM**) Staff: Aaron Perkins
- 5. Recommendation to Adopt a Resolution Authorizing the City Manager or Their Designee to Execute an Amendment to the Power Purchase Agreement with Ameresco Half Moon Bay LLC for the Purchase of up to 60,000 Megawatt-Hours per Year of Biogas Energy over a Term of up to 20 Years for a Total Not to Exceed Amount of \$147.2 Million; CEQA Status: Not a Project under CEQA Guidelines Section 15378 (**ACTION 7:40 PM – 8:25 PM**) Staff: Jim Stack, PhD
- 6. Utilities Advisory Commission FY 2024 - 2025 Work Plan (**ACTION 8:25 PM – 9:25 PM**)

COMMISSIONER COMMENTS AND REPORTS FROM MEETINGS/EVENTS

FUTURE TOPICS FOR UPCOMMING MEETING: May 1, 2024

ADJOURNMENT

SUPPLEMENTAL INFORMATION

The materials below are provided for informational purposes, not for action or discussion during UAC Meetings (Govt. Code Section 54954.2(a)(3)).

INFORMATIONAL REPORTS

Informational Report: Utilities Quarterly Report for FY24-Q2

[12-Month Rolling Calendar](#)

[Public Letter\(s\) to the UAC](#)

PUBLIC COMMENT INSTRUCTIONS

Members of the Public may provide public comments to teleconference meetings via email, teleconference, or by phone.

1. **Written public comments** may be submitted by email to UACPublicMeetings@cityofpaloalto.org.
2. **Spoken public comments using a computer** will be accepted through the teleconference meeting. To address the Council, click on the link below to access a Zoom-based meeting. Please read the following instructions carefully.
 - You may download the Zoom client or connect to the meeting in- browser. If using your browser, make sure you are using a current, up-to-date browser: Chrome 30 , Firefox 27 , Microsoft Edge 12 , Safari 7 . Certain functionality may be disabled in older browsers including Internet Explorer.
 - You may be asked to enter an email address and name. We request that you identify yourself by name as this will be visible online and will be used to notify you that it is your turn to speak.
 - When you wish to speak on an Agenda Item, click on “raise hand.” The Clerk will activate and unmute speakers in turn. Speakers will be notified shortly before they are called to speak.
 - When called, please limit your remarks to the time limit allotted. A timer will be shown on the computer to help keep track of your comments.
3. **Spoken public comments using a smart phone** will be accepted through the teleconference meeting. To address the Council, download the Zoom application onto your phone from the Apple App Store or Google Play Store and enter the Meeting ID below. Please follow the instructions B-E above.
4. **Spoken public comments using a phone** use the telephone number listed below. When you wish to speak on an agenda item hit *9 on your phone so we know that you wish to speak. You will be asked to provide your first and last name before addressing the Council. You will be advised how long you have to speak. When called please limit your remarks to the agenda item and time limit allotted.

CLICK HERE TO JOIN Meeting ID: 966 9129 7246 Phone:1-669-900-6833

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Utilities Advisory Commission Staff Report

From: Dean Batchelor, Director Utilities
Lead Department: Utilities

Meeting Date: April 3, 2024
Staff Report: 2403-2789

TITLE

Approval of the Minutes of the Utilities Advisory Commission Meeting Held on March 6th, 2024

RECOMMENDATION

Recommended Motion

Staff recommends that the UAC consider the following motion:

Commissioner _____ moved to approve the draft minutes of the March 6, 2024 meeting as submitted/amended.

Commissioner _____ seconded the motion.

ATTACHMENTS

Attachment A: 03-06-2024 DRAFT UAC Minutes

AUTHOR/TITLE:

Jenelle Kamian, Program Assistant I



UTILITIES ADVISORY COMMISSION MEETING MINUTES OF MARCH 6, 2024 REGULAR MEETING

CALL TO ORDER

Chair Segal called the meeting of the Utilities Advisory Commission (UAC) to order at 6:02 p.m.

Present: Chair Segal, Vice Chair Scharff, Commissioners Croft (attended remotely), Forssell, Mauter, Metz, and Phillips (arrived 6:04 p.m.)

Absent:

AGENDA CHANGES, ADDITIONS AND DELETIONS

Item 2 deferred.

PUBLIC COMMENT

David Coale commented about his neighbor trying for seven weeks to obtain a permit to install an electric vehicle charger. Mr. Coale contacted Chief Building Official George Hoyt, Director Jonathan Lait, the City Manager and City Council Members. Mr. Coale suggested that the UAC receive updates every six months from the City's Permitting Department.

APPROVAL OF MINUTES

ITEM 1: ACTION: Approval of the Minutes of the Utilities Advisory Commission Meeting Held February 7, 2024

Chair Segal invited comments on the February 7, 2024 UAC draft meeting minutes.

Chair Segal requested the following changes. Packet Page 8: Mr. Batchelor replied that *while trees were not inspected as part of those inspections, however, when they were inspected*, trees were trimmed if they were too close to the lines. Packet Page 11: Chair Segal opined the low rating on maintaining modern and reliable infrastructure *might be* due to Palo Alto's high interest in electrification...

ACTION: Commissioner Metz moved to approve the draft minutes of the February 7, 2024 meeting as amended.

Commissioner Mauter seconded the motion.

The motion carried 7-0 with Chair Segal, Vice Chair Scharff, Commissioners Croft, Forssell, Mauter, Metz, and Phillips voting yes.

UTILITIES DIRECTOR REPORT

Utilities Director Dean Batchelor delivered the Director's Report.

Hydroelectric Update: As of March 4, precipitation and snowpack levels in Northern California are about average for this time of year and about 10% below average in Central California. Reservoir levels are slightly above average. The City's hydro resources were projected to produce around 107% of the long-term average output in FY 2024 and about 101% in FY 2025.

Water Supply Update: Precipitation is close to long-term average. Storage in the Hetch Hetchy system is above average. The San Francisco Public Utilities Commission does not anticipate a water supply shortage this summer but will release final water supply conditions in April. Wholesale water rates were projected to increase 6.5% resulting from increased costs and continued low water sales in the region. The rate increase will be finalized in May or June.

Heat Pump Water Heater (HPWH) Program Update: The City installed 202 HPWHs through the full-service program and has another 22 units scheduled for installation, of which 66 customers applied for on-bill financing. CPAU processed nine rebate applications in February. RFP proposals for emergency water heater replacement are due March 22.

Electric Vehicle (EV) Programs update: Since the launch of CPAU's EV programs, 297 EV charger ports were installed. EV charging infrastructure has been installed at 12 multifamily properties (4%), 18 non-profits, 8 high schools and 5 medical facilities. The City has an S/CAP goal of facilitating EV charging access to 10% of multifamily properties by 2025. There are 54 EV projects in process, of which 42 sites are participating in the EV Technical Assistance Program (EV TAP).

Limited-Time EV Discount Campaign: In February, Palo Alto residents were eligible for discounts up to \$18,500 on select battery EVs and plug-in hybrid EVs through the City's partnership with Cool the Earth's Ride and Drive Clean campaign. CPAU planned to offer two additional discount campaigns for EVs and e-bikes in 2024.

Sanitary Sewer Replacement Project 31: Sanitary Sewer Replacement Project 31 is scheduled to be complete in May 2024. Go to cityofpaloalto.org/utilityprojects for weekly news updates as well as contact information for questions or concerns.

Outage Management System (OMS): All customers with mobile phone numbers in CPAU's utility billing records were automatically opted-in to receive text message notifications through the new OMS. Staff is working with the OMS manufacturer on the possibility of automated phone calls for customers who do not have a mobile phone.

Upcoming Events: Details and registration are available at cityofpaloalto.org/workshops.

- **Sunday, March 10, 10 a.m.-1 p.m.:** Is an Electric Car Right for You? (in-person class and outdoor EV expo at Mitchell Park Community Center) Staff will also promote the HPWH program.
- **Wednesday, March 20, 5-6 p.m.:** New EV Owner (Zoom webinar)
- **Friday, March 23, 10 a.m.-2 p.m.:** Native Garden Workshop (in-person at Rinconada Library, Embarcadero Room)

- **Sunday, April 21, 1-4 p.m.:** Earth Day Festival (in-person at Rinconada Library)

Recent Event: On Sunday February 25, staff participated in the Lunar New Year Fair hosted by WizChinese to promote the City's HPWH program and EV Discount Campaign. Staff spoke with over 50 Palo Alto residents about financial incentives available from the City and State.

NEW BUSINESS

ITEM 3: ACTION: Staff Recommend the Utilities Advisory Commission Recommend that the City Council Adopt a Resolution: 1) Approving the FY 2025 Wastewater Collection Utility Financial Plan 2) Amending Rate Schedules S-1 (Residential Wastewater Collection and Disposal), S-2 (Commercial Wastewater Collection and Disposal), S-6 (Restaurant Wastewater Collection and Disposal) and S-7 (Commercial Wastewater Collection and Disposal – Industrial Discharger), and 3) Approving up to a \$3 million enterprise transfer loan from the Fiber Optics Fund to the Wastewater Collection Utility's Operations Reserve in FY 2024.

Senior Resource Planner Lisa Bilir delivered a slide presentation. PG&E increased electric and gas rates at the beginning of this year. CPAU's median residential bills this year are projected to be lower than PG&E for gas and electric by 10% and 50%, respectively.

Staff proposed rate increases effective July 1, 2024 that would increase median residential bills by an estimated 9% for gas and electric, 15% for wastewater, 10% for water and 2.6% for storm drain. Refuse was not expecting a rate increase.

Wastewater reserves were very low, one reason being Sewer Main Replacement 31 taking place one year earlier than expected to coordinate with the repaving of El Camino. Cost estimates were higher and revenues lower than staff forecasted. A 15% wastewater rate increase allows for a smaller sewer replacement in FY 2026 of \$2M for construction and \$1M for design in FY 2025 as well as a pump station retrofit in FY 2028. Resumption of 2.5 miles/year of sewer main replacement occurs in 2028 with either a 15% or 9% wastewater rate increase.

Commercial winter usage was low possibly due to the wet winter, business impacts from COVID, recovery and drought. As a result, commercial revenue declined about 4%. The forecast assumed commercial revenue to return over a three-year period and then normal winter usage each year going forward.

Finance Committee Members were supportive of staff's proposal. Because wastewater reserves were very low and due to the large main project, staff wanted to ensure there were sufficient funds for short-term needs. Staff proposes a loan of up to \$3M from the fiber utility to the wastewater collection utility to be repaid in Fiscal Year 2026 at the City's portfolio rate (currently 2.47%) plus 0.25%. The financial plan reflects 3% interest on a \$3M loan. Staff asked for feedback from the UAC.

In response to the Commission's questions, Ms. Bilir clarified that staff would make a decision at the end of this fiscal year on the amount of the enterprise transfer loan from the fiber optics fund to the wastewater collection utility's operations reserve depending on the reserve balance and how much was needed, although not to exceed \$3M. Staff often asked for Council approval of transfers within or across utilities but only completes those transfers if needed. By the end of the year, staff should have a good

idea of the funds needed in the short term for Sewer Main Replacement 31. Revenues should cover everything else.

Staff was uncertain on the timeline for the Valley Water grant. There could be some grant funds received but wastewater treatment costs and revenues could be higher or lower than projections.

Regarding Packet Pages 42 and 56, Utilities Strategic Business Manager Dave Yuan provided an explanation on unrealized losses on investments. The City has bonds as a laddering strategy. Unrealized gains and losses were for accounting purposes assuming the City liquidated everything at the current price but the plan was to hold the bonds until maturity. For example, if the City bought a bond at 2% but the market rate was now 5%, the City takes an unrealized loss of 3%. In response to Commissioner Croft asking if the City was paying debt service at a fixed rate for all bonds, Mr. Yuan replied that as far as he knew it was a fixed rate but staff could confirm.

Ms. Bilir displayed a Wastewater Reserve Projections chart. The operations reserve was negative \$0.7M at the end of Fiscal Year 2023 but funds moved into the CIP reappropriations and commitments reserve will be spent in 2024 and 2025.

Utilities Director Dean Batchelor explained the reason for the loan was to put the money in the reserve to pay for projects. It was mostly a timing issue. If the wastewater utility needed a loan, the approval process from the UAC, Finance and Council would take more than the 30-day window to pay for costs after a project is finished.

If there were no reserve to borrow from, funds would come from a loan or bond financing at market rate. Prior to 2009, there was one large reserve. The auditor stated there was too much money in one reserve, so the reserve was divided by fund and the utility was divided into five utilities.

In reply to Chair Segal asking for the minimum and maximum reserve amounts for wastewater, Ms. Bilir responded that the operations reserve target was 105 days of treatment and operating expenses and a band above and below that of 45 days of expenses. The minimum in Fiscal Year 2025 is projected to be about \$3.5M.

Chair Segal asked if there were any consequences with City bond ratings or interest rate if the reserve was below risk assessment, reserve minimum or reserve target. Mr. Yuan thought a one-time occurrence would not but it would hurt our ratings if it were perpetual; bonding with multiple utilities can help get a better rate.

Vice Mayor Lauing suggested that staff bring Assistant City Manager Kiely Nose to present the facts and alternatives to the UAC.

ACTION: Commissioner Mauter moved to approve Staff recommendation that the Utilities Advisory Commission (UAC) recommend that the City Council adopt a resolution (Attachment A):

1. Approving the Fiscal Year (FY) 2025 Wastewater Collection Financial Plan (Attachment A, Exhibit 1); and
2. Increasing Wastewater Collection Utility Rates Via the Amendment of Rate Schedules S-1 (Residential Wastewater Collection and Disposal), S-2 (Commercial Wastewater Collection and Disposal), S-6 (Restaurant Wastewater Collection and Disposal) and S-7 (Commercial Wastewater Collection and Disposal – Industrial Discharger) (Attachment A, Exhibit 2); and

3. Approving up to a \$3 million enterprise transfer loan from the Fiber Optics Fund to the Wastewater Collection Utility's Operations Reserve in FY 2024.

Commissioner Phillips seconded the motion.

The motion carried 7-0 with Chair Segal, Vice Chair Scharff, Commissioners Croft, Forssell, Mauter, Metz, and Phillips voting yes.

ITEM 4: ACTION: Staff Recommends the Utilities Advisory Commission Recommend that the City Council Adopt a Resolution: 1) Approving the Fiscal Year (FY) 2025 Electric Financial Plan and Accepting the 2024 City of Palo Alto Electric Cost of Service and Rate Study, and 2) Amending E-1 (Residential Electric Service), E-2 (Residential Master-Metered and Small Non-Residential Electric Service), E-2-G (Residential Master-Metered and Small Non-Residential Green Power Electric Service), E-4 (Medium Non-Residential Electric Service), E-4-G (Medium Non-Residential Green Power Electric Service), E-4 TOU (Medium Non-Residential Time of Use Electric Service), E-7 (Large Non-Residential Electric Service), E-7-G (Large Non-Residential Green Power Electric Service), E-7 TOU (Large Non-Residential Time of Use Electric Service), E-NSE (Net Metering Net Surplus Electricity Compensation), and E-EEC (Export Electricity Compensation)

Utilities Resource Management Assistant Director Jonathan Abendschein delivered a slide presentation. As a result of the Cost of Service Analysis (COSA), commercial customers and large residential users were expected to see decreases while small residential users would see increases. To mitigate the bill impacts of incorporating COSA changes, staff proposed a 0.5% increase in revenue versus last year's 5% forecasted revenue increase. The median residential bill would increase by 9% (\$6.97/month). Staff was exploring ways to use the Rate Assistance Program for low-income customers who may have trouble absorbing the increase. Staff expected lower supply costs this year because of higher hydroelectric generation from the wet 2022/2033 winter. Substantially higher revenues from electric supply portfolio sales in the current fiscal year and next fiscal year will replenish reserves over the short term. In the long term, staff projected a yearly 5% rate increase due to rising supply costs, capital expenditures and debt service related to grid modernization and other investments.

Proposition 26 was a 2010 State ballot initiative that amended the State Constitution. Gas and electric rates must represent the cost of service absent voter approval. Chair Segal asked what percentage of voter approval was needed if the City wanted to change rates to incentivize City values. Mr. Abendschein stated he would get back to Chair Segal with a response. He was unsure when it is two-thirds versus half but he thought it depended on how the initiative was formulated.

Mr. Abendschein responded to the Commission's questions. Staff's rate proposal reflected cost of service. A COSA was usually done every three to seven years. CPAU does not analyze the marginal impact of new customers or charge custom rates based on marginal impact. The COSA estimated usage patterns and costs associated with peak demands. This analysis has to be updated next year and the following year as we transition toward time-of-use (TOU) rates with the smart meter rollout. TOU was likely to start on July 1, 2026; however, in the next few months staff will evaluate alternatives to introduce TOU rates earlier.

For 2023, CPAU's median residential bill was about 40% below PG&E. After PG&E's January 1, 2024 rate increase, CPAU was 50% to 60% lower than PG&E.

A loan from the electric special projects reserve would cover large capital investments in FY 2024 and would be repaid in FY 2025 along with other outstanding loans from the electric special projects reserve. The plan replenishes the hydro stabilization reserve to \$17.4M (target level of \$19M). Reserves will exceed supply cost risks. The electric distribution operations reserve was negative partly because of large capital investments in FY 2023 but will return to guideline level in FY 2025 and forward.

The Residential E-1 kWh rate on Packet Page 132 (EES page 7) did not match Packet Page 271 (Utility Financial Plan Page 12). Mr. Abendschein stated the rates in the COSA were correct.

The COSA will help align rates with the projected costs for each year but there was a cash flow issue related to the timing of debt issuance for major capital investments in FY 2024. Page 6 of the staff report showed the various reserves and proposed transfers. In FY 2024, a loan will be taken from the electric special projects reserve. Money is transferring from the supply operations reserve to the distribution operations reserve for capital investments. Once debt service is issued and reserves are replenished, the distribution operations reserve will repay the supply operations reserve. Then, the supply operations reserve will repay the electric special projects reserve. The Commission expressed their concerns about the practice of interfund transfers. Mr. Abendschein was open to having further discussion but staff thought the actions they were asking the UAC to take tonight would prevent electric utility interfund transfers beyond FY 2025.

Long-term declines in electricity consumption were related in part to efficiency, rooftop solar and the changing character of large commercial uses in Palo Alto as industrial uses have continued to move out but potentially could be offset by data center loads and electrification. Staff updates the forecast every year. As new loads come in and electrification increases, staff will include those in the forecast. When planning for the grid or supply, staff takes into consideration buying electric supply to address load growth or increasing grid capacity for building electrification. Staff uses a conservative forecast when setting rates.

Mr. Abendschein clarified that the rate sheets in the COSA were accurate but the financial plan and staff report had the wrong Tier 2 number, so staff will correct it for Finance Committee.

On Packet Page 341, the total spending over the forecast period including FY 2024 budget is over \$450M and the plan was to finance \$330M through debt, of which \$300M was for grid modernization, \$15M for the Hanover Substation rebuild and \$15M was the electric utility's share of the fiber rehabilitation.

ACTION: Vice Chair Scharff moved to approve Staff recommendation that the Utilities Advisory Commission (UAC) recommend the City Council Adopt a Resolution (Attachment A):

1. Accepting the 2024 City of Palo Alto Electric Cost of Service and Rate Study (Exhibit 1)
2. Approving the FY 2025 Electric Financial Plan (Exhibit 2), which includes the following actions:
 - a. Amending the Electric Utility Reserves Management Practices (Attachment B), to direct staff to transfer to the CIP reserve, at the end of each fiscal year, any budgeted capital investment that remains unspent, uncommitted, and which is not proposed for appropriation to the following fiscal year and to clarify how the Cap and Trade Program Reserve is adjusted each year.
 - b. Approving the following transfers at the end of FY 2024:
 - i. Up to \$20 million from the Electric Special Projects Reserve to the Supply Operations Reserve;

- ii. Up to \$17 million from the Supply Operations Reserve to the Hydroelectric Stabilization Reserve;
- iii. Up to \$58 million from the Supply Operations Reserve to the Distribution Operations Reserve; and
- c. Approving the following transfers in FY 2025: Item #3 Packet Pg. 103 Item No. 3. Page 2 of 15
 - i. Up to \$26 million from the Distribution Operations Reserve to the Supply Operations Reserve;
 - ii. Up to \$30 million from the Supply Operations Reserve to the Electric Special Projects Reserve; and iii. Up to \$5 million from the Distribution Operations Reserve to the CIP Reserve;
- 3. Amending the following rate schedules effective July 1, 2024 (FY 2025), (Exhibit 3):
 - a. Changing retail electric rates E-1 (Residential Electric Service), E-2 (Small NonResidential Electric Service), E-4 (Medium Non-Residential Electric Service), E-4 TOU (Medium Non-Residential Time of Use Electric Service), E-7 (Large NonResidential Electric Service), and E-7 TOU (Large Non-Residential Time of Use Electric Service) by varying percentages depending on rate schedule and consumption with an overall revenue increase of 0.5% effective July 1, 2024;
 - b. Decreasing the Net Surplus Electricity Compensation (E-NSE-1) rate to reflect 2023 avoided cost, effective July 1, 2024; and
 - c. Decreasing the Export Electricity Compensation (E-EEC-1) rate to reflect current projections of FY 2025 avoided cost, effective July 1, 2024; d. Updating the Residential Master-Metered and Small Non-Residential Green Power Electric Service (E-2-G), the Medium Non-Residential Green Power Electric Service (E-4-G), and the Large Non-Residential Green Power Electric Service (E-7-G) rate schedules to reflect modified distribution and commodity components, effective July 1, 2024.

Commissioner Forssell seconded the motion with corrections as discussed.

The motion carried 7-0 with Chair Segal, Vice Chair Scharff, Commissioners Croft, Forssell, Mauter, Metz, and Phillips voting yes.

The UAC took a break at 8:07 p.m. and resumed at 8:20 p.m.

ITEM 5: ACTION: Staff Recommend the Utilities Advisory Commission Recommend that the City Council Adopt a Resolution Approving the Fiscal Year 2025 Gas Utility Financial Plan, Including the General Fund Transfer, and Increasing Gas Rates by Amending Rate Schedules G-1 (Residential Gas Service), G-2 (Residential Master-Metered and Commercial Gas Service), G-3 (Large Commercial Gas Service), and G-10 (Compressed Natural Gas Service)

Senior Resource Planner Lisa Bilir stated the Finance Committee provided general feedback in support of staff's proposal, although expressed uncertainty about the gas utility transfer to the General Fund.

Staff proposed the following: 9% overall rate increase to customer bills, which assumes supply costs are held constant in FY 2025, 7% rate increase in FY 2026, 7% in FY 2027, 6% in FY 2028 and 6% in FY 2029.

Staff presented a chart with two options for the General Fund transfer. Measure L allowed an 18% transfer of gas utility gross revenues from two fiscal years prior; however, the Council may elect to

transfer less. For FY 2024, the Council elected to transfer 15.5%. Staff's recommendation for FY 2025 was an 11.9% transfer (\$8.96M) and to gradually transition to an 18% transfer in 2027. An 11.9% transfer would require a 9% rate increase as represented in the financial plan.

Utilities Director Dean Batchelor answered the Commission's questions. In addition to the gas utility transfer, the General Fund receives tax revenue from hotels and purchases. A portion of the money from the gas utility transfer was used for fire and police as well as programs and services the City provides to the community. The Commission discussed the transfer options.

Ms. Bilir displayed a chart of gas utility cost and revenue projections. The gas operations reserve was within the guideline range at the end of Fiscal Year 2023 but staff expects it to go below the minimum level at the end of Fiscal Year 2024 partly because of increasing costs and because some costs associated with Fiscal Year 2023 did not occur until Fiscal Year 2024. Staff projects the operations reserve to return to within the guideline range at the end of Fiscal Year 2026. The CIP reserve remains very low but this proposed financial plan brings the reserve balance up within the guideline range by 2028. The reserve guidelines stated that staff had to propose a plan to replenish the reserve to guideline range within a certain timeframe. Ms. Bilir thought it was a five-year period but she needed to verify. Commissioner Metz expressed his concern and thought staff should find a way to bring reserves to within guideline range sooner than 2028. Ms. Bilir stated that staff would look into it. Chair Segal agreed with Commissioner Metz. Chair Segal remarked it would be helpful if the charts showed the reserve minimum and maximum range.

Discussion ensued about the Berkeley decision from the Ninth Circuit Court and its effect on S/CAP and the City's goal of shutting down gas. Mr. Batchelor remarked that this item was in Council's objectives. Staff was looking at how other cities were proceeding and staff will present options to the Council.

Utilities Resource Management Assistant Director Jonathan Abendschein stated that the City would encourage retrofits through voluntary programs regardless what happens with the Reach Code. The gas transition planning study will address infrastructure sequencing of trimming back the gas system and dealing with declining sales. The S/CAP funding study will look at funding sources to keep the gas system running safely under declining revenues. As the gas transition planning study and S/CAP funding study are still in process, the gas financial plans have not incorporated any changes.

Ms. Bilir stated that Council's direction from last year during the budget process was to transition gradually to an 18% General Fund transfer. Mr. Batchelor commented that there was no recommendation from Finance on 11.9% versus 18%. Finance wanted to hear the UAC's feedback. Ms. Bilir pointed out that the transfer amount was higher than normal because it was based on revenues from the spike year occurring two years ago. Discussion ensued regarding the transfer percentage.

Mr. Batchelor addressed Commissioner Croft's queries about the material used for the mains. The life expectancy for new HD pipe was about 100 years. The City is in the process of changing out approximately 38 miles of remaining PVC pipe. Then, steel pipe will be replaced. The long-term plan was to have high-density polyethylene pipe throughout the city but Mr. Batchelor will get back to Commissioner Croft on when that will happen.

Commissioner Forssell reiterated her concerns about the reserve.

ACTION: Vice Chair Scharff moved to approve Staff recommendation the Utilities Advisory Commission recommend that the City Council adopt a resolution (Attachment A):

1. Approving the Fiscal Year (FY) 2025 Gas Utility Financial Plan (Attachment A, Exhibit 1), which includes amending the Gas Utility Reserve Management Practices (Attachment A, Exhibit 2); and
2. Increasing gas rates by amending Rate Schedules G-1 (Residential Gas Service), G-2 (Residential Master-Metered and Commercial Gas Service), G-3 (Large Commercial Gas Service), and G-10 (Compressed Natural Gas Service) (Attachment A, Exhibit 3); and
3. Transferring up to 11.9% of gas utility gross revenues received during FY 2023 to the General Fund in FY 2025.

Commissioner Forssell seconded the motion.

The motion carried 7-0 with Chair Segal, Vice Chair Scharff, Commissioners Croft, Forssell, Mauter, Metz, and Phillips voting yes.

ITEM 6: ACTION: Staff Recommends the Utilities Advisory Commission Recommend that City Council Adopt a Resolution Approving the Fiscal Year 2025 Water Utility Financial Plan, and Increase Water Rates by Amending Rate Schedules W-1 (General Residential Water Service), W-2 (Water Service From Fire Hydrants), W-3 (Fire Service Connections), W-4 (Residential Master-Metered and General Non-Residential Water Service), and W-7 (Non-Residential Irrigation Water Service)

Senior Resource Planner Lisa Bilir stated that staff's proposal reflected an SFPUC 6.5% rate increase effective July 1. Cost estimates were updated with increased inflation for operations at about 4% and for CIP at about 5.4%. Sales have continued at a lower level than anticipated last year due to the wet weather and not as much rebound after the drought. Therefore, staff lowered the sales forecast. Staff's proposed distribution rate increase of 13% together with the SFPUC increase of 6.5% combined to a total water rate increase for customers of 10%.

There were increases in water supply costs, operating costs and capital costs. 2027 and 2028 show one-time capital cost for two reservoirs needing replacement. The water operations reserve was within the guideline range throughout the forecast period. The reserve level was near the bottom of the guideline range but returns to the target by the end of the five-year period. The water CIP reserve was projected to dip down in FY 2028 when the second tank capital cost happens at the same time as a water main replacement but projected to return in 2029 to within the guideline range. Ms. Bilir showed a slide on Water Operations Cost Projections. Each category showed a steady increase over time. As inflation increases, the cost increases as well. In 2024, there was an increase for a CIP project for GIS.

Ms. Bilir addressed the Commission's questions about demand projections and usage. The water supply purchase forecast shows actuals and projections from last year's FY 2024 financial plan. In 2023, actual purchases were lower than staff's projections. In the past 10 years, there has been a decline in demand of about 1% per year. There was an increase in water usage during COVID over the last few years. Over the next couple of years, staff believes there will be recovery from the drought but not to the extent as previously projected. Staff worked with BAWSCA on a longer-term forecast for supply purposes that has demand projections on a per capita basis by customer class, projecting use per device and per fixture, taking into account the building code, standards, conservation programming and growth. The BAWSCA projections are done every five years to prepare for the Urban Water Management Plan. The long-term forecast from 2021 through 2040 in the Urban Water Management Plan has a reduction in the per

capita usage over time but also takes into account the planned city's growth, which resulted in an increase in demand instead of a decline.

Ms. Bilir showed water usage by rate class (commercial includes master-metered multifamily). Commercial was about 41% of water usage. A COSA will be performed in the next one to two years. The last COSA was completed around 2021.

ACTION: Commissioner Phillips moved to approve Staff recommendation that the Utilities Advisory Commission (UAC) recommend that the Council: Adopt a resolution (Attachment A):

1. Approving the Fiscal Year (FY) 2025 Water Utility Financial Plan (Attachment A, Exhibit 1); and
2. Amending the following rate schedules to reflect increases effective July 1, 2024 (FY 2025): W-1 (General Residential Water service), W-2 (Water Service from Fire Hydrants), W-3 (Fire Service Connections), W-4 (Residential Master-Metered and General Non-Residential Water Service), and W-7 (Non-Residential Irrigation Water Service) (Attachment A, Exhibit 2)

Commissioner Mauter seconded the motion.

The motion carried 7-0 with Chair Segal, Vice Chair Scharff, Commissioners Croft, Forssell, Mauter, Metz, and Phillips voting yes.

COMMISSIONER COMMENTS and REPORTS from MEETINGS/EVENTS

Commissioner Phillips will attend a conference on energy policy at Berkeley next Friday. He encouraged interested Commissioners to contact Jenelle Kamian. The early bird rate cutoff is tomorrow. Chair Segal stated there was a government discount and an early bird discount.

FUTURE TOPICS FOR UPCOMING MEETINGS

Utilities Director Dean Batchelor took note that the Commission wanted a discussion on the reserve management policy with Assistant City Manager Kiely Nose.

In response to tonight's public comment, Chair Segal stated that the UAC was probably due for a discussion on permitting.

Commissioner Croft asked about an item on the City Council schedule on pad-mounted electric equipment. Mr. Batchelor explained that was for a contract in response to an RFP that needed Council approval to buy pad-mounted transformers and switches to replace smaller pad-mount transformers. Commissioner Croft stated that the topic of pad-mounted transformers and where they will be installed in underground neighborhoods was of interest to her.

Commissioner Metz requested staff to add unscheduled items to the calendar.

NEXT SCHEDULED MEETING: April 3, 2024

ADJOURNMENT

Commissioner Forssell moved to adjourn.

Commissioner Mauter seconded the motion.

The motion carried 7-0 with Chair Segal, Vice Chair Scharff, Commissioners Croft, Forssell, Mauter, Metz, and Phillips voting yes.

Meeting adjourned at 9:24 p.m.



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Utilities Advisory Commission Staff Report

From: Dean Batchelor, Director Utilities
Lead Department: Utilities

Meeting Date: April 3, 2024
Staff Report: 2403-2790

TITLE

Approval of the Minutes of the Special Utilities Advisory Commission Meeting Held on March 14, 2024

RECOMMENDATION

Recommended Motion

Staff recommends that the UAC consider the following motion:

Commissioner _____ moved to approve the draft minutes of the March 14, 2024 meeting as submitted/amended.

Commissioner _____ seconded the motion.

ATTACHMENTS

Attachment A: 03-14-2024 DRAFT UAC Minutes

AUTHOR/TITLE:

Jenelle Kamian, Program Assistant I



UTILITIES ADVISORY COMMISSION MEETING MINUTES OF MARCH 14, 2024 SPECIAL MEETING

CALL TO ORDER

Chair Segal called the meeting of the Utilities Advisory Commission (UAC) to order at 5:15 p.m.

Present: Chair Segal, Vice Chair Scharff, Commissioners Croft, Metz, and Phillips (attended remotely)

Absent: Commissioners Forssell and Mauter

AGENDA CHANGES, ADDITIONS AND DELETIONS

None

PUBLIC COMMENT

None

APPROVAL OF MINUTES

None

UTILITIES DIRECTOR REPORT

None

NEW BUSINESS

ITEM 1: ACTION: Staff Recommends that the Utilities Advisory Commission Recommend that the City Council Approve Amended Palo Alto CLEAN Program Rules and Requirements, Handbook, and Power Purchase Agreement; CEQA Status: Not a Project under CEQA Guidelines Sections 15378(a) and (b)

Senior Resource Planner Jim Stack, PhD addressed the Commission. The Council adopted the CLEAN program in 2012, a feed-in-tariff program open to all renewable energy resources located within Palo Alto city limits and interconnected to our distribution system. Under the CLEAN program, the City purchases all the energy the generators produce. None of the energy is used onsite by the customer hosting the project. All energy is fed into the distribution system.

Six solar projects located on parking structures or parking lots currently participate in the CLEAN program (including four on City-owned parking structures). All six projects came online between 2016 and 2019 and together account for 2.84 megawatts (MW) of generating capacity. The contract rate for solar resources is 16.5 cents per kilowatt-hour (¢/kWh) up to a program participation cap of 3 MW. After the 3 MW cap, the contract rate adjusts to the Utility's avoided cost for the energy, which is currently

about 9 cents. The contract rate for non-solar renewable energy resources in Palo Alto is the avoided cost rate, which is between 8 and 8.5 cents depending on the selected contract term.

Participating projects are required to come online and produce power within one year of signing the contract. The rationale for that program rule was to avoid projects signing a contract and occupying space in the participation queue but never come to fruition. Staff proposed to change the one-year requirement to three years for completion of affordable housing projects in Palo Alto. A one-year construction and permitting timeline works well for projects built on parking lots or parking structures but was not feasible for a rooftop project on a newly constructed building in Palo Alto because it takes much longer to go through the permitting and construction process for buildings.

After the 3 MW participation cap, staff proposed to increase the current avoided cost rate for solar resources of between 8.8 and 9.1 cents (depending on the contract term) to between 9.5 and 10.2 cents. For non-solar resources, staff proposed to increase the rate from between 8.3 and 8.5 cents to between 9.4 and 10.1 cents. The last rate adjustment was in 2017. Since then, renewable energy costs have decreased but capacity and transmission costs have increased, which has slightly offset the reduction in renewable energy costs, and consequently we are seeing a slight increase in the Utility's estimated avoided cost of purchasing power outside the city.

Dr. Stack answered the Commission's questions. The last project that signed a contract and came online was in 2019. A customer with a construction project for multifamily residential affordable housing would like to install a 50 kW solar system on the development.

Dr. Stack stated that customers with smaller projects tended to prefer the City's net metering program because they could avoid the utility rate if the project size matched the building's load, it worked as an insurance against future rate increases, and they avoided signing a power purchase agreement and interconnection agreement. For larger projects in the hundreds of kilowatts to over 1 MW, capacity was usually in excess of what the customer might consume onsite, so it was more worthwhile to sign a contract to sell it to us. If they sell it to us under the CLEAN program, the customer cannot claim they are solar-powered onsite because they are not using the solar they generate; rather, they are hosting a facility on their site that provides power to the City.

Public Comment: Jason Matlof stated that landlords had no incentives to provide renewable energy because they do not use or pay for their residents' utilities. All of the state's investor-owned utilities (IOUs) have the concept of virtual net metering, which allows the landlord to pass through the cost and charge tenants for electricity, but Palo Alto does not have that because of the size of our utility. The CLEAN program is the only way for landlords to be compensated for providing renewable energy on the rooftop. Providing renewable electricity to the grid helps the City to achieve its goals of net zero emissions and 100% renewable energy. He urged the City to not only address this problem more immediately but also provide a solution for the other 5,550 multifamily residential units. Building in Palo Alto is extremely arduous. It takes many years from concept through entitlement, rezoning, documents and permitting before beginning construction; therefore, it was not possible to sign up and build solar on a new building within 12 months.

Dr. Stack addressed the Commission's questions.

Resource adequacy (RA) was part of the calculated overall value because it reduces the requirement to purchase RA from other facilities. That calculation was part of the avoided cost estimate.

Typical participating projects in the CLEAN program were at least 100 kW. A typical 1,500 or 2,000 square foot residential system was maybe 5-7 kW. There were two on Cal Ave and two in the University Ave area on Bryant and Webster. We do not have any participating projects on rooftops. The biggest one in the program is in the Research Park off Page Mill with a parking lot canopy structure.

It is difficult to quantify a resilience reliability value, so it is not included in the avoided cost calculator but was part of Council's justification in adopting the 16.5 cents rate.

Dr. Stack was not sure but assumed the solar projects at schools were part of the net metering program. Resource Management Division Acting Assistant Director Karla Dailey stated the other possibility was if they were completely off the grid and had a big battery storage facility.

Discussion ensued on staff's proposed change on Page 4 of 14 (Packet Page 8) to eliminate UAC review of future program updates.

Although not a UAC matter, Chair Segal thought the City asking contractors to have insurance minimums at \$1M per occurrence was too low.

Commissioner Metz commented that technology has changed dramatically since the CLEAN program was designed, particularly in storage, so he would like a discussion on energy generated locally that met our RA requirement and provided revenue from RECs. Mr. Batchelor stated that staff could present ideas to the UAC as a separate discussion topic. Commissioner Metz added that many benefits could be quantified, such as cutting transmission costs, getting Bucket 1 REC value, increasing RA, as well as increasing reliability and resilience.

ACTION: Commissioner Croft moved amended Staff recommendation that the Utilities Advisory Commission recommend that the City Council:

1. Approve the attached amended Clean Local Energy Accessible Now (CLEAN) Program Eligibility Rules and Regulations (Attachment A) as follows:
 - a. Continue the CLEAN Program rate structure for local solar energy resources at 16.5 cents per kilowatt-hour (¢/kWh) until the program reaches 3 MW of solar energy resource capacity, after which the contract rate for solar energy resources reduces to the City's estimated avoided cost of energy generated by these resources, which is updated to:
 - i. 9.5 ¢/kWh for a 15-Year Contract Term,
 - ii. 9.8 ¢/kWh for a 20-Year Contract Term, and
 - iii. 10.2 ¢/kWh for a 25-Year Contract Term; and
 - b. Continue the CLEAN Program rate structure for local non-solar eligible renewable resources without any participation cap at a contract price equal to the City's estimated avoided cost of energy generated by these resources, which is updated to:
 - i. 9.4 ¢/kWh for a 15-Year Contract Term,
 - ii. 9.8 ¢/kWh for a 20-Year Contract Term, and
 - iii. 10.1 ¢/kWh for a 25-Year Contract Term.
2. Approve the attached amended CLEAN Program Handbook (Attachment B) to extend the allowable time to complete a project to three years from the date of execution of the Power Purchase Agreement (PPA) for affordable housing developments and continue to include

the Utilities Advisory Commission in reviewing and reevaluating the program status, terms, and contract rates.

3. Approve the attached amended Palo Alto CLEAN Program Eligible Renewable Energy Resource PPA (Attachment C) to implement the recommended changes to the CLEAN Program.

Vice Chair Scharff seconded the motion.

The motion carried 5-0 with Chair Segal, Vice Chair Scharff, Commissioners Croft, Metz, and Phillips voting yes.

Commissioners Forssell and Mauter absent.

COMMISSIONER COMMENTS and REPORTS from MEETINGS/EVENTS

None

FUTURE TOPICS FOR UPCOMING MEETING

None

NEXT SCHEDULED MEETING: April 3, 2024

ADJOURNMENT

Vice Chair Scharff moved to adjourn.

Commissioner Croft seconded the motion.

The motion carried 5-0 with Chair Segal, Vice Chair Scharff, Commissioners Croft, Metz, and Phillips voting yes.

Meeting adjourned at 5:56 p.m.



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Utilities Advisory Commission Staff Report

From: Dean Batchelor, Director Utilities
Lead Department: Utilities

Meeting Date: April 3, 2024
Staff Report: 2402-2613

TITLE

Approval of Chair and Vice Chair to Serve a Short Term of April 3, 2024 through April 2, 2025

RECOMMENDATION

Recommended Motion

Commissioner ____ moved to approve Commissioner ____ as Chair.

Motion seconded by Commissioner ____.

Commissioner ____ moved to approve Commissioner ____ as Vice Chair.

Motion seconded by Commissioner ____.

BACKGROUND

Annually the Chair and Vice Chair are selected at the beginning of the new recruitment term for a period of one year, from the first meeting in April through April of the following year. This item is included in the agenda for the purpose of Commissioners selecting a Chair and Vice Chair for a short term, spanning from April 3, 2024, to April 2, 2025.

AUTHOR/TITLE:

Jenelle Kamian, Program Assistant I



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Utilities Advisory Commission Staff Report

From: Dean Batchelor, Director Utilities
Lead Department: Utilities

Meeting Date: April 3, 2024
Staff Report: 2401-2498

TITLE

Continuation of Staff's Request for Utilities Advisory Commission's Recommendation for City Council to Approve the Phase IV Cross-Bore Verification Program

RECOMMENDATION

Staff recommends the Utilities Advisory Commission recommend the City Council approve Phase IV Cross-Bore Verification Program. The estimated amount is \$1,352,400 to inspect the remaining 966 sewer laterals over the next two years.

BACKGROUND

This report is a continuation from the Utilities Advisory Commissions (UAC) December 6, 2023 meeting, [Staff Report 2310-2173](#)¹. During the meeting, staff presented information on the upcoming Phase IV cross-bore verification program and provided a recommendation to approve the inspection of 966 sewer laterals to complete the program. The Commissioners requested staff to return with additional information, which is included in this report.

ANALYSIS

Staff recorded the following outstanding questions by the Utilities Advisory Commission during the December 6, 2023, UAC meeting. These questions will be addressed during the presentation:

1. How a cross-bore inspection is completed in the field. Review of a cross-bore discovered on Churchill Avenue during Phase III of the cross-bore verification program.
2. How many [Reportable Incidents](#)² of natural gas cross-bore occurred in the past 20 years?
3. What is the cost to install Emergency Flow Valves (EFV) to gas services in the cross-bore scope?

¹ Staff Report 2310-2173 <https://www.cityofpaloalto.org/files/assets/public/v/1/agendas-minutes-reports/agendas-minutes/utilities-advisory-commission/archived-agenda-and-minutes/agendas-and-minutes-2023/12-dec-2023/2310-2173-mini-packet.pdf>

² An *Incident* is defined in Title 49 Code of Federal Regulations (CFR) § 191.3 <https://www.ecfr.gov/current/title-49/subtitle-B/chapter-I/subchapter-D/part-191>. *Reportable Incident is defined in 49 CFR § 171.15(b)*.

4. What are the consequences and estimated cost of property damage for a Reportable Incident?
5. What is the incremental cost of Cross-bore Phase IV project when considering the cost to complete a City sewer lateral inspection project?
6. How is the cross-bore prioritization criteria table developed and in which groups has CPAU historically found gas cross-bores?
7. What is the relationship between CPAU gas cross-bores found and the distance between the natural gas pipeline and lower sewer lateral?

FISCAL/RESOURCE IMPACT

Currently, Phase IV of the cross-bore verification program is not budgeted. Staff estimates it will require a total of \$1,352,400 to complete the remaining 966 laterals. The cost of inspection has increased by 40% due to the aggregated cost over a two-year period, inflation, and labor rate increases over a 4-year span since bids from Phase III. The proposed Phase IV cross-bore project estimate is around 2% of the FY24 overall Gas Budget.

Phase	Contract Duration (months)	Total Contract Cost	Inspections	Gas Cross-bore Discovered	Other Cross-bore Discovered	Inspections Performed per Cross-bore Found	Cost per Cross-bore	Ave. Cost per Inspection
I	29	\$2,946,297	7,192	26	31	126 (0.8%)	\$51,689	\$410
II	9	\$245,743	180	0	1	408 (0.2%)	\$245,743	\$512
III	18	\$1,251,200	1,480	1	0	1480 (0.07%)	\$1,251,200	\$845

Historical Total	56	\$4,443,240	9,080	27	32	154	\$75,309	\$485
Proposed Phase IV	24	\$1,352,400	966	-	-	-	-	\$1,400

STAKEHOLDER ENGAGEMENT

There are currently no stakeholder engagements since the project is still under the proposal process with the Utilities Advisory Commission.

ATTACHMENTS

Attachment A: Presentation

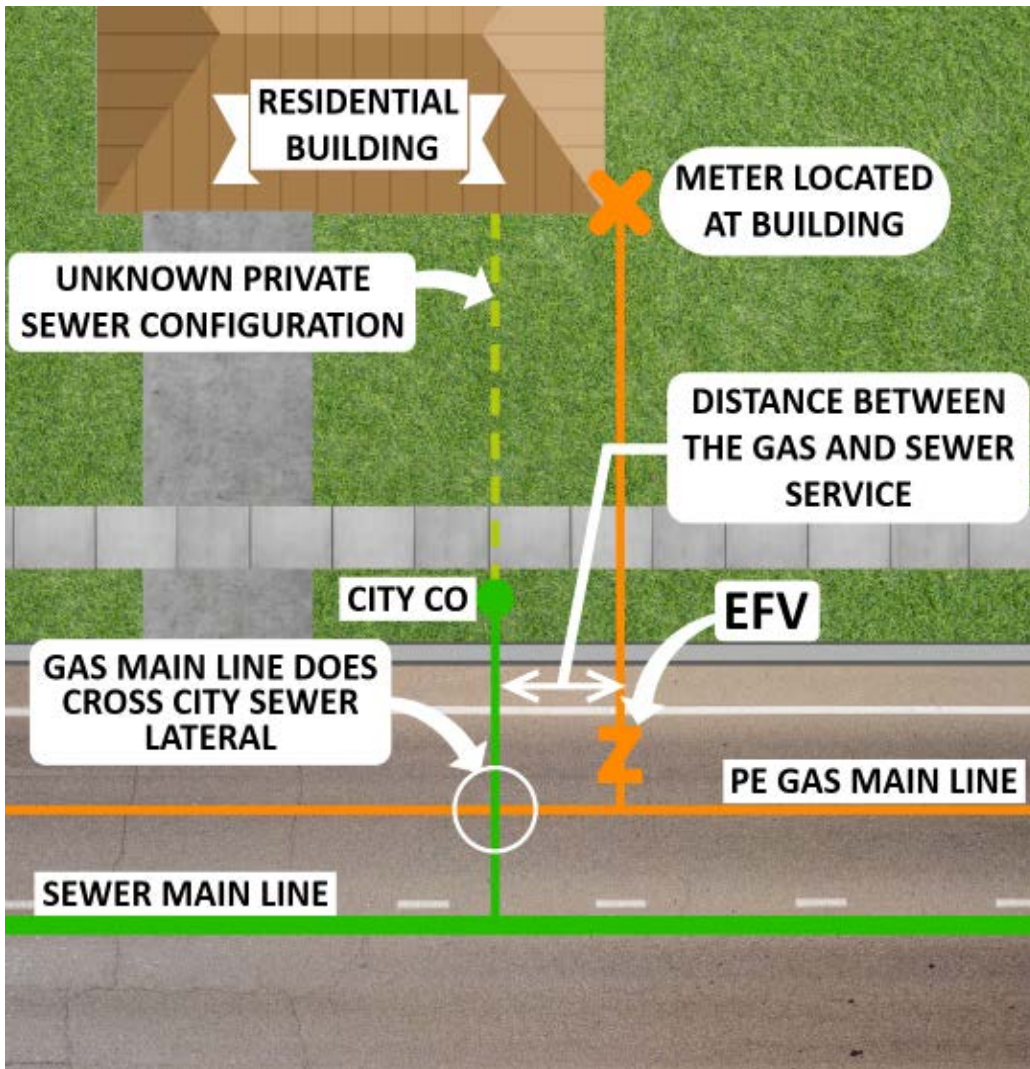
AUTHOR/TITLE:

Dean Batchelor, Director of Utilities
 Staff: Aaron Perkins, Utilities Principal Engineer

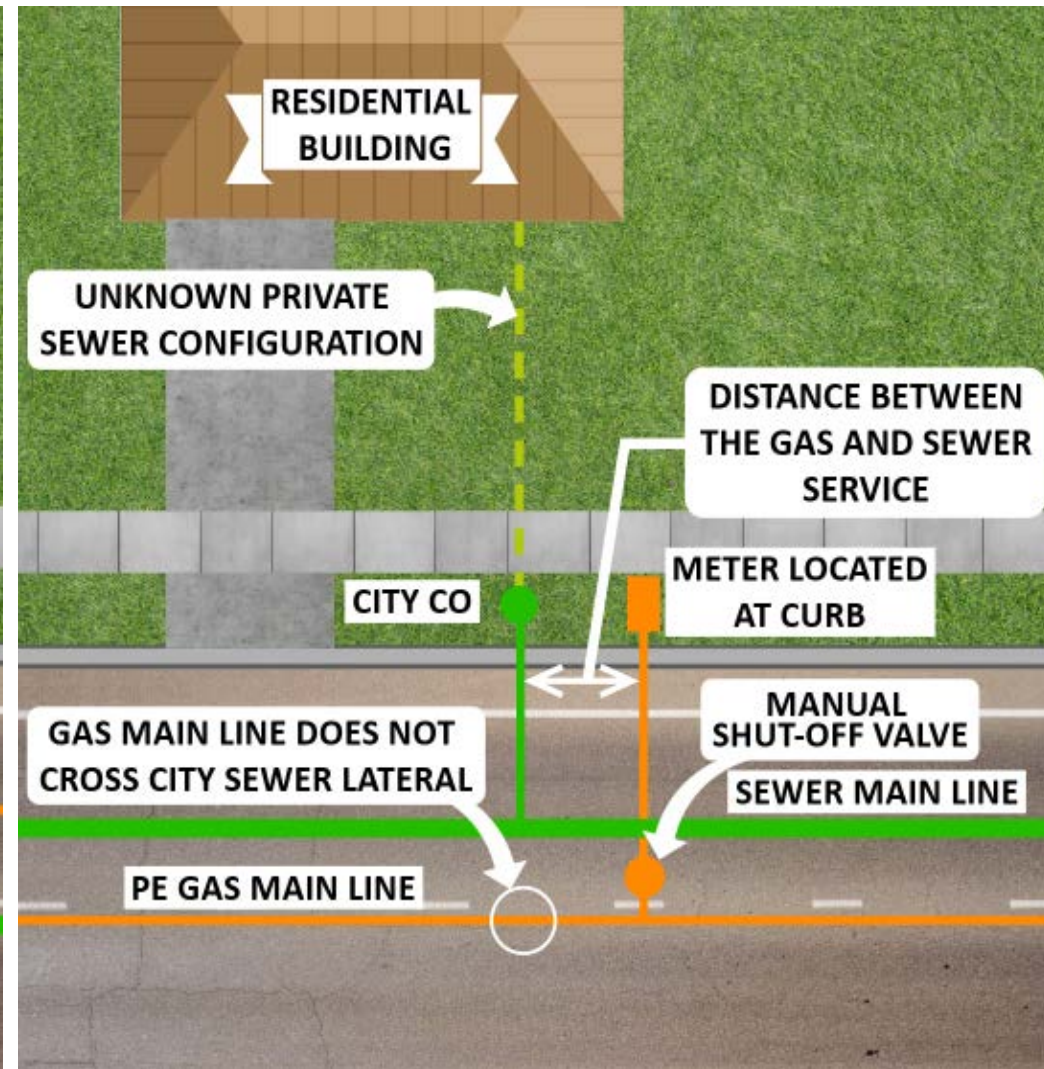
CROSS-BORE UPDATE

April 03, 2024

Sewer and Gas Utility Layout



LAYOUT 1

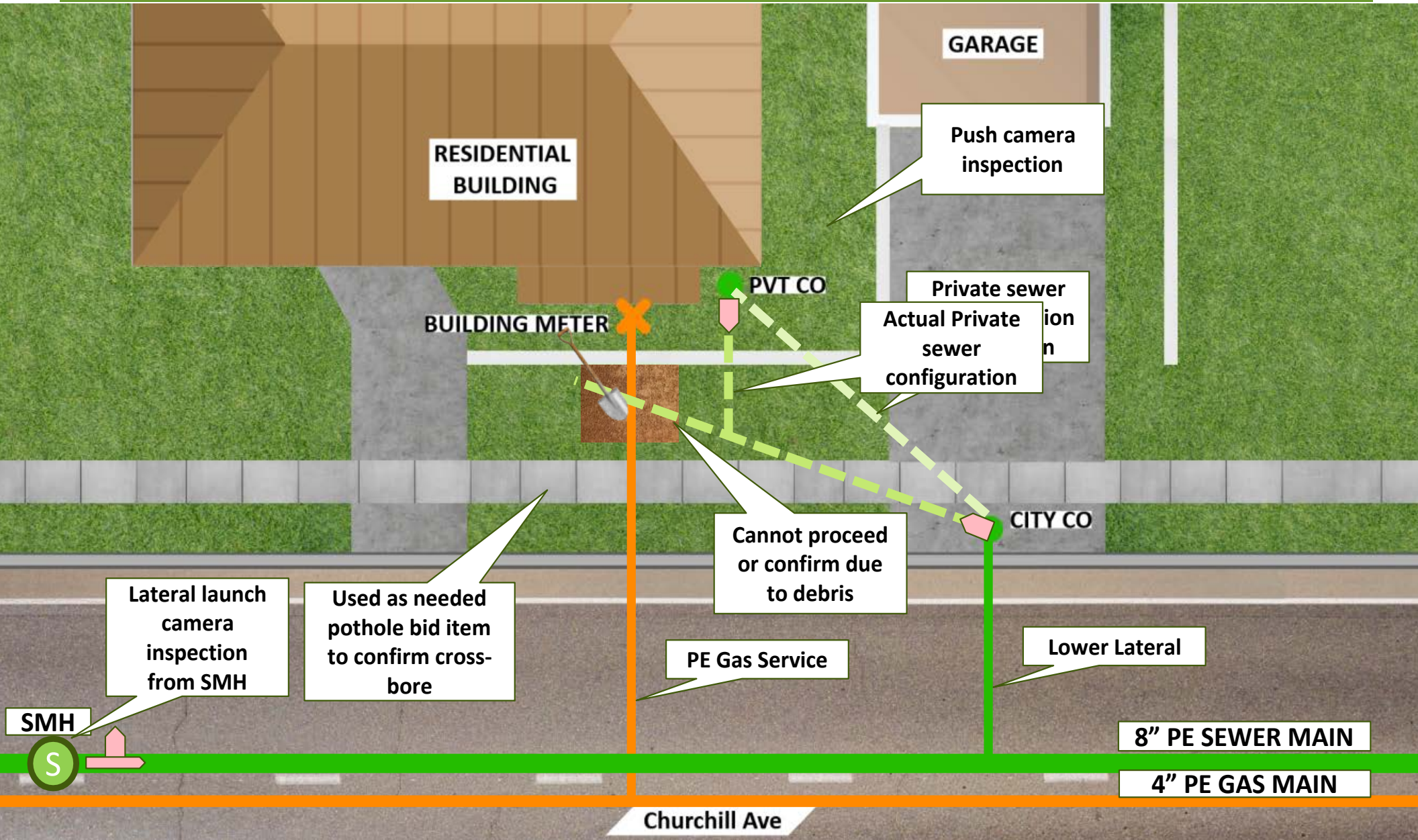


LAYOUT 2

7 Outstanding Questions

1. How is a cross-bore inspection completed in the field?
2. How many reportable incidents, of a natural gas cross-bore, occurred in the past 20 years?
3. What is the cost to install emergency Excess Flow Valves (EFV) on gas services in the Phase IV cross-bore project scope?
4. What is the potential cost of property damage caused by a gas leak resulting from a damaged cross-bore in a sewer pipe?
5. What is the incremental cost of Cross-bore Phase IV project when considering the cost to complete a City sewer lateral inspection project?
6. How is the cross-bore prioritization criteria table developed and which groups have CPAU historically found gas cross-bores?
7. What is the relationship between CPA gas cross-bores found and the distance between the natural gas pipeline and lower sewer lateral?

Occurrence of a cross-bore found in Phase III



2. How many reportable incidents, of a natural gas cross-bore, occurred in the past 20 years?

Cross-bore Reportable Incidents

INCIDENT	DATE	GAS PROVIDER	LOCATION	CITY / STATE	DEATHS	INJURIES	DAMAGE	SUMMARY OF REPORTS
1	3/17/2023	Texas Gas Service Co	1301 Mopac Expressway Suite 400	Austin, Texas	0	1	1 Residential Property	Gas main was installed in 2017 by directional bore through the sewer lateral. It was damaged by a mechanical cleaning tool, causing to gas migrate into the house and ignite, resulting in property damage and injury that exceeded \$129,300. No explosion was observed.
2	2/11/2012	Southern California Gas Co	555 W Fifth Street	Los Angeles, California	0	0	2 Residential Properties	Gas service was installed in 1979 by trenchless method. The gas service was damaged by a plumber's sewer snake/auger causing gas to migrate into the house and ignite, causing an explosion and fire affecting 2 residential properties. No injuries were reported.
3	11/13/2011	Peoples Gas Light and Coke Co	130 E Randolph Street	Chicago, Illinois	0	2	3 Residential Properties	Gas service was installed in 2007 with an EFV by trenchless method. The gas service was damaged by the property owner using a power rodding tool causing gas to migrate into the house. The gas ignited, causing an explosion and fire. 3 residential properties were damaged and 2 injuries. The EFV was investigated and was found to be working properly. Estimated cost of \$518,349 was paid for by the operator.
4	8/24/2006	Columbia Gas of Ohio	1439 Elm Street	Cambridge, Ohio	0	2	3 Residential Properties	Gas service was installed by pneumatic boring through the sewer lateral in 2001. The gas service was damaged by a sewer snake/auger by the property owner and gas migrated into the house. Gas ignited causing an explosion in the house resulting to 3 residential properties damaged and 2 injuries.
5	3/13/2006	Duke Energy	139 E Fourth Street	Cincinnati, Ohio	0	0	1 Residential Property	Gas service was installed through the sewer lateral. A sewer snake/auger damaged the gas service, causing gas to migrate into the house. The gas ignited and caused an explosion. No injuries or deaths were reported.
6	5/14/2004	St. Lawrence Gas Co. Inc.	33 Stearns Street	Massena, New York	1	3	1 Residential Property	Gas service was installed by pneumatic boring through the sewer lateral in 1993. City employees damaged the service with a sewer snake/auger, causing gas to migrate into the house and ignite, resulting in an explosion that caused property damage, 3 injuries, and 1 death.
7	5/7/2004	Southwest Gas Corp.	2200 W Van Buren #121	Phoenix, Arizona	0	4	1 Residential Property	Gas service was installed by directional bore through the sewer lateral. The service was damaged by a roter cleaner, causing gas to migrate into the house and ignite, resulting in an explosion that destroyed a mobile home and injured four people with burns.

2. How many reportable incidents, of a natural gas cross-bore, occurred in the past 20 years?

Item #4

Cross-bore Reportable Incidents

Reportable incidents caused by gas cross-bores
(7)

CPAU discovered gas cross-bores in sewer laterals
(23)

CPAU reportable incidents caused by gas cross-bores
(0)

Discovered non-reportable cross-bores in the U.S.
(Unknown quantity)

Undiscovered gas cross-bores in the U.S.
(Unknown quantity)

3. What is the cost to install emergency Excess Flow Valves (EFV) on gas services in the Phase IV cross-bore project scope?

Item #4

Gas Service EFV Installation Estimate

- **Determine number of EFVs in Cross-bore Phase IV scope**
 - 966 proposed laterals for cross-bore inspection
 - 670 with gas service EFVs
 - **296 without gas service EFVs**

- **Installation of EFVs for 296 gas services**
 - Estimate:
 - Including 4-man crew, materials, excavation, and restoration.
 - Cost to install 1 EFV = **\$8,950**
 - Cost to install all 296 EFVs = **\$2.6M**

(192% above the cost to perform Cross-bore Phase IV)

Reportable incident #3, where an EFV failed to prevent the incident:

INCIDENT	DATE	GAS PROVIDER	LOCATION	CITY / STATE	DEATHS	INJURIES	DAMAGE	SUMMARY OF REPORT
3	11/13/2011	Peoples Gas Light and Coke Co	130 E Randolph Street	Chicago, Illinois	0	2	3 Residential Properties	Gas service was installed in 2007 with an EFV by trenchless method. The gas service was damaged by the property owner using a power rodding tool causing gas to migrate into the house. The gas ignited, causing an explosion and fire. 3 residential properties were damaged and 2 injuries. The EFV was investigated and was found to be working properly. Estimated cost of \$518,349 was paid for by the operator.

4. What is the potential cost of property damage caused by gas leaks resulting from a damaged cross-bore in a sewer pipe?

Item #4

Incident Scenario Cost Estimate

The most common damage resulting from a cross-bore is property damage.

Estimate for Property Construction Cost:

Average size for a 3-bedroom residential house in Palo Alto:

1,500 sq ft

Average cost per square feet:

\$450.00

Estimated cost for construction:

1,500 sq ft x \$450.00 = \$675,000

NOT INCLUDING:

**PERSONAL PROPERTY, LEGAL ACTION, SETTLEMENTS (INJURIES & FATALITIES),
PUBLIC IMAGE**

5. What is the incremental cost of Cross-bore Phase IV project when considering the cost to complete a City sewer lateral inspection project?

Item #4

Cross-bore Inspection Incremental Cost

CROSS-BORE PHASE IV COST:

The cross-bore project includes City routine maintenance of the lower lateral.

Estimated Cost of Cross-bore Phase IV project:

- **Base bid**
 - Private & City Sewer Lateral Inspections with NASSCO:
 - 966 laterals x \$1000 = \$966,000
- **As needed**
 - Potholing, Cleanout Installation, & Section Replacement:
 - 140 items x \$2760 (avg. cost) = \$386,400

Total = \$1,352,400

CITY ROUTINE MAINTENANCE COST:

Estimated cost of City lateral inspection with NASSCO:

- **Both Push Camera and Lateral Launch methods**
 - Approximate for all 966 laterals = \$500,000

INCREMENTAL COST TO PERFORM PROJECT:

(Cross-bore Phase IV) – (City Lateral inspection)

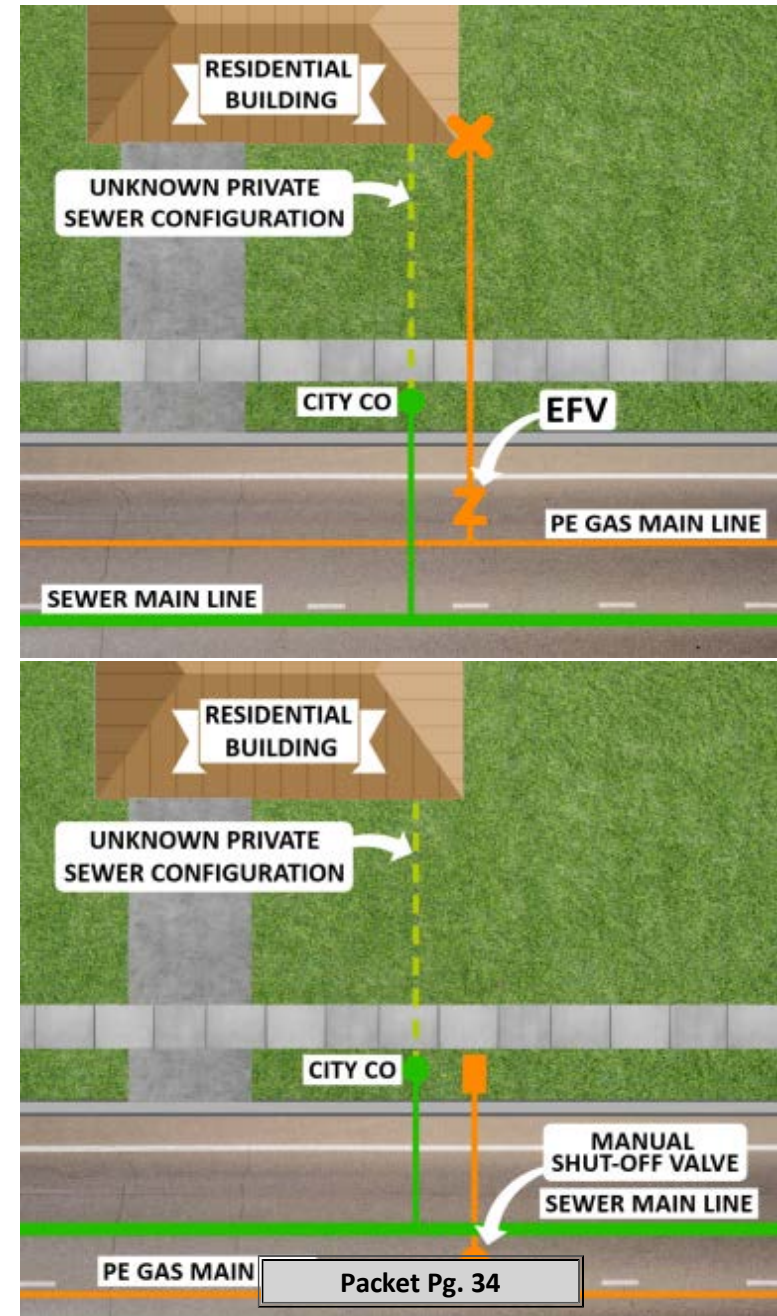
Total Budget: \$1,352,400 - \$500,000 = \$852,400

6. How is the cross-bore prioritization criteria table developed and which groups have CPAU historically found gas cross-bores?

Item #4

Cross-bore Criteria Table

CRITERIA	GROUP	PROTECTION	
All schools, hospitals, churches and Parcels within a Business District with PE Gas services installed via Horizontal Direction Drilling (HDD)	1	A	NO EFV
		B	NO EFV
		C	NO EFV
		D	NO EFV
	2	A	MANUAL VALVE
		B	MANUAL VALVE
		C	MANUAL VALVE
		D	MANUAL VALVE
	3	A	WITH EFV
		B	WITH EFV
		C	WITH EFV
		D	WITH EFV
Residential, Commercial or Multi Family with PE Gas services installed via Horizontal Direction Drilling (HDD)	4	A	NO EFV
		B	NO EFV
		C	NO EFV
		D	NO EFV
	5	A	MANUAL VALVE
		B	MANUAL VALVE
		C	MANUAL VALVE
		D	MANUAL VALVE
	6	A	WITH EFV
		B	WITH EFV
		C	WITH EFV
		D	WITH EFV

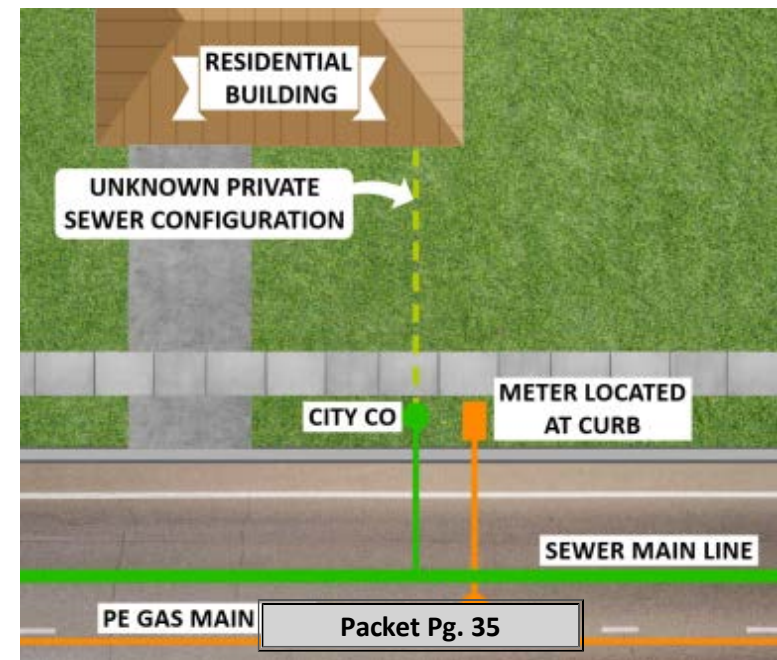
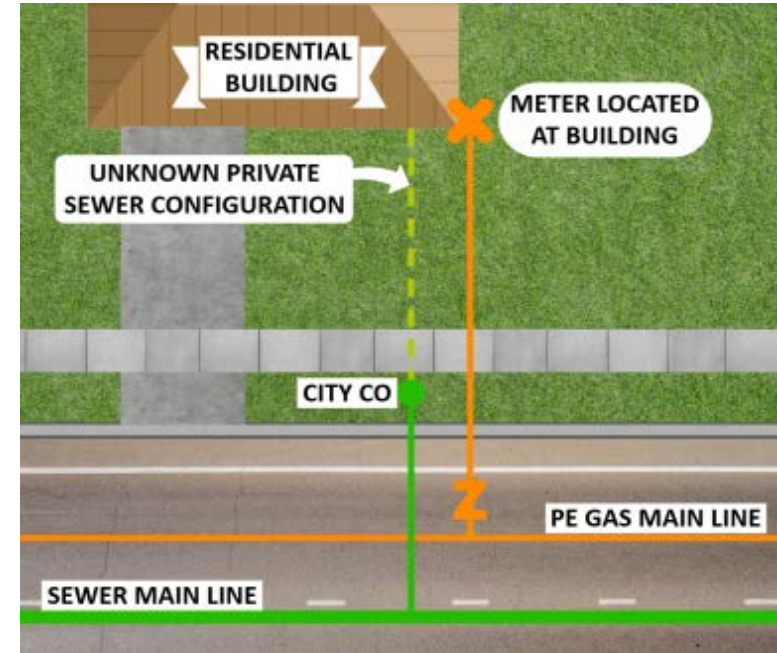


6. How is the cross-bore prioritization criteria table developed and which groups have CPAU historically found gas cross-bores?

Item #4

Cross-bore Criteria Table

CRITERIA	GROUP	PROTECTION	METER LOCATION	
All schools, hospitals, churches and Parcels within a Business District with PE Gas services installed via Horizontal Direction Drilling (HDD)	1	A	NO EFV	BUILDING
		B	NO EFV	CURB
		C	NO EFV	BUILDING
		D	NO EFV	CURB
	2	A	MANUAL VALVE	BUILDING
		B	MANUAL VALVE	CURB
		C	MANUAL VALVE	BUILDING
		D	MANUAL VALVE	CURB
	3	A	WITH EFV	BUILDING
		B	WITH EFV	CURB
		C	WITH EFV	BUILDING
		D	WITH EFV	CURB
Residential, Commercial or Multi Family with PE Gas services installed via Horizontal Direction Drilling (HDD)	4	A	NO EFV	BUILDING
		B	NO EFV	CURB
		C	NO EFV	BUILDING
		D	NO EFV	CURB
	5	A	MANUAL VALVE	BUILDING
		B	MANUAL VALVE	CURB
		C	MANUAL VALVE	BUILDING
		D	MANUAL VALVE	CURB
	6	A	WITH EFV	BUILDING
		B	WITH EFV	CURB
		C	WITH EFV	BUILDING
		D	WITH EFV	CURB

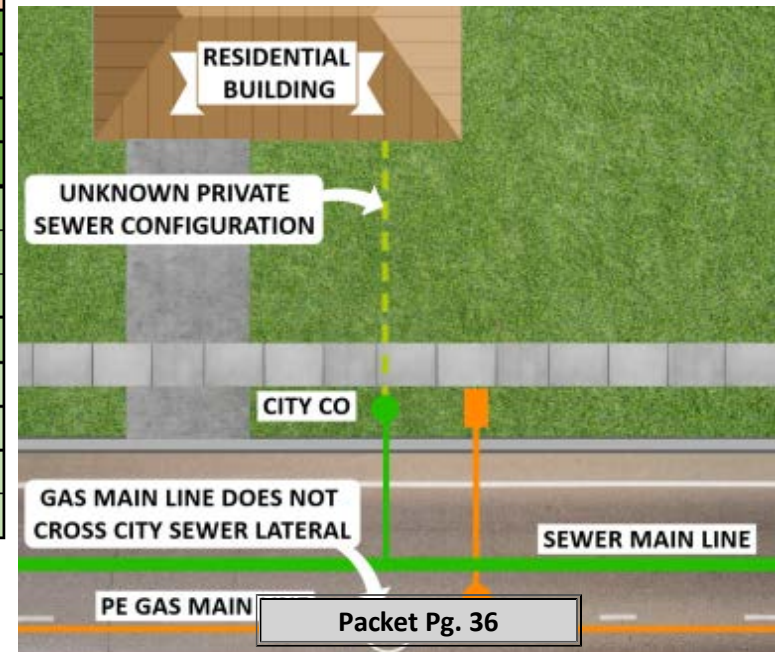
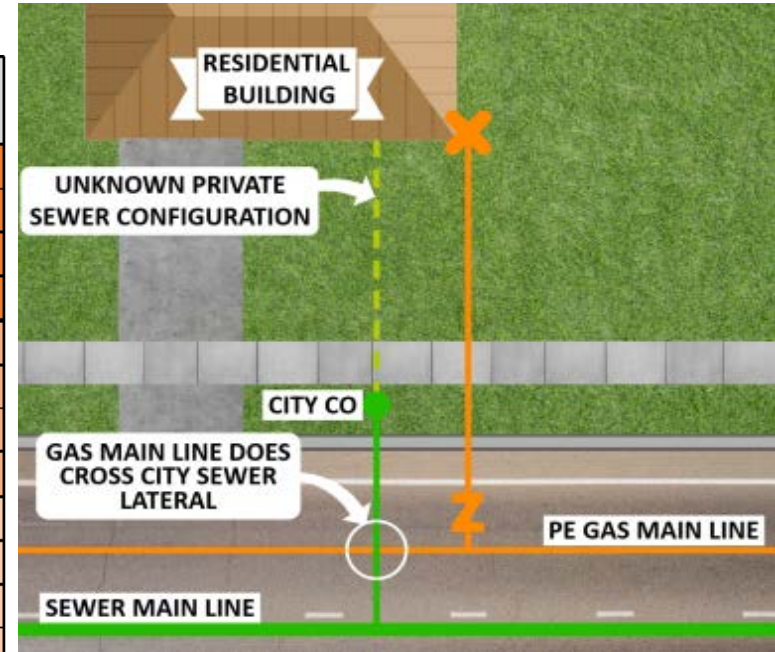


6. How is the cross-bore prioritization criteria table developed and which groups have CPAU historically found gas cross-bores?

Item #4

Cross-bore Criteria Table

CRITERIA	GROUP	PROTECTION	METER LOCATION	MAIN CROSSES SS LATERAL	
All schools, hospitals, churches and Parcels within a Business District with PE Gas services installed via Horizontal Direction Drilling (HDD)	1	A	NO EFV	BUILDING	YES
		B	NO EFV	CURB	YES
		C	NO EFV	BUILDING	NO
		D	NO EFV	CURB	NO
	2	A	MANUAL VALVE	BUILDING	YES
		B	MANUAL VALVE	CURB	YES
		C	MANUAL VALVE	BUILDING	NO
		D	MANUAL VALVE <td CURB	NO	
	3	A	WITH EFV	BUILDING	YES
		B	WITH EFV	CURB	YES
		C	WITH EFV	BUILDING	NO
		D	WITH EFV	CURB	NO
Residential, Commercial or Multi Family with PE Gas services installed via Horizontal Direction Drilling (HDD)	4	A	NO EFV	BUILDING	YES
		B	NO EFV	CURB	YES
		C	NO EFV	BUILDING	NO
		D	NO EFV	CURB	NO
	5	A	MANUAL VALVE	BUILDING	YES
		B	MANUAL VALVE	CURB	YES
		C	MANUAL VALVE	BUILDING	NO
		D	MANUAL VALVE	CURB	NO
	6	A	WITH EFV	BUILDING	YES
		B	WITH EFV	CURB	YES
		C	WITH EFV	BUILDING	NO
		D	WITH EFV	CURB	NO



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6. How is the cross-bore prioritization criteria table developed and which groups have CPAU historically found gas cross-bores?

Cross-bore Criteria Table

CRITERIA	GROUP	PROTECTION	METER LOCATION	MAIN CROSSES SS LATERAL	23 CPA GAS CROSSBORES FOUND IN SEWER LATERALS	TOTAL	
All schools, hospitals, churches and Parcels within a Business District with PE Gas services installed via Horizontal Direction Drilling (HDD)	1	A	NO EFV	BUILDING	YES	1*	1
		B	NO EFV	CURB	YES	0	
		C	NO EFV	BUILDING	NO	0	
		D	NO EFV	CURB	NO	0	
	2	A	MANUAL VALVE	BUILDING	YES	1*	1
		B	MANUAL VALVE	CURB	YES	0	
		C	MANUAL VALVE	BUILDING	NO	0	
		D	MANUAL VALVE	CURB	NO	0	
	3	A	WITH EFV	BUILDING	YES	1*	2
		B	WITH EFV	CURB	YES	0	
		C	WITH EFV	BUILDING	NO	1	
		D	WITH EFV	CURB	NO	0	
Residential, Commercial or Multi Family with PE Gas services installed via Horizontal Direction Drilling (HDD)	4	A	NO EFV	BUILDING	YES	4	6
		B	NO EFV	CURB	YES	0	
		C	NO EFV	BUILDING	NO	2	
		D	NO EFV	CURB	NO	0	
	5	A	MANUAL VALVE	BUILDING	YES	0	0
		B	MANUAL VALVE	CURB	YES	0	
		C	MANUAL VALVE	BUILDING	NO	0	
		D	MANUAL VALVE	CURB	NO	0	
	6	A	WITH EFV	BUILDING	YES	2*	13
		B	WITH EFV	CURB	YES	0	
		C	WITH EFV	BUILDING	NO	11	
		D	WITH EFV	CURB	NO	0	

* - Cross-bore during gas main installation

TOTAL = 23



7. What is the relationship between CPA gas cross-bores found and the distance between the natural gas pipeline and lower sewer lateral?

Item #4

Cross-bores by Group

23 Historical CPA Gas Cross-bores found in Sewer Laterals

966 Proposed Laterals for Cross-bore Inspection

Group	Proximity Range Between Gas Service and Sewer Lateral					Total
	0 ≤ 5'	6' ≤ 10'	11' ≤ 15'	16' ≤ 20'	≥21'	
1	1					1
2	1					1
3		1	1			2
4	1		3	1	1	6
5						0
6	3	4	2	1	3	13
Total	6	5	6	2	4	23

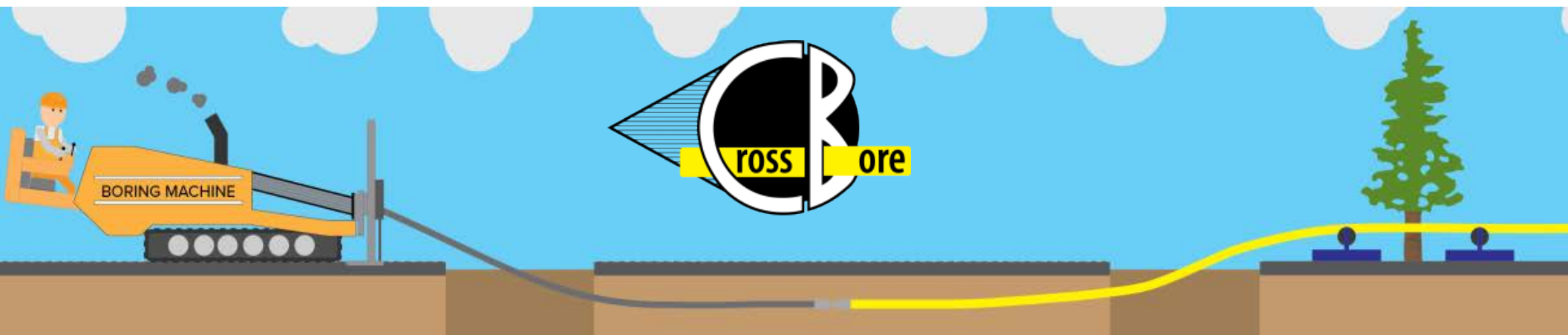
Group	Proximity Range Between Gas Service and Sewer Lateral					Total
	0 ≤ 5'	6' ≤ 10'	11' ≤ 15'	16' ≤ 20'	≥21'	
1	15	6	9	6	76	112
2	2	1	5	1	40	49
3	59	52	39	40	87	277
4	94	52	54	53	220	473
5	3	0	1	2	13	19
6	9	9	3	2	13	36
Total	182	120	111	104	449	966

Staff Recommendation

Staff recommends UAC to recommend the approval of Cross-bore Phase IV project to City Council.

With an estimated total budget of \$1,352,400 within the span of 2-years.

- **FY25: \$676,200**
- **FY26: \$676,200**





CITY OF
**PALO
ALTO**

Utilities Advisory Commission Staff Report

From: Dean Batchelor, Director Utilities
Lead Department: Utilities

Meeting Date: April 3, 2024
Staff Report: 2403-2759

TITLE

Recommendation to Adopt a Resolution Authorizing the City Manager or Their Designee to Execute an Amendment to the Power Purchase Agreement with Ameresco Half Moon Bay LLC for the Purchase of up to 60,000 Megawatt-Hours per Year of Biogas Energy over a Term of up to 20 Years for a Total Not to Exceed Amount of \$147.2 Million; CEQA Status: Not a Project under CEQA Guidelines Section 15378

RECOMMENDATION

Staff recommends that the Utilities Advisory Commission (UAC) recommend that the City Council adopt a Resolution (Attachment A) to:

1. Authorize the City Manager, or their designee, to execute Amendment No. 1 (Exhibit A to Attachment A) to the Power Purchase Agreement (PPA) with Ameresco Half Moon Bay LLC (Ameresco) to increase the generating capacity of the Ox Mountain landfill-gas-to-energy (LFGTE) project, increase the contract price, and extend the contract term by approximately 17 years;
2. Increase the maximum spending authority under the PPA from \$61,800,000 to \$147,200,000; and
3. Waive the application of the anti-speculation requirement of Section D.1 of the City's Energy Risk Management Policy as it may apply to surplus electricity purchases resulting from the City's execution of this amendment, due to the small increase in the facility's generating capacity and the City's need for the output to continue complying with its Renewable Portfolio Standard (RPS) procurement requirements.

EXECUTIVE SUMMARY

In 2005, the City executed a PPA with Ameresco to purchase 50% of the output of the Ox Mountain LFGTE facility. This agreement, lasting 20 years, aimed to secure a baseload source of renewable energy for the City. With the availability of additional landfill gas at the facility, Ameresco recently proposed an amendment to extend the contract term by 17 years, increase the project's capacity from 10 megawatts (MW) to 13 MW, and adjust the agreements' pricing structure. An economic assessment of the amendment suggests it would offer a net benefit to

the City, with the project's energy, renewable energy credits (RECs), and resource adequacy (RA) capacity providing an estimated net value of at least \$6 per megawatt-hour (MWh). Despite uncertainties, market trends favor the project's long-term value.

The amendment would increase Palo Alto's electric supply by 7.2% during the 2029-2046 period, enhancing the supply portfolio's diversity and aiding the City's compliance with its Renewable Portfolio Standard (RPS) obligations. Operational risks are largely mitigated, as the project is established, Ameresco is an experienced LFGTE project operator, and payments under the PPA are contingent on energy delivery, reducing financial exposure.

The recommended Ox Mountain PPA amendment offers a strategic opportunity to secure a long-term supply of baseload renewable energy, enhance the resilience of the City's electric supply portfolio, and advance the City's sustainability objectives. Approval is recommended to capitalize on the project's long-term benefits while mitigating risks and meeting regulatory obligations.

BACKGROUND

As part of its early sustainability efforts, in January 2005, Council approved the PPA with Ameresco to obtain half of the electric output of the Ox Mountain LFGTE generating facility in Half Moon Bay over a 20-year term ([Resolution 8495](#)¹, [CMR 100:05](#)²). Under this contract, which was one of the City's first renewable energy PPAs, the City agreed to purchase a 50% share of the output of the facility over a 20-year contract term. The City of Alameda executed a PPA at the same time to purchase the other 50% of the facility's output under identical contract terms.

The contract price was \$52/MWh in the first year, escalating at 1.5%/year, and the project achieved commercial operations in April 2009. (The current contract price is \$65.01/MWh.) The total generating capacity of the facility is currently 10 MW, and in addition to the round-the-clock renewable electricity it provides, the project is also a valuable source of local resource adequacy (RA) capacity in the Bay Area. Since it began operating, the facility has also been highly reliable, with an average availability rate of over 90%.

Although the City executed the PPA with Ameresco long before the state imposed an RPS mandate on municipal utilities like Palo Alto³, the state's RPS program rules do now apply to all utilities in the state, including Palo Alto. These rules require that an increasing percentage of retail sales be served by qualifying renewable generation; currently, the major RPS targets that apply to all utilities are 50% by 2026 and 60% by 2030. Palo Alto satisfies its RPS requirements through a diverse portfolio of qualifying renewable resources – including wind, solar, bioenergy (such as the Ox Mountain landfill gas project), and small hydro.

¹ Resolution 8495: <https://www.cityofpaloalto.org/files/assets/public/v/1/city-clerk/resolutions/reso-8495.pdf>.

² CMR 100:05: <https://www.cityofpaloalto.org/files/assets/public/v/1/agendas-minutes-reports/reports/city-manager-reports-cmrs/year-archive/2005/01-january/4149.pdf>.

³ The RPS mandate was first imposed on Palo Alto by SB X1-2 in 2011, and subsequently raised by SB 350 in 2015 and SB 100 in 2018.

ANALYSIS

In May 2022, Ameresco approached Utilities staff, along with staff from the City of Alameda, to inquire about their interest in purchasing additional output from the Ox Mountain LFGTE project, as well as extending the contract beyond its current 2029 end date. In early 2023 the City and Ameresco signed a non-binding Letter of Intent (LOI) to memorialize these discussions. Although the LOI did not commit the parties to moving forward with this contract amendment and extension, it did establish a deadline by which such an agreement finalized and executed: April 29, 2024. Over the subsequent months, as Ameresco worked through its development process for the expansion capacity, the parties continued negotiating the terms of an amendment, ultimately arriving at the recommended proposal.

Ox Mountain Amendment Summary

The key commercial terms contained in the recommended amendment include the following:

- *Expansion Capacity* – Ameresco will add additional generating capacity to the Ox Mountain project, bringing its total capacity up from 10 to 13 MW (of which Palo Alto will receive a 50% share).
- *Contract Term* – The original PPA is set to terminate in April 2029; the amendment would extend the PPA term to 20 years from when the expansion capacity comes online, which is expected to be in the spring of 2026. Hence the amendment would extend the original PPA's term by about 17 years.
- *Price* – The original PPA price is \$52/MWh, escalating at 1.5%/year. In the spring of 2026, when the expansion capacity is expected to come online, the PPA price will be \$66.98/MWh. The amendment would raise the contract price for the whole project to \$74/MWh, escalating at 1%/year (except in years when the inflation rate exceeds 3%, in which case the price escalator would jump to 2%). Additionally, the new contract price will be reduced by \$0.93/MWh if the expansion capacity does not qualify as RA capacity for the City.⁴
- *Termination Right* – Ameresco will have the right to terminate this amendment if it is unable to successfully complete the environmental and/or air quality permitting processes for the expansion capacity, or if the improvements required to receive these permits make the expansion capacity uneconomic for them to proceed with.

Economic Assessment of the Ox Mountain Amendment

The Ox Mountain PPA has provided excellent value to CPAU customers for the past 15 years, while also reducing the supply portfolio's seasonal energy and RA capacity deficits, thereby reducing budget uncertainty. The project provides three valuable products to the electric portfolio: energy, resource adequacy, and RECs. If the sum of these three values is greater than

⁴ The 3 MW of expansion capacity will have to go through a deliverability study process at the California Independent System Operator (CAISO) before it qualifies as RA capacity for the City. However, given that the facility is located in the transmission-constrained Greater Bay Area, staff expects it to qualify.

the cost of the power purchase agreement, the City will see a net monetary benefit from this contract.

The primary value provided by this PPA is from the baseload electrical energy that the resource produces. Based on forward energy curves as of February 1, 2024, the value of this energy is estimated to be approximately \$70/MWh between 2026 and 2033.

In addition to the energy component, each MWh of the Ox Mountain project's generation qualifies as a "Bucket 1" renewable energy credit (REC), which is projected to have a value between \$9 and \$21/MWh over the 20-year extension term. (Recently, supply conditions have been extremely tight; last fall the City sold surplus Bucket 1 RECs for over \$70/MWh.)

Finally, the LFGTE plant capacity qualifies as local RA, which the City can count towards its annual local and system RA requirements. RA is typically transacted and priced on a \$/kW-month basis and is projected to range from \$7/kW-month to \$12/kW-month over the 20-year extension term, which translates to approximately \$10 to \$16/MWh for the Ox Mountain project.

In aggregate, the total value of the amended Ox Mountain PPA is estimated to range between \$87 and \$112/MWh. On the other hand, the PPA price, when levelized over the 20-year extension term, is expected to be in the range of \$80 to \$85/MWh (depending on the number of years when the inflation rate exceeds 3%).

With each of these revenue streams, there is a large degree of uncertainty around what will happen to future prices from changes to macro-economic conditions, regulations, interdependent regional power markets, and overall market uncertainty. That said, forward pricing curves project off-peak power prices to become more valuable than on-peak prices within the next few years, and proposed changes to the RA market rules would reward generators that produce in times of the grid's greatest need. Furthermore, under the state's RPS legislation, all load serving entities are required to increase their share of renewable energy in their portfolios (to 60% by 2030), so there is increasing demand for RECs. All of these trends support the expected long-term value of the Ox Mountain project, given its ability to generate renewable energy around the clock. Staff conservatively estimates the project will provide a net benefit of at least \$6/MWh over the amended contract term, with the potential for significant upside if market prices stay high and there are further challenges to bringing new resources onto the grid in the coming 5-10 years.

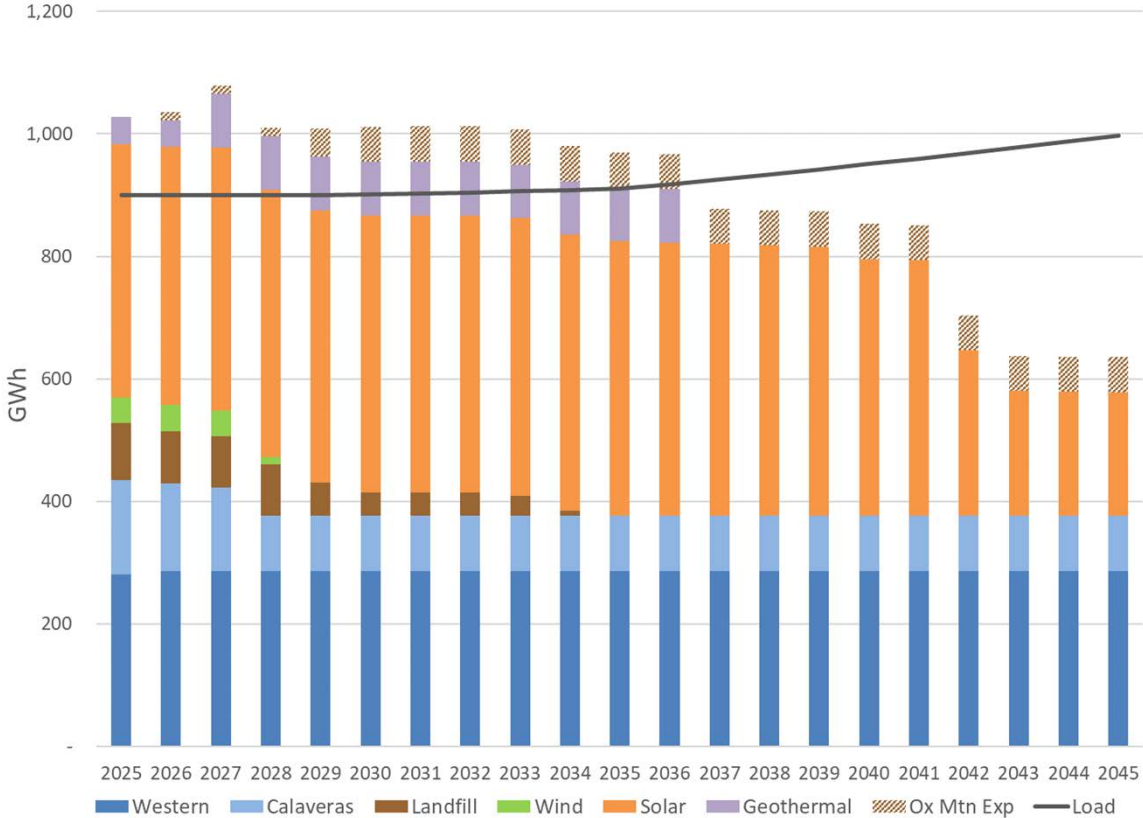
Electric Portfolio Impact

The City's share of the Ox Mountain project's output is currently about 44,000 MWh/year (equivalent to 5.5% of Palo Alto's 2022 retail energy sales). If the expansion capacity is approved this amount would be expected to grow to about 57,000 MWh/year (7.2% of retail energy sales). The existing supply portfolio⁵ is projected to have an overall surplus position through 2034 even

⁵ All six of the City's solar PPA extend to 2040 or later, while the landfill gas PPAs are currently scheduled to expire between 2026 and 2034. The City has one remaining wind PPA which expires in June 2028. Furthermore, the City can renew the Western Base Resource contract for a new 30-year term that would start in 2025, and for planning

without executing the Ox Mountain amendment, as shown in Figure 1 below. However, there is significant uncertainty around both the load and hydro generation projections shown here. With respect to load, there is the potential for significant growth from data centers, electric vehicles, and building electrification; meanwhile, the impacts of climate change are likely to significantly reduce the long-term level of hydro generation. Combined, these two factors could flip the portfolio’s overall surplus positions of the next several years to deficit positions—which is why staff recommends waiving the anti-speculation requirement of the City’s Energy Risk Management Policy for this agreement.

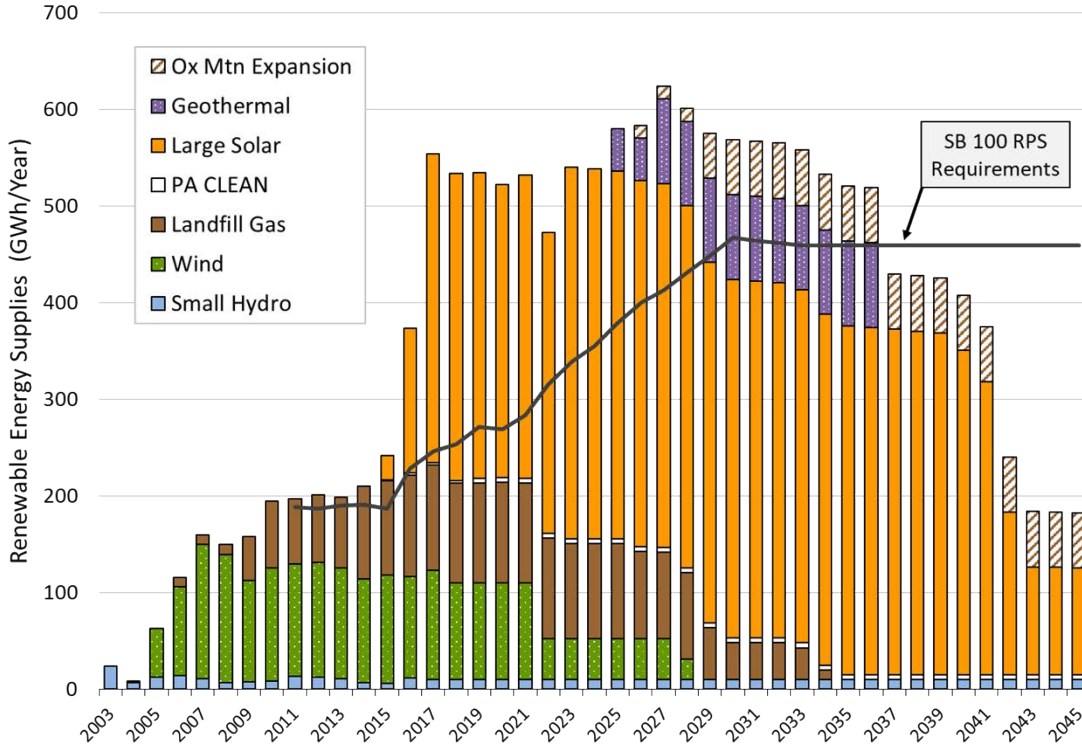
Figure 1: Projected Annual Load-Resource Balance with Ox Mountain Expansion & Extension



In addition to increasing and further diversifying Palo Alto’s electric supply portfolio in accordance with the City’s adopted Integrated Resource Plan, the project will also help the City comply with its RPS Procurement Plan obligations. The City is on track to meet state RPS targets through 2036, as shown in Figure 2 below; the amended Ox Mountain PPA would help to significantly reduce Palo Alto’s RPS procurement deficits beyond that point. In addition, this amendment would increase the volume of Bucket 1 RECs the City is able to swap for lower-cost Bucket 3 RECs under the REC Exchange Program and reduce the City’s local RA capacity deficit positions.

purposes it is currently included in the supply portfolio baseline assumptions. Lastly, the City owns its share of the Calaveras project and it is therefore expected to remain in the portfolio indefinitely.

Figure 2: RPS Supplies & Requirement Levels with Ox Mountain Expansion & Extension



Risk Management Assessment

Given that this project is an existing power plant, there is no development risk, and instead only operational risk. And as noted above, Ameresco is an experienced operator of LFGTE power plants like this one, and the Ox Mountain facility has an excellent reliability record. Finally, and perhaps most importantly, under the terms of the proposed PPA the City is not at risk for paying for output that is not delivered. As with all of the City’s PPAs, the City will make no payments under the PPA until energy from the project is delivered.

FISCAL/RESOURCE IMPACT

If Council approves the execution of this amendment with Ameresco, the City will purchase up to 60,000 MWh/year over the course of the 20-year contract extension term, for a total not-to-exceed amount of \$101.2 million (an average of \$5.06 million per year). Over the entire term of the PPA the maximum spending authority, which was originally set at \$61.8 million in 2005, would be increased to \$147.2 million. These values are considered upper limits on the output the facility could potentially generate; the actual output the City will purchase under this amendment over the contract term is expected to be slightly lower. Funding for the purchase of the additional renewable energy provided by the expansion of the Ox Mountain facility will be included in the Electric Utility Fund beginning in FY 2026.

STAKEHOLDER ENGAGEMENT

Utilities staff has coordinated with key staff from departments involved in the negotiation and management of the Ox Mountain PPA with Ameresco, including the Administrative Services

Department and the City Attorney's Office, as well as staff from the City of Alameda and the Northern California Power Agency (NCPA).

ENVIRONMENTAL REVIEW

The City Council's approval of this amendment does not meet the definition of a project under the California Environmental Quality Act (CEQA), pursuant to Public Resources Code Section 21065.

ATTACHMENTS

Attachment A: Resolution Approving Amendment No. 1 with Ameresco Half Moon Bay LLC

Attachment B: Presentation

AUTHOR/TITLE:

Dean Batchelor, Director of Utilities

Staff: James Stack, Ph.D., Senior Resource Planner

* NOT YET APPROVED *

Resolution No. _____

Resolution of the Council of the City of Palo Alto Authorizing the City Manager or Their Designee to Execute an Amendment to the Power Purchase Agreement with Ameresco Half Moon Bay LLC for the Purchase of up to 60,000 Megawatt-Hours per Year of Biogas Energy over a Term of up to 20 Years for a Total Not to Exceed Amount of \$147.2 Million

R E C I T A L S

A. The City of Palo Alto entered into a Power Purchase Agreement (PPA) with Ameresco Half Moon Bay LLC (Ameresco) in 2005 to purchase 50% of the output of the Ox Mountain landfill-gas-to-energy (LFGTE) project for a term of 20 years, aiming to secure a baseload source of renewable energy for the City.

B. In 2022, Ameresco determined that additional landfill was available at the Ox Mountain landfill and proposed an amendment to the PPA to increase the generating capacity of the LFGTE project, increase the contract price, and extend the contract term by approximately 17 years.

C. Utilities staff has conducted an economic assessment of the amendment and concluded that it would provide a net benefit to the City.

D. The proposed amendment would increase Palo Alto's electric supply by 7.2% during the 2029-2046 period, enhance the supply portfolio's diversity, and aid the City's compliance with its Renewable Portfolio Standard (RPS) obligations.

E. The proposed Ox Mountain PPA amendment offers a strategic opportunity to secure a long-term supply of baseload renewable energy, enhance the resilience of the City's electric supply portfolio, and advance the City's sustainability objectives.

The Council of the City of Palo Alto does hereby RESOLVE as follows:

SECTION 1. The Council hereby authorizes the City Manager, or their designee, to execute Amendment No. 1 (Exhibit A) to the Power Purchase Agreement (PPA) with Ameresco Half Moon Bay LLC (Ameresco) to increase the generating capacity of the Ox Mountain LFGTE project, increase the contract price, and extend the contract term by approximately 17 years.

SECTION 2. The Council hereby increases the maximum spending authority under the PPA from \$61,800,000 to \$147,200,000.

SECTION 3. The Council hereby waives the application of the anti-speculation requirement of Section D.1 of the City's Energy Risk Management Policy as it may apply to surplus electricity purchases resulting from the City's execution of this amendment, due to the

* NOT YET APPROVED *

small increase in the facility’s generating capacity, the significant uncertainty surrounding the City’s load and hydroelectric generation projections, and the City’s need for the output to continue complying with its Renewable Portfolio Standard (RPS) procurement and Resource Adequacy requirements.

SECTION 4. The Council hereby finds that the execution of this amendment does not meet the definition of a project under the California Environmental Quality Act (CEQA), pursuant to Public Resources Code Section 21065 and CEQA Guidelines 15378 because this activity would not result in a reasonably foreseeable direct or indirect change in the environment.

INTRODUCED AND PASSED:

AYES:

NOES:

ABSENT:

ABSTENTIONS:

ATTEST:

City Clerk

Mayor

APPROVED AS TO FORM:

APPROVED:

Assistant City Attorney

City Manager

Director of Utilities

Director of Administrative Services

AMENDMENT NO. 1
TO
POWER PURCHASE AGREEMENT

This Amendment No. 1 to the Power Purchase Agreement dated January 19, 2005 (“First Amendment”) is made and entered into as of _____ (the “First Amendment Effective Date”), by and between Ameresco Half Moon Bay LLC, a Delaware limited liability company, (“Ameresco” or “Seller”) and the City of Palo Alto, a chartered city organized under the laws of the State of California (“Palo Alto” or “Buyer”) regarding the purchase and sale of additional energy from an expansion of Ameresco’s Plant located at the Ox Mountain Landfill (“Ox Mountain”).

Ameresco and Palo Alto may be referred to herein individually as a “Party” and collectively as the “Parties.” Capitalized terms used, but not defined herein shall have the meaning ascribed to such term in the Agreement.

RECITALS

WHEREAS, Palo Alto and Ameresco entered into a Power Purchase Agreement, dated January 19, 2005 (the “Agreement”), whereby Palo Alto purchases a Percentage Share of the Output from Ameresco’s facilities at the Ox Mountain Landfill (the “Ox Mountain”); and

WHEREAS, Ameresco is pursuing the permitting, installation and interconnection of additional generating capacity at Ox Mountain (referred to in the Agreement as “Expansion Plant”) with the goal of increasing the capacity of the facility by up to 3.0 MW (“Additional Capacity”); and

WHEREAS, on March 29, 2023 Ameresco and Palo Alto entered into a non-binding Letter of Intent wherein Ameresco intends to sell to Palo Alto, and Palo Alto intends to purchase from Ameresco, fifty percent (50%) of the Additional Capacity; and

WHEREAS, Ameresco anticipates that the Additional Capacity from the Expansion Plant will reach commercial operation during the first calendar quarter of 2026.

NOW, THEREFORE, in consideration of the mutual agreements contained herein, and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Parties agree as follows:

AMENDMENT

1. Section 1.9.1 is added to the Agreement as follows:

Section 1.9.1 Expansion Plant Commercial Operation Date: The date upon which Commercial Operation of the Expansion Plant first occurs.

2. Section 1.13.1 is added to the Agreement as follows:

Section 1.13.1 Expansion Plant Energy: The electricity generated by the Expansion Plant, of which a Percentage Share will be delivered to Buyer by the Seller

pursuant to this Agreement (as amended) at the Point of Interconnection, as expressed in units of kilowatt-hours (kWh) or megawatt-hours (MWh).

3. Section 2.1 Term is amended by adding the following paragraph to the end of existing Section 2.1:

Effective as of the Expansion Plant Commercial Operation Date, the Agreement shall continue until the twentieth (20th) anniversary of the Expansion Plant Commercial Operation Date.

4. Section 2.3 Price is amended by adding the following paragraph to the end of Section 2.3:

At and after the Expansion Plant Commercial Operation Date, Buyer shall pay Seller \$0.074 per kWh of Energy and Expansion Plant Energy delivered to Buyer at the Point of Interconnection, which price shall be escalated at the rate of either (i) 1% (of the then-current price) annually for years in which the CPI is three percent (3%) or less for the preceding twelve (12) months, or (ii) 2% (of the then-current price) annually for years in which the CPI is greater than three percent (3%) for the preceding twelve (12) months. The price escalation shall take effect on the anniversary of the first day of the first full month following the Expansion Plant Commercial Operation Date or, in the event the Expansion Plant Commercial Operation Date falls on the first day of the month, the Expansion Plant Commercial Operation Date. For the avoidance of doubt, at and after the Expansion Plant Commercial Operation Date, this pricing applies to both the initial Output and the Expansion Plant Output. CPI shall be defined as the Consumer Price Index, published by the U.S. Bureau of Labor Statistics as the “CPI Index – All Urban Consumers (West Region)”.

If any Additional Capacity from the Expansion Plant does not qualify as resource adequacy capacity for the purposes of meeting Buyer’s resource adequacy compliance requirements, as determined by the California Independent System Operator (CAISO), the price per MWh of all Energy delivered to Buyer at the Point of Interconnection shall be discounted by \$0.00093/kWh from the then-current Price.

4. Section 2.5 Right of First Refusal for Expansion Plant and Expansion Plant Output is amended by adding the following sub-section (c):

(c) As of the First Amendment Effective Date, Seller anticipates constructing and operating an Expansion Plant with an Additional Capacity up to three (3.0) MW (the “First Expansion Plant Output”), with an expected, but not guaranteed, Expansion Plant Commercial Operation Date in the first calendar quarter of 2026. In compliance with Section 2.5, Seller has offered Buyer the right to purchase its Percentage Share of the First Expansion Plant Output, and Buyer has exercised its right to take all of its Percentage Share of the First Expansion Plant Output.

5. Conditions Precedent. This First Amendment shall have no effect unless or until Seller provides written notice to Buyer that each of the following conditions have been achieved

or waived: (a) Seller has a fully executed amendment to that certain Landfill Gas Purchase Agreement between Ameresco Half Moon Bay, LLC and Browning-Ferris Industries of California, Inc., extending the term of that agreement for twenty (20) years from the date of the Expansion Plant Commercial Operation Date; and (b) Seller has obtained all material permits and authorizations from applicable Government Authorities to construct, own and operate the Expansion Plant. If Seller has not satisfied condition precedent (a) by December 31, 2024, Buyer may terminate this First Amendment by sending written notice to Seller.

6. Termination Right. If Seller, in its sole discretion, determines that the Expansion Plant is not economical, Seller may, by providing written notice to Buyer, terminate this First Amendment at any time on or before the later of (i) May 1, 2025, or (ii) 30 days after Seller's receipt of final approval for the Expansion Plant from San Mateo County under the California Environmental Quality Act and from the Bay Area Air Quality Management District with respect to the Ox Mountain air permit. Any termination of this First Amendment under Section 5 or 6 shall be a "no-fault" termination, and (i) no default or Event of Default will be deemed to have occurred under the Agreement in respect of any such termination, (ii) neither Party shall have any further liability to the other Party hereunder as a result of such termination, and (iii) the Agreement (without this First Amendment) will remain in full force and effect. If Seller has not satisfied the conditions precedent of this section and provided notice of same to Buyer prior to June 30, 2025, then Buyer may terminate this First Amendment by sending written notice to Seller.

7. Terms and Conditions of the Agreement. Other than as expressly set forth in this First Amendment, all of the terms and conditions of the Agreement, and the respective rights and performance obligations under the same, not otherwise modified by, or made inconsistent with, the provisions of this First Amendment, shall remain in full force and effect and shall apply to this First Amendment; provided that to the extent there is a conflict between the terms of this First Amendment and the terms of the Agreement, the terms of this First Amendment shall control to the extent of such conflict.

8. Governing Law. This First Amendment shall be governed by and construed, interpreted and enforced in accordance with the laws of the State of California.

9. Counterparts. This First Amendment may be executed in two or more counterparts, each of which shall constitute an original, but all of which when taken together shall constitute but one and the same Agreement. Signatures to this First Amendment transmitted by facsimile, email, portable document format (or .pdf) or by any other electronic means intended to preserve the original graphic and pictorial appearance of this First Amendment shall have the same effect as the physical delivery of the paper document bearing original signature.

10. No Other Amendment. Except as expressly amended hereby, the terms and provisions of the Agreement remain in full force and effect and are ratified and confirmed by the Parties in all respects as of the First Amendment Effective Date.

IN WITNESS WHEREOF, the Parties have caused this First Amendment to be signed as of the First Amendment Effective Date.

**THE CITY OF PALO ALTO,
CALIFORNIA**

**AMERESCO HALF MOON BAY LLC
By Ameresco, Inc., its sole member**

Approval as to Form:

By: _____

Name: Amy Bartell

Date: _____

By: _____

Name: _____

Title: _____

**THE CITY OF PALO ALTO,
CALIFORNIA**

Approval by Utilities Director

By: _____

Name: Dean Batchelor

Date: _____

**THE CITY OF PALO ALTO,
CALIFORNIA**

Approval by City Manager

By: _____

Name: _____

Date: _____



Ameresco Half Moon Bay PPA Amendment

Utilities Advisory Commission

April 3, 2024

Discussion Outline

1. Overview of the Ox Mountain LFGTE Plant
2. Overview of Amendment No. 1 to the Ameresco Half Moon Bay PPA
3. Economic Assessment of Amendment No. 1
4. Electric Portfolio Impact of Amendment No. 1
5. Financial Impact of Amendment No. 1

Ox Mountain LFGTE Plant

- 10.6 MW Landfill-Gas-to-Energy plant located in Half Moon Bay, CA
- Facility achieved commercial operations in April 2009
- City executed a 20-year Power Purchase Agreement with Ameresco Half Moon Bay LLC in 2005
 - Palo Alto receives 50% of the plant's output; Alameda Municipal Power receives the rest
 - Plant delivers ~44,000 MWh/year to Palo Alto (~5.5% of annual load)
 - Contract price is \$52/MWh, escalating at 1.5%/year
 - In 2026, contract price will be \$67/MWh
- Facility provides local resource adequacy (RA) capacity and Bucket 1 renewable energy credits (RECs)

Ameresco Half Moon Bay PPA Amendment No. 1

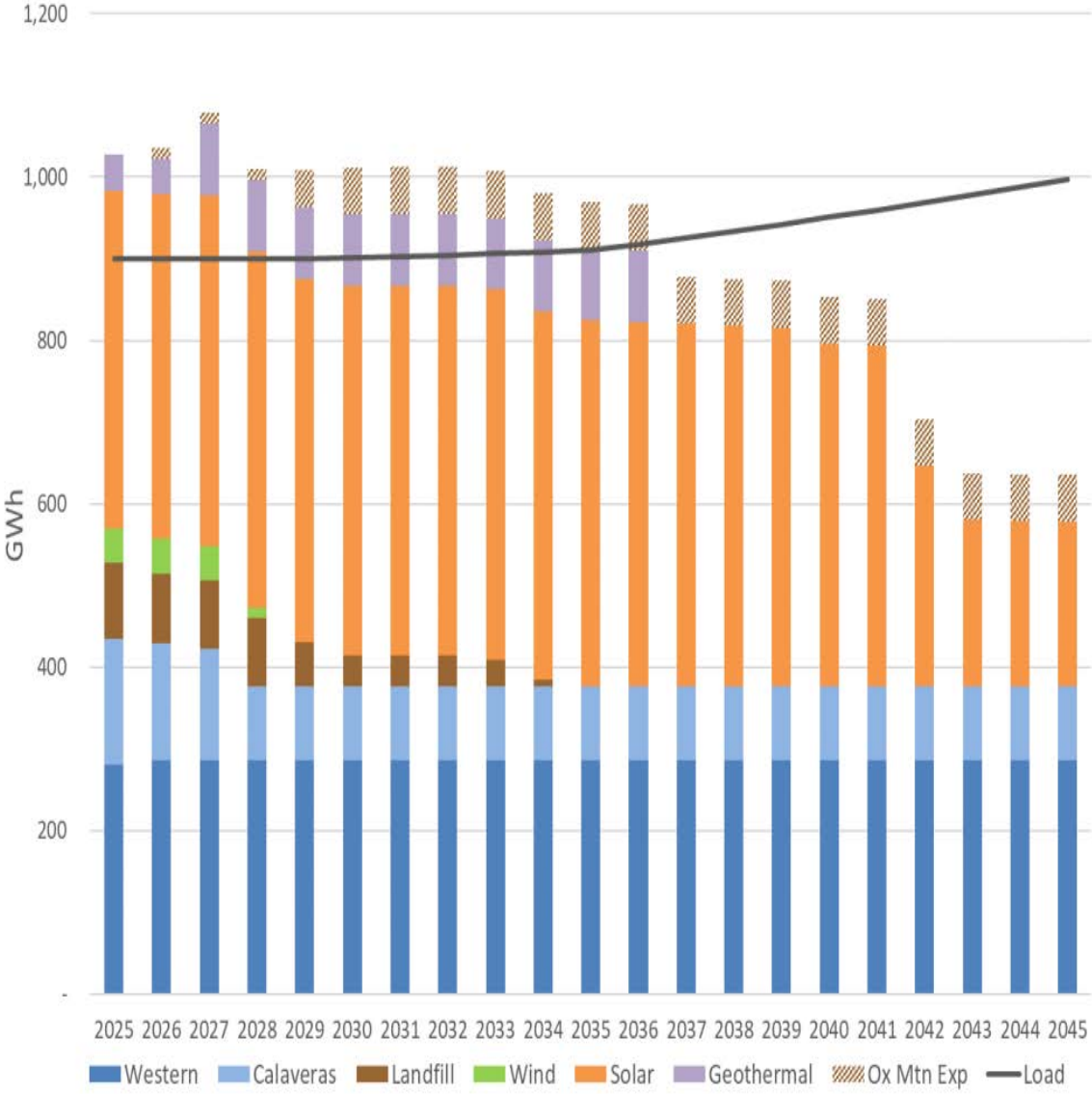
- **Capacity Expansion** – Increases plant capacity by 3 MW (to 13.6 MW)
 - Palo Alto to receive 50% of expansion capacity
- **Term Extension** – Extends contract end date to 20 years from expansion capacity online date
 - Expansion capacity COD estimated to be Q2 2026 → 17 year extension of original PPA term
- **Price Increase** – Contract price will increase to \$74/MWh when expansion capacity comes online
 - But annual escalation factor will drop from 1.5% to 1% (except in years with high inflation, when it will be 2%)
 - Contract price will be \$0.93/MWh lower if the expansion capacity does not qualify as RA
- **Termination Right** – Ameresco will have the right to terminate the amendment if it can't get the CEQA permit and/or air permit needed for the expansion capacity, or if the permitting improvements result in the project becoming uneconomic for them

Economic Assessment of Amendment No. 1

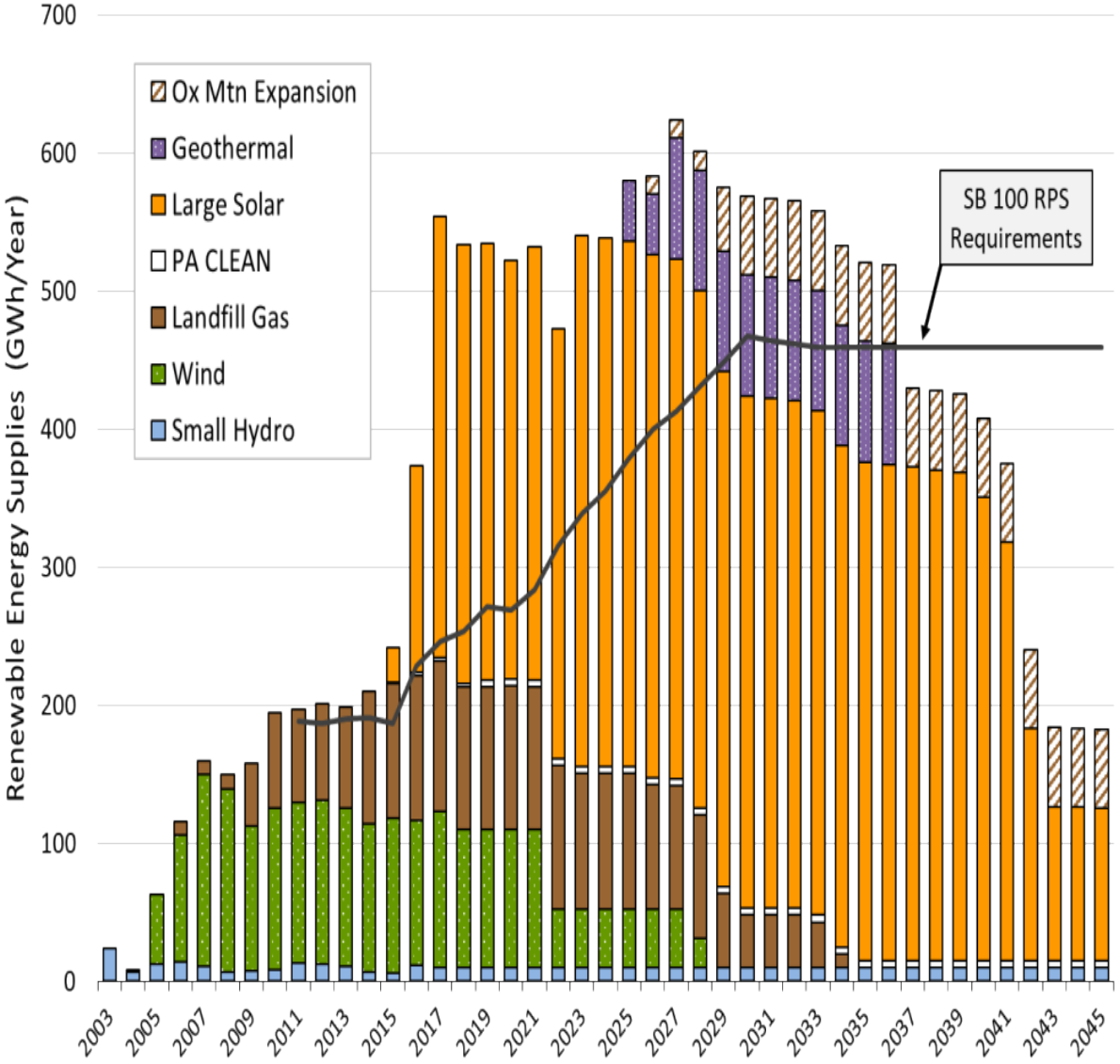
- Levelized PPA price over 20-year extension term: **\$80-\$85/MWh** (depending on inflation)
 - Annual cost to Palo Alto: \$4.4M-\$5.8M
- Around-the-clock market energy prices: \$62-74/MWh for CY26-CY33
- Bucket 1 REC Prices*: \$9-21/MWh
- Local RA Value*: \$8-12/kW-mo or \$10-16/MWh
- Total Benefits: **\$81-101/MWh** (Expected value: **\$94/MWh**)
- Net Value: **-\$4 to +\$21/MWh** (Expected value: **+\$11/MWh**)

** REC and RA price estimates based on Ascend Analytics' Fall 2023 Market Forecast.
Current market prices for RECs and RA are far higher than these projections.*

Electric Portfolio Impact – Load-Resource Balance



Electric Portfolio Impact – Renewable Portfolio Standard



Financial Impact of Amendment No. 1

- The capacity expansion + contract term extension will result in the following change in maximum spending authority amount:
 - \$61.8M for the original contract (20-years)
 - \$147.2M for the amended contract (~37 years)
- For the 20-year extension term, the maximum spending authority will be \$101M (~\$5M/year)

Recommendation

Staff recommends that the Utilities Advisory Commission recommend that the City Council adopt a resolution to:

1. Authorize the City Manager, or their designee, to execute Amendment No. 1 to the PPA with Ameresco Half Moon Bay LLC to increase the generating capacity of the Ox Mountain landfill-gas-to-energy project, increase the contract price, and extend the contract term by approximately 17 years;
2. Increase the maximum spending authority under the PPA from \$61,800,000 to \$147,200,000; and
3. Waive the application of the anti-speculation requirement of Section D.1 of the City's Energy Risk Management Policy as it may apply to surplus electricity purchases resulting from the City's execution of this amendment, due to the small increase in the facility's generating capacity and the City's need for the output to continue complying with its Renewable Portfolio Standard (RPS) procurement requirements.



CITY OF
**PALO
ALTO**

Jim Stack, PhD

Senior Resource Planner

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(650) 329-2314



Utilities Advisory Commission Staff Report

From: Dean Batchelor, Director Utilities
Lead Department: Utilities

Meeting Date: April 3, 2024
Staff Report: 2402-2676

TITLE

Utilities Advisory Commission FY 2024 - 2025 Work Plan

RECOMMENDATION

Staff Recommends the Utilities Advisory Commission Review and Approve the Utilities Advisory Commission's 2024-2025 Annual Work Plan, and Recommend the City Council Review the Work Plan and Provide Feedback

BACKGROUND

ANNUAL WORKPLAN AND PERFORMANCE MEASURES

In accordance with the 2020 City Boards, Commissions, and Committees Handbook, each Board and Commission should prepare an annual work plan for proposal to the City Council by the second quarter of the calendar year. The Council will review the work plan and provide feedback annually at a dedicated City Council meeting. The annual report should include the results of the prior year's plan. When applicable, the City Council would like to see metrics of community involvement and participation in meetings and activities included in the work plan. Council expects Boards and Commissions to work on items in the approved workplan. In addition, Council may refer additional items to the Boards and Commissions in response to new developments. Boards and Commissions should refrain from expending their time and that of the staff liaison on items that have not been approved by the City Council. If the Board or Commission would like to add an issue for review after an annual workplan has been approved by the City Council, a prompt request by the Board or Commission Chair to the City Council is required and the item will then be addressed by the City Council as a whole.

ATTACHMENTS

Attachment A: Utilities Advisory Commission FY 2024 – 2025 Workplan

AUTHOR/TITLE:

Dean Batchelor, Director of Utilities



CITY OF
PALO ALTO

**Utilities Advisory Commission
2024-2025 Workplan**

Staff Liaison: Dean Batchelor, Director of Utilities
Lead Department: Utilities

About the Commission

The Utilities Advisory Commission (UAC) is charged with providing advice on long range planning and policy matters, acquisition, development, and financial review of electric, gas and water resources; joint action projects with other public or private entities which involve electric, gas or water resources; environmental implications of proposed electric, gas or water utility projects; and conservation and demand management. Additionally, the UAC is charged with providing advice on the acquisition, development and financial review of the dark fiber network and wastewater collection utilities. As a highly regulated industry, there may be matters not listed below that will be presented to the UAC in accordance with current or future (local, state, or federal) legislative requirements.

The Commission is composed of 7 members.

Terms are for 3 years and commence on the first meeting in April.

See Palo Alto Municipal Code (PAMC) Sections 2.23.010 (Membership), 2.23.030 (Term of Office), 2.23.040 (Officers), 2.23.050 (Purpose and Duties), and 2.23.060 (Meetings).

Current Commissioners

- Lauren Segal (Chair)
- Greg Scharff (Vice Chair)
- Lisa Forssell
- Phil Metz
- Rachael Croft
- Robert Phillips
- Megan Mauter

Mission Statement

The purpose of the Utilities Advisory Commission shall be to advise the City Council on present and prospective long-range planning, policy, major program, and project matters relating to the electric, gas, water, wastewater collection, fiber optics utilities, and recycled water matters, excluding daily operations.

The Utilities Advisory Commission shall have the following duties:

- Advise the City Council on long-range planning and policy matters pertaining to:
 - Joint action projects with other public or private entities which involve, affect or impact the utilities;
 - Environmental aspects and attributes of the utilities;
 - Water and energy conservation, energy efficiency, and demand side management; and
 - Recycled water matters not otherwise addressed in the preceding subparagraph

- Review and make recommendations to the City Council on the consistency with adopted and approved plans, policies, and programs of any major utilities;
- Formulate and review legislative proposals regarding the utilities, to which the city is a party, in which the city has an interest, or by which the city may be affected;
- Review the utilities capital improvement programs, operating budgets and related reserves, rates, and the recycled water program, budget, rate, and thereafter forward any comments and recommendations to the finance committee or its successor;
- Provide advice upon such other matters as the City Council may from time to time assign.

The Utilities Advisory Commission shall not have the power or authority to cause the expenditure of city funds or to bind the city to any written, oral, or implied contract.

The Utilities Advisory Commission may, subject to its City Council-approved bylaws and at the discretion of the City Council, foster and facilitate engagement with the general public, not excluding representatives of commerce and industry, in regard to the utility matters referred to in subsections above.

Prior Year Accomplishments

Heat Pump Water Heater (HPWH) Pilot:

- 687 customers have been signed up to participate
- 200 customers have had completed installs

Advanced Meter Infrastructure (AMI)

- 6,946 gas customers have had completed installs
- 6,138 water customers have had completed installs
- 5,766 electric customers have had completed installs

CA Renewable Energy Credits (REC's)

- Approved by Council on 12/12/2022 to continue the program and return to the UAC and Council in 2025

Fiber-to-the-Premises (FTTP)

- Began coordinating grid mod project with FTTP
- Identified and began addressing key challenges
 - Pilot to align grid mod project with FTTP
 - CEQA Initial Study for FTTP

Electric Grid Modernization (Grid Mod)

An electric engineering study was completed identifying upgrades needed throughout the electric distribution system, this entails upgrading line transformer capacity, feeder capacity, increasing the number of switches and connections on the system between feeders and substations, and upgrading substation equipment. Construction on the first modernization project is starting in Q2 2024 in a 1200-home neighborhood pilot area bounded by Louis, Amarillo, 101, and Embarcadero. The modernization projects will be coordinated with fiber to the premise construction. To capitalize on synergies between GridMod and FTTP, a Pilot area combining both GridMod and FTTP project was identified, and the joint project boundary has been fixed. The GridMod design was contracted with consultant Entrust, and the design and engineering work for Phases 1-7 has been completed. Engineering staff is preparing construction documents which will be released to Operations for construction in the pilot area starting in May 2024. Equipment procurement is currently underway, with poles anticipated to be received by 04/30/2024, aerial secondary wire by 04/30/2024, and transformers expected by 06/30/2024. The target completion date for the Pilot is

Sewer System Replacement 31 (SSR31)

- Conducted successful outreach meeting with Barron Square HOA residents who have been impacted by the activity at the project's laydown yard. The on-going communication has been effective to keep the Barron Square residents informed.
- The portion of the work requiring 2-lane closure on El Camino Real was performed at night. No more nighttime work is anticipated on this project, unless unexpected condition dictates.
- Continue with daytime work. The remaining work will be performed on El Camino Real between Fernando and Sheridan and on Page Mill Road between El Camino Real and Ramons Way.
- Project is currently on track to be completed in May 2024, before Caltrans and County of Santa Clara's paving projects start.

Water main replacements

9,893 Feet of water main replaced
252 services replaced

STANDING TOPIC 1:	Annual Budget - Rate changes to Water, Gas, Electric, Wastewater collection, and Fiber services.			
BENEFICIAL IMPACTS	TIMELINE	RESOURCES NEEDED	MEASURE OF SUCCESS	STATE MANDATED / LOCAL LAW / COUNCIL-APPROVED
The community will have a better understanding of the rates and why they are being charged.	Rates are reviewed annually and each rate change is determined by the COSA reports. UAC review is in March, FCM review is in April and CCM approval is in June	Staff time, Legal team review time, Consultant time to create the COSA report.	Council approval of budget	N/A
HIGH PRIORITY		LOWER PRIORITY		COUNCIL-DIRECTED POLICY UPDATE
Rates are always a high priority. The change has an impact on the community and economy.		N/A		N/A
STANDING TOPIC 2:	Water Supply: Consider potential future sources of water supply. This includes recycled water, demand management programs, grey water, treatment efforts, and use of effluent.			
BENEFICIAL IMPACTS	TIMELINE	RESOURCES NEEDED	MEASURE OF SUCCESS	STATE MANDATED / LOCAL LAW / COUNCIL-APPROVED
The benefit to the community is to have ample water source and supply when needed in the event of a drought or for basic uses	This is not a single effort or project; however, a year-round effort	Staff time, Legal team review time, Consultant time for development of the One Water Plan which is a holistic 20-year water portfolio	Council approval of the One Water Plan which includes adaptable, dynamic, water supply portfolios.	N/A
HIGH PRIORITY		LOWER PRIORITY		COUNCIL-DIRECTED POLICY UPDATE
Having knowledge of where the City's water supply is coming from and how we maintain that supply is a maintained priority..		N/A		N/A

STANDING TOPIC 3:	Electric Supply: Consider updates to the electric supply portfolio and issues relating thereto.			
BENEFICIAL IMPACTS	TIMELINE	RESOURCES NEEDED	MEASURE OF SUCCESS	STATE MANDATED / LOCAL LAW / COUNCIL-APPROVED
Reliability for customers, health benefits, and clean energy responsible for the vast carbon reduction the City has achieved over the past decade	This is an ongoing regularly monitored effort and does not have a start or completion time	Approved budget, staff time, legal review time, consultants as needed, and technology	Release of RFP for more renewable energy supply options in the Integrated Resource Plan (IRP). Have the IRP near completion to present to the UAC for review and approval. Maintaining the zero emissions portion of the portfolio and carbon neutral plan.	N/A
HIGH PRIORITY		LOWER PRIORITY		COUNCIL-DIRECTED POLICY UPDATE
The health and well being of the community is a high priority for Council and Utilities		N/A		N/A
STANDING TOPIC 4:	Gas Supply: Consider aspects of the gas supply portfolio and issues relating thereto			
BENEFICIAL IMPACTS	TIMELINE	RESOURCES NEEDED	MEASURE OF SUCCESS	STATE MANDATED / LOCAL LAW / COUNCIL-APPROVED
Gas is a type of energy used to provide some residence and businesses in Palo Alto with heat for their facilities and some cooking appliances.	This is not a single effort or project; however, a year-round effort	Staff time, Legal team review time, Consultant time when necessary	Utilities on average are 10% below PG&E's rates year round	N/A
HIGH PRIORITY		LOWER PRIORITY		COUNCIL-DIRECTED POLICY UPDATE
The health and well being of the community is a high priority for Council and Utilities		N/A		N/A

STANDING TOPIC 5:	Utilities CIP's: Discuss CIP projects.			
BENEFICIAL IMPACTS	TIMELINE	RESOURCES NEEDED	MEASURE OF SUCCESS	STATE MANDATED / LOCAL LAW / COUNCIL-APPROVED
There are multiple CIP's throughout the Utilities, each with their own benefits to the City and the community from rebuilding the water reservoirs, repairing and replacing sewer lines or water mains, maintaining street lights, building out the fiber backbone, upgrading the meter system to upgrading the outage management system	Utilities has multiple projects in their Council approved CIP budget. Most of these projects are multi year based.	Staff time, Legal review time, Procurement time for setting up contracts, contractors for work completion	Utilities CIP success is completion of the project within the timeline that was approved by Council.	N/A
HIGH PRIORITY		LOWER PRIORITY		COUNCIL-DIRECTED POLICY UPDATE
Maintaining quality of life for the community creates the priority for Utilities projects		N/A		N/A
STANDING TOPIC 6:	Reliability and Resiliency: Ongoing discussions regarding the reliability and resiliency of the utilities.			
BENEFICIAL IMPACTS	TIMELINE	RESOURCES NEEDED	MEASURE OF SUCCESS	STATE MANDATED / LOCAL LAW / COUNCIL-APPROVED
This matter encompasses a number of situations including but not limited to the S/CAP program. The benefit of any of the reliability or resiliency projects is to support the City and community now and into the future with reliable, safe connections, water, electricity, fiber and natural gas	These programs and projects are year round and do not have a beginning or an end. For example the S/CAP is set to accomplish the goal by 2030	Budget approval, staff time, additional staff, and some use of consultants	Maintaining a high level of efficient, safe, and reliable services with an emphasis on moving forward with a pilot program of converting homes to electric.	YES
HIGH PRIORITY		LOWER PRIORITY		COUNCIL-DIRECTED POLICY UPDATE
The S/CAP is a Council priority and therefore a High priority for the Utilities Advisory Commission to focus on		N/A		N/A

STANDING TOPIC 7:	Legislative Initiatives: The Utility tracks many local, state and federal bills that touch on utilities. Should any new laws, regulations, or ordinances pass during the year, the UAC may need to discuss the changes.			
BENEFICIAL IMPACTS	TIMELINE	RESOURCES NEEDED	MEASURE OF SUCCESS	STATE MANDATED / LOCAL LAW / COUNCIL-APPROVED
Staff tracks the possible changes in laws and regulations and presents the proposed changes to the UAC for review and consideration to the Council.	Legislature meets throughout the year and possible changes can occur at any point that effect utilities	Staff time, travel, and legal review time	This is a non-measurable project	State Mandated
HIGH PRIORITY		LOWER PRIORITY		COUNCIL-DIRECTED POLICY UPDATE
N/A		The level of priority is based on the particular legislation being proposed and how it effects the regulated utilities		N/A
STANDING TOPIC 8:	Council Driven Initiatives: The UAC will address any matter assigned by the City Council.			
BENEFICIAL IMPACTS	TIMELINE	RESOURCES NEEDED	MEASURE OF SUCCESS	STATE MANDATED / LOCAL LAW / COUNCIL-APPROVED
The UAC is made up of a diverse group with insight of the innerworkings of and vast knowledge in the utilities arena.	Timeline will be addressed once assigned	UAC, Staff and legal review time	Council approval of completed task	YES
HIGH PRIORITY		LOWER PRIORITY		COUNCIL-DIRECTED POLICY UPDATE
Typically when Council requests a review of an item it is considered a priority		N/A		N/A

Standing Topic 9:	S/CAP Support: Discuss community engagement, technology (current & emerging), finance, and community scaling of S/CAP plans to meet the City's goals for sustainability and climate action. This includes electrification efforts, possible code modifications, potential full or partial retirement of the gas distribution system, and electrification of gas appliances. It also includes permitting and inspection processes for customers wishing to upgrade panels, electrify appliances, or install solar PV, energy storage, and/or EV charging systems.			
BENEFICIAL IMPACTS	TIMELINE	RESOURCES NEEDED	MEASURE OF SUCCESS	STATE MANDATED / LOCAL LAW / COUNCIL-APPROVED
UAC expertise will help the Council S/CAP Committee make progress on achieving S/CAP goals with benefits to reducing the impacts of climate change.	Ongoing support to the S/CAP Committee	Staff time	The development of clear plans for building electrification, including concrete improvements to utility or permitting processes resulting from UAC actions.	YES
HIGH PRIORITY		LOWER PRIORITY		COUNCIL-DIRECTED POLICY UPDATE
Support S/CAP Committee goals to develop plans and improve processes for building electrification		Discussions of other forms of emissions reduction besides building electrification		YES

FY2025 Topic 1:	One Water Plan			
BENEFICIAL IMPACTS	TIMELINE	RESOURCES NEEDED	MEASURE OF SUCCESS	STATE MANDATED / LOCAL LAW / COUNCIL-APPROVED
Community will have a 20 – year adaptable roadmap for implementation of prioritized water supply and conservation portfolio alternatives that can be used as a water supply plan.	For Council approval in Fall 2024	Staff time, budget for consultant time, Legal team review time	Council approval of the One Water Plan which includes an adaptable, dynamic water supply portfolio.	N/A
HIGH PRIORITY		LOWER PRIORITY		COUNCIL-DIRECTED POLICY UPDATE
The One Water Plan will serve as a long-term guide to prepare the City’s water supply for future uncertainties like multi-year drought, and climate change.		N/A		N/A
FY2025 TOPIC 2:	Electric Grid Modernization and Fiber-to-the-Premises pilot project			
BENEFICIAL IMPACTS	TIMELINE	RESOURCES NEEDED	MEASURE OF SUCCESS	STATE MANDATED / LOCAL LAW / COUNCIL-APPROVED
Pilot will inform staff how to align the electric grid modernization and fiber-to-the-premises project to help minimize utility engineering pole make-ready work, pole replacements, noise disruption, and construction activity in neighborhoods,	Construction is scheduled to begin in April 2024 and expected to be completed by end of 2024	Staff time, contractor time, and budget	Completion of construction of electric grid modernization and fiber-to-the-premise including upgrade of 4kV to 12kV distribution system and offering Palo Alto Fiber ISP to residents in the pilot area.	YES
HIGH PRIORITY		LOWER PRIORITY		COUNCIL-DIRECTED POLICY UPDATE
Electric grid modernization will enhance reliability, resiliency, and capacity and enable electrification. Fiber-to-the-premises will provide fast, reliable, affordable, and city-owned fiber internet service to residents and businesses.		N/A		N/A

FY2025 Topic 3:	Workforce: Discuss ongoing issues with hiring and retaining qualified utility workers.			
BENEFICIAL IMPACTS	TIMELINE	RESOURCES NEEDED	MEASURE OF SUCCESS	STATE MANDATED / LOCAL LAW / COUNCIL-APPROVED
Having the ability to maintain a workforce gains consistency in Utility maintenance, and completion of Council approved CIP's By the end of 2024 a succession plan will be in place	Ongoing	HR time, Utility staff time, budget	Filling of all open positions with the right people	N/A
HIGH PRIORITY		LOWER PRIORITY		COUNCIL-DIRECTED POLICY UPDATE
It is a high priority to fill these open positions in order to lower the overall cost of the Utilities. If critical positions are filled, the need for having contract workers lowers the cost to serve the community.		N/A		N/A
FY2025 Topic 4:	Tesla Project - \$10M Upgrade to Hanover Substation			
BENEFICIAL IMPACTS	TIMELINE	RESOURCES NEEDED	MEASURE OF SUCCESS	STATE MANDATED / LOCAL LAW / COUNCIL-APPROVED
Upgraded substation increases capacity to facilitate electrification process.	Start October 2023, completion anticipated September 2024	CPAU design review (1 FTE), construction resource manager (FTE), engineering support and inspection (1FTE each)	2 Fully upgraded 50 mva transformers	N/A
HIGH PRIORITY		LOWER PRIORITY		COUNCIL-DIRECTED POLICY UPDATE
Electrification and an increase of load by 30-50 mva.		N/A		N/A

FY2025 Topic 5:	Heat Pump Water Heater			
BENEFICIAL IMPACTS	TIMELINE	RESOURCES NEEDED	MEASURE OF SUCCESS	STATE MANDATED / LOCAL LAW / COUNCIL-APPROVED
Reduces the use of natura gas, by reducing carbon emissions and improves indoor air quality	December 31, 2024	Staff time, budget	1,000 HPWH's installed by the end of 2024	YES
HIGH PRIORITY		LOWER PRIORITY		COUNCIL-DIRECTED POLICY UPDATE
This is the 1 st program for the community to start on the achievement to electrification by eliminating most gas appliances in CPA which is needed to reach the 80/30 goals		N/A		S/CAP policy
FY2025 Topic 6:	Gas Hedging			
BENEFICIAL IMPACTS	TIMELINE	RESOURCES NEEDED	MEASURE OF SUCCESS	STATE MANDATED / LOCAL LAW / COUNCIL-APPROVED
Lowers the risk to the city by decreasing the volatility of extreme high market pricing that would be passed on to the customer	UAC approval in May, Finance Committee approval in June, Council approval in August, and Completion by October	Staff time, budget	Execution of hedges for the appropriate winter months	Council approval needed
HIGH PRIORITY		LOWER PRIORITY		COUNCIL-DIRECTED POLICY UPDATE
Due to the need to have this implemented in order to execute the transactions in October for the winter months		N/A		N/A

FY2025 Topic 7:	Gas Rate Design Review			
BENEFICIAL IMPACTS	TIMELINE	RESOURCES NEEDED	MEASURE OF SUCCESS	STATE MANDATED / LOCAL LAW / COUNCIL-APPROVED
Gas rates that are cost-based, constitutionally compliant and with an eye toward competitiveness with gas rates in neighboring communities.	Council approval in September 2024	Staff time, budget for consultant time, legal review time.	Gas rates that are competitive with neighboring communities across customer classes.	N/A
HIGH PRIORITY		LOWER PRIORITY		COUNCIL-DIRECTED POLICY UPDATE
Rate impacts on Palo Alto residents and businesses.		N/A		N/A

FY2025 Topic 8:	Management of potential future gas commodity price spikes: Recommend revisions to the Gas Utility Long-term Plan (GULP) to include a strategy for mitigating the impact on customers of market price spikes			
BENEFICIAL IMPACTS	TIMELINE	RESOURCES NEEDED	MEASURE OF SUCCESS	STATE MANDATED / LOCAL LAW / COUNCIL-APPROVED
Protect customers from short-term bill impacts	For Council approval in Summer 2024	Staff time, Legal team review time	Council approval of revised GULP.	Yes
HIGH PRIORITY		LOWER PRIORITY		COUNCIL-DIRECTED POLICY UPDATE
The revised GULP objectives and strategies will provide a framework through which short-term, unexpected commodity price spikes can be mitigated		N/A		N/A

FY2025 Topic 9:	Electric Portfolio Rebalancing: Decision regarding the City’s large hydroelectric resource, the contract with the Western Area Power Administration (WAPA)			
BENEFICIAL IMPACTS	TIMELINE	RESOURCES NEEDED	MEASURE OF SUCCESS	STATE MANDATED / LOCAL LAW / COUNCIL-APPROVED
The WAPA contract accounts for half of the City’s power needs in an average hydro year. The City must take action to renew the contract or reduce the amount of power purchased under the agreement in the future. Regulatory uncertainty and climate change warrant an evaluation of the contract which will be used to make a recommendation to Council.	For Council approval in Summer 2024	Staff time, Legal team review time	Council approval.	N/A
HIGH PRIORITY		LOWER PRIORITY		COUNCIL-DIRECTED POLICY UPDATE
		N/A		N/A



Utilities Advisory Commission Staff Report

From: Dean Batchelor, Director Utilities
Lead Department: Utilities

Meeting Date: April 3, 2024
Staff Report: 2401-2478

TITLE

Informational Report: Utilities Quarterly Report for FY24-Q2

RECOMMENDATION

This is an informational report and no action is requested.

EXECUTIVE SUMMARY

This report for the Utilities Advisory Commission is an informational update on water, gas, electric, wastewater collection and fiber utilities, efficiency programs, legislative/regulatory issues, utility-related capital improvement programs, operations, reliability impact measures and a utility financial summary. This updated report has been prepared to keep the Utilities Advisory Commission apprised of the major issues that are facing the water, gas, electric, wastewater collection and fiber utilities. A separate quarterly report on the financial position is prepared consistent with when the City closes its books.

Items of special interest in this report are summarized below:

Vacancies and Staffing – Appendix B

- The Utilities Department has 43 vacant positions out of 259 authorized positions or a 17% vacancy rate at the end of December 2023 compared to 44 vacancies in September 2023 and 49 vacancies in June 2023.
- Due to HR staffing constraints, Utilities has designated three HR liaisons from Utilities Administration to assist HR with some of the recruitments. Since then, the number of vacancies has decreased, and the recruitment timeline has shortened.
- Progress has been made in filling vacant Electric Engineering and Operations positions over the past 4 quarters.

Number of Electric Vacancies by Quarter in CY 2023				
Division	Q4	Q3	Q2	Q1
Electric Operations	14	17	21	24
Electric Engineering	8	6	6	8
Total Electric	22	23	27	32

Electric Utility:

- Improved hydroelectric generation and revenue from Resource Adequacy sales are resulting in a projected net supply cost of \$71.5M for FY 2024, or a 22% decrease compared to budget. (Section 1.1.1)
- A number of construction projects are in progress or have been recently completed. (Section 1.2)
- A new power purchase agreement to buy biogas in order to satisfy a regulatory requirement regarding emissions from organic food waste (Section 1.1.4)
- A summary chart of quarterly electric outages is included in the report. (Section 1.1.1)

- FY 2024 electric sales are about 1.6% higher than forecasted, while actual sales are **Item #{{item.number}}** higher than budgeted so far. (Section 1.5.1)

Gas Utility:

- Gas prices have decreased and stabilized since last winter’s spike. The Council-approved purchasing strategy, whereby price insurance was purchased for a portion of expected gas needs in December, January, and February this winter was implemented. (Section 2.1)
- One gas main replacement project was completed, one is in progress, and one is in the design stage. (Section 2.2)
- Gas sales in Q2 FY 2024 were 12.9% lower than forecasted. (Section 2.5.1)

Water Utility:

- As a result of the above average precipitation last year and an increase in precipitation 2024, Palo Alto’s water supplier does not expect water shortages this summer. (Section 3.1)
- Work continues on the One Water Plan with the goal of Council adoption of a supply plan that is a 20-year adaptable roadmap for implementation of water supply and conservation portfolio alternatives. Staff plans to share initial results in spring 2024. (Section 3.1)
- Several capital programs are in progress. (Section 3.2)
- Water sales through Q2 were about 1.9% higher than forecasted and water sales revenues were about 1.2% lower than budgeted. (Section 3.5.1)

Wastewater Utility:

- An overview of the status of the Regional Water Quality Control Plant (RWQCP) rehabilitation projects is provided, including an overview of the financing plan for the projects. The first project to begin construction will be the primary sedimentation tank rehabilitation. (Section 4.1)
- A sewer system rehabilitation replacement project (SSR 31) is underway on El Camino and Page Mill. (Section 4.2)
- Actual wastewater sales revenues have been lower than expected due to low water usage in the commercial sector. (Section 4.4.1)

Fiber Utility:

- CPAU has prepared an Initial Study on the environmental impacts associated with the construction and operation of the potential citywide FTTP network, will cross much of the City of Palo Alto and include some new infrastructure (i.e. fiber hut, fiber cabinets, aerial and underground cables, utility vaults). The draft Initial Study is under review and is expected to be completed by June 2024.
- Given the long lead time of certain materials, CPAU is in the process of issuing a request for proposal (RFP) for the fiber hut and fiber construction materials.
- As part of the City’s wildfire mitigation plan to underground utility poles in the foothills, CPAU is also working with customers in the foothills area to provide them dark fiber to enhance their home broadband service.

Customer Programs (Section 6):

- In November, the City began offering lower pricing for heat pump water heater replacements thanks to a limited state funding opportunity. More than 200 HPWHs have been installed as a result of the program.
- The City hosted a successful facilities managers meeting generating four new leads for electrification and efficiency programs.
- 22% of all water customers have utilized the City’s new WaterSmart online water management tool.

Communications:

- A digest of major outreach efforts is provided in Section 7, with topics including extreme energy prices and high utilities bills, new EV chargers at Stanford Health Care, and water supply and conservation updates.

Legislative, Regulatory and Industry Activity:

- Major legislative, regulatory and Industry Activity items are summarized in Section 8.

Utilities at a Glance:

For additional context for the data included in this report, please see:

<https://www.cityofpaloalto.org/Departments/Utilities/Customer-Service/Utilities-at-a-Glance>

Utilities Quarterly Report FY 2024-Q2



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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.

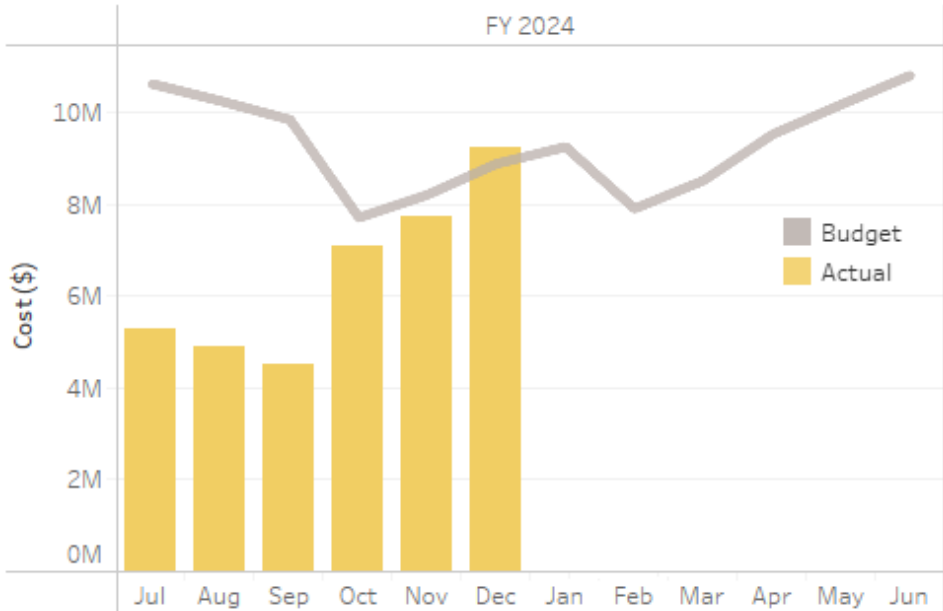
1.1 Electricity Supply and Transmission

Below is an update on electricity supply and transmission services.

1.1.1 Forecasted Supply Costs

With hydroelectric generation conditions improving significantly over the past year, the electric net supply cost for FY 2024 is currently projected to be \$71.5M, which represents a 22% decrease from the Adopted Budget level (\$91.7M). The cost decrease is primarily driven by the aforementioned improvement in hydro generation projections, as well as greater than projected revenues from resource adequacy (RA) capacity sales. For FY 2025, electric net supply cost is projected to increase slightly to \$79.4M.

Figure 1: FY 2024 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.

After several extremely dry years, water year 2022 to 2023 (October 2022 to September 2023) was one of the best precipitation years in memory, with record storms across the state in December 2022 and early January 2023. Total precipitation was 162% of average for the Central Sierras and 125% of average for the Northern Sierras and total hydropower generation for FY 2023 was 378 GWh, which is 23 GWh (6%) below the long-term average.²

Although reservoir levels across the state are still at or above average levels for this time of year, water year 2023 to 2024 has so far been below average from a precipitation and snowpack perspective. As of February 8, precipitation and snowpack levels in central and northern California were 10-25% below average for that time of year. As a result of these mixed signals, hydro generation levels are projected to be roughly average this year and next year, with total output recovering to 107% of the long-term average level for FY 2024 and falling to 101% of the long-term average level for FY 2025.

Figure 2: Hydro Generation: FY 2023 Actuals, FY 2024 and FY 2025 Projected (GWh)

	FY 2023	FY 2024	FY 2025
Calaveras Generation (GWh)	202	121	129
Western Generation (GWh)	176	307	277
Total Hydro Generation (GWh)	378	428	406
% of Long-term Average Total	94%	107%	101%
Long-term Average Total Hydro (GWh)	401	401	401

1.1.3 REC Exchange Program

Under the REC Exchange Program, which was approved by Council in August 2020 ([Staff Report #11556³](#)), staff has contracted to sell 110 GWh worth of in-state renewable energy (for \$7.7M) and purchased 25 GWh worth of out-of-state renewable energy credits (RECs) (for Green-e compliance) thus far in FY 2024. The spread between in-state versus out-of-state REC prices have widened since the start of 2023, due to the rise in value of in-state products. Additional REC Exchange transactions are planned around Q3 of FY 2024.

1.1.4 Renewable Energy Procurement

Utilities 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 recently approved 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.

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 20% each) in recent years to reflect the impact of climate change. These values may need to be revisited again in the coming years.

³ Staff Report #11556 <https://www.cityofpaloalto.org/files/assets/public/v/1/agendas-minutes-reports/reports/city-manager-reports-cmrs/year-archive/2020/id-11556.pdf>

The Third Phase Agreement for this project – as well as the cost-sharing arrangement between the City and the County of Alameda Public Works was approved by the City Council on February 26.

Utilities staff also recently worked with Ameresco on an amendment to the Ox Mountain landfill gas power purchase agreement that would both extend that contract for approximately 17 years (the original contract expires in 2029) and expand the project’s generating capacity from 10 MW to 13 MW. (Palo Alto splits the output of this project with the City of Alameda.) If approved, this contract amendment, which is scheduled to be considered by the City Council in early April, will ensure that Palo Alto maintains access to this valuable local resource and the renewable energy and local resource adequacy capacity it provides.

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 is completed. This project is postponed due to other project priorities.

EL-11003 (Rebuild Underground 15)

- This project has been canceled.

EL-10006 (Rebuild Underground 24)

- This project is in design phase and scheduled to be completed in Dec 2024.

EL-16000 (Rebuild Underground 26)

- This engineering design for this project is currently in progress and is expected to be completed in Dec 2024.

EL-19004 (Wood Pole Replacement)

- 6 poles have been replaced so far in 2024. 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. Substructure for 7 substations has been completed. The next phase is to install lighting and cameras. The project is in progress, anticipated completion by 03/30/2025.

EL-17002 (Substation 60kV Breaker Replacement)

- This project funds the purchase and replacement of both 60kV and 12kV substation circuit breakers that are reaching the end of their useful life expectancy. Staff is concentrating on the procurement of seven (7ea) 60kV circuit breakers and sixteen (16ea) 12kV circuit breakers during FY 2024 due to their long lead time (8-12 months). The engineering design and installation of the above breakers will occur in FY 2025.

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 was completed in June 2023. Phase 3 substructure installation is currently in progress and Phase 4 design is in progress.

EL-02011 (Electric Utility Geographic Information System (GIS))

- The project scope includes on-going maintenance/technical support of the existing GIS system and implementation of the new GIS platform, ESRI.

EL-16002 (Capacitor Bank Installation)

- This project is completed.

1.3 Rate and Bill Comparisons

Effective January 1, 2024 PG&E raised its residential rates 13%. Santa Clara also raised its rates 10% January 2024. Figure 3 shows an updated bill comparison based on these updated rates. Staff estimates that based on these rates the average monthly bill (a full year’s worth of bills divided by 12) for the median residential customer is less than half of what it would be in PG&E territory and about 15% above what it would be in Silicon Valley Power (City of Santa Clara) territory.

Figure 3: Residential Monthly Electric Bill Comparison (Effective 1/1/2024, \$/mo.)

Season	Usage (kwh)	Palo Alto	PG&E	Santa Clara
Winter	300	52.56	126.03	49.02
	(Median) 453	88.16	191.88	74.93
	650	136.75	295.44	108.29
	1200	274.41	584.55	201.42
Summer	300	52.56	130.78	49.02
	(Median) 365	66.45	153.33	60.03
	650	136.75	314.76	108.29
	1200	282.18	603.87	161.54

1.4 Reliability

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

Figure 4: Electric Outage Reliability, FY 2019 to FY 2022

Outage Reliability	FY18	FY19	FY20	FY21	FY22
System Average Interruption Duration Index (SAIDI) ⁴	76.28	137.54	72.85	94.22	18.93
System Average Interruption Frequency Index (SAIFI) ⁵	0.51	1.15	0.55	0.90	0.23
Customer Average Interruption Duration Index (CAIDI) ⁶	150.26	119.99	131.97	104.78	81.91

Figure 5: Electric Outage Reliability, FY 2023 to FY 2024

Outage Reliability	FY 2023				
	Q1	Q2	Q3	Q4	Annual
System Average Interruption Duration Index (SAIDI) ³	81.69	7.38	111.90	1.09	198.60
System Average Interruption Frequency Index (SAIFI) ⁴	0.61	0.04	1.00	0.01	1.64
Customer Average Interruption Duration Index (CAIDI) ⁵	134.77	190.12	110.80	121.48	121.15
Outage Reliability	FY 2024				
	Q1	Q2	Q3	Q4	Annual
System Average Interruption Duration Index (SAIDI) ³	15.36	14.23	-	-	-
System Average Interruption Frequency Index (SAIFI) ⁴	0.05	0.06	-	-	-
Customer Average Interruption Duration Index (CAIDI) ⁵	336.87	266.61	-	-	-

⁴ 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)

⁵ 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)

⁶ Customer Average Interruption Duration Index (CAIDI) - the average time to restore service. CAIDI = (Sum of Customer Minutes Interrupted) / (Total Customers Interrupted)

1.5 Financial Health

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

1.5.1 Sales Forecasts vs. Actuals

Since the beginning of FY 2024, actual electric sales volumes exceeded forecasts by 1.6%, while revenues were 1.8% higher. These results align with the FY 2024 Financial Plan.

Figure 6: Electric Sales Volume (kWh), up to FY 2024-Q2

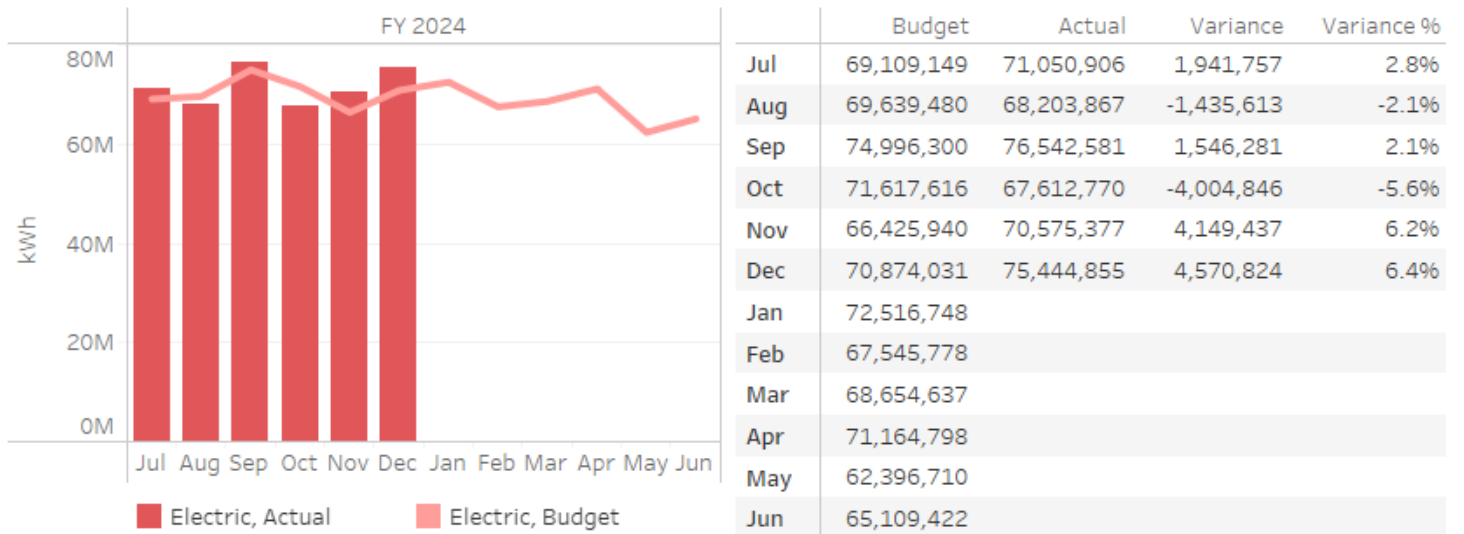
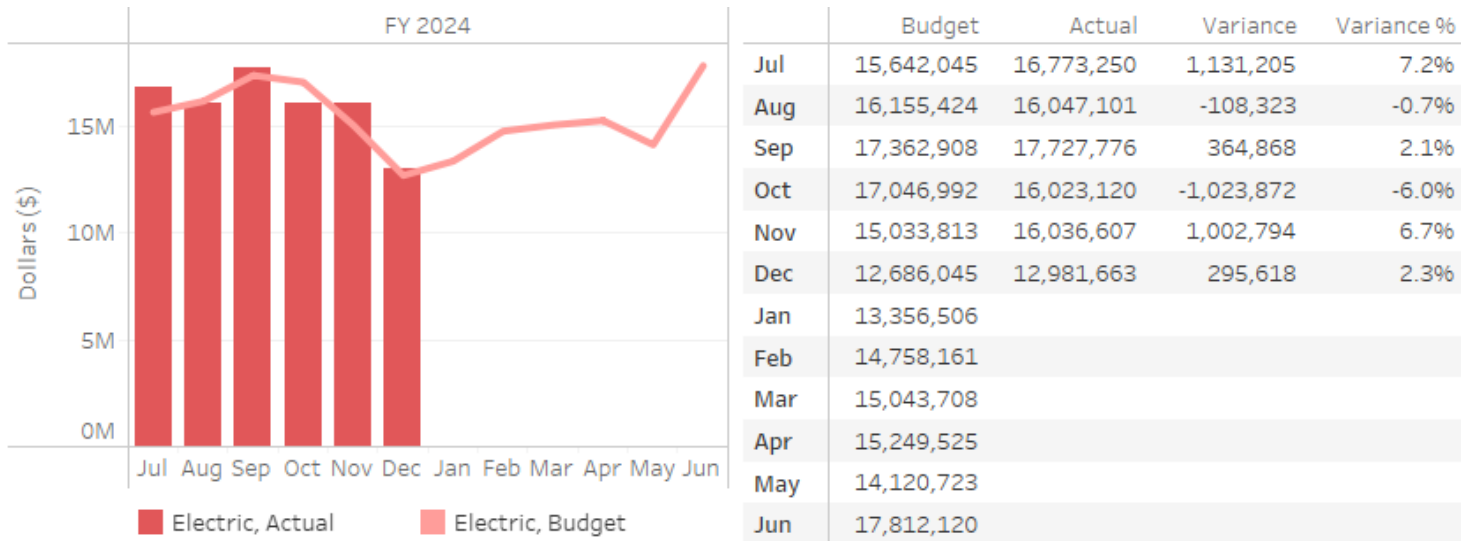


Figure 7: Electric Sales Revenue (\$), up to FY 2024-Q2



1.5.2 Financial Position

The Electric Operations Reserves ended FY 2023 at \$38.9 million, below the target of \$45 million, but above the minimum guideline of \$32 million. Based on the proposed FY 2025 Financial Plan, the Operations Reserves are projected to end FY 2024 at \$22.5 million, below the minimum guideline of \$30.3 million, due to some large one-time capital investments and the timing of the start of the grid modernization project, which is beginning before the first debt issuance for that project, impacting reserves.



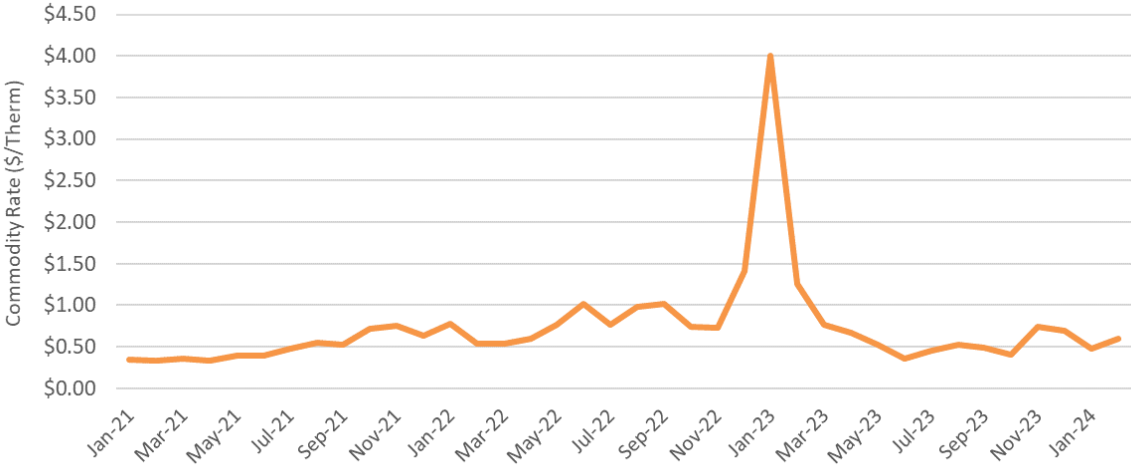
2 Gas Utility

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 capital improvement 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

After experiencing a notable price spike last winter, natural gas prices have seen a significant decline, returning to more typical ranges. This shift can be attributed to several factors, including milder temperatures nationwide that diminished demand for heating and an above-average level of gas storage. The combination of these factors has put downward pressure on natural gas prices. The chart below shows Palo Alto’s gas commodity rates from 2021 to present.

Figure 8: Palo Alto Gas Commodity Rates



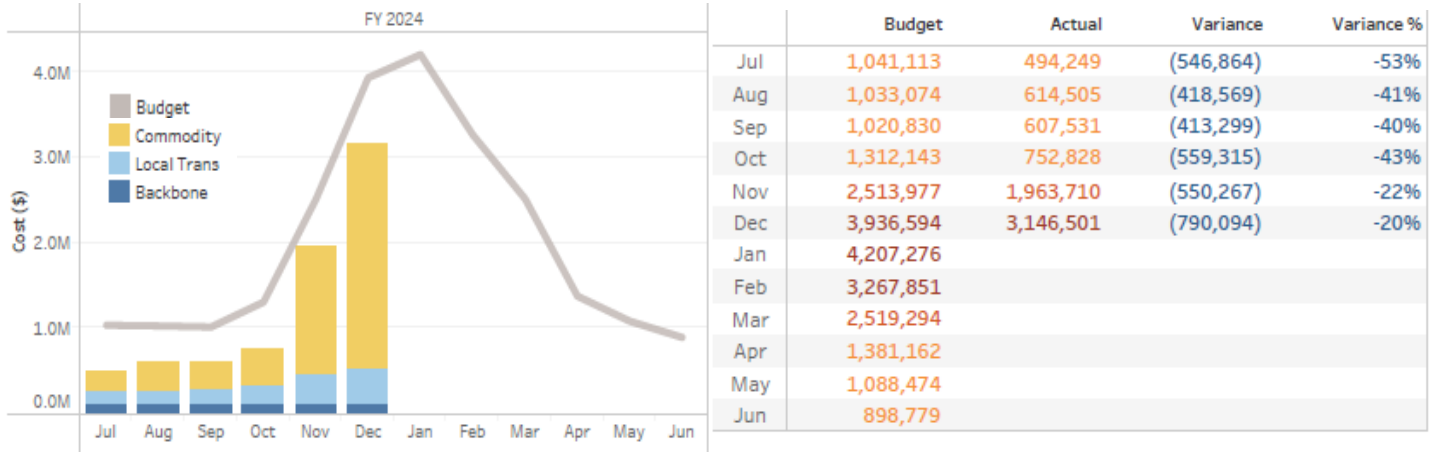
Gas Capped-price Winter Gas Purchasing Strategy

Last winter, due to extreme weather and natural gas supply conditions, Palo Alto customers paid \$4 per therm for gas used in the month of January resulting in large utility bills for many. On September 18, 2023, Council adopted a revised natural gas purchasing strategy for the 2023-2024 winter months to include the addition of insurance against very high prices. Actual market prices for December 2023, January 2024, and February 2024 were 64 cents, 43 cents, 54 cents per therm respectively. Even with the 5 ½ cent per therm cost of insurance, Palo Alto customers’ natural gas costs have been very low this year. A longer-term strategy for mitigating against potential future gas price spikes will be presented to Council for consideration prior to next winter.

2.1.1 Actual and Forecasted Supply Costs

Actual supply and transportation costs in FY 2024 up to Q2 were approximately 30% lower than budgeted in the FY 2024 Financial Plan. This decrease was primarily attributed to substantially lower gas commodity prices, which were driven by milder temperatures nationwide, resulting in lower-than-expected demand for heating.

Figure 9: Gas Supply Costs (\$), Actual vs Budget, up to FY2024-Q2

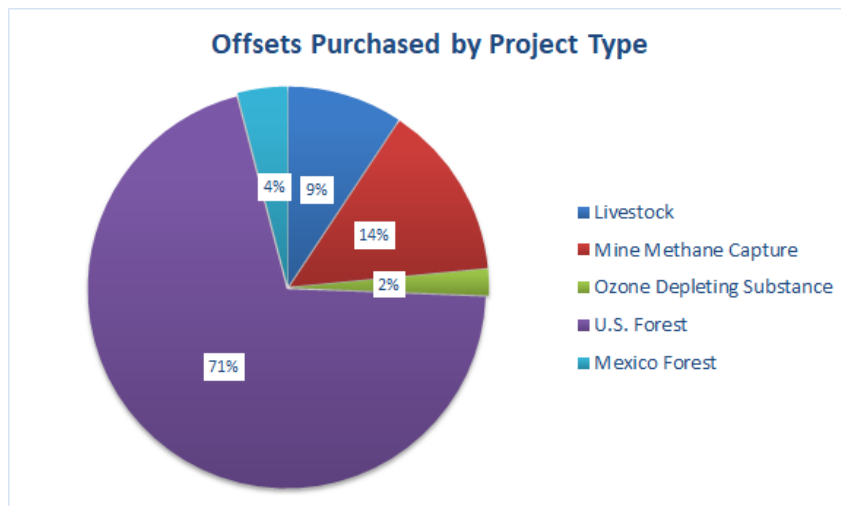


2.1.2 Carbon Neutral Gas Program

In December 2020, Council adopted [Resolution #9930](#)⁷ 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 CO₂e.

Offsets are purchased to neutralize emissions equal to those caused by natural gas usage in Palo Alto. Staff procured 290,000 tons of offsets during Winter 2023/24 to cover FY23 and FY24 usage. The figure below shows the composition of offset purchases.

Figure 10: Offset Portfolio Composition



The following table provides a description of the projects.

⁷ Resolution #9930 <https://www.cityofpaloalto.org/files/assets/public/v/1/city-clerk/resolutions/resolutions/reso-9930.pdf>

Figure 11: 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	Mexico 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 through 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.
Hiawatha Sportsmans Club	U.S. Forest	Located in Michigan's Upper Peninsula, Hiawatha Sportsmans Club (HSC) is a member-owned 35,000-acre forest and Michigan's oldest certified Tree Farm. The property contains a variety of habitats: Lake Michigan shoreline, inland lakes, spring-fed rivers, marsh, mature conifer and hardwood forest and open fields. Supported by HSC's sustainable forest management, these diverse habitats attract and sustain a wide variety of birds, mammals and other wildlife.

2.1.3 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 in FY 2024 Q2 was \$373K, or a reduction of about 9% of the total gas commodity costs in FY 2024 Q2.

2.1.4 Gas Prepay Valuation

On September 15, 2014, Council adopted [Resolution #9451⁸](#), 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 reduced gas commodity costs by about \$223K at the end of Q2 FY 2024.

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 is completed and 2,450 linear feet of gas main was replaced along Shopping Center Way and Orchard Lane in Stanford Shopping Center. Easement documents are being finalized and submitted to the County for recording.

GS-14003 – GMR 24B (Gas Main Replacement 24B)

- The GMR 24B project will include gas pipes on University from Webster to Hwy 101 and surrounding streets, as well as Geng Rd and Town & Country Village. The project was competitively solicited and construction began in January 2024 and is anticipated to complete in May 2025. Staff received a notification from Pipeline Hazardous Materials and Safety Administration (PHMSA) on 3/31/23 that the City was not selected to receive a federal grant award, although the project was “Highly Recommended” and funding was provided to other “Highly Recommended” projects. The funding source for this project will be the remaining available budget under GS-14003. However, the City submitted another grant application as part of the subsequent round of federal grants issued by PHMSA.

GS-15000 – GMR 25 (Gas Main Replacement 25)

- The GMR 25 design drawings are being finalized and will include the replacement of pipes on Ross Road from Colorado Avenue to East Meadow Drive and surrounding streets, as well as North and Southampton Drive and surrounding streets, and Walter Hays Drive and surrounding streets. The project is expected to replace approximately 26,000 linear feet of gas mains if federal funding is approved. If federal funding is not awarded, the scope of the project will be reduced to approximately 20,000 linear feet. Staff submitted a federal grant application for the project in August 2023 and PHMSA is expected to notify applicants of awards in February 2024.

2.3 Rate and Bill Comparisons

The figure below compares the estimated gas bills for residential customers in Palo Alto and PG&E in FY 2024, at various usage levels. The PG&E bills are based on their Climate Zone X, which includes Menlo Park, Redwood City, Mountain View, Los Altos and Santa Clara. For the summer season, Palo Alto's median residential bill is estimated to be about 7% more than that of PG&E. Conversely, during the winter, Palo Alto's median bill drops to about 25% less than PG&E's. On an annual basis, the median residential bill Palo Alto residents tend to pay around 11% less than PG&E customers.

⁸ Resolution #9451 <https://www.cityofpaloalto.org/files/assets/public/v/1/city-clerk/resolutions/reso-9451.p>

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

Season	Usage (Therms)	Palo Alto	PG&E Zone X	% Difference
Summer	10	\$ 29	\$ 21	29%
	(Median) 18	42	39	7%
	30	69	68	1%
	45	106	105	1%
Winter	30	65	72	(11%)
	(Median) 54	105	132	(25%)
	80	170	203	(20%)
	150	362	400	(11%)
Annual	Median	753	837	(11%)

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.

Figure 13: Gas Service Interruptions, FY 2023 to FY 2024-Q2

Gas	FY 2023				FY 2024	
	Q1	Q2	Q3	Q4	Q1	Q2
Number of Breaks	9	4	3	7	5	1
Total Minutes	643	330	240	1560	540	120
Customers Affected	20	5	7	60	51	1

2.5 Financial Health

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

2.5.1 Sales Forecasts vs. Actuals

Through FY 2024 Q2, gas commodity prices were lower-than-forecasted due to milder temperatures nationwide, which diminished demand for heating. As such, actual gas sales volumes and actual gas sales revenues were 12.9% and 10.2% below the FY 2024 Financial Plan, respectively.

Figure 14: Gas Sales Volume (Therms), up to FY2024-Q2

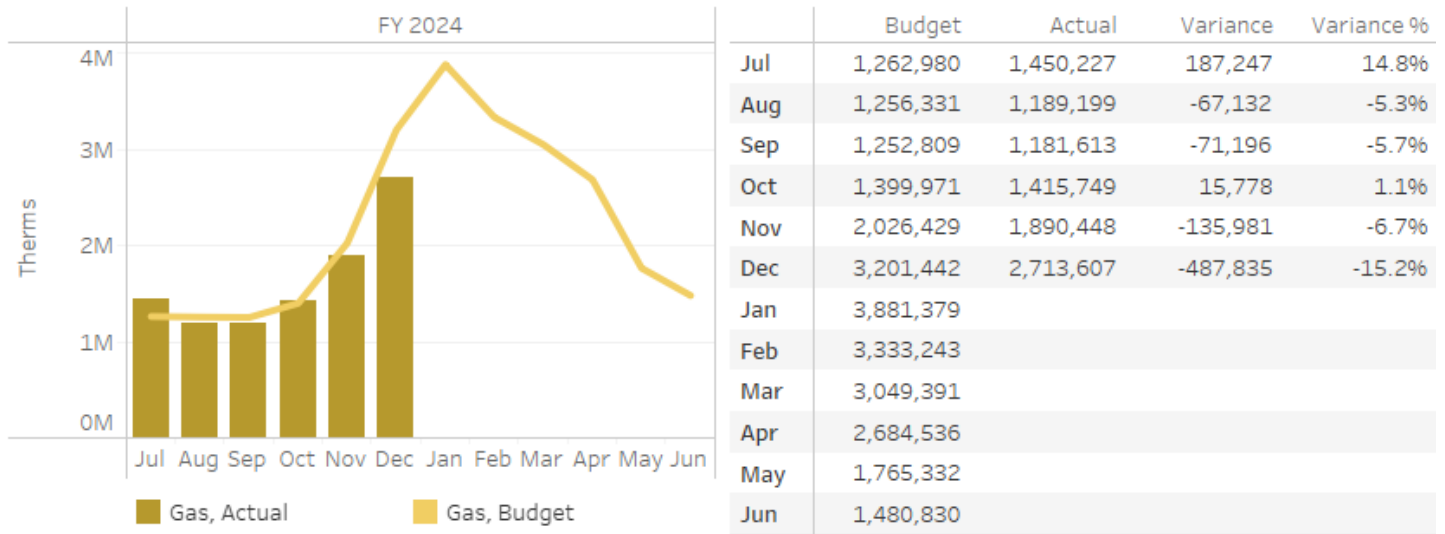
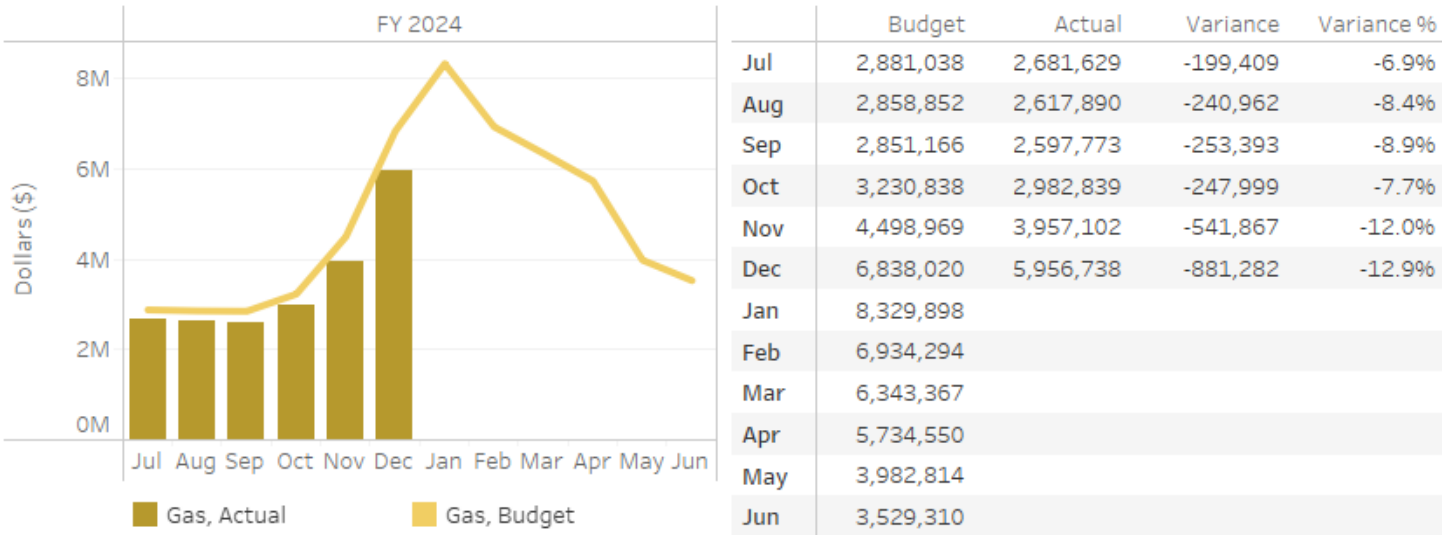


Figure 15: Gas Sales Revenue (\$), up to FY 2024-Q2



2.5.2 Financial Position

The FY 2023 ending Operations Reserve balance was \$14.4 million. Based on the proposed FY 2025 Financial Plan, the Operations Reserve balance is expected to drop below the minimum guideline level at the end of FY 2024, due to one-time expense items deferred from FY 2023 to FY 2024, such as carbon offset purchases and Cap and Trade revenue transfer. Overall expenses are also higher than overall revenues in FY 2024. The latest forecasts suggest a decrease in sales revenues by approximately 10% or \$5.9 million from last year's projections, attributed to reduced consumption and commodity prices. However, other revenues and transfers are projected to be higher by about \$0.7 million. Additionally, the cost of purchasing gas is anticipated to be lower than staff's previous forecast by about 9% or \$2.6 million, due to market commodity prices and forecasted sales volumes being lower than initially anticipated.



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 the City. 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 for proposed Voluntary Agreements to provide greater water flows and increased habitat for the Tuolumne River. The State Board has initiated its evaluation of the proposed Tuolumne River Voluntary Agreement as an amendment to the adopted Bay Delta Plan. The State Board is completing CEQA review of the Tuolumne River Voluntary Agreement. The SWRCB’s schedule indicates development of the Tuolumne Specific Scientific Basis Report Supplement by fall 2023, the staff report for Tuolumne River Voluntary Agreement by winter/spring 2024 and the State Board workshop and consideration of the Tuolumne River Voluntary Agreement in winter/spring 2024.

Concurrently, the State Board is moving forward with implementation of the Adopted Phase I Bay Delta Plan including the adoption of initial biological goals for the lower San Joaquin River flow objectives. Litigation on the Adopted Phase I Plan is ongoing and oral argument concluded in October 2023.

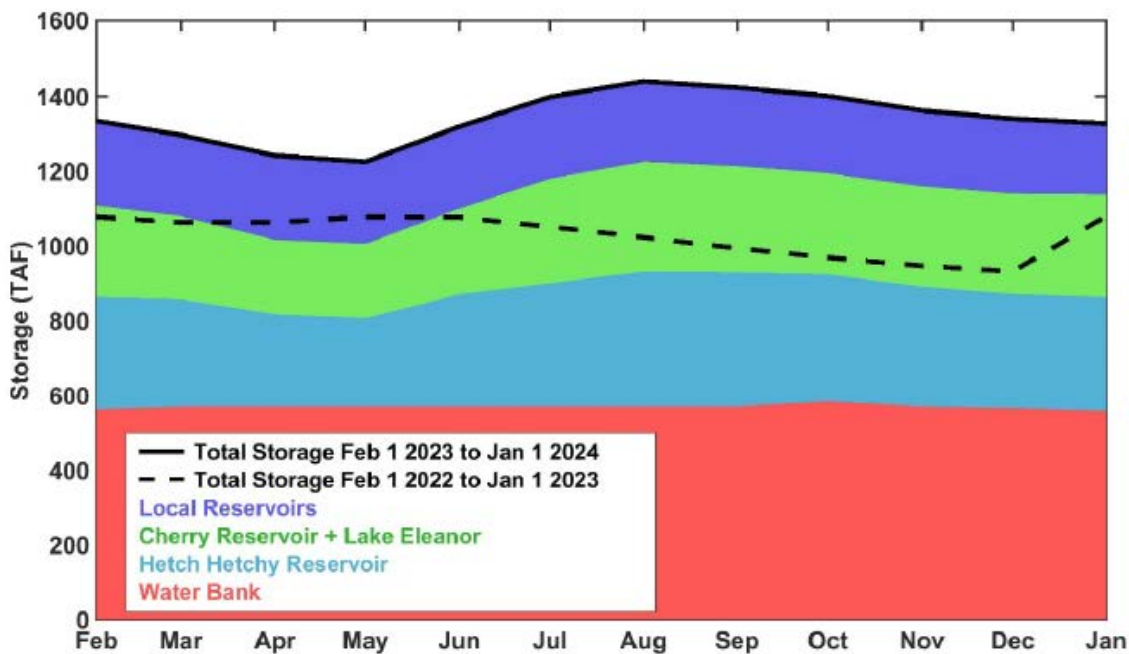
In August 2018, Palo Alto’s City Council voted to support the SWRCB’s Bay-Delta Plan to have 40 percent of natural water in the Central Valley to enter the Delta from February to June and associated Southern Delta salinity objectives; and send a letter expressing this policy position to the Bay Area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

In order to plan for future reductions to existing water supply from climate change and regulatory uncertainties, the SFPUC is undertaking the Alternative Water Supply Plan. This plan will recommend projects to develop supplemental sources to improve long-term water supply reliability. The SFPUC received comments on the draft Alternative Water Supply Plan and plans to update the SFPUC Commission in February 2024.

BAWSCA is a special district created by legislative action (AB 2058) in 2002 to protect the water supply and conservation interests of wholesale water customers, including Palo Alto. BAWSCA’s goal is to ensure a reliable supply of high-quality water at a fair price. In fall 2023, BAWSCA began scoping its Long-Term Reliable Water Supply Strategy 2045. This planning document will enable BAWSCA to identify the highest priority water supply management activities to achieve its goal.

Cumulative Hetch Hetchy System precipitation index for October 2023 through February 2024 is 95% of the median. As of March 1, 2024, the Regional Water System total storage operated by the San Francisco Public Utilities Commission (SFPUC) was at 95% of maximum storage and Water Bank was 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 is 1,327 Thousand Acre Feet (TAF) as of January 1, 2024.

Figure 16: Regional Water System Storage

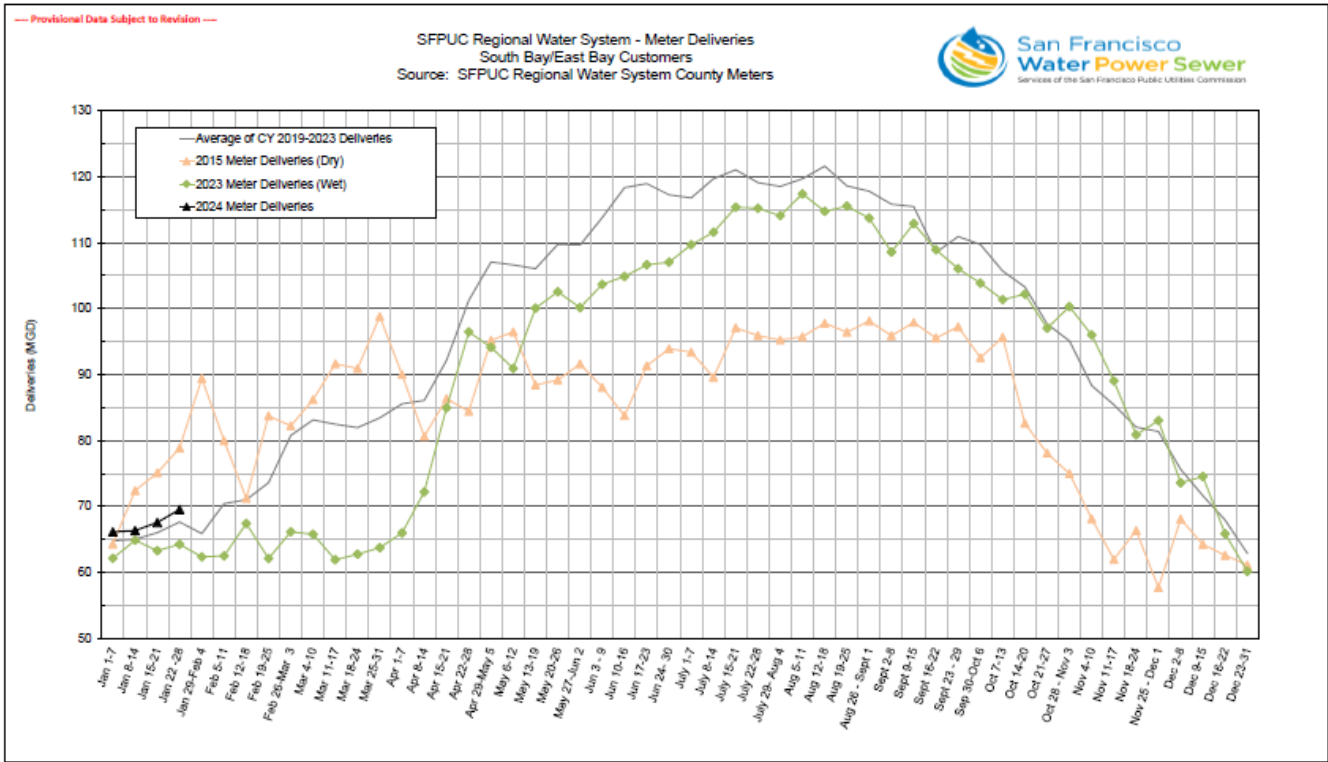


No local water use restrictions are in place at this time. The State’s emergency regulation banning the use of drinking water for watering decorative grass in commercial, industrial, and institutional areas, other than to the extent necessary to ensure the health of trees and other perennial non-turf plantings, is expected to remain in effect until June 2024.

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.” 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 2024.

The figure below shows water usage for the South Bay/East Bay (including Palo Alto) compared to several benchmarks including 2022. For the South Bay/East Bay region as well as systemwide, demand for the first month of 20234 was similar to the average of the last five years and higher than January 2023, which had historically wet weather.

Figure 17: SFPUC Water Deliveries



Palo Alto staff is continuing to focus on education and outreach and providing resources to eliminate water waste and achieve efficient water use. Palo Alto kicked off the WaterSmart Customer Portal and Residential Home Water Report Program and also continued to work with Waterfluence software to target water efficiency for large landscape customers. Staff continues to promote water conservation rebate programs and resources through online outreach, bill inserts, and newsletters.

Palo Alto continued its work on 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 2022 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. Additional stakeholder engagement meetings will be planned with City staff, community members, and regional partners in spring 2024 to share initial results. The UAC received a status update in February 2023 ([Staff Report #14974⁹](#)) and staff plans to return to the UAC in spring 2024 to provide an update and share initial results.

3.2 Capital Improvement Plan Status

The following capital projects are currently in progress:

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 was delayed due to supply chain issues on the valves. Construction started in January 2024 after all material was delivered and is anticipated to complete in May 2024.

⁹ Staff Report #14974 <https://www.cityofpaloalto.org/files/assets/public/v/1/agendas-minutes-reports/agendas-minutes/utilities-advisory-commission/archived-agenda-and-minutes/agendas-and-minutes-2023/02-feb-2023/02-01-2023-id-14974-ite>

WS-15002 – WMR 29 (Water Main Replacement 29)

- The WMR 29 project will replace approximately 8,000 linear feet of water main on Park Boulevard from Mariposa Avenue to Lambert Avenue, on College Avenue from Park Boulevard to El Camino Real, and on Birch Street from College Avenue to Sherman Avenue. The project started in November 2023 and is anticipated to complete in August 2024.

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 January 2024. CPAU is among the highest monthly bills of the group. Palo Alto’s water bills at 9 CCF per month are 16% higher than the comparison group average.

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

Usage CCF/month	Palo Alto	Menlo Park	Redwood City	Mountain View	Santa Clara	Hayward
4	\$53.20	\$65.20	\$54.04	\$46.95	\$31.88	\$45.17
(Winter median) 7	\$80.60	\$91.00	\$76.09	\$72.69	\$55.79	\$69.59
(Annual median) 9	\$103.68	\$108.19	\$90.79	\$89.85	\$71.73	\$85.87
(Summer median) 14	\$161.38	\$155.10	\$138.94	\$132.75	\$111.58	\$135.87
25	\$288.32	\$271.23	\$267.39	\$278.63	\$199.25	\$245.87

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 to FY 2024-Q2

Water	FY 2023				FY 2024	
	Q1	Q2	Q3	Q4	Q1	Q2
Number of Breaks	10	12	6	2	8	9
Combined Minutes	1007	1050	690	100	1086	880
Customers Affected	46	249	63	19	147	96

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 FY 2024 Q2 exceeded budgeted levels by 1.9%, while water sales revenues were 1.2% lower than anticipated. These figures align with the anticipated recovery in water usage following periods of drought.

Figure 20: Water Sales Volume (CCF), up to FY 2024-Q2

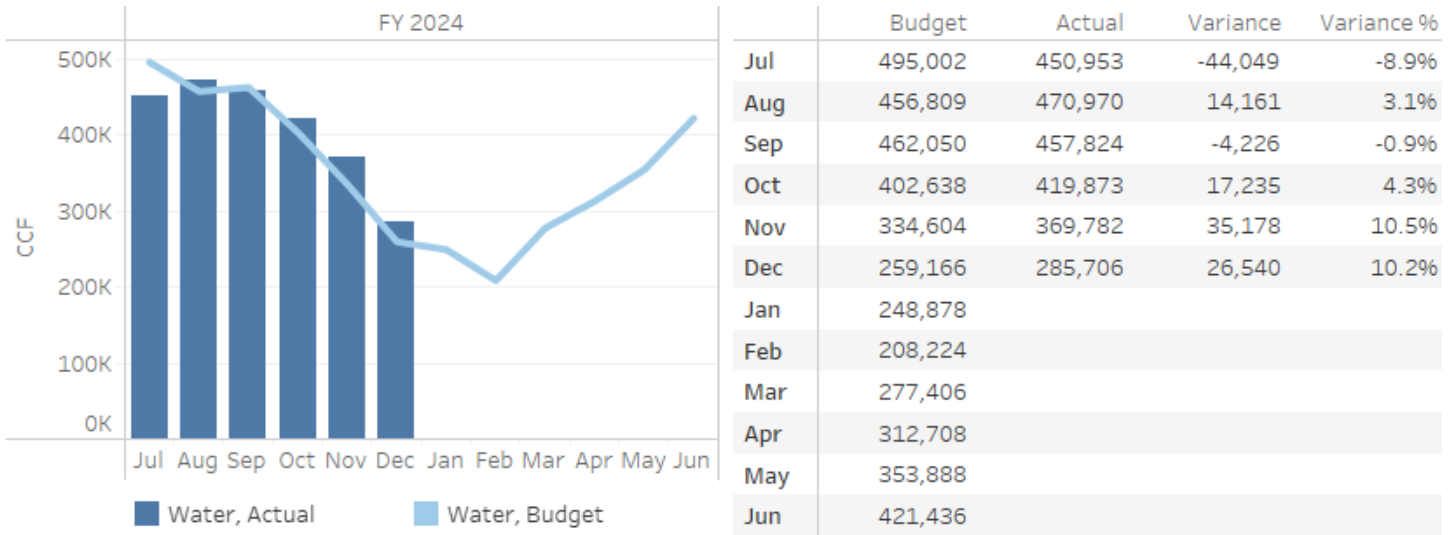
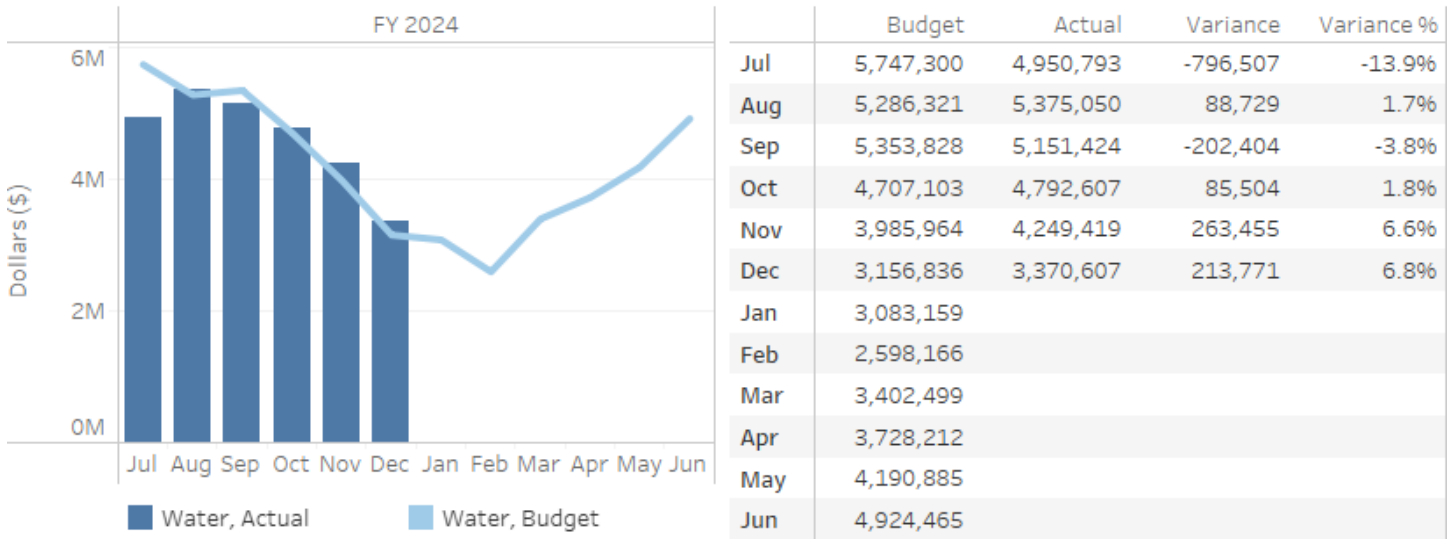


Figure 21: Water Sales Revenue (\$), up to FY 2024-Q2



3.5.2 Financial Position

At the end of FY 2023, the Water Operations Reserve was \$7.9 million, which is within the guideline range, but below the target of \$10.8 million. Based upon the proposed FY 2025 Financial Plan, the Operations Reserve is projected to end FY 2024 at \$9.2 million. The Water Utility is relying on funding from the Rate Stabilization Reserve to pay for costs while sales revenues are experiencing declines as a result of drought and slow drought rebound. The FY 2025 Financial Plan forecasts water rate increases will be needed to maintain the Operations Reserve within the guideline range during each of the next 5 years. The FY 2025 Water Financial Plan is scheduled to go to the UAC in March 2024, Finance Committee in April and to Council in June 2024.



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

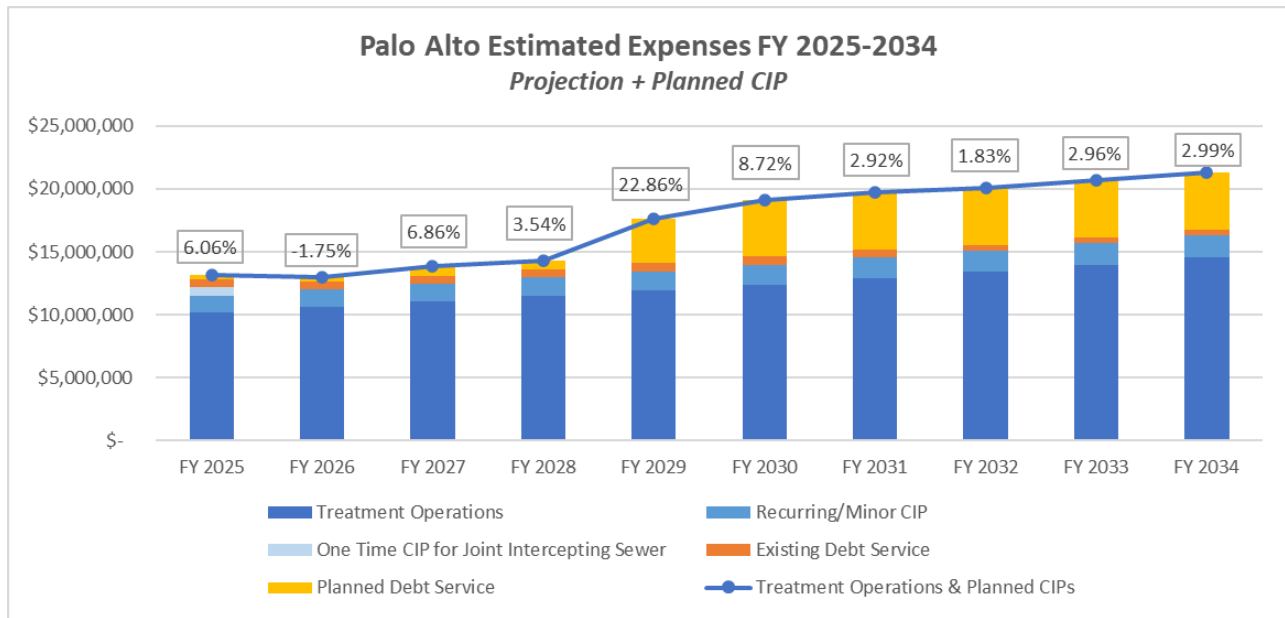
The RWQCP is operated by Palo Alto’s Public Works Department and provides wastewater treatment to Palo Alto, Mountain View, Stanford, Los Altos, East Palo Alto and Los Altos Hills. The Palo Alto Wastewater Collection Utility pays its share (approximately 32% projected in FY 2025) of the costs for wastewater 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 conduct 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 5.5% annually on average from FY 2025 through FY 2034. 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 19.8% per year from FY 2025 through FY 2034 to keep up with ongoing replacement of aging equipment and complete major upgrades. Larger increases to capital expenses are expected to begin in FY 2029 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 2025)
- 1900 Embarcadero Road Purchase (FY 2024)
- Primary Sedimentation Tank Rehabilitation and Equipment Room Electrical Upgrade (FY 2025)
- Outfall Line Construction (FY 2027)
- Operations Building Remodel (FY 2028)
- Secondary Treatment Upgrades, Headworks Facility (FY 2029)

Figure 22: Palo Alto's Share of Estimated Wastewater Treatment Expenses (Project



The figure above shows the ongoing annual CIP reinvestment (“Recurring/Minor CIP” and “Existing Debt Service”), one pay-as-you-go project, the Joint Intercepting Sewer in FY 2025, 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. Additional factors not yet included in the budget estimate could increase costs further such as debt expense for cash flow issues associated with slow State Revolving Fund loan reimbursement, and property expenses for an acquired property. Factors that are contributing to cost increases for treatment operations are rising salary and benefits costs, sludge hauling services unit price increases, commodity increases to operate the facility, and Palo Alto’s flow share increased in FY 23 from 32% to 35% based on updated flow data; this increases Palo Alto’s cost share.

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 is currently soliciting consultant proposals to begin an update to the Long-Range Facilities Plan in 2024. The findings from the Long-Range Facilities Plan update will direct additional/future CIP. The RWQCP’s current capital work in-progress includes an estimated \$354 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 November 2023 Partners Meeting)

Project	Status	Expense (million \$)
Primary Sedimentation Tanks Rehabilitation and Equipment Room Electrical Upgrade	Construction	\$19.4
12kV Electrical Loop Upgrades (Phase 1)	Construction	\$7.3
New Outfall Pipeline	90% Design	\$17.8
Secondary Treatment Upgrades	Construction	\$193
Advanced Water Purification System	Architectural Review Board Approval	\$55.9
Headworks Facility Replacement	Engineering Contract Negotiations	\$51.7
Joint Interceptor Sewer Rehabilitation (Phase 1)	Award Bid	\$8.9
	Subtotal	\$354

One of the largest projects listed above is 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 project anticipates

regulations to limit nutrient discharges (on total nitrogen) into the San Francisco Bay. The secondary treatment design cannot remove nitrogen and the largest project listed above, the Secondary Treatment Upgrades, will address this regulatory change as well as address aging mechanical and electrical equipment that must be replaced.

In addition, the RWQCP is evaluating the purchase of neighboring properties in order to build an environmental services and lab building and a closed session will be held with Palo Alto Council to discuss this topic.

The RWQCP plans to fund these capital projects through a combination of mechanisms including State Revolving Fund loans, and revenue bonds. Several sources of funding will be used for the Advanced Water Purification System: Valley Water will provide \$16 million, Palo Alto was awarded a \$12.9 million grant 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, and the City of Mountain View will pay for the remainder of the capital cost.

4.2 Collection System Capital Improvement Plan Status

The following capital project is currently in progress:

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. Construction of this project started on 7/31/23 and the anticipated completion is in May 2024. A small portion of the project was completed during nighttime due to Caltrans’ restriction of closing two traffic lanes during daytime. Staff continues to coordinate the schedule with Caltrans and County of Santa Clara to stay ahead of their street improvement/paving projects to avoid digging into Caltrans or County’s newly paved streets.

WC-15002 – Sewer Master Plan Study

- The Master Plan Study will evaluate the City’s existing wastewater collection system, flows, and flow patterns to determine the adequacy of the system’s hydraulic capacity to meet current and anticipated future wastewater flow demands. The project kicked off in December 2023 and is anticipated to be completed in March 2025.

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 January 2024. Palo Alto’s monthly sewer bill is about 26% lower than the comparison group average. Menlo Park in this table refers to the West Bay Sanitary District.

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

Palo Alto	Menlo Park	Redwood City	Mountain View	Los Altos	Santa Clara	Hayward
\$48.64	\$108.83	\$89.28	\$53.10	\$51.47	\$48.28	\$41.29

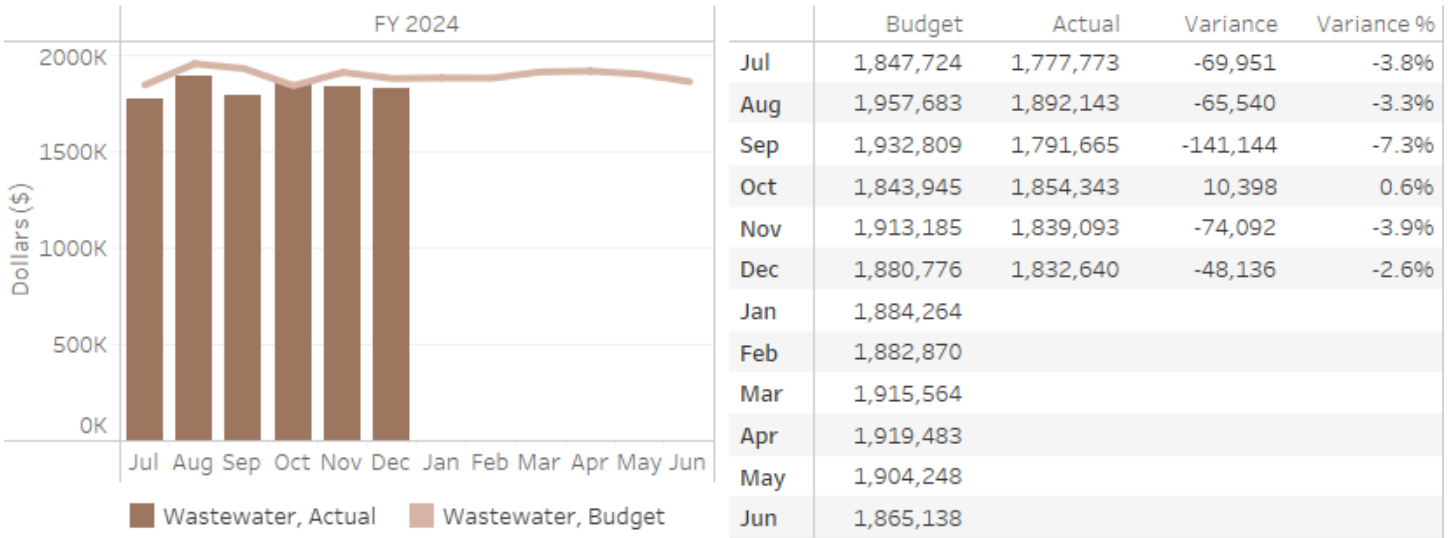
4.4 Financial Health

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

4.4.1 Sales Forecasts vs. Actuals

Wastewater sales revenues through FY 2024 Q2 were 3.4% lower than forecasted in the FY 2024 Financial Plan. The decrease in sales can be attributed to reduced water usage, particularly in the commercial sector, following a period of drought.

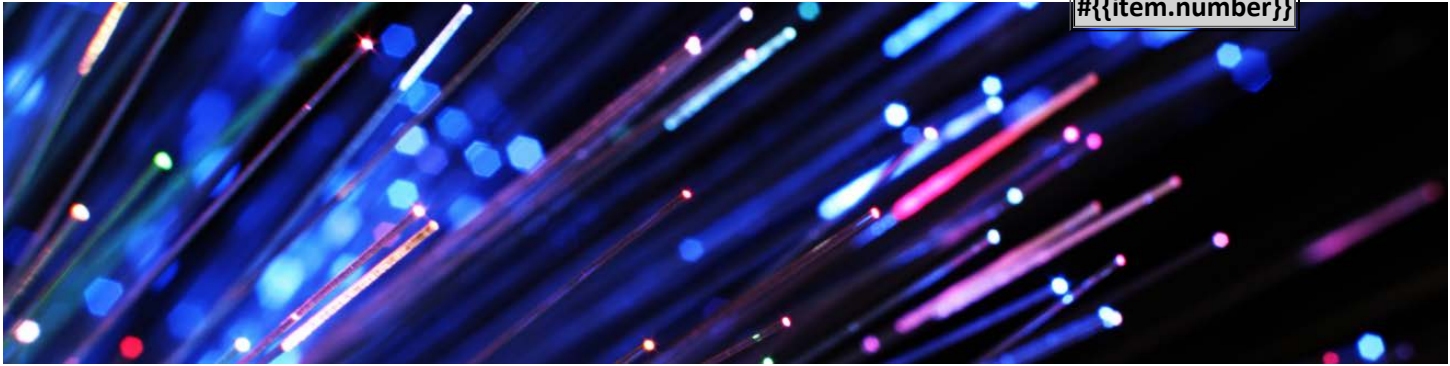
Figure 25: Wastewater Sales Revenue (\$), up to FY 2024-Q2



4.4.2 Financial Position

The Wastewater Collection Operations Reserve was within the guideline range at the end of FY 2022 and dropped below guideline range and below zero at the end of FY 2023. Palo Alto began Sanitary Sewer Replacement project 31 with an increased budget and start date in FY 2023 instead of FY 2024 because of coordination with Caltrans to limit or avoid digging into newly-paved street on El Camino Real. At the end of FY 2023 staff completed the transfers that were approved by the Council in the [FY 2024 Wastewater Collection Financial Plan¹⁰](#). These included transferring \$3.2 million from the CIP Reserve to the Operations Reserve and \$0.34 million from the Rate Stabilization Reserve to the Operations Reserve bringing both the CIP Reserve and the Rate Stabilization Reserves to zero. However, during FY 2023, CIP-related costs were approximately \$3 million higher than forecasted, transfers out to capital projects were \$0.3 million higher than forecasted, and revenue was \$0.5 million lower than forecasted. In July 2023, wastewater rates increased by 9%, however in the first two quarters of FY 2024, wastewater sewer service revenue increased by only 6% compared to the same months in FY 2023; water use reductions during the winter of 2023 contributed to lower commercial revenues. Given the low reserve levels, and lower than expected revenue, staff are considering options to bring to Council to allow revenues to increase to a sustainable level and to meet the needs to accelerate main replacement to prudently manage the City’s infrastructure together with rising wastewater collection and treatment costs. The FY 2025 Wastewater Financial Plan is scheduled to go to the UAC in March 2024, the Finance Committee in April 2024 and to Council in June 2024.

¹⁰ FY 2024 Wastewater Collection Financial Plan <https://www.cityofpaloalto.org/files/assets/public/v/3/agendas-minutes-reports/reports/city-manager-reports-cmrs/attachments/03-07-2023-id-2302-0944-ww-financial-plan-lisa.pdf>



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

Below is an overview of the Fiber-to-the-Premise Project status:

- On December 19, 2022, [City Council approved moving forward](#) with the Fiber Expansion project including to build Phase 1 of fiber-to-the-premises (FTTP).
- On May 1, 2023, [Council approved a new contract amendment](#) with City's telecommunication consultant Magellan to provide program management, network operations, and technical support for FTTP.
- On May 3, 2023, [staff recommended](#) the Utilities Advisory Commission approve the FY 2024 Utilities Proposed Operating and Capital Budgets, including the adoption of the new Fiber-to-the-Premises "FTTP" Project, and the Electric Grid Modernization Project.
- On September 6, 2023, [staff updated the Utilities Advisory Commission](#) on the fiber expansion plan and key areas being addressed, discussing the potential impacts to the scope of work.
- On November 7, 2023, [staff shared an update with the Finance Committee](#) on the Palo Alto Fiber Expansion Plan and construction alignment with Electric Grid Modernization.
- Staff submitted an [Informational Report to Council](#) with their December 18, 2023 agenda packet on the [construction approach to align Palo Alto Fiber with electric grid modernization](#).

5.2 Capital Improvement Plan Status

On June 19, 2023, the City Council approved the FY 2024 CIP Budget with the new FTTP project, and Grid Modernization for Electrification Project. The approval of the electrification project accelerated efforts to align electrification and fiber construction, which impacted the Fiber Expansion Plan. Staff is deploying a pilot to determine how to align the grid modernization project and projects under the Fiber Expansion Plan to help minimize utility engineering pole make-ready work, pole replacements, noise disruption, and construction activity in neighborhoods.

In the FY 2024 Fiber CIP budget, \$20 million will be budgeted in the new Fiber-to-the-Premises (FO-24000) CIP and an additional \$13 million will be budgeted in the Fiber Optics Network – System Rebuild (FO-16000) CIP for the new fiber backbone. An additional \$13 million will be funded by the Electric Fund to build a dedicated fiber backbone to connect substations, distributed automation, and next-generation equipment that supports communication-assisted grid protection and restoration.

5.3 Reliability

There were no unplanned fiber outages or events to report in Q2 of FY 2024.

5.4 Financial Health

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

5.4.1 Fiber Sales

Actual dark fiber licensing sales in FY 2024 Q1 were \$2.0M and aligned with the revenue forecast. Fiber expenses were \$1.5M and 50% below forecast due to the timing of unprocessed Q1 and Q2 invoices for Magellan to support FTTP. With the project realignment of FTTP with grid modernization, Magellan had to perform engineering redesign and surveying work in the pilot area to minimize and align underground construction with the grid modernization project which is 100% aerial construction in the pilot. Staff is working on a revised Fiber pro forma statement with Magellan for phase one of FTTP.

5.4.2 Financial Position

The ending FY 2023 Fiber Optic Utility Rate Stabilization Reserve is \$32.5 million and an additional \$3.4 million of contract commitments.



6 Customer Programs

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. Summary descriptions of Utilities Customer Program are provided in Appendix D.

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), offers landscape education classes throughout the year to introduce residents to the concepts of water-efficient and sustainable landscaping. Workshop topics include rain gardens, how to water trees, steps to take to convert lawns into drought-tolerant landscapes, and available rebates. Workshops are held in the Spring and Fall every year. No workshops were held in Q2, four more landscape workshops are planned for Spring 2024.

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

Residential Energy Efficiency 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 including guidance on home electrification options. In addition to in-home efficiency assessments of energy equipment and the building envelope (attic, windows, walls), the program also offers a Home Electrification Readiness Assessment (HERA) to plan for electrification upgrades; both the efficiency assessment and HERA are offered in a virtual option. During Q2 FY2024, the Genie performed 17 comprehensive in-home assessments and Home Electrification Readiness Assessments (HERA), and performed 2 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. In Q2 FY 2024, 12 customers participated in the REAP program, including 2 that received a HPWH at no-cost.

Water Conservation Programs for Residents and Businesses

CPAU partners with Valley Water to offer a robust portfolio of water conservation programs and [rebates¹¹](#) for residents and businesses. On June 25, 2023, the City entered into a new cost-sharing agreement with Valley Water which includes \$1.4M over 7 years to help the City deploy Advanced Water Metering Infrastructure and home water conservation reports. FY 2024 rebate data is not yet available; the City receives program results once a year from Valley Water in October at the end of the fiscal year.

The WaterSmart customer portal, an online water management tool, launched in November 2022. Through this program, home water reports are sent to around 11,000 single-family customers on a monthly basis. A control group of around 4,000 single-family customers currently do not get the reports. As of February 5, 2024, 22% of all single-family customers have accessed the portal which provides information about their water consumption and personalized water conservation recommendations. Water savings from the WaterSmart program are being evaluated and will be available in the next quarterly report. As water supply conditions have improved CPAU is focusing outreach on water conservation being a way of life and reducing water waste and continues to encourage participation in rebates and resources.

The Waterfluence program provides large commercial customers a monthly water budget that compares actual irrigation use to an ideal benchmark irrigation budget. Customers that are exceeding their suggested budget are eligible for a free landscape irrigation field survey. CPAU continues to engage Key Accounts on this resource to help them improve irrigation efficiency.

Bay Area SunShares Program

For the eighth year, the City of Palo Alto is an outreach partner for Bay Area SunShares, a solar and battery storage group-buy program administered by Business Council on Climate Change (BC3). Palo Alto's participation as an outreach partner helps CPAU customers receive information and discounted prices from two prescreened contractors – SolarUnion and Solar Technologies. CPAU held an [informational webinar¹²](#) on Oct 12th, 2023, where 28 attendees joined CPAU staff, Bay Area SunShares staff, and SunShares installers to discuss the program's offering. For the current program year, 27 Palo Alto residents signed contracts through SunShares to install solar and/or battery storage, slightly down from the 32 total contracts signed in 2022. The contracts include 230 kWh of battery storage, which is higher than the battery storage capacity from the previous two years. These numbers reflect the continuing high level of interest in solar and storage technologies among residents.

Commercial & Industrial Energy Efficiency Program

As of February 1, 2024, Enovity has twelve projects in process with 910,294 kWh projected savings. Key Account Representatives continue to proactively engage customers through email correspondence, site visits, and face-to-face meetings. The Utility Commercial Program Services team facilitated a successful Facility Managers Meeting in Q4 2023. The team is planning the next meeting for Q2 2024. These meetings prove to be effective engagement events that have generated leads for the CIEEP program. The Q3 2023 meeting generated four new leads.

The key account program is increasingly focused on reengaging key accounts that have not historically partnered with the city on energy efficiency and electrification, especially commercial property owners. Identifying customer pain points and creating action plans to address them will help us develop a roadmap for better serving our key accounts and increasing their ESG commitment in the community.

The Enovity program's total value is trending behind schedule due to higher commercial vacancy in the market. Many employers have remained fully remote and hybrid in 2023. This has led to a pause in facilities reinvestment and upgrading. There are some changes expected in 2024. One large commercial customer, VMware, has recently finalized their merger

¹¹ Rebates <https://valleywater.dropletportal.com/overview/>

¹² Informational Webinar <https://www.youtube.com/watch?v=3Phw812h3-M>

with parent company Broadcom. The VMware teams started returning to offices under the term, we expect increasing return to office mandates from more employers in Palo Alto. Conversely, there are commercial customers that continue to expand their footprint, including Stanford, Google, and Tesla. As they repurpose available space, some of the facilities may require retrofitting that coincides with electrification. Our next contract with Enovity will include a reevaluation of these market conditions.

Figure 26: Energy Efficiency Program Energy Savings

Project Name	Customer Facility Address	Project kWh Savings at Installation	Project Utility Cost Savings at Installation	Project Cost at Installation	Project Incentive at Installation
1050 Arastradero LED Phase 2	1050 Arastradero	38,211	\$6,037.34	\$37,100.00	\$3,821.10
3165 Porter LED Phase 2	3165 Porter St	54,070	\$9,408.18	\$44,673.30	\$5,407.00
801 Welch LED	801 Welch	42,457	\$7,345.00	\$44,492.00	\$4,245.70
855 CA Chlr RCx	855 California	48,600	\$8,200.00	\$4,577.00	\$2,288.50
1189 Welch LED	1189 Welch	178,844	\$32,191.92	\$94,959.00	\$17,884.40
Stanford Shopping Center LED	660 Stanford Shopping Center	178,732	\$32,707.96	\$45,086.21	\$17,873.20
1050 Arastradero Economizer	1050 Arastradero	51,450	\$12,317.00	\$48,944.00	\$8,495.00
855 CA Chlr RCx Phase II	855 California	22,754	\$3,846.00	\$4,910.00	\$2,275.40
LPCH Main LED	725 Welch Rd	686,818	\$96,155.00	\$241,065.00	\$68,681.80
1050 Arastradero HHW Valve	1050 Arastradero A	33,500	\$7,418.00	\$24,734.00	\$5,050.00
Cabana Hotel Electrification	4290 El Camino Real	167,222	\$4,186.00	\$498,284.00	\$41,805.50

Business Energy Advisor

Since the Business Energy Advisor (BEA) program launched in June 2022, 38 site assessments have been completed. In the last quarter participation has decreased compared to months prior, completing only 5 assessments. Fortunately, progress with existing participants continues to increase. There are currently 3 lighting projects in progress, which were slated for completion by the end of the year but have since been pushed to January 2024. Due to the slower uptake in participation, we have been exploring new outreach opportunities. This last quarter we ran a social media ad through Meta platforms, which resulted in 802 clicks on our program webpage. Unfortunately, that ad campaign did not lead to any sign ups. Additionally, our vendor, CLEAResult, conducted a call campaign reaching 763 new customers. CPAU’s Program Manager also sent direct emails to private schools and contractors to increase awareness.

In the next quarter we are testing out an increased incentive campaign, “Spring Savings, Cash Back,” to see if it boosts interest in the program and motivates existing participants to act on their proposed efficiency projects. We have boosted all efficiency incentives by 20% for BEA customers who complete projects by May 31st, 2024. We will utilize all outreach methods including bill inserts, direct emails to hundreds of customers, information in the small and medium business newsletter, in person outreach, social media, ads, and call campaigns. Additionally, CPAU’s Program Manager will join the EVTAP Program Manager in doing door-to-door outreach to schools, religious facilities, and other businesses that are a good candidate for both programs.

6.1.2 Building Electrification

Full-Service Heat Pump Water Heater Program

CPAU launched the Full-Service Heat Pump Water Heater (HPWH) Program in March 2023 that provides an end-to-end advisory and installation service to homeowners to switch from a gas water heater to a HPWH at a discounted price. The program also offers an on-bill financing option with 0% interest to lower the upfront cost to customers. The Home Efficiency Genie team at CLEAResult has been serving as the program concierge, while Synergy is the installer that provides the project cost estimate and completes the installation. The City has also been partnering with a marketing consultant to drive program leads through creative marketing campaigns in various channels. As of February 20, 2024, the program has completed the installation of 202 HPWH units with another 22 units scheduled for installation. Projects have

applied for on-bill financing. With the current pace of new signups, the City currently around 200 installations per year, equivalent to about 20% of the water heaters replaced each year.

On November 1, 2023, the program began a new round of [lower pricing](#)¹³ on a limited time basis, thanks to the new statewide HPWH incentives through the TECH Clean program. This new pricing includes up to \$1500 of subsidy for site preparation work such as long conduit runs, relocation of the water heater, etc. At least 50 customers who had previously dropped out of the program returned to it upon learning about the new incentives and more favorable pricing. In addition, a robust customer outreach campaign in December, connecting with almost 100 customers, provided detailed feedback to help improve the program.

In addition to providing a prescreened contractor to install HPWHs, CPAU also offers the option for customers to choose their own contractor and apply for a \$2300 HPWH rebate if the equipment meets the program criteria and has been permitted. Since the launch of the statewide TECH incentive of \$3,100 or more for HPWHs, CPAU has lowered its HPWH rebate to \$1500. In 2023, CPAU processed 44 HPWH rebates.

Business Electrification Technical Assistance Program (BE TAP)

The Business Electrification Technical Assistance program (BETAP) launched in August 2022, providing free electrification assessments and technical assistance to implement building electrification projects to businesses. This program has had a slow progression, with 28 assessments completed thus far. Participants are still hesitant about pursuing electrification projects for a variety of reasons. Unfortunately, due to unexpectedly high quotes customers are receiving, permitting challenges, and insufficient rebate incentives, customers are deciding not to move forward with projects. There is one heat pump HVAC project in the installation phase, but they are also facing challenges with the permitting process which is delaying the project for over a year since their initial assessment. In the next quarter we are testing out an increased incentive campaign, “Spring Savings, Cash Back,” to see if it boosts interest in the program and motivates existing participants to act on electrification projects, customers have shown interest in, in the past. We have boosted electrification incentives by 50% for BEA customers who complete projects by May 31st, 2024. We will utilize all outreach methods including bill inserts, direct emails to hundreds of customers, information in the small and medium business newsletter, in person outreach, social media, ads, and call campaigns. Additionally, the BETAP program manager will join the EVTAP program manager in door-to-door outreach to schools, religious facilities, and other businesses that are a good candidate for both programs.

6.1.3 Electric Vehicle Programs

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.

EV Technical Assistance Program (EVTAP)

- **Goal:** Offer technical assistance for the installation of EV chargers at nonprofits, schools, multifamily properties, and small medium businesses. Facilitate the installation of on-site EV charging access for 10% of multifamily households by the end of 2024.
- **Progress:** EVTAP is a high touch program, that includes a series of site visits, technical evaluations, engineering reviews, designs, support with hardware selection and cost estimates that culminate in the landlord receiving contractor bids and assistance submitting a building permit, applying for incentives and project management of the installation. Projects going through EVTAP have been taking two years or more to reach completion.

¹³ Lower Pricing <https://www.cityofpaloalto.org/News-Articles/City-Manager/Switch-to-a-Heat-Pump-Water-Savings-Expire>

Since Program inception in 2019, 156 sites have enrolled in EVTAP and of those, 94 received site visit reports which cover electrical load calculations, transformer loads, charger installation scenarios and pricing estimates. A total of 11 sites have already installed chargers as result of EVTAP support, accounting for 131 EV charging ports. However, due to COVID, each project has taken much longer to complete than expected. As a result, staff is working to extend the contract for three years, to complete installations of projects currently in the pipeline to hit original goals. Staff has been working on several initiatives in support of enrolling more properties into the EVTAP services:

- a) Reaching out to private schools and faith-based organizations to gauge their interest in EV chargers and City's electrification efforts. EVTAP has already seen an enrollment increase as a result of these site visits.
- b) Partnering with the Development Services Permit Manager to implement the two State laws which require for the streamlining of the permitting process for EV chargers.
- c) Engaging with the City's ADA inspector to conduct visits to new sites to clarify the ADA stall requirements prior to permit submittal.
- d) Developing a relationship with low-income housing providers, such as Alta Housing and Eden Housing, on future funding opportunities. As an example, staff are collaborating with the Utilities Fiber team to piggyback on proposed trenching, to include EV chargers at Colorado Park Apartments (low-income property run by Alta Housing). Another Alta Housing property at 574 Arastradero is in the process of applying for a permit to install chargers on their property. MidPen Housing is also taking advantage of our rebates and technical assistance to install 60 EV chargers and make ready EV charging parking spaces at their low-income Palo Alto Gardens property.
- e) Facilitating a partnership between the State's CEC grant with EVMatch to do a project at a mix-used property at 755 Page Mill to install chargers that can be available to the public during day hours.
- f) Beginning initial conversations with Caltrain about possibly installing EV chargers in their parking lot so that residents in those neighborhoods can charge overnight.
- g) Collaborating with the Transportation Demand Management team to start conceptualizing mobility hubs that can provide charging to residents of multi-family properties who might not have chargers on-site.

EV Charger Rebate Program

- **Goal:** Incentivize the installation of EV chargers at Non-Profits, Schools, and Multifamily properties.
- **Progress:** Since the launch of this program in 2017, CPAU has facilitated the installation of 297 new EV charging ports/connectors at 30 sites (as of end of January 2024). The breakdown of the installation sites: 12 MF and 18 non-profits (including 8 schools, 5 medical facilities). The average cost of each port has been \$10k and projects have averaged 18 months to complete. Staff predicts that approximately 30 multifamily properties will complete installations in the next couple of years.

California Electric Vehicle Infrastructure Project (CALeVIP)

- **Goal:** Facilitate and incentivize the installation of EV chargers at commercial sites.
- **Progress:** As of December 2023, a total of \$1.93M (out of \$2M) was reserved by 12 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 148 Level 2 ports and 14 DC Fast Chargers. Still experiencing the aftermath of COVID, as well as permitting delays, installations are moving much slower than expected. Staff is working actively with the program administrator to fully reserve any available outstanding funds, and to encourage installations to materialize.

EV Awareness and Outreach

- **Goal:** Raise awareness about electric modes of transportation.

- **Progress:** Using NCPA contracts and LCFS funds, CPAU was contracted with [Acterra](https://acterra.org/)¹⁴ to offer 30 EV events in CY2023. These included 20 virtual EV educational workshops, attracting over 1,000 attendees and 10 in-person EV expos and e-Bike test rides attracting over 1,700 participants. Popular classes included multi-lingual Financial Incentive Clinics targeted towards lower income customers with one-on-one consultation, as well as EV Charging 101 classes. CPAU also offered limited-time discount campaigns on certain EV models and e-Bikes. Through these campaigns, we were able to offer discounts of \$1,500-\$10,000 on select EV models and up \$400 in savings on select e-Bikes. Eight EVs and fifteen e-Bikes were purchased by Palo Alto residents through these limited-time discount campaigns in CY2023. CPAU is in the process of contracting with Cool the Earth and EVucation, a Plug In America subcontractor, using NCPA contracts to offer a continuation of a robust curriculum on EV-related webinars, workshops, and in-person events in CY2024.

Qmerit

- **Goal:** Online tool for Palo Alto homeowners to receive free online estimates from local, vetted contractors for EV charger installations. Qmerit also assists with raising customer awareness of embracing grid-friendly options, such as Level 1 and low-voltage Level 2 charging options.
- **Progress:** Using an NCPA contract and LCFS funds, CPAU is contracted with D+R International and Qmerit to provide reliable installers. This program launched in late July 2023 with 20 project estimate requests submitted, one completed project, and three active projects from October to December 2023. CPAU anticipates increase in program interest and participation with growing EV adoption and will increase outreach efforts of this program for interested EV owners of single-family homes.

City-Owned EV Chargers

As of the End of January 2024, there are 131 City-Owned EV charging ports. Of those, 10 are dedicated to staff and City vehicles, and 121 are accessible to the public. A total of 7 ports have been added recently, including at Cubberley Community Center, Utilities Engineering, and the Municipal Service Yard.

Upcoming Projects:

- a) Install EV chargers (12 ports) in the new Police building, which will come online when that building opens this year.
- b) Working on plans and specs to install 6 new chargers at City Hall on Level C for Fleet vehicles.
- c) Partner with Tesla to install 12 Supercharger in parking Lot 8 on Sherman Ave.
- d) Add a second circuit to the 16 chargers at the Sherman Ave. garage. May add another 12 ports at the Sherman garage.

Transformer Upgrade Rebate Program

- **Goal:** Provide discounts to defray the cost of utility distribution system upgrades, triggered by EV applications. Many older properties in Palo Alto, especially multifamily buildings, have limited electric capacity to accommodate EV chargers and building electrification.
- **Progress:** There's been an ongoing nationwide transformer supply shortage, 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. To date, uptake has been slow, however with many active EVTAP projects in the pipeline, we estimate that approximately 13 sites will require new transformers and Utilities is planning accordingly. To help customers better understand the transformer upgrade process, Staff has worked with Utilities Engineering to develop a workflow process chart, that

¹⁴ Acterra <https://acterra.org/>

¹⁵ Cool the Earth <https://cooltheearth.org/>

illustrates all the steps involved in planning for and installing a transformer. Staff meets with sites and contractors to educate them on this workflow, as well as the costs involved that need to be incorporated in the contractor's bid. Staff is also working with Utilities Engineering to explore load management as a possible solution to avoid the need for transformer upgrades. One example has been the PowerFlex chargers installed at a few of the PAUSD schools.



7 Communications

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

Residential Electric and Water Customer Satisfaction Surveys: In fall 2023, CPAU participated as a member of the California Municipal Utilities Association (CMUA) in customer satisfaction surveys for residential electric and water utility customers. CMUA’s contractor, GreatBlue Research, completed a statewide survey of municipal and investor-owned utilities customers as a method of benchmarking trends of customer satisfaction and program awareness across the state. CPAU opted to also participate in an “oversample” survey of Palo Alto residents so we can gain greater insight into some specific areas of interest for Palo Alto residents. Staff presented the key study findings and considerations to the UAC in February 2024 and plan to share the results with City Council.

Winter Energy Costs: Natural gas market prices were extremely high last winter, the highest since the 2001 energy crisis. On September 18, 2023, City Council adopted a revised natural gas purchasing strategy for the upcoming winter months. CPAU staff are communicating to customers about these changes to the way gas prices will be reflected on utility bills, as well as offer resources to help customers with access to free home efficiency assessments, payment arrangements, and more.

Text Messaging for Enhanced Outage Communication: CPAU’s new power Outage Management System now provides mobile text messaging capabilities to provide customers with outage alerts and status updates. We encourage utility customers to log into their [MyCPAU account¹⁶](#) or contact Customer Service directly to ensure we have the best mobile phone number(s) on file to effectively communicate in the event of an unplanned or planned utilities service disruption. Find information on outages and mobile texting at cityofpaloalto.org/outages

Advanced Metering Infrastructure (AMI) Project: CPAU continued its deployment of Advanced Metering Infrastructure (AMI) throughout 2023 and into 2024. Meters are being installed in phases to allow the City to test and validate quality assurance for data collection and billing. Full deployment of AMI for residential customers is estimated to be complete by the end of 2024. Commercial AMI meter installations will likely begin in late 2024 or early 2025 when supply chain limitations are alleviated. CPAU is communicating directly with customers who will receive the meters to share resources and help with any questions or concerns, as well as developing a video about AMI.

www.cityofpaloalto.org/ami

Program and Event Support: CPAU communications staff provide ongoing annual, monthly, and daily support for outreach to residential and non-residential customers about programs for sustainability, energy and water efficiency, solar, electric vehicles and eBikes, beneficial electrification, events and workshops, and more. Comprehensive

¹⁶ MyCPAU Account <https://mycpau.cityofpaloalto.org/portal/>

communication campaigns include website, utility bill inserts, email newsletters, social media advertisements, community outreach events, media relations and public correspondence.



8 Legislative, Regulatory and Industry Activity

There are no updates to the in Legislative session activity this quarter.

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 #12240¹⁷](#)).

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

Palo Alto executed the following Electric and Gas transaction in Q2 of FY 2024.

Figure 27: Gas Deals

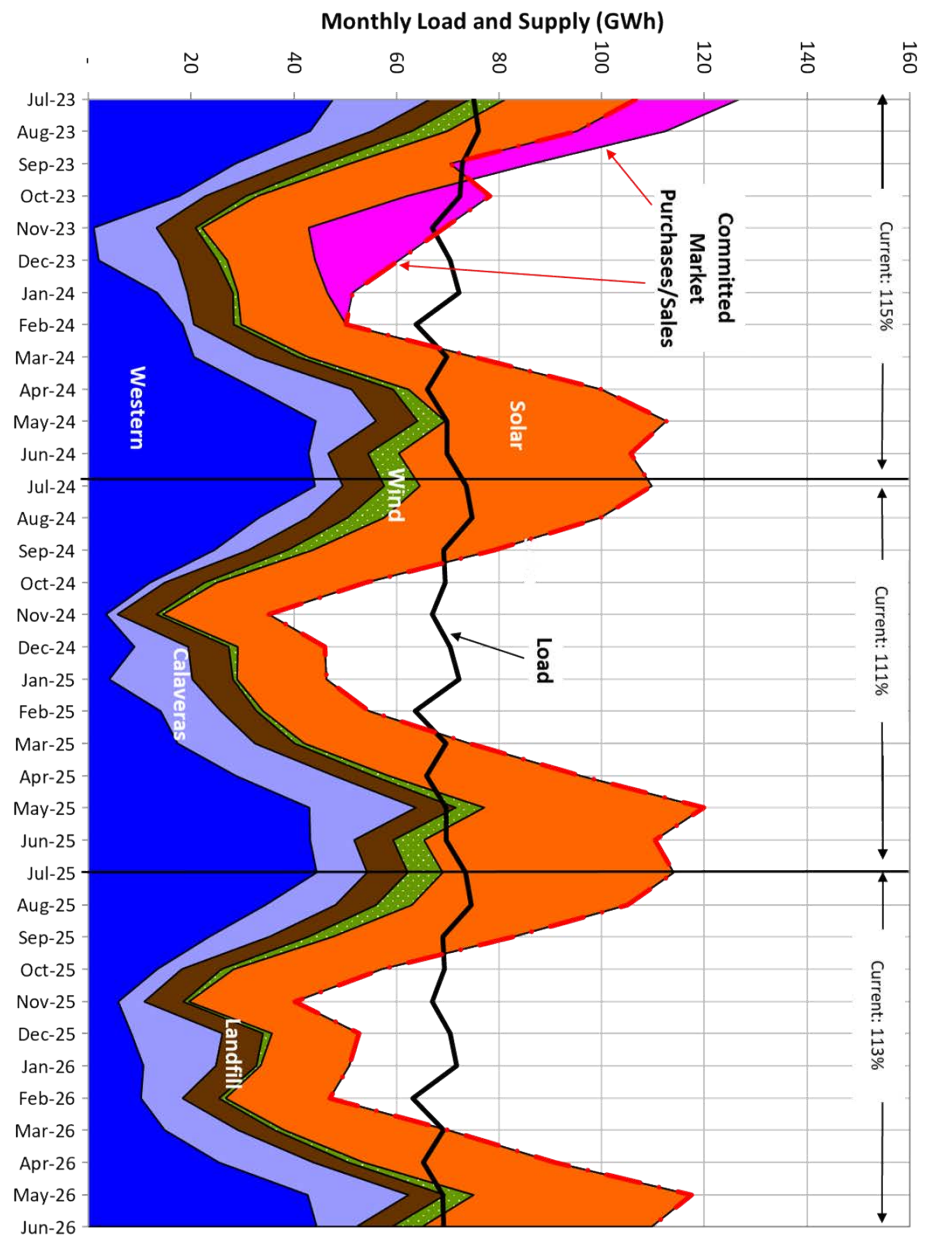
Delivery Month	Deal Type	Total Energy (MMBtu)	Price (\$/MMBtu)
Nov’23-Apr’24	Purchase	1,087,632	Malin Bidweek + Adder
Nov’23-Apr’24	Purchase	733,600	Citygate Bidweek + Adder

¹⁷ Staff Report #12240 <https://www.cityofpaloalto.org/files/assets/public/v/3/agendas-minutes-reports/reports/city-manager-reports-cmrs/year-archive/2021/06-21-21-id-12240.pdf>

9.4 Electric Market Exposure

The chart below shows the City's electric supply market exposure and committed purchases and sales to cover exposed positions. Additional purchases and sales will be executed for FY 2024 and FY 2025 in the coming months.

Figure 28: Electric Load Resource Balance, FY 2024 - 2026



9.5 Transaction Compliance

There are no transaction exceptions or violations to report.

10 Appendix B: Staffing and Vacancies

As of Q2 FY 2024, the Utilities Department has 43 vacant positions out of 259 authorized positions or a 17% vacancy rate. Below is a breakdown of the vacancies by division. Utilities has designated three HR liaisons from Utilities Administration to assist HR with some of the recruitments. With the three HR liaisons, CPAU will be able to post positions, schedule interviews, and make job offers at a faster pace after they are fully trained. CPAU have been attending engineering career fairs at Sacramento State University, Cal Poly San Luis Obispo, and San Jose State University. Since the inception of the HR liaison program, Utilities has made steady progress in reducing the number of vacancies from 58 in Q1 2023 to 43 in Q2 2024 or a 26% decrease.

Figure 29: Utilities Vacancies and Position Movements by Division, up to Q2 FY 2024

Division	Authorized FTEs	Vacant FTEs	Active Recruitments	Vacancy %
Administration	20.5	2	1	10%
Customer Service ¹	23	4	1	17%
Fiber & S/CAP ²	6	6	2	100%
Resource Management	25.5	1	1	4%
Electric Operations	69	14	11	20%
Electric Engineering	21	8	5	38%
WGW Operations	70	4	4	6%
WGW Engineering	24	4	4	17%
Total	259	43	29	17%
¹ 3 of the meter reading-related vacancies in Customer Service are frozen				
² 4 vacant fiber positions for FTTP will be recruited in 2024				

11 Appendix C: Utilities Customer Program Descriptions

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.

11.1 Customer Programs Overview

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.

11.1.1 Energy and Water Efficiency

Residential Energy Efficiency and Water Conservation Programs

The Home Efficiency Genie program provides 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. During FY 2023 the Genie team provided 47 comprehensive in-home assessments and 26 virtual assessments. Those assessments also included 38 HERA to help residents evaluate their homes for electrification upgrade planning.

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. Multiple projects are being scheduled for REAP customers to take advantage of the free efficiency upgrades, with projects including building envelope improvements, furnace replacements with high efficiency models, and lighting upgrades to LEDs. Recently a new measure for high-efficiency toilets (HETs) was added.

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. Recently a new measure for high-efficiency toilets (HETs) was added.

CPAU partners with Valley Water to offer a robust portfolio of water conservation programs and [rebates¹⁸](#) for residents and businesses.

Commercial & Industrial Energy Efficiency Program

The Commercial and Industrial Energy Efficiency Program (CIEEP) offers free energy audits to businesses. These audits help businesses identify areas where they can save energy, such as improving lighting, controls, occupancy sensors, refrigeration systems, HVAC systems, and other equipment. Furthermore, CIEEP’s can help provide technical assistance to businesses to help them implement energy efficiency measures. This can include suggestions that help customers develop energy efficiency plans, provide information on energy-efficient technologies, and connecting businesses with contractors.

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,

¹⁸ Rebates <https://cityofpaloalto.org/waystosave>

industrial, and public sector customers to upgrade their equipment to energy-efficient products. In 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.

Business Energy Advisor

The Business Energy Advisor program offers a free consultation and on-site assessments from CPAU’s vendor, CLEAResult, who provides custom recommendations for businesses to help them lower utility costs with more efficient equipment. Rebates are provided to customers who complete recommended energy efficiency or water conservation projects. This program is available to small and medium businesses under 50,000 square feet.

11.1.2 Building Electrification

Full-Service Heat Pump Water Heater Program

This program, launched in early 2023, aims to make it easier and more affordable for residents to switch to a heat pump water heater (HPWH). The program has a goal of installing 1,000 HPWHs in one year, by providing a prescreened contractor to install HPWH at single family homes at a cost comparable to a gas water heater installation and offering on-bill financing to lower the upfront cost. Customers also have the option to choose their own contractors and apply for a \$2300 rebate if the equipment meets the program criteria and has been permitted.

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. CLEAResult provides ongoing technical assistance, guiding customers through their projects to completion. The City then pays the customer electrification rebates through the Business Customer Rebates program.

11.1.3 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.

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. Of the 11,000 households living in MF, 23% have annual income levels which are under 400% Federal Poverty Levels. 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, Homeowners 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.

- Technical assistance (site evaluation, including electrical capacity, business case, 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.

EV Technical Assistance Program (EVTAP)

- **Goal:** Facilitate the installation of 180-360 ports @ 60-90 sites (By 2027)
- 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.

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.

California Electric Vehicle Infrastructure Project (CALeVIP)

- **Goal:** Facilitate and incentivize the installation of EV chargers at commercial sites.

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.

Qmerit

CPAU has partnered with Qmerit, for Palo Alto homeowners to receive free online estimates from local, vetted contractors for EV charger installations. Online estimates include permitting, inspections, and installation costs. Qmerit will assist with customer awareness of and education about embracing grid-friendly options, such as Level 1 and low-voltage Level 2 charging options.

City-Owned EV Chargers

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

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.

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 as proposing designs utilizing existing electric capacity.

11.1.4 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:

- **Low Carbon Fuel Standard (LCFS) Program:** The City participates in the California Air Resources Board (CARB) LCFS program, receiving credits for the provision of low-carbon fuels (such as clean electricity and compressed natural gas) and must use the revenues from the sale of these credits for programs and other efforts promoting low-carbon vehicle adoption.
- **Cap and Trade Program:** The City’s electric and gas utilities are required to participate in the State’s cap and trade program, but these utilities receive some of the revenue from the auction of allowances for the program. The revenue must be used for emissions-reducing activities.
- **Public Benefits Funds:** Locally owned municipal utilities must collect a surcharge from their electric utility customers under section 385 of the Public Utilities Code (there is a similar requirement for gas utilities) to be used on cost-effective energy efficiency and conservation, low-income programs, renewable energy, and research and development.

The amount of revenue currently held in reserve for each revenue source and the projections for future revenue are shown below.

Figure 30: Potential Emissions Reduction Funding Sources

Funding Source	FY 2023 Year-End	Projected Revenues		
	Reserves	FY2024	FY2025	FY2026
Low Carbon Fuel Standard	\$6,712	\$1,100	\$1,120	\$1,232
Gas Cap & Trade	6,731	3,163	3,327	\$3,612
Public Benefits	5,673	4,779	4,655	4,584
Electric REC Exchange Revenue (Electric Cap & Trade)	2,231	1,700	1,200	1,100
TOTAL	21,346	10,742	10,302	10,528

Expenditures for each revenue source are as follows:

- LCFS revenues have been used primarily to facilitate the installation of EV chargers in multi-family buildings and are expected to be used that way in the future unless the City’s priorities shift. Some has been used for general promotion of EVs.
- Cap and Trade revenues have been used to purchase renewable energy and for the Advanced Heat Pump Water Heater pilot. More use of these revenues for electrification programs is expected in the future, though no specific approvals have been sought yet.

Public Benefit funds are used for energy efficiency (including low-income programs) and building electrification.

12 Appendix D: 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. Below is an update on the wastewater utility.

Wastewater Utility Management Overview - 2023

Executive Summary

- The City continues to implement scheduled routine preventive maintenance.
- Although there are 10 Full-Time Equivalent (FTEs) budgeted for wastewater operations, 3 FTEs were assisting on the Lead Service Line Inventory project and other projects and 1 FTE was out on leave.
- The emergency standby team is responding to fewer calls for after-hours activities.
- Sanitary Sewer Replacement (SSR) program continues as proposed in the 5-year CIP budget.
- An accelerated sanitary sewer replacement program (2.5 miles per year) is anticipated to start in FY 2028 to replace aging sewer infrastructure before reaching the end of its useful life.
- The Sewer Master Plan Study is anticipated to be completed in spring 2025 to determine the adequacy of the system's hydraulic capacity to meet current and future wastewater flow demands.

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.
- Complete design and start construction on SSR 32 to replace deteriorated and failed sewer mains and laterals in portions of the following neighborhoods: Old Palo Alto, Barron Park, Fairmeadow, Green Acres, Palo Verde/Midtown West and Crescent Park.
- 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.

Asset Management Goals

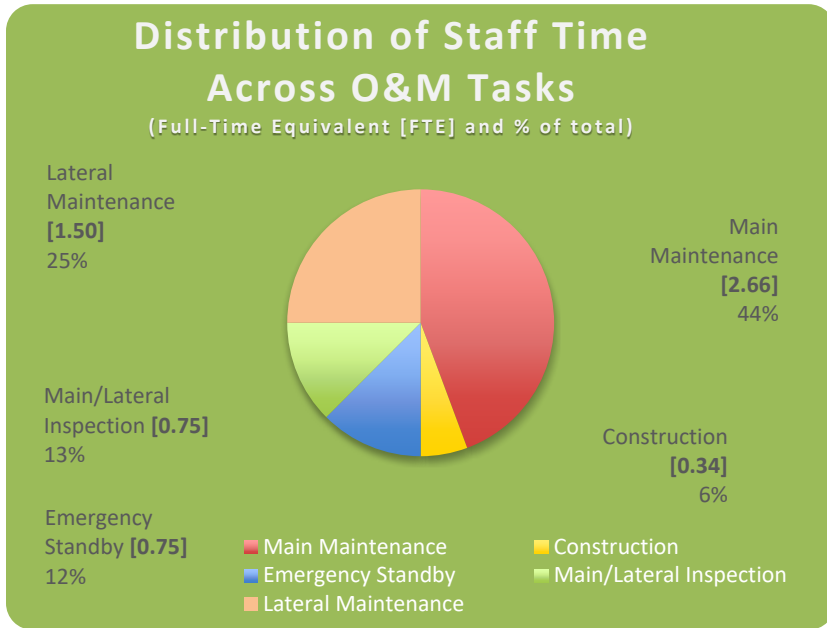
What are our goals?

- Properly manage, operate, and maintain the wastewater collection system
- Provide reliable 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 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

System Operations and Maintenance Overview



Main Maintenance* (2.66 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* (1.50 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 (0.75 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 (0.75 FTE):** The emergency response team (ERT) of two installers and one heavy equipment operator is always on standby. The ERT responds promptly to investigate and mitigate sewer issues when calls are received from the City’s Dispatch.
- **Construction (0.34 FTE):** Installation of new laterals, pipe repairs, and manhole replacements.

**First priority programs, critical to daily operation*

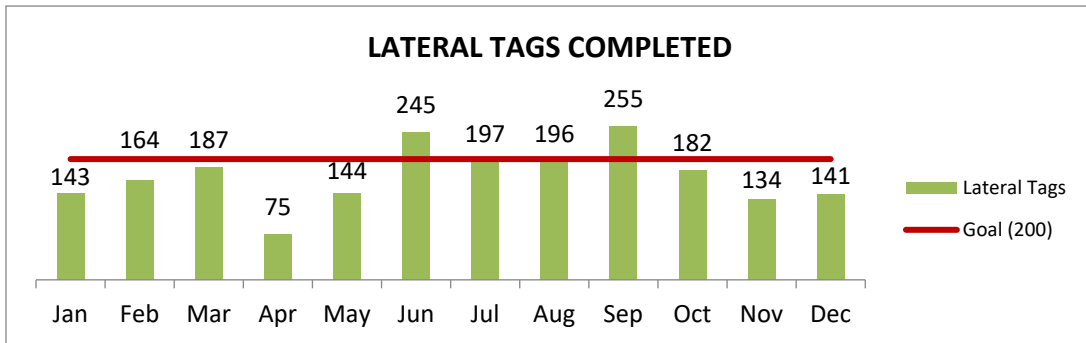
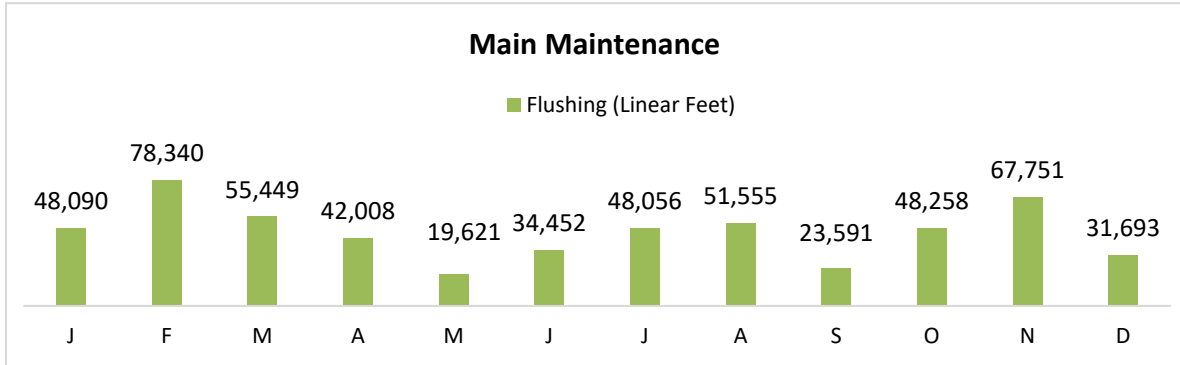
Note: The total number of FTEs listed above does not include the 3 FTEs on loan to the Lead Service Line Inventory Project and other projects or 1 FTE out on leave.

Maintenance Status:

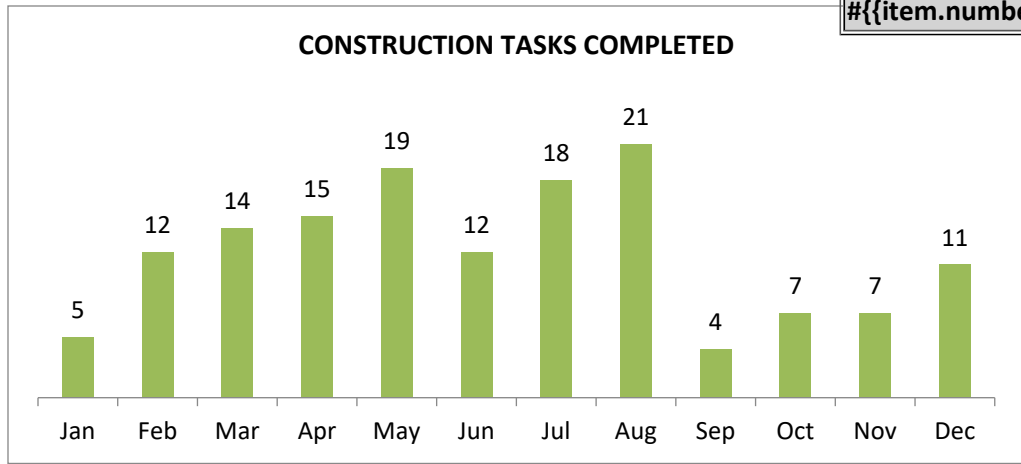
- Essential maintenance programs continue as Operation’s primary routine daily task.
- Main/lateral inspection program continues to provide Engineering Division with valuable data from pipe assessment for CIP project prioritization.
- A total of 39 monitoring devices, used to monitor sewer overflows remotely, were replaced in sewer manholes to increase reliability and accuracy.

Wastewater Maintenance and Construction Charts

In the past 10 years, the number of sanitary sewer overflows (SSO) has noticeably decreased due to annual maintenance programs and biennial sewer main/lateral replacement projects. Relative to 2022, the 2023 SSO volume increased due to several factors which included: several atypical sewer main overflow events, an instance where a contractor accidentally damaged a sewer main, and an overflow at the collection system’s one lift station (Foothills Lift Station) due to a power outage and the failure of system controls, which will be addressed as part of a task in the Sewer Master Plan Study.







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 200 tags was not consistently met due to staffing allocation to other projects not associated with wastewater operations, including staffing loaned to the Lead Service Line Inventory project and 1 FTE being out on leave. Staff continues to evaluate 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, with a focus on more frequent flushing in known trouble areas or “Hot Spots”. The City’s annual amount of lineal feet flushed prioritizes “Hot Spots” for preventative maintenance, followed by less troublesome areas. As areas become more or less troublesome, the City updates the hot spot flushing frequency and updates the schedule to flush less troublesome line areas. This year, the City completed 548,864 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 on-going system monitoring program to respond to 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 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).
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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, whereas 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 but is aging. The Sewer Master Plan Study will perform a top-level conditional assessment and make recommendations for improvements.

13 Appendix E: Fiscal Year 2023 Demand Side Management Report

13.1 Executive Summary

This Demand Side Management (DSM) Report for Fiscal Year (FY) 2023 is a public document summarizing the achievements of the City of Palo Alto Utilities’ (CPAU) customer efficiency and sustainability programs. CPAU is committed to supporting environmental sustainability through conservation of electric, gas and water resources. Additionally, CPAU promotes distributed renewable generation, building electrification, and electric vehicles using incentives and educational programs. CPAU accomplishes these goals by delivering a wide range of customer programs and services as described in this report and strives to do so while remaining in touch with customer needs.

The Fiscal Year 2023 DSM Report follows the format of the FY 2022 report, which is designed to highlight key performance indicators in the major areas of focus for the City of Palo Alto’s sustainability efforts. FY 2023 marks the first year the DSM reports are included as an attachment to the Q2 Utilities Quarterly Update provided to the Utilities Advisory Commission in April each year.

13.1.1 Summary Goals and Achievements

CPAU offers incentives and education programs for customers to encourage energy and water efficiency – Table ES.1 summarizes FY 2023 efficiency goals and achievements. The energy and water efficiency savings achieved through the City’s energy reach code and green building ordinance are included in the table.

Palo Alto updated its 10-year electric efficiency goals in 2021¹⁹, decreasing electric efficiency targets compared to the previous trend anticipating that savings levels would slowly recover following the economic downturn. For FY 2023, CPAU fell short of meeting its electric efficiency goal. There are many factors that contributed to the decline in energy savings and below-target efficiency achievements, including an updated calculation of energy code savings and a continued lack of large commercial project completions. CPAU has also continued its trajectory of focusing on developing and promoting electrification programs over energy efficiency programs with the Heat Pump Water Heater Pilot Program kicking off in early 2023.

CPAU has previously adopted gas efficiency goals to reduce gas use; these goals ranged from 0.5% to 1.1% gas use reduction per year. These goals are no longer relevant and are superseded by the S/CAP goal for the building sector. Water efficiency goals are in transition as the State is expected to issue new urban water use objectives in compliance with water conservation legislation²⁰ passed in 2019. The State-mandated water use targets will inform the City’s water conservation goals.

Table ES.1: Efficiency Goals vs. Achievements

Resource	FY 2023 Savings Goals (% of Load)	FY 2023 Savings Achieved (% of Load)	FY 2023 Savings Achieved
Electricity	0.50%	0.05%	420 MWh
Gas	N/A	0.04%	12,765 Therms
Water	N/A	1.38%	53,456 CCF

¹⁹ Electric Efficiency Goals: <https://www.cityofpaloalto.org/files/assets/public/agendas-minutes-reports/reports/city-manager-reports-cmrs/year-archive/2021/id-12068.pdf>

²⁰ Water Efficiency Legislation Fact Sheet: https://www.waterboards.ca.gov/publications_forms/publications/factsheets/docs/6.7.18_water_efficiency_0.pdf

CPAU is committed by its own policies and State law to implementing all cost-effective energy and water efficiency measures (i.e. those that are less expensive than supply-side resources). Table ES.2 summarizes the cost of efficiency over the last three years compared to the projected cost of supply resources. The rolling 3-year average is a suitable metric to track the cost effectiveness of efficiency portfolios, as it accounts for yearly variations in program engagement and funding.

The current 3-year average cost for the electric and water efficiency portfolios are below the cost of supply resources, demonstrating the cost effectiveness of the portfolios. The gap between the portfolio-level cost of efficiency and the cost of supply resources exists even while the portfolio supports high-touch programs such as the Home Efficiency Genie, a customer service program that provides great educational value to Palo Alto residents but delivers only modest energy efficiency savings. The gap also leaves room for increasing customer incentives while maintaining overall portfolio cost effectiveness. The gas efficiency portfolio cost has been pushed above the estimated future supply cost mainly due to the high startup costs of the water heater electrification program. The gas portfolio efficiency should improve as the water heater program and other electrification programs become better established in Palo Alto.

Table ES.2: Actual Levelized Efficiency Costs vs. Projected Supply Costs

		FY 2021 Efficiency	FY 2022 Efficiency	FY 2023 Efficiency	3-yr Average Efficiency	Future Supply
Electricity	\$/kWh	\$0.03	\$0.05	\$0.13	\$0.07	\$0.11
Gas	\$/Therm	\$0.51	\$1.66	\$4.02	\$2.06	\$1.16
Water	\$/CCF	\$2.73	\$0.51	\$1.53	\$1.59	\$7.03

13.2 Electric Efficiency

CPAU offers both residential and non-residential programs that target electric efficiency improvements for customers. Every year CPAU’s energy efficiency program details are published by the California Municipal Utilities Association (CMUA)²¹ as required by California Senate Bill 1037. Table 1 contains a high-level summary of FY 2023 electric program savings and expenditures, as well as the electric efficiency savings target set in CPAU’s 10-year energy efficiency goals.

Table 1: Electric Efficiency Metrics

Electric Efficiency	
MWh Reduced	420
\$ Spent	\$721,054
Cost of Efficiency (\$/kWh)	\$0.13
Total MWh Load	825,306
Savings (% of Load)	0.05%
Savings Goal (% of Load)	0.50%

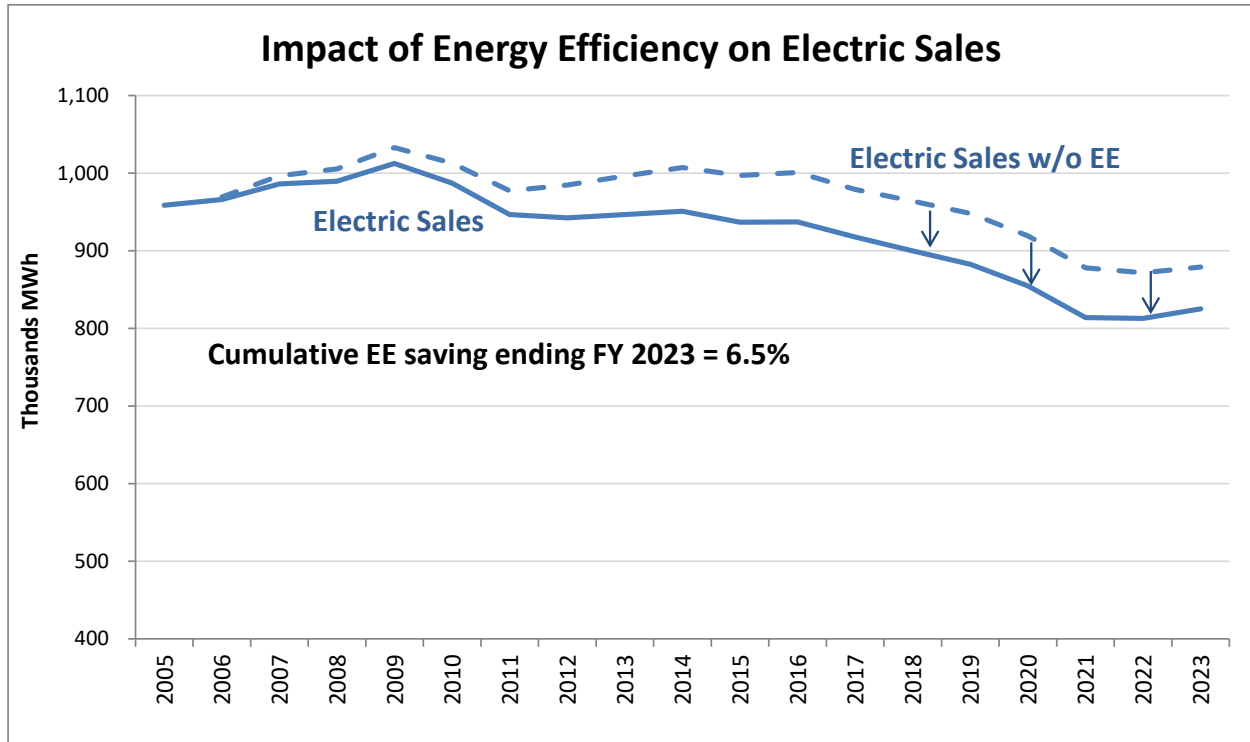
CPAU fell short of its FY 2023 electric efficiency savings goal for a variety of reasons, the most impactful of which being the lack of large commercial efficiency projects. Large commercial electric efficiency projects can take a year or more to be completed, so this could be a residual effect from the impact the pandemic had on businesses. CPAU’s estimated

²¹ SB 1037 Status Reports: <https://www.cmua.org/sb1037-reports>

savings from energy codes also dropped significantly due to a change in calculation methodology, and reflect the impact of Palo Alto's reach codes.

Figure 1 shows the historical trend of annual electricity sales and the cumulative net savings from electric efficiency.

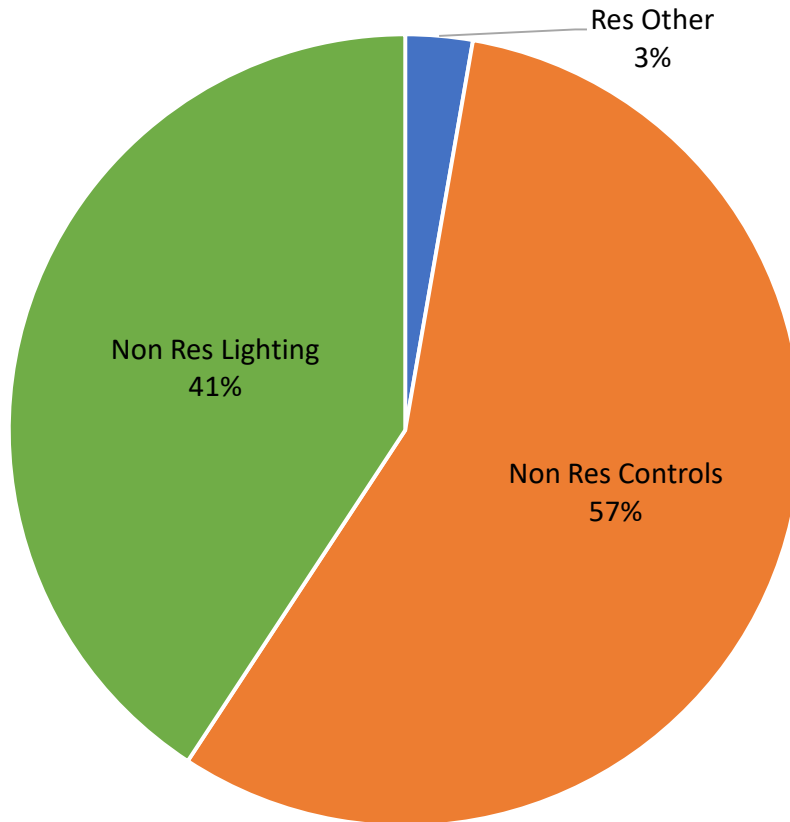
Figure 1: Cumulative Net Electric Efficiency Savings



As shown in Figure 2, the residential sector only comprised around 3% of electric savings, which came from measures including lighting, HVAC, building envelope, and plug loads. The other 97% of electric savings came from the commercial and industrial sectors, split between lighting and retro-commissioning.

Figure 2: Composition of Net Electric Efficiency Savings in FY 2023

Total Electric Savings by Sector and End Use



13.3 Gas Efficiency and Electrification

CPAU has previously adopted gas efficiency goals to reduce gas use; these goals ranged from 0.5% to 1.1% gas use reduction per year. These goals are no longer relevant as they are superseded by the S/CAP (Sustainability and Climate Action Plan) goal to reduce GHG emissions from the direct use of natural gas in Palo Alto’s building sector by at least 60% below 1990 levels by 2030. Rather than continuing gas efficiency rebates and services to support the installation of new gas equipment that would remain in place for the next decade or longer, CPAU replaced traditional gas efficiency rebates with technical assistance and rebates to help customers with the transition off of gas equipment. Building envelope improvements will remain a program priority to ensure comfort for building occupants and to avoid oversizing of all-electric heating, ventilation and air conditioning (HVAC) equipment.

Table 2 contains a summary of FY 2023 program gas savings through electrification or efficiency projects. CPAU is focusing initial residential electrification efforts on water heating due to its relatively low impact on the electric grid as Palo Alto continues to upgrade the distribution system in preparation for increased electric load. The majority of other gas savings are coming from retro-commissioning of commercial building HVAC systems in Palo Alto.

In FY 2023, the cost per metric ton (MT) of GHG avoided was \$758, compared to CPAU’s long term goal of spending less than \$200/MT GHG avoided. The cost was high in FY 2023 due to a combination of low gas reduction relative to the fixed costs of program operation and the launch of the Heat Pump Water Heater Pilot Program. CPAU anticipates that the cost per MT GHG avoided could stay high or even increase in the near future due to expensive programs that are designed to kickstart the electrification market in Palo Alto. For reference, the current cost of direct air carbon capture can be more

than \$600/MT CO₂²², so even expensive preventative measures can be more cost effective than a sequestration alternative.

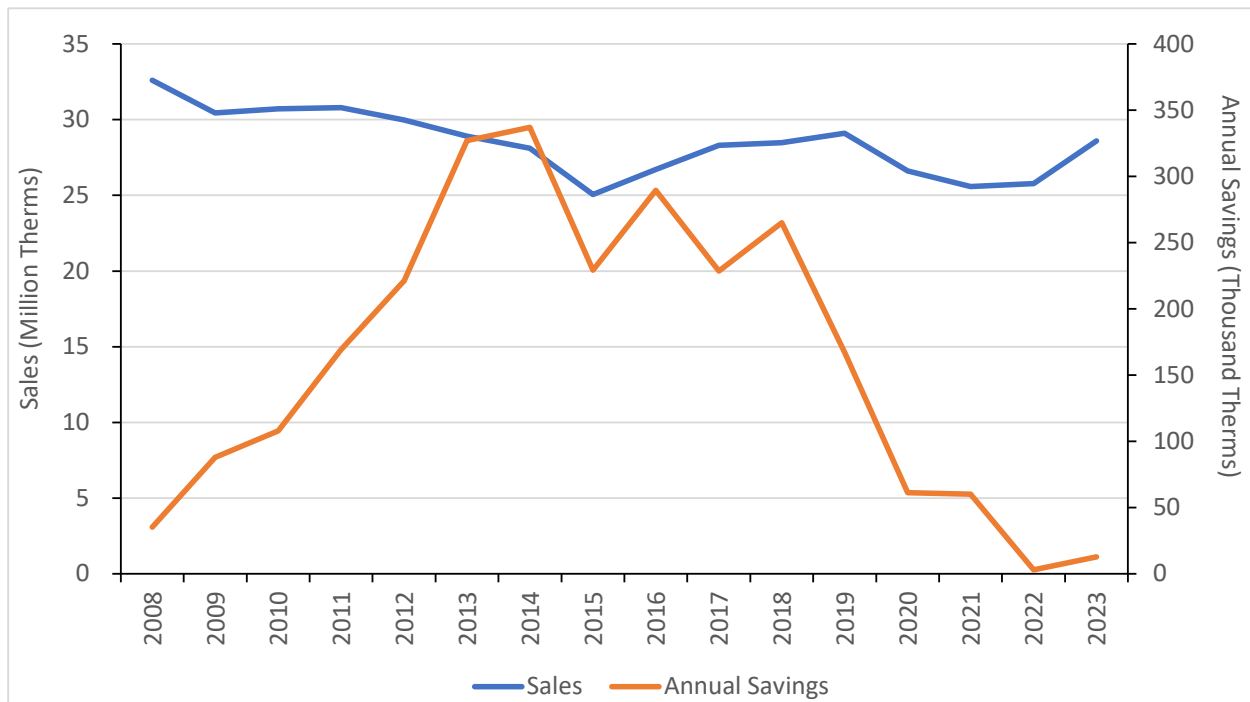
Table 2: Gas Efficiency and Electrification Metrics

Gas Efficiency and Electrification	
Therms Reduced	12,765
HPWHs Installed	50
Metric Tons GHG Avoided	982
\$ Spent	\$744,361
Cost of Efficiency (\$/Therm)	\$4.02
\$/Metric Tons GHG Avoided	\$758
Total Therms Load	28,595,153
Savings (% of Load)	0.04%
Savings Goal (% of Load)	N/A

The cost of efficiency, measured in average dollars spent per therm reduced through CPAU programs, jumped in FY 2023 largely due to the lack of cheap savings that were previously being counted from the building codes and the money invested in the launch of the Heat Pump Water Heater Pilot Program.

Figure 3 depicts the City’s historical gas usage and savings. Gas sales may fluctuate year-to-year depending on the weather and the resulting need for space heating, but long-term gas sales in Palo Alto are trending down.

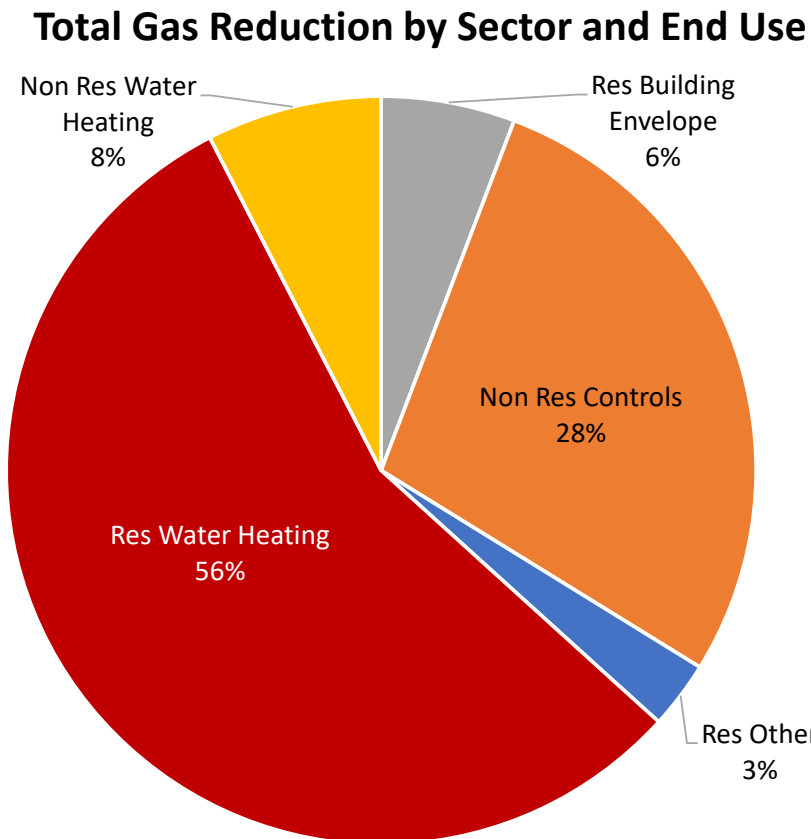
Figure 3: Historical Gas Usage and Savings



²² Business Insider, “The world’s biggest carbon-removal plant just opened. In a year, it’ll negate just 3 seconds’ worth of global emissions.”: <https://www.businessinsider.com/carbon-capture-storage-expensive-climate-change-2021-9>

As illustrated in Figure 4, more than half of CPAU’s gas reductions in FY 2022 can be attributed to the conversion of residential water heaters through CPAU’s heat pump water heater programs. Another quarter of gas reductions are a result of Energy Management Systems (EMS) installed in commercial buildings through the Business Advantage Program.

Figure 4: Composition of Natural Gas Use Reduction in FY 2023



13.4 Water Efficiency

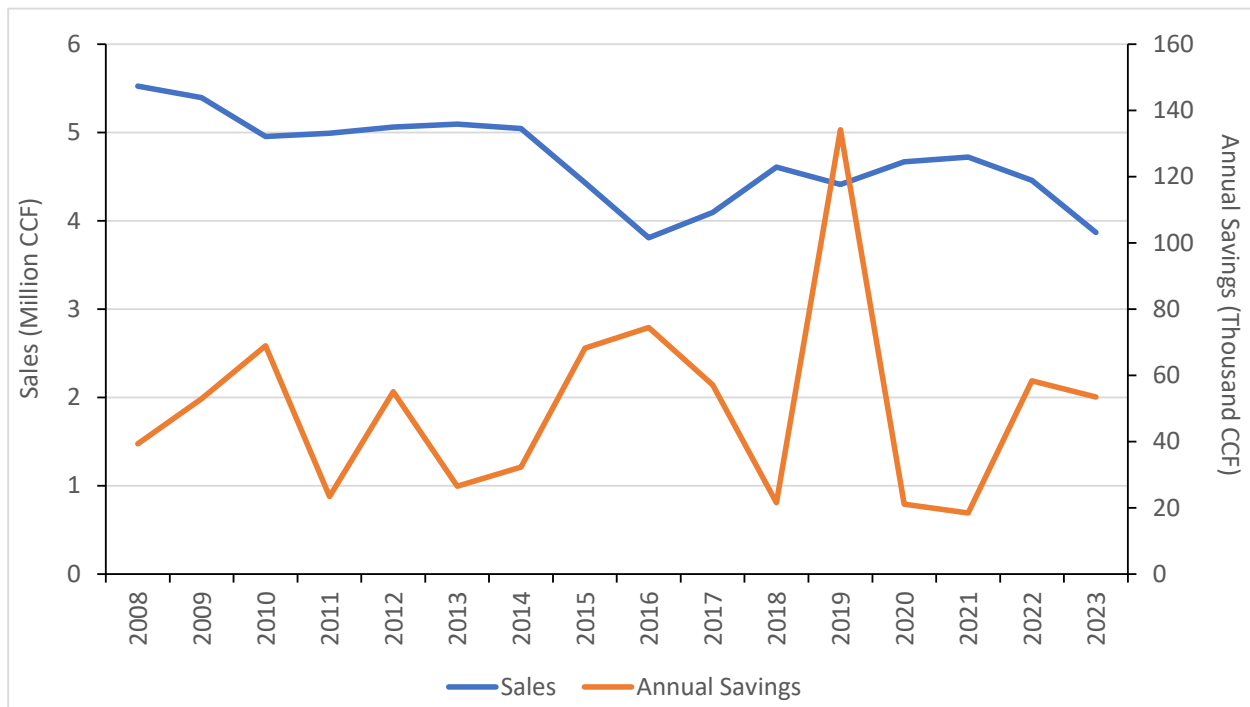
The City partners with the Santa Clara Valley Water District (Valley Water) to provide water conservation rebate programs and resources. Valley Water administers the programs for Palo Alto customers, and CPAU provides additional funds to increase rebate amounts. CPAU markets and promotes the programs through all media channels. The State adopted the Water Conservation as a Way of Life legislation in 2018 that establishes unique efficiency goals for each Water Supplier. The State Water Resources Control Board (SWRCB) is still finalizing the legislation framework. Once the guidelines are adopted, CPAU will be able to calculate a water use target that takes into account residential indoor and outdoor use, commercial irrigation use, and water loss. Palo Alto’s S/CAP includes a goal of completing a One Water Plan to evaluate alternative water supplies and additional conservation measures to make the City’s water supply more resilient. The plan is underway and is anticipated to be adopted in Summer 2024. Table 3 summarizes FY 2023 water program costs and savings.

Table 3: Water Efficiency Metrics

Water Efficiency	
CCF Water Reduced	53,456
\$ Spent	81,711
Cost of Efficiency (\$/CCF)	1.53
Total CCF Load	3,866,568
Savings (% of Load)	1.38%
Savings Goal (% of Load)	N/A

Figure 5 illustrates the City’s historical total water usage and savings. In FY 2023 CPAU programs yielded higher than average water savings and total usage was around 600,000 CCF lower than FY 2022. Palo Alto’s water usage continues to trend downward as the city navigates water efficiency and drought restrictions.

Figure 5: Historical Water Usage and Savings



13.5 Electric Vehicles

Powering transportation through Electric Vehicles (EVs), as opposed to fossil fuel-powered vehicles, can significantly reduce GHG emissions and climate pollution. As of 2021, on-road transportation accounted for 52% of the city’s greenhouse gas emissions. An S/CAP priority is to facilitate the adoption of EVs registered in Palo Alto by ensuring adequate EV charging infrastructure throughout the city, with equitable access for multifamily and lower income residents, as well as workplaces, public parking lots and retail areas. Correspondingly, cross-departmental work is progressing on proposals for curbside charging, fleet electrification and permit streamlining.

The 2022 S/CAP includes GHG emissions reduced by at least 65% below 1990 levels by 2030 in the transportation sector. This is proposed to be achieved by:

- a. Increasing EVs registered in Palo Alto from around 4,500 (2019) to 28,000 (44% of vehicles)
- b. Develop a public and private charging network to support these levels of EV penetration

Table 4 summarizes EV uptake and the City’s contributions to EV charger availability in FY 2022. Estimates are also provided for the GHG emission reduction attributed to EV operation in Palo Alto.

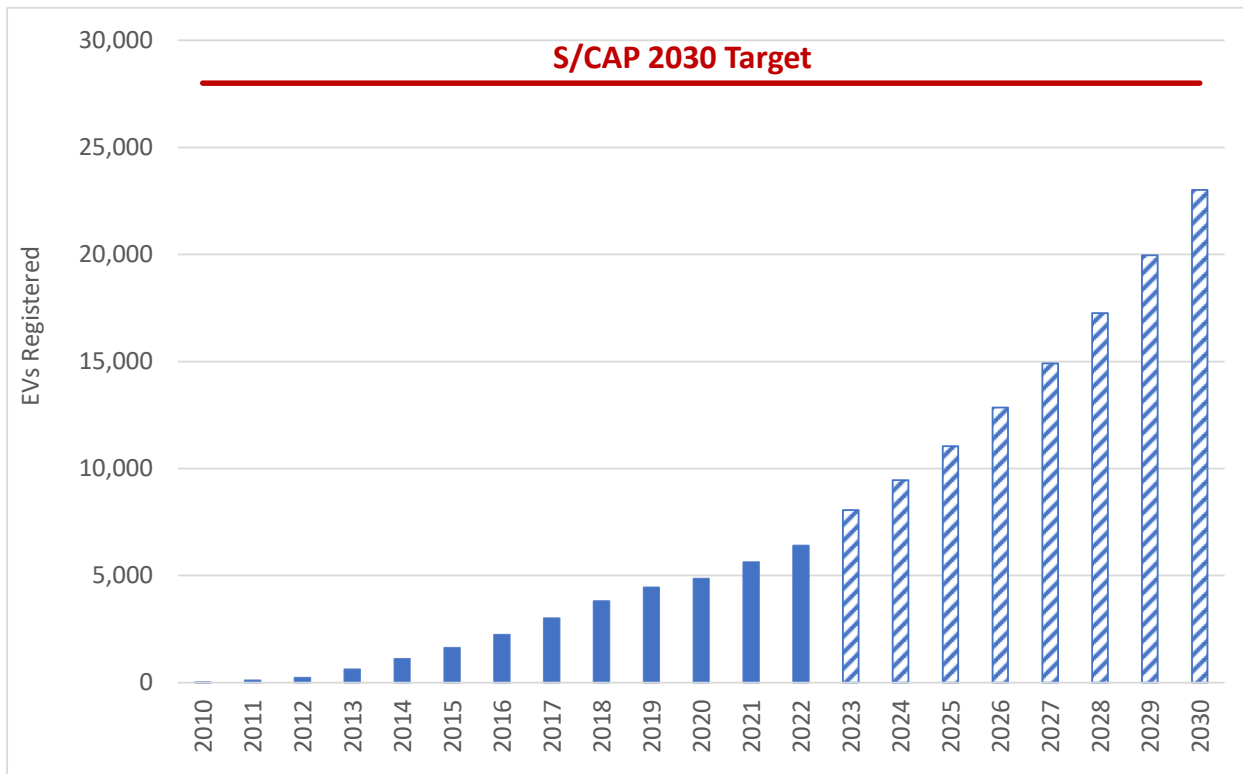
Table 4: Electric Vehicle and Charger Metrics

Electric Vehicles	FY 2019	FY 2023
Estimated Electric Vehicles Registered	4,454	8,064
Annual Vehicle Emission Savings (MT GHG)	21,610	39,124
EV Charger Installations Rebated		
Level 2	22	142
DCFC	0	2
Multifamily Development EV Charger Projects Completed	5	8
Multifamily Units Provided Access to EV Charging	296	403
Number of City Owned EV Chargers	56	85
FY 2022 Utilization of City Owned EV Chargers (kWh)	393,081	734,057
MT GHG Savings from City Owned EV Charger Utilization	440	822

The average utilization rates of city owned EV chargers exceeds pre-COVID levels illustrated by the FY 2019 statistics, and the total utilization continues to grow as the city installs more public chargers.

Figure 6 highlights the evolution of EV adoption in Palo Alto compared to our S/CAP transportation electrification target. 2023 data has been requested from the DMV and will be updated in the next DSM report.

Figure 6: EV Adoption and Forecast vs. 2030 Target



13.6 Solar and Storage

Solar-plus-storage systems generally consist of a solar array connected to a battery storage system. These systems allow solar energy to be deployed both day and night, making the electricity grid more resilient to changes in demand. Rooftop solar-plus-storage systems also provide resiliency by providing backup power during power outages or public safety power shutoff events. CPAU offers a solar calculator tool to help residents evaluate the economics of purchasing a solar or solar-plus-storage system for their home. The City also participates in BayArea SunShares – a group-buy program that offers discounts and vetted contractors for installing rooftop solar and battery storage systems. Table 5 summarizes Palo Alto’s 2019, 2022, and 2023 participation in SunShares.

Table 5: SunShares Metrics

Solar and Storage	FY 2019	FY 2022	FY 2023
SunShares Installations			
Solar	28	23	21
Solar + Storage	2	8	7
Storage	0	1	2

At the end of FY 2023, PV installations in Palo Alto totaled 1,683, with 1,582 residential, 95 non-residential, and 6 Clean Local Energy Accessible Now (CLEAN) projects installed since CPAU began supporting local solar PV installations in FY 2000. These customer-side generation systems represent 18.9 megawatts (MW) of generating capacity and are not included in CPAU’s Renewable Portfolio Standard (RPS) supply requirements. In FY 2023, CPAU customers installed 176 new solar systems (171 residential and 5 non-residential) with a total 1.5 MW of additional capacity.

Figure 7: Photovoltaic (PV) Cumulative Installations

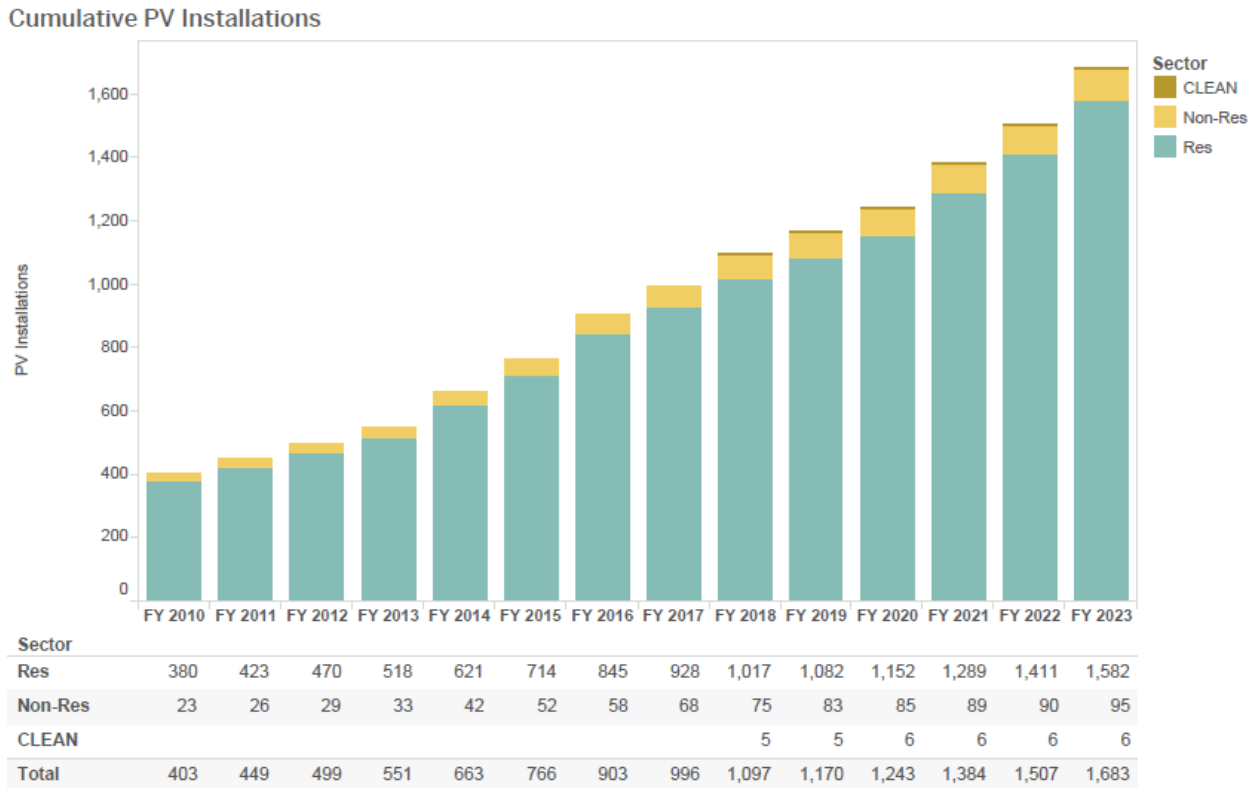
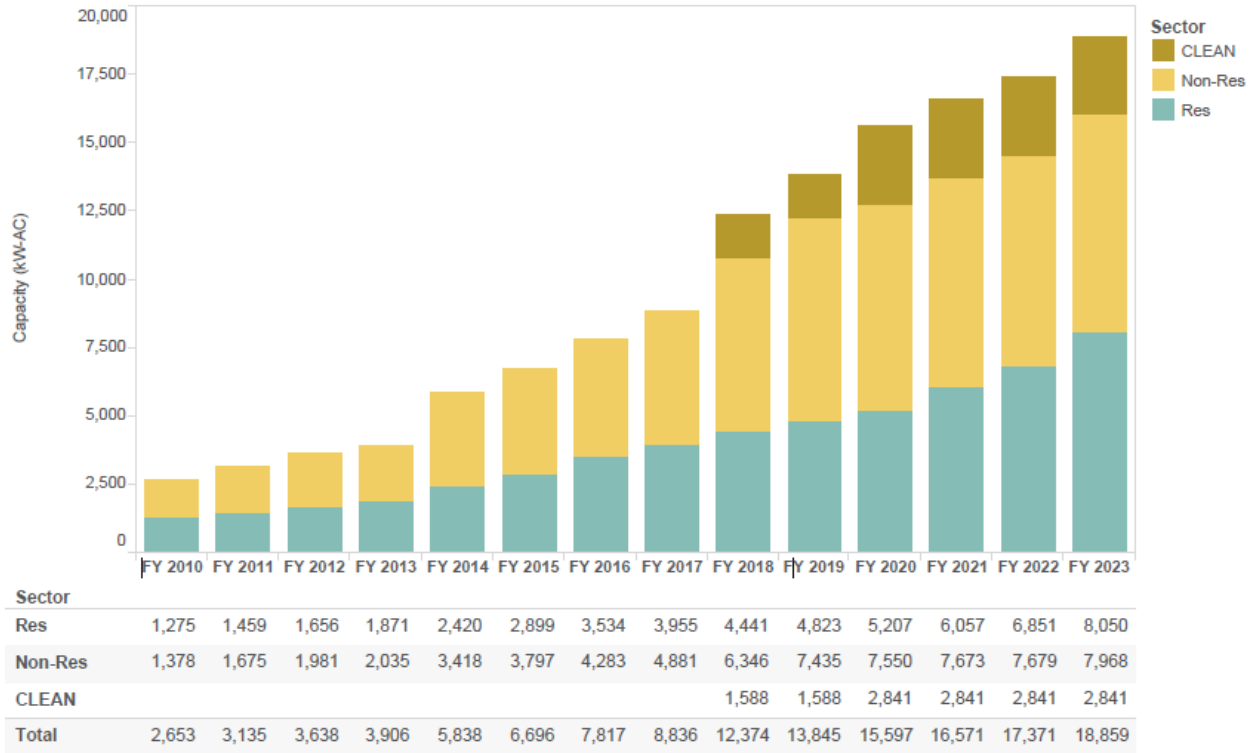


Figure 8: PV Cumulative System Capacity (kW)

Cumulative Installed PV Capacity (kW-AC)



As of the end of FY 2023, there were 127 battery storage installations with a total capacity of 1.2 MW, all of which were in the residential sector. In FY 2023, CPAU customers installed 30 new storage systems with a total 282 kW of additional capacity.

Figure 9: Battery Storage Cumulative Installations

Cumulative Battery Storage Installations

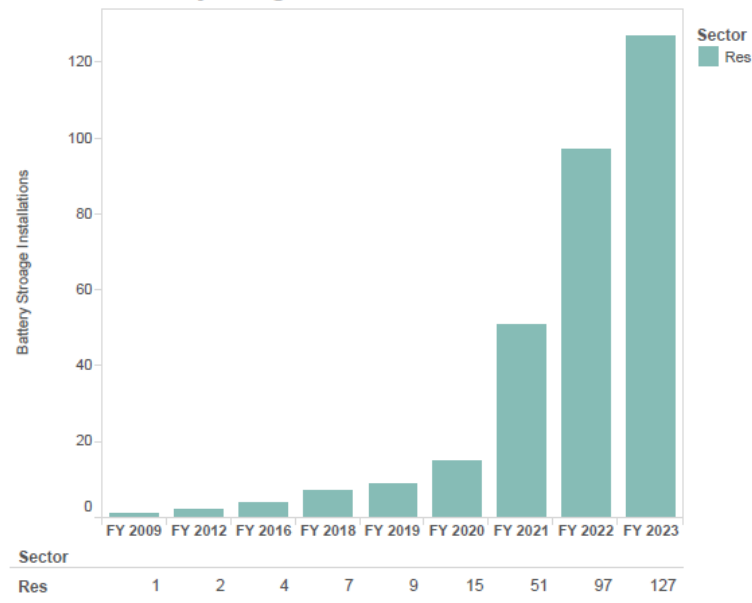
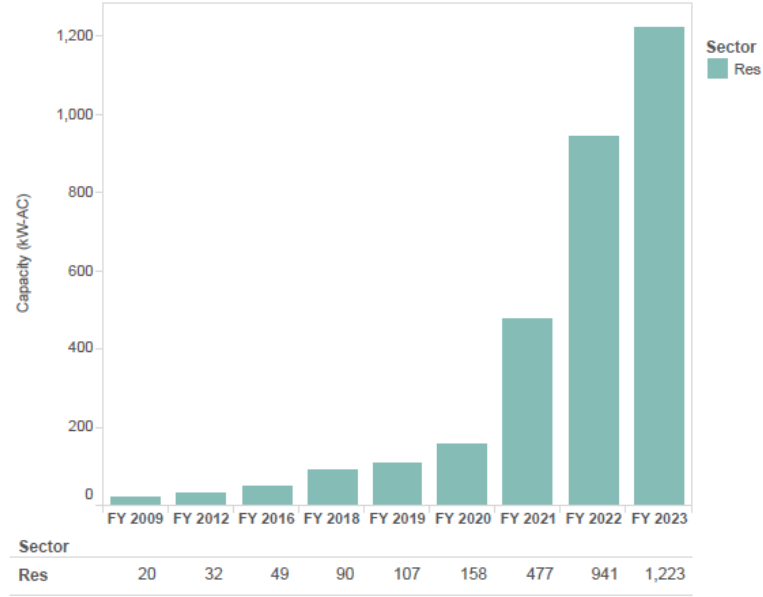


Figure 10: Battery Storage Cumulative System Capacity (kW)

Cumulative Installed Battery Storage Capacity (kW-AC)



APPROVED By:

Dean Batchelor, Director of Utilities

Staff: Eric Wong, Resource Planner

**FORECAST
12-MONTH ROLLING CALENDAR**

	Utilities Advisory Commission	City Council
April 2024	<ul style="list-style-type: none"> - Crossbore - Ameresco Half Moon Bay PPA Amendment - Utilities Quarterly Report FY24-Q2 - Utilities Advisory Commission FY 2024 - 2025 Workplan - Approval of UAC Chair and Vice Chair to Serve a Short Term 	<ul style="list-style-type: none"> * PO Pad Mounted Electrical Equipment (C) * FY24 Land Surveying Services Contract (C) * Budget Increase for Advanced Heat Pump Water Heater Pilot Program (C) * Contract Amendments for Fiber and Grid Mod Pilot (C) * Reliability and Resiliency Strategic Plan (C) * Ameresco Half Moon Bay PPA Amendment (C) * Gas Rates (FCM) * Water Rates (FCM) * Wastewater Rates (FCM) * Electric Rates (FCM)
May 2024	<ul style="list-style-type: none"> - Approval of UAC Budget Subcommittee Members to Serve a Short Term - NCPA Prepayment for Geothermal PPA - Long Term Gas Hedging Policy - WAPA Hydroelectricity Base Resource Contract - Permitting Process - Proposed Operating and Capital Budgets 	<ul style="list-style-type: none"> * PO 60KV Circuit Breakers for Colorado Substation (C) * Residential Customer Satisfaction Survey Results (C) * NCPA Tx Agreement (C) * Hut Design & Approval to Purchase (C) * PO for Electric Distribution Transformers (C)
June 2024	<ul style="list-style-type: none"> - One Water Update 	<ul style="list-style-type: none"> * Fiber Hut at the Colorado Substation (C) * WAPA Hydroelectricity Base Resource Contract (C) * Ordinance Adopting "One Margin" Reach Code (C) * NCPA Prepayment for Geothermal PPA (FCM) * Long Term Gas Hedging Policy (FCM) * WaterSmart Agreement (C) * Financial Plans and Rates (C)
July 2024	-	
August 2024	-	<ul style="list-style-type: none"> * Long Term Gas Hedging Policy (C)
September 2024	- Reserve Management Policy	
October 2024	- Second transmission line update	
November 2024	-	
December 2024	-	

Reoccurring Items

- Educational Update on any Type of New Technology or Terminology
- Projects with a Resiliency Component
- Quarterly Reports (Q1-3 Info Rpts)(Q4 Discussion Summary of the year)

- Financial Report
- Utilities Programs Update
- Informational EV Charger Installation Updates
- Informational Bucket 1 REC Sales Updates

Informational Fiber Updates

- To Be Scheduled
- DER discussion
 - 24/7 load following
 - Reliability and resiliency strategic plan update
 - Dark fiber utility rates comparison
 - Commercial electricity segmentation plans
 - Pad Mounted Electrical Equipment
 - Undergrounding Plan