



City of Palo Alto

Utilities Advisory Commission Staff Report

(ID # 11137)

Report Type: Agenda Items

Meeting Date: 4/15/2020

Summary Title: Utilities Quarterly Report for Q1 & Q2 FY2020

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From: City Manager

Lead Department: Utilities

Recommendation

This report is for information only. No action is required.

Executive Summary

This update is 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, is for the Utilities Advisory Commission's (UAC's) information. This update has been prepared to keep the UAC apprised of the major issues that are facing the water, gas, electric, wastewater collection and fiber utilities.

Items of special interest for Q1 & Q2 FY 2020 include:

- **Electric Utility:** Despite low precipitation, the electric utility is currently projected to end the fiscal year with a more favorable financial position than was originally projected in the FY 2020 Financial Plan. Precipitation is only 50% of average for the year so far in the watersheds associated with the City's hydroelectric projects, meaning hydroelectric generation in 2020 will be lower than average. However, these effects will be felt more in FY 2021 than in FY 2020. For the current fiscal year, FY 2020, hydroelectric generation is projected to be roughly average, due to the wet rainy season in 2019, which translated into above average hydroelectric generation in late 2019. Hydroelectric generation is projected to be lower than average for FY 2021. Based on current projections, lower hydroelectric generation is expected to result in over \$3 million in additional costs to the electric utility. However, reserves are adequate to absorb these additional costs, and other factors are contributing to a more favorable financial position for the electric utility than previously projected. This is due to a few factors. First, electric load in FY 2020 is shaping up to be higher than forecasted in the FY 2020 Financial Plan. While load declined, it did not decline as much as projected. Second, the utility has found opportunities to sell surplus energy and generating capacity that were not available in previous years, and prices for these products are currently higher due to the demands of new Community Choice Aggregators. Third, there were one-time savings in maintenance and construction spending due to difficulty filling vacant positions and getting contractors on board. Some of these factors may continue into future years, and others, like maintenance and construction savings, are not projected to continue. (pages 3, 21, 27)

- **Gas Utility:** Gas supply prices remain lower than last year, though market prices rose in the winter months (Nov through Feb) more than forecasted. Gas customers will experience savings due to purchasing discounted gas from MuniGas that will reduce annual costs by about \$1 million per year. This is the first full year this agreement has been in effect. Gas customers will also see some savings in FY 2020 due to delays by the CPUC in approving PG&E's proposed increases to gas transmission rates, though these increases are expected to occur in Q3 FY 2020. The year-end financial position for the gas utility is projected to be roughly in line (~1.6% above) projections in the FY 2020 Financial Plan. (pages 9-10, 22, 24)
- **Water Utility:** Precipitation has been low in California in 2020, roughly 40% of normal in the Bay Area as of February 23, 2020. Reservoirs in the Hetch Hetchy system were fairly full due to strong precipitation in 2019, but while the Hetch Hetchy Reservoir is expected to fill completely this year it only represents a small portion of total storage. Storage associated with a water banking agreement the SFPUC has with Turlock and Modesto Irrigation Districts in Don Pedro Reservoir, which represents most of the water used to manage droughts, is not expected to fill. Water consumption and costs for Q1 and Q2 FY 2020 are roughly in line with forecasts (~0.7% above). Sales were roughly in line with forecasts, but currently projected revenues are higher than the FY 2020 Financial Plan forecast due to higher than expected interest on reserves and changes in the value of the City's investments. Expenses are currently projected to be significantly lower than the FY 2020 Financial Plan forecast due to delays in various capital projects, but these funds are expected to be expended in the next fiscal year. (pages 12-13, 22, 24)
- **Wastewater Utility:** Currently projected revenues for the Wastewater Collection utility are higher than the FY 2020 Financial Plan forecast due to higher interest income and higher than expected revenues, but expenses were lower due to lower than anticipated operational costs. (page 23)
- **Fiber Utility:** A new multi-phase Fiber Network Expansion Request for Proposals (RFP) has been issued with the goal of getting a contract in place by April 2020. (pages 14-15)
- CPAU was once again the top participant in the Sunshares regional group buy program with 15 contracts signed for 76 kW of new solar in Palo Alto. (page 16)
- A digest of major outreach efforts is provided on pages 16-17, including outreach related to the new myCPAU online customer portal, the April 25 Earth Day Festival and Great Race to Save Water, and various electric vehicle outreach efforts.
- Several pilot and sustainability programs are summarized on pages 18-19, including an update on Electric Vehicles and building electrification programs.
- Major legislative and regulatory items are summarized on pages 20-21, including a Federal bill (HR 5302) that, if passed, would provide funding for Palo Alto recycled water projects.

Attachments:

- Attachment A: Quarterly Report Q1 & Q2 FY2020

Utilities Quarterly Update

First and Second Quarters
of Fiscal Year 2020

April 2020

Quarterly Update for First & Second Quarter of FY 2020
April 2020

Utilities Quarterly Update
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i. Electricity

Electric Supplies

Western Area Power Administration (Western) Issues

While water year 2019 was an above-average precipitation year that resulted in above-average reservoir levels across the state, water year 2020¹ is shaping up to be a dry year, with significantly below-average precipitation levels. For Q1 of fiscal year (FY) 2020, Western delivered 137 GWh to the City (102% of long-term average levels, which is about 130% the amount that was delivered in Q1 of FY 2019). For Q2 of fiscal year (FY) 2020, Western delivered 69 GWh, to the City (170% of long-term average levels, which is more than 2.5 times the amount that was delivered in Q2 of FY 2019). Because of the wet conditions in 2019, for FY 2020 as a whole, Western is projected to generate 397 GWh (9% above long-term average supply levels, and 4% above FY 2019 levels). However, for FY 2021, the current dry conditions are projected to reduce Western generation to 338 GWh (7% below long-term average levels).

Calaveras Hydroelectric Project Issues

New Spicer Meadow Reservoir (NSMR) storage as of December 31, 2019 was 89,702 ac-ft. The historical average storage level for NSMR for the end of December is 80,419 ac-ft. Calendar year 2020 has been off to a dry start. Cumulative precipitation for water year 2020 is currently at about 51% of average for this date, tracking closely with 2015 levels. Central Sierra snowpack levels are 48% of average to date; however, reservoir levels are still near historical average levels due to the previous year being a wet one.

For Q1 FY 2020, the Calaveras project generated 35 GWh (90% of long-term average levels, which is about 146% the amount that was delivered in Q1 of FY 2019). For Q2 FY 2020, the Calaveras project generated 13 GWh (16% below long-term average levels, which is about 134% the amount that was delivered in Q2 of FY 2019). In FY 2020, the project is projected to generate 82 GWh (29% below long-term average levels, and 58% below FY 2019 supply levels).

Electric Load and Resource Balance

Palo Alto's electric supply portfolio for CY 2019 saw significant surplus energy positions in some periods, largely owing to an above-average hydro year. However, there were other periods that saw deficit positions as well. The City sold, on a forward basis, nearly 49 GWh of surplus energy during Q1 of FY 2020 (Jul 2019 – Sep 2019) to manage the surplus position, while it purchased about 57 GWh in Q2 of FY 2020 (Oct 2019 – Dec 2019) to manage the deficit position. In addition, due to the availability of surplus carbon neutral supplies, as well as the feedback provided by the UAC, Palo Alto sold Bucket 1 RPS resources from Q1 and Q2 of FY 2020, that exceeded the City's load on an annual basis for CY 2019. Since these transactions were index-based (plus a REC premium), they did not impact the City's energy price exposure (and are therefore not reflected in the load-resource balance charts shown in Figure 1 and Figure 2 below). They did, however, change Palo Alto's RPS level (to 40%), but the City still exceeded the state's RPS compliance requirements (31% for CY 2019). The City has also made forward energy purchases for January and February 2020 (~33 GWh). CY 2020 is currently

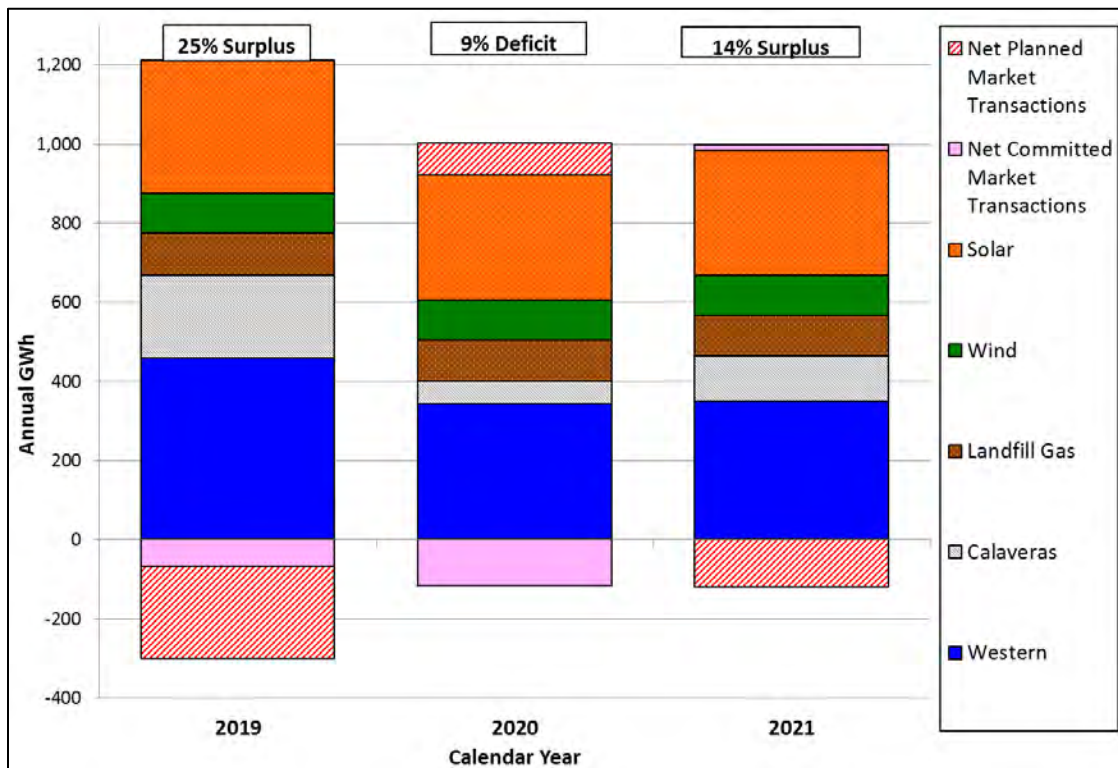
¹ A "water year" is defined as the 12-month period from October 1 through September 30. "Water year 2020" refers to the period from October 1, 2019 through September 30, 2020.

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projected to be a significantly drier hydro year than CY 2019. Overall electric supply resources are projected to be deficit of load by 9% for CY 2020, and surplus to load by 14% for CY 2021. Figure 2 below shows the monthly load and resource balance for CY 2020.

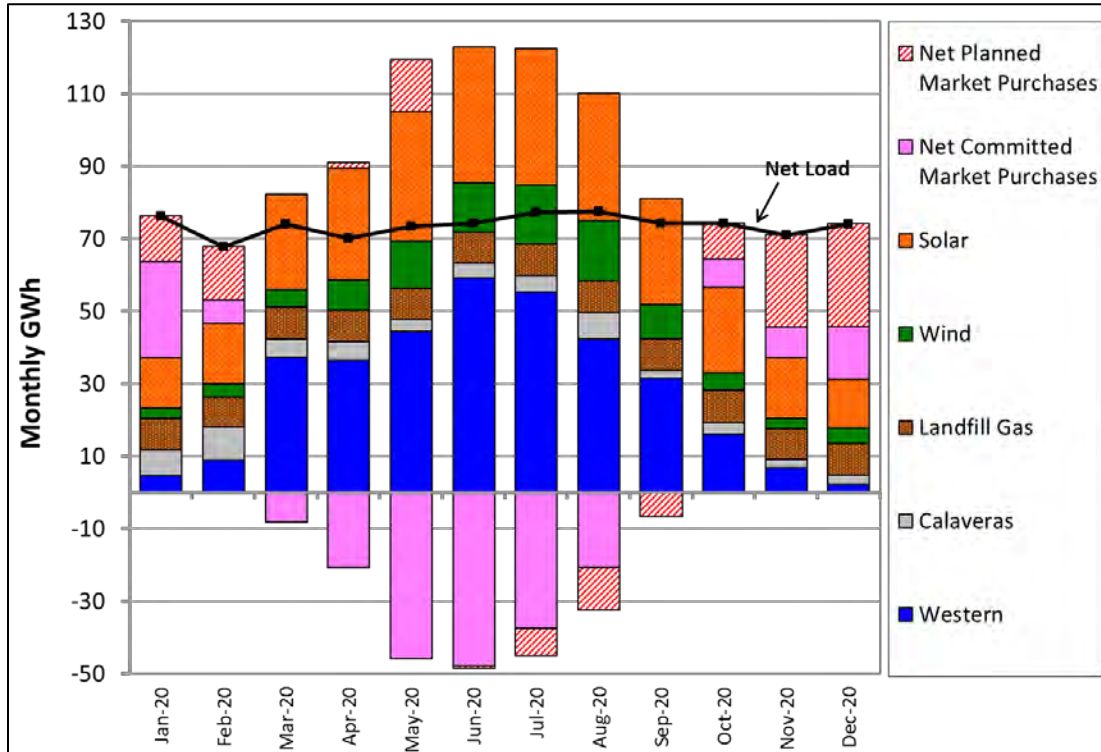
As mentioned earlier, some of the monthly surplus/deficit positions were sold/purchased as generic energy ahead of time, while the rest were settled in the spot market through the California Independent System Operator.

Figure 1: Electric Supply Resource Actual and Projection, 2019 to 2021 (as of February 24, 2020)



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Figure 2: CY 2020 Monthly Electric Supply Resource Projection (as of February 24, 2020)



Electric Market Price History and Projections

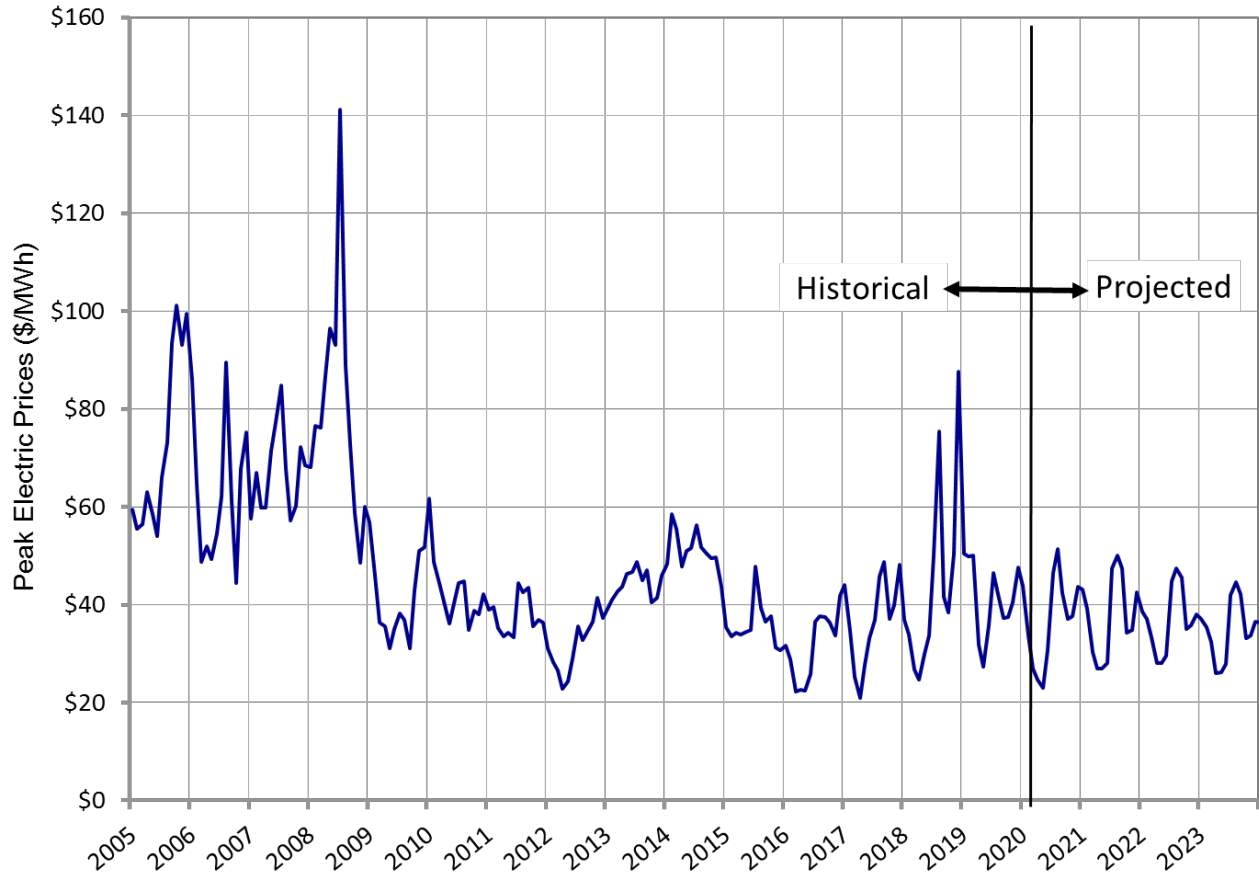
As of February 20, 2020, the price for on-peak energy for April 2020 in Northern California was \$24.75 per megawatt-hour (MWh)², while the prices for May 2020 and June 2020 were \$23.09/MWh and \$30.68/MWh, respectively. These values are approximately \$1.65/MWh (or 6%) lower than they were at the time of the last quarterly report.³ On-peak prices for calendar year strips are in the range of \$35/MWh to \$38/MWh for 2020 through 2022. These prices are approximately \$2.13/MWh lower than they were at the time of the last quarterly report. Figure 3 below illustrates historical monthly on-peak prices and projected monthly forward prices for Northern California from 2005 through 2023.

² Note that \$24.75 per megawatt-hour is equal to 2.475 cents per kilowatt-hour.

³ Market prices for the previous quarterly report were from September 16, 2019.

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Figure 3: Northern California Peak Electric Prices (as of February 20, 2020)



Electric Budget and Portfolio Performance

Electric Load, Generation, and Supply Cost Summary Compared to Budget Estimates

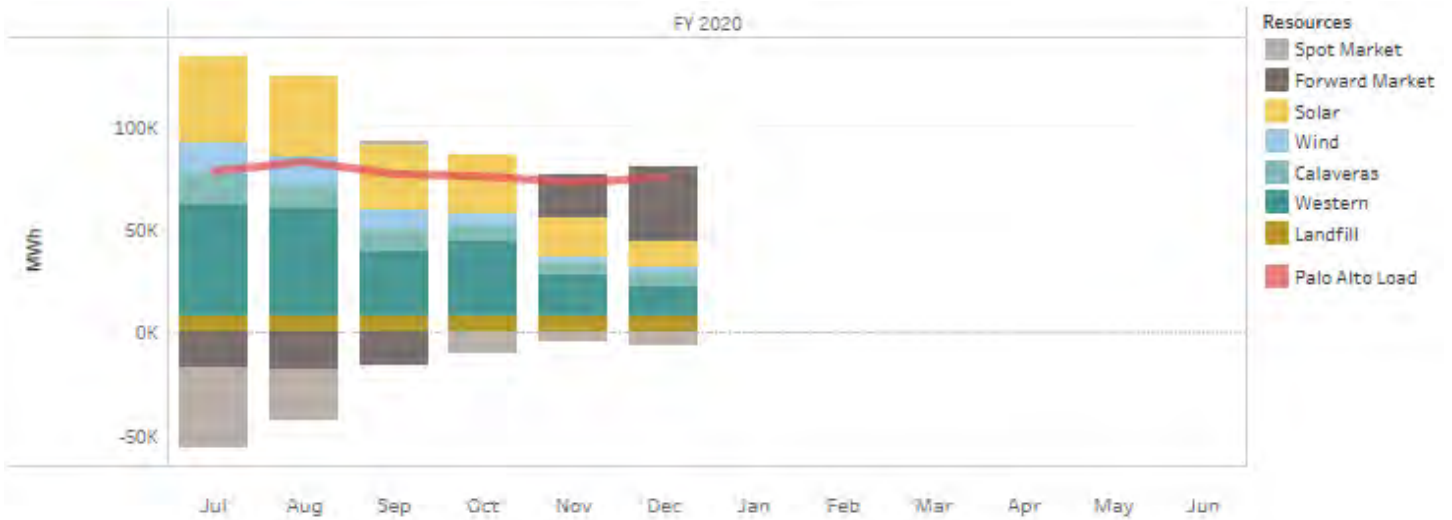
Table 1 and Figure 4 below summarize the City's electric supply sources through Q2 FY 2020. Load was about 2.2% higher than budget. Hydro generation from Calaveras and Western were 28% above budget forecasts, and solar generation was 11% above budget forecast. Due to higher than expected generation from Hydro, Solar, and Landfill resources, CPAU had to sell power on the spot and forward market. Net market sales through Q2 FY 2020 were roughly 69 GWh, or 15% of load.

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Table 1: FY 2020 Electric Load and Generation Compared to Budget Projections (as of Q2 FY 2020)

	Budget	Actual	Vol Variance	Vol Variance %
Spot Market	12,490	-79,541	-92,031	-736.8%
Forward Market	-16,164	7,300	23,464	-145.2%
Solar	152,264	169,222	16,958	11.1%
Wind	52,493	51,459	-1,034	-2.0%
Calaveras	42,271	53,692	11,421	27.0%
Western	161,188	206,589	45,401	28.2%
Landfill	49,918	55,771	5,854	11.7%
Total	454,459	464,492	10,033	2.2%

Figure 4: FY 2020 Electric Load and Resource Balance



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Table 2 below shows CPAU's supply cost by cost category through Q2 FY 2020. While hydro and renewable energy production was stronger than projected, supply costs were only slightly below budget, primarily due to the offsetting effect of higher than expected transmission costs.

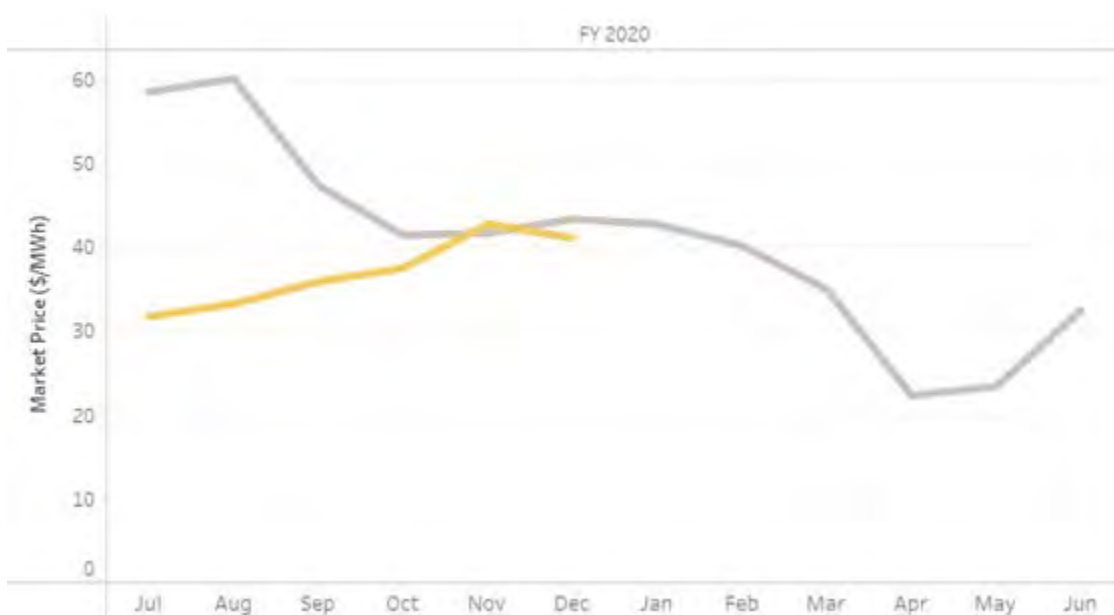
Table 2: FY 2020 Electric Utility Supply Cost Summary (as of Q2 FY2020)

Supply Cost Category	Actuals, Year To Date	Amount Over (+) / Under (-) Budget	Month by Month Budget Variance
Calaveras Hydro	5.9 million	-	--- --
Capacity	-0.4 million	0.1 million	--- --
Market Transaction	-3.0 million	-2.5 million	--- --
NCPA Services	1.2 million	-	--- --
Renewable Source	19.9 million	1.2 million	--- --
Transmission	11.9 million	2.1 million	--- --
Western Hydro	5.6 million	-1.0 million	--- --
TOTAL	41.1 million	-0.1 million	--- --

Electric Market Prices

Figure 5 shows monthly market prices. Electric market prices have been lower than budget in Q1 FY 2020.

Figure 5: FY 2020 Electric Market Prices



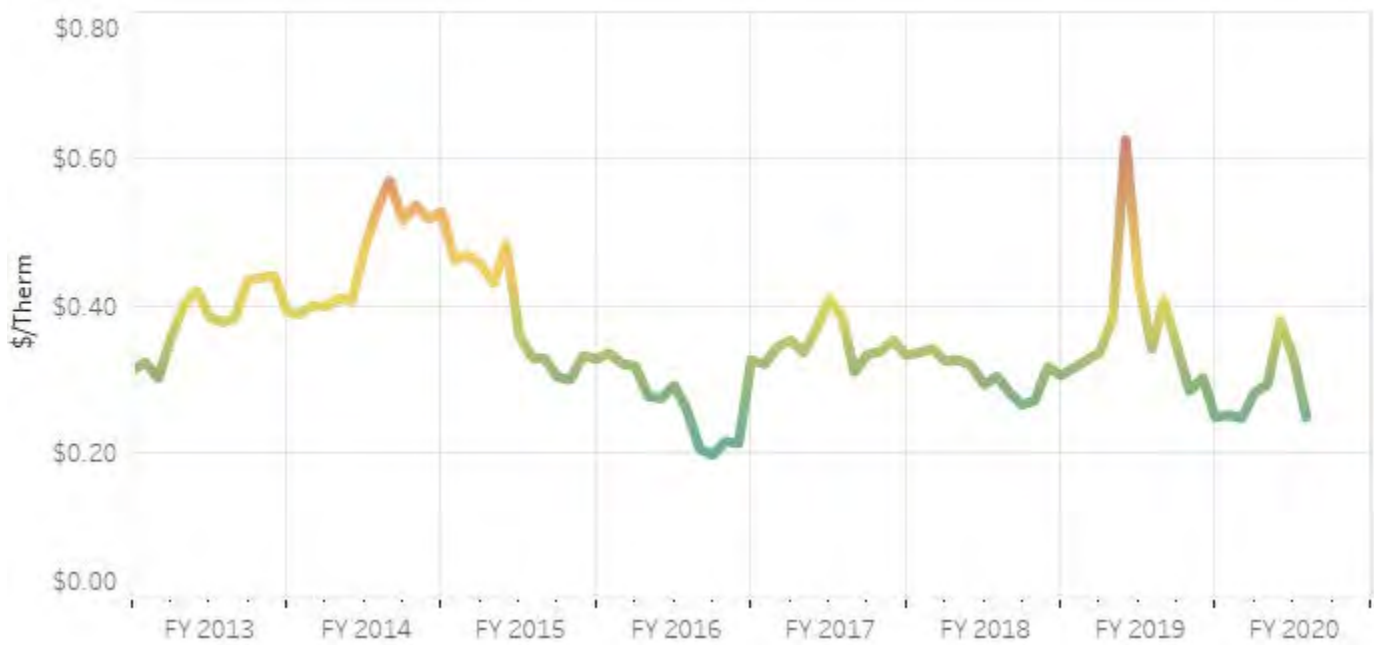
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ii. Natural Gas

Gas Supply Retail Rates

The commodity portion of CPAU's retail gas rates for all customers varies every month depending on the market price of natural gas. Figure 6 below shows the actual commodity rates charged from FY 2013 through FY 2020. Gas commodity prices in FY 2020 have been relatively steady, with a small price bump during the winter season. Gas commodity prices, on average, are anticipated to remain low for the foreseeable future, due to over-production and over-supply in the market.

Figure 6: CPAU's Gas Commodity Rates—FY 2013 through Q2 FY 2020



These rates can also be found on the web at: <http://www.cityofpaloalto.org/civicax/filebank/documents/30399>.

Muni Gas Prepay

On September 15, 2014, Council adopted Resolution #9451 authorizing the City's participation in a natural gas purchase from Municipal Gas Acquisition and Supply Corporation (MuniGas) for the City's entire retail gas load for a period of at least 10 years. The MuniGas transaction includes a mechanism for municipal utilities to utilize their tax-exempt status to achieve a discount on the market price of gas. The program has reduced \$1.07 Million in commodity costs for customers since its inception in November 2018.

Gas Budget and Portfolio Performance

Supply Volumes and Costs: Budget vs. Actual

Figure 7 compares actual natural gas supply volumes and costs with the FY 2020 budget. Natural gas consumption through Q2 FY 2020 was 3.3% lower than the budget forecast. Costs were 20.3% lower than budget due to lower than expected PG&E transportation rates. However, PG&E transportation rates are expected to increase beginning Q3 FY2020.

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Figure 7: FY 2020 Natural Gas – Budget vs. Actual

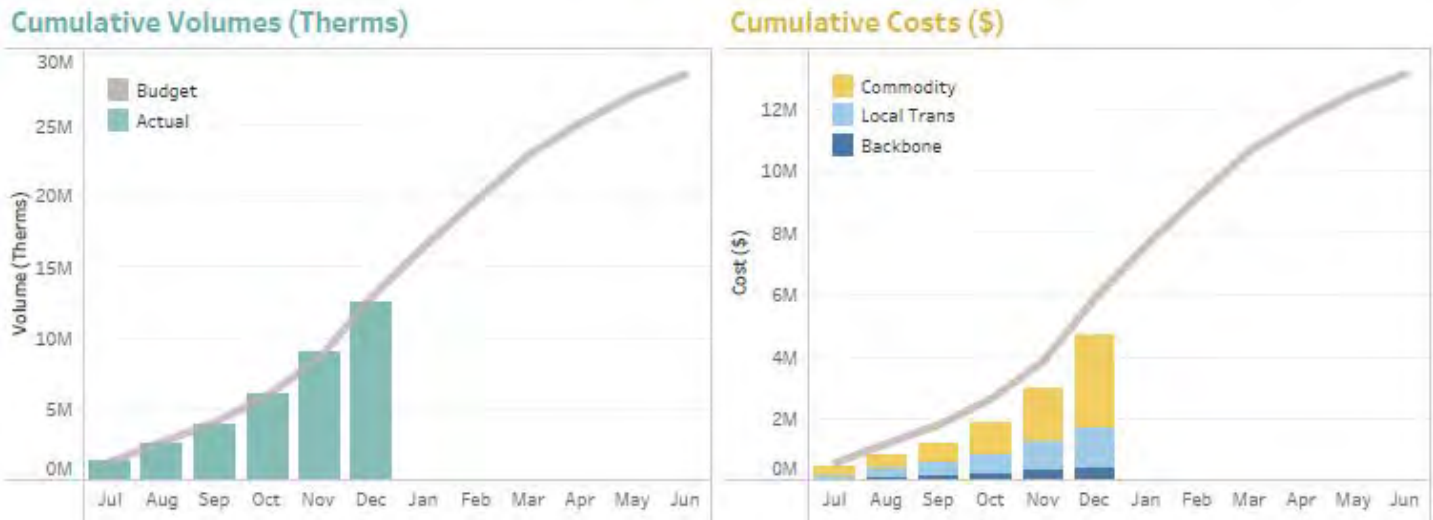


Figure 8 shows actual gas commodity prices at Malin, PG&E Citygate and Palo Alto Net Purchase Cost. Natural Gas prices experienced high volatility during the winter months but have returned to normal levels.

Figure 8: FY 2020 Natural Gas Prices (\$/MMBtu) – Malin, Citygate and Palo Alto Net Purchase Costs

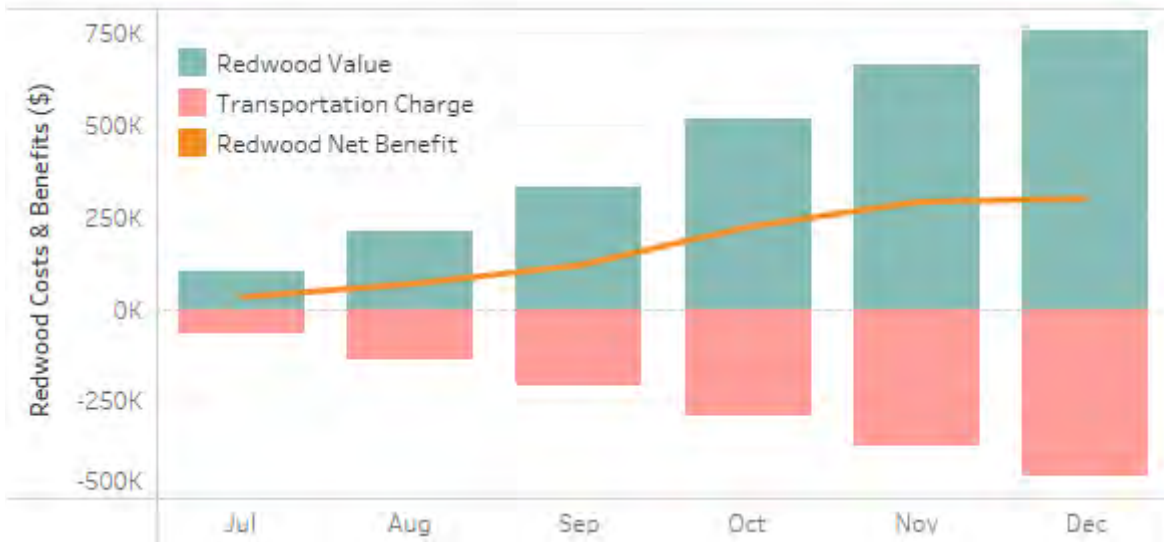


Value of CPAU's Share of Redwood Pipeline Capacity

Figure 9 shows the value of the Redwood gas transmission line at month-ahead market prices and the volumetric cost of using that transmission line. The Redwood pipeline allows the City to buy gas at the receipt point of Malin, Oregon and transport the gas to "PG&E Citygate", which is normally a higher priced receipt point. The City's share of the Redwood pipeline was a net benefit to the Gas Utility of \$302K through Q2 FY 2020. This is the difference between the cumulative value of Redwood capacity of \$757K (the difference of the monthly index prices at the ends of the Redwood pipeline in Malin, Oregon and PG&E Citygate) and the cumulative transportation cost of using the Redwood pipeline of \$455K.

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Figure 9: FY 2020 Cumulative Redwood Pipeline Cost vs. Market Benchmarks

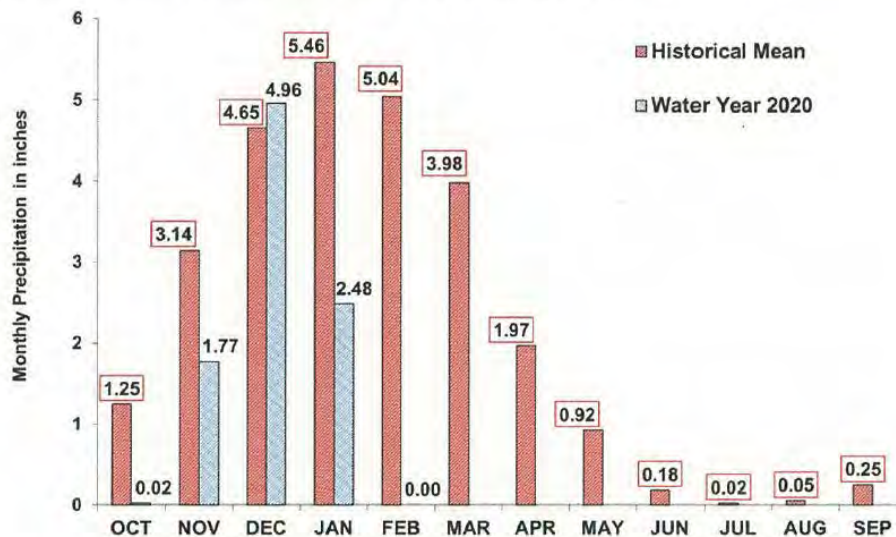


iii. Water

Water Availability

As of the February 23, 2020, precipitation in the Bay Area was about 40% of normal. High carryover of water in storage and conservation management make it likely that Hetch Hetchy Reservoir will fill by the end of the runoff season. Water Bank, however, which the SFPUC uses to manage droughts, is unlikely to fill. The dry weather has also resulted in an uptick in usage. Precipitation, or lack thereof, in the month of March will be critical in determining the overall state of water supply for the year. The figures below show the monthly precipitation through early February and water deliveries on the regional system.

Figure 10: Bay Area Precipitation Index
Bay Area 7-station Precipitation Index as of February 23, 2020



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Figure 11: Hetch Hetchy Precipitation
Hetch Hetchy Precipitation (as of midnight 2/24/20)

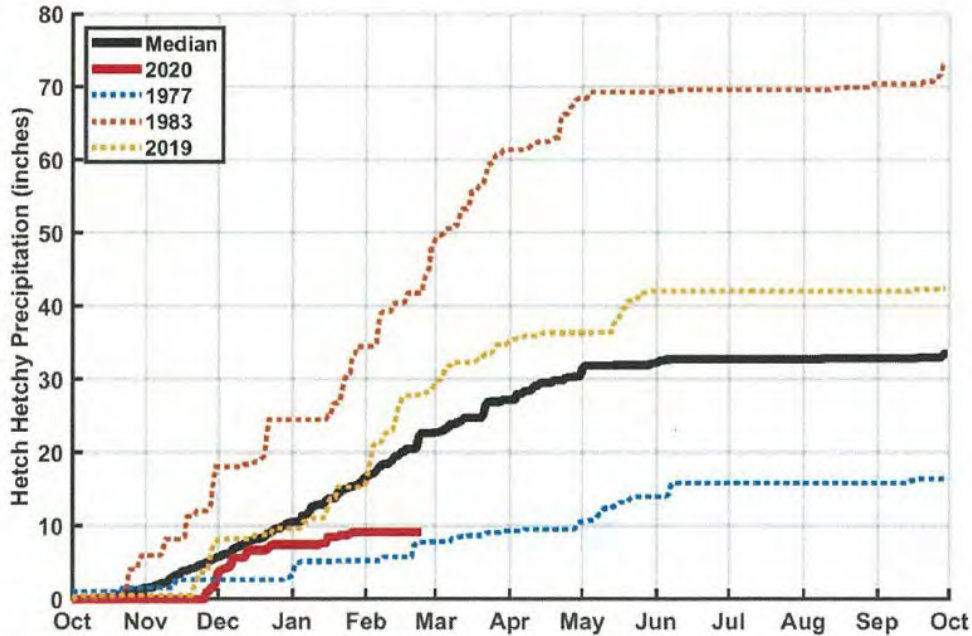
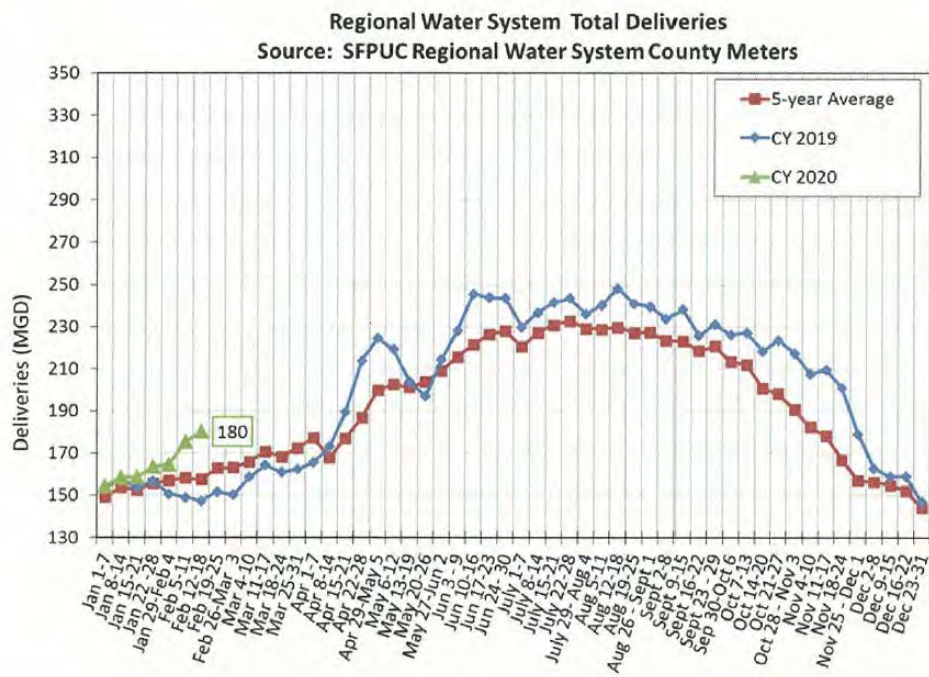


Figure 12: SFPUC Water Deliveries



Recycled Water Strategic Plan

The Northwest County Recycled Water Strategic Plan was recommended to Council for acceptance by the UAC ([Staff Report #10915](#)) and was approved by Council on March 2 ([Staff Report #10913](#)). The Plan includes a

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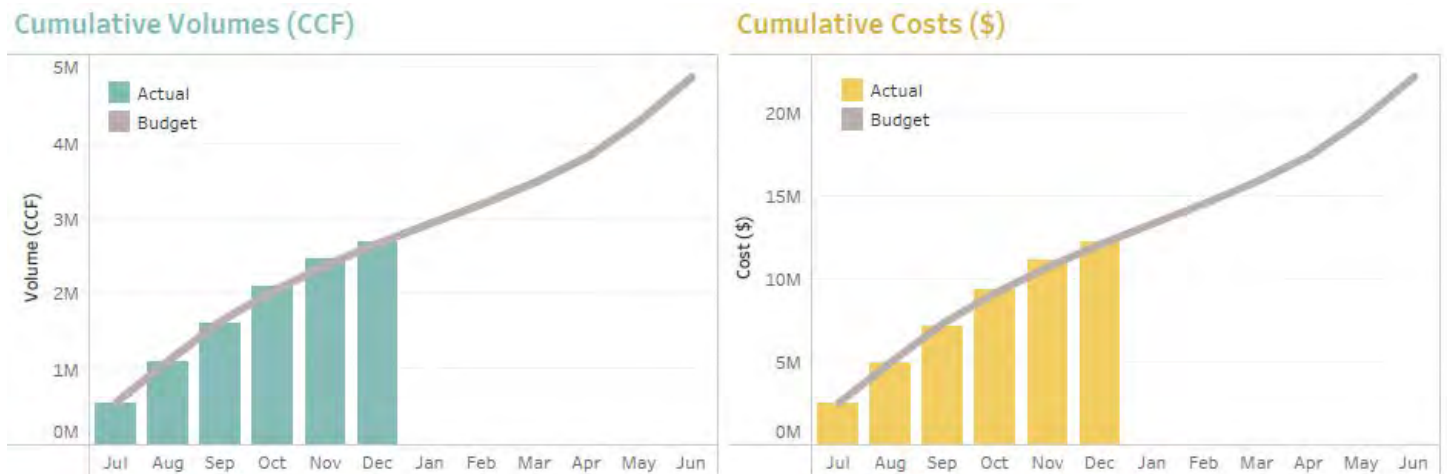
suite of water reuse alternatives, some of which are compatible with a transfer of effluent from the Regional Water Quality Control Plant to Valley Water. The viable water reuse options will be considered in a larger “One Water” portfolio plan for both potable and non-potable water supply including demand-side management.

Water Budget and Portfolio Performance

Supply Volumes and Costs: Budget vs. Actual

Figure 13 below compares actual water supply volumes and costs to the FY 2020 budget projections. Actual water supply volumes and costs through Q2 FY 2020 were both 0.7% higher than budget due to higher than projected usage.

Figure 13: FY 2020 Water – Budget vs. Actual

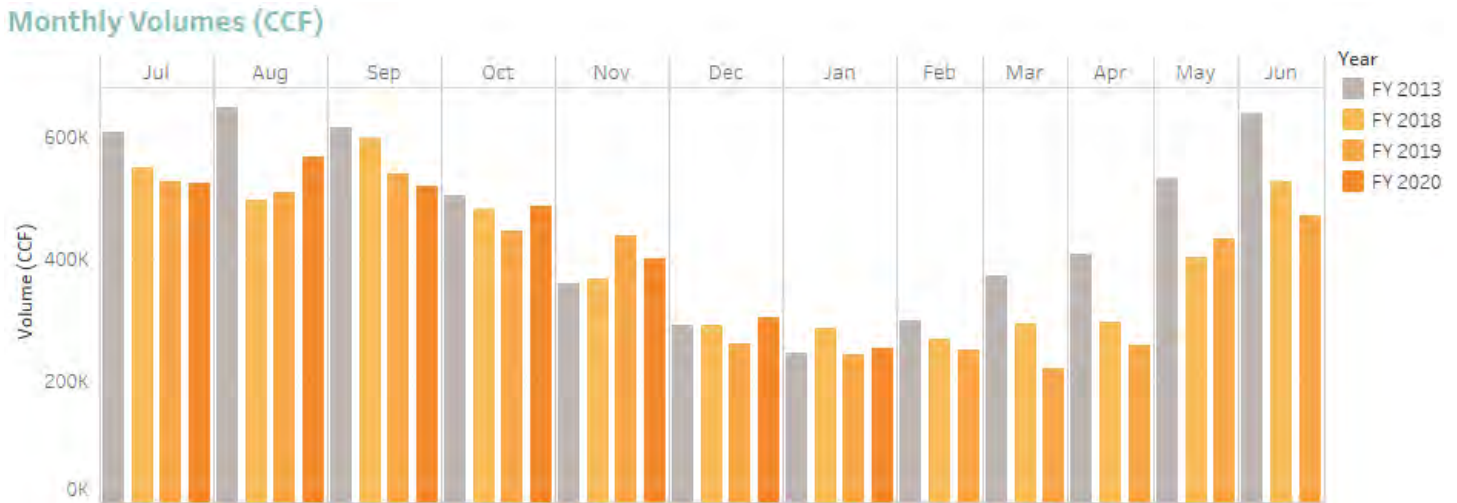


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Water Use

Water use through Q2 FY 2020 was slightly higher compared to FY 2019. This could be attributed to less than usual precipitation during the FY 2020 raining season. Figure 13 below shows the monthly water purchases in FY 2020, compared with FY 2013, FY 2018 and FY 2019.

Figure 14: Potable Water Use



iv. Fiber Optics

Commercial Dark Fiber Service

The total number of commercial dark fiber customers at the end of FY 2020 Q2 was 92 accounts (91 commercial accounts and 1 City account). The total number of active dark fiber service connections serving commercial and City customers is 208 (some customers have multiple connections). Commercial customers generate approximately 81% of the dark fiber license revenues. The remaining 19% of licensing revenues is from City departments.

Request for Proposal for Phased Fiber Expansion

In response to a City Council Motion on June 24, 2019, which directed staff to reissue the Fiber-to-the-Node (FTTN) Request for Proposals (RFP), a new RFP was issued on September 10, 2019, to solicit one or more qualified consultant(s) under a Professional Services Agreement to begin a multi-phase fiber network expansion to support Advanced Metering Infrastructure (AMI), Supervisory Control and Data Acquisition (SCADA) Systems, and Wireless Communication Technologies. A contract award will be recommended to the Council for approval by the end of April 2020.

This project is divided into four phases in the RFP scope of work. As phases are completed, staff will be seeking Council's approval of the completed tasks and funding authorization for subsequent phases (2 through 4).

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Phase 1 seeks a high-level design and cost estimate for fiber expansion to support Advanced Metering Infrastructure (AMI), Supervisory Control and Data Acquisition (SCADA), and wireless communication for City field staff and other City services;

Phase 2 seeks a detailed engineering design and cost estimate for fiber expansion to support AMI, SCADA, and wireless communication for City field staff and other City services;

Phase 3 seeks a business case and high-level design for a citywide Fiber-to-the Premises (FTTP) network. The FTTP network and high-level design in the business case should expand on the fiber network for AMI, SCADA and wireless communication; and

Phase 4 seeks a detailed engineering design, cost estimate and a phased deployment approach for FTTP.

Fiber Optic Network Rebuild Project

The rebuild project will install new aerial duct or substructure (conduit and boxes), in addition to fiber backbone cable to increase capacity for sections of the dark fiber ring that are at or near capacity. This project will allow CPAU to meet customer requests for services. The project areas primarily cover the Stanford Research Park, Palo Alto Internet Exchange (PAIX)/Equinix at 529 Bryant, and Downtown areas. This project basically “overlays” new fiber over existing fiber routes in the network. Existing fiber will continue to serve City facilities and commercial dark fiber customers.

As part of phase one of the fiber network expansion initiative, the consultant will perform a detailed audit of the existing network to determine the next steps of the rebuild project.

Tentative Rebuild Work Scheduled in 2019-2020

- Field investigation of the path from Park Boulevard Substation to Hansen Way Substation and then to Hanover Substation to determine the level of substructure work required to continue the new fiber backbone. Completed February 2019.
- Complete design of the new fiber backbone from Park Boulevard Substation to the Stanford Research Park area. Tentative scheduled for Q4 2020.
- Install substructure for the new fiber path from Park Boulevard Substation to the Stanford Research Park area. Tentatively scheduled for Q2 2021.
- Install dark fiber cable. Tentative scheduled for Q4 2021.

All scheduled rebuild work noted above is tentative and subject to change.

The estimated cost for the rebuild is between \$500,000 and up to \$1,000,000 for substructure work. Another \$250,000 for the overhead portion of the work is allocated for the project. CPAU crews will perform the equipment installation, cable pulling and terminations. CPAU’s substructure contractor will install the conduit and boxes.

v. Efficiency Programs

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All-Electric Reach Code

On December 2, 2019, City Council approved an all-electric mandate for low-rise residential new construction projects, effective April 2020. The all-electric mandate was a proposed motion from the November 4 City Council meeting, when staff proposed a local building reach code that would incentivize all-electric new construction projects by requiring additional energy efficiency and electrification readiness for mixed-fuel projects. Staff plans to present future customer rebates and outreach activities targeting existing homes, along with funding sources, to the UAC in the first quarter of 2020.

SunShares Solar Group Buy

For the fifth year in a row, the City of Palo Alto participated in Bay Area SunShares, a solar group-buy program administered by Building Council for Climate Change (BC3). Two solar installers (Solar Technologies and SkyTech Solar) were vetted and selected through an RFP process. Two Nissan dealerships—one in Redwood City and one in Richmond—offered the Nissan Leaf at discounted prices. Residents and employees of companies in our community were eligible for the program's discounts of roughly 15% on rooftop solar while the program ran, between August 1 and November 30. CPAU held a free educational workshop on Saturday September 21. This year, as in three of the past four years, Palo Alto was the top Outreach Partner with the highest number of solar contracts signed (15) and the largest amount of solar capacity installed through the program (76 kW). Solar installed in Palo Alto represented about 14% of the total capacity (556.6 kW) installed through the 2019 SunShares program.

Events and Workshops

www.cityofpaloalto.org/workshops

- Earth Day and the Great Race for Saving Water – April 25, 2020
- Landscape Workshop - Landscape Conversion 101 – April 11, 2020
- Landscape Workshop - Landscape Design 101 – March 14, 2020
- Press Event – Water Reuse Agreement with Valley Water – December 10, 2019
- Landscape Workshop - Rainwater Harvesting: Rain Gardens, Rain Barrels, and Cisterns – December 7, 2019
- Landscape Workshop - Pruning and Making New Plants from Old – November 23, 2019
- Electrification Expo – October 10, 2019

vi. Communications Highlights

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

Current Communication and Outreach Activities

- [Coming Soon! MyCPAU New Online Customer Site](#) - New & improved online utility features allow you to manage your utility account anytime, anywhere. CPAU is currently beta testing the new system through a soft launch with a small group of customers. MyCPAU is scheduled to be available to all customers in March 2020.
- [Earth Day and Great Race for Saving Water](#) The Great Race for Saving Water is a family-friendly, pet-friendly 5K, 10K, Kids Dash fun run and walk, plus Earth Day festival. Join us on Saturday, April 25 from 9am to 1pm at the

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Baylands Athletic Center in Palo Alto. This year we celebrate the 50th anniversary of the first Earth Day.
www.cityofpaloalto.org/earthday

- [Limited Time Rebates on Nissan Leaf EVs](#) - Through March 31, 2020, CPAU customers and utility employees are eligible for special rebates on Nissan Leaf electric vehicles. This is a special offer only available to public power utilities in partnership with the American Public Power Association (APPA).
- [Drive Clean Bay Area](#) Limited Time EV Discounts - One of 48 Bay Area partners to promote pre-negotiated discounts on 12 models through December 3rd, 2019. Organizer, Cool the Earth plans to run this program again later this year.
- [Beware: Scam Utility Calls Strike Again](#) - Scam callers are targeting utilities customers, claiming to be from the CPAU (or PG&E), and demanding payment for past due account balances. We are warning customers to be wary of any suspicious communication along these lines, as this is not how we conduct business.
- [GridShift Hackathon](#) – CPAU partnered with Bay Area clean energy providers including Silicon Valley Clean Energy, Peninsula Clean Energy, East Bay Clean Energy, and an early-stage venture firm, Powerhouse, to co-sponsor a "hackathon" January 31 through February 1. Over a 24 hour period of time, the "GridShift Hackathon" brought together teams of software developers, energy experts, and others to develop code to reduce or eliminate the carbon footprint in the building, transportation, and utility sectors. CPAU staff were filmed in this [short video](#) at the hackathon, talking about the exciting convergence of tech and utilities for positive change.
- [Gas Safety Awareness Surveys Complete](#) – In December, CPAU completed participation in gas safety awareness phone and email surveys. This is a federally-mandated safety measure designed to assess the effectiveness of our gas safety outreach activities. The responses directly impact our communication and outreach processes for public awareness programs.
- [City of Palo Alto Utilities Wins Smart Energy Provider Award](#) – In late fall of 2019, CPAU was awarded the Smart Energy Provider Award (SEP) from the American Public Power Association (APPA). The award recognizes CPAU for energy efficiency, distributed generation, and environmental initiatives that support a goal of delivering low-cost, quality, safe, and reliable electric service. This is the first year APPA has awarded public utilities with this designation. The SEP designation, which lasts for two years (December 1, 2019 to November 30, 2021), recognizes public power utilities for demonstrating leading practices in four key disciplines: smart energy program structure; energy efficiency and distributed energy programs; environmental and sustainability initiatives; and the customer experience. Additional information on the SEP designation is available at <https://www.publicpower.org/smart-energy-provider>

vii. Innovation and Pilot Programs

Program for Emerging Technologies

CPAU's Program for Emerging Technologies, or PET, (www.cityofpaloalto.org/UTLIInnovation) provides the opportunity for local businesses and organizations to submit proposals for innovative and impactful products to CPAU for review as a prospective partner. The goal is to find and nurture creative products and services that will manage and better use electricity, gas, water and fiber optic services. From the program's inception in June 2012 through the second quarter of FY 2020, the program has received a total of 90 applications. Table 3 below summarizes the status of all applications through the first quarter of FY 2020. One of the applications from FY 2020 may have potential as an emerging technology pilot and is still going through secondary review and scoping. In the first quarter of FY 2020 CPAU elected to close a one-year pilot with the start-up [UrbanLeap](#)-- a platform for streamlining intake, ranking, and tracking of innovative pilot projects within local governments. There is potential to use UrbanLeap or another platform for interdepartmental collaboration throughout the City, but the scale of the Program for Emerging Technologies does not warrant using a

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dedicated software as a Utilities-only solution. In January of 2020 the CPAU sponsored the GridShift hackathon focused on decarbonizing the energy sector called Gr with Powerhouse Ventures and Silicon Valley Clean Energy. Several of the participants work for early stage energy companies and have reached out about applying to the program. We have had several follow-up discussions with a few of the most relevant companies to determine whether the program is a good fit for their current needs, and if they are a good fit for CPAU's goals for this program.

Table 3: Status to date of all applications to the Program for Emerging Technologies

Deadline	Total Received	Under Review	Declined/Closed	Active	Completed
FY 2013	13	0	11	0	2
FY 2014	15	0	11	0	4
FY 2015	15	0	11	0	3
FY 2016	14	0	9	0	5
FY 2017	10	0	7	0	3
FY 2018	10	0	9	0	1
FY 2019	9	0	5	0	4
FY 2020	4	1	1	0	2
TOTAL	90	1	64	0	24

Electrification

[Induction Cooktop Loaner Program](#)

In summer 2019, 12 loaner kits were assembled while CPAU contracted with Acterra to administer an induction cooktop loaner program. Between June and December 2019 - 40 Palo Alto residents borrowed cooktop loaner kits averaging 18.6 days for each loan period. An additional 21 residents from other cities also borrowed loaner kits. As of the end of December, a total of 61 loans had been completed, with 58 requests in process or on the waitlist. Public response has been very positive, resulting in a continual backlog of loan requests. Survey results show a large shift towards more positive perceptions regarding induction cooktops after gaining experience with our loaners. Before using the loaner, 64.1% of respondents had a very positive or somewhat positive perception of induction cooktops. This number increased to 94.4% after using the loaner.

[Home Electrification Readiness Assessment](#)

In October 2019, CPAU launched a new service offering home electrification readiness assessment to homeowners. This service is offered through the Home Efficiency Genie program. As of January 31, 2020, 11 assessments have been completed.

[Multifamily Gas Furnace to Heat Pump Retrofit Pilot](#)

In 2018, CPAU was awarded a \$300,000 grant by the Bay Area Air Quality Management District to implement a pilot to help retrofit existing in-unit gas wall furnaces with high efficiency heat pump systems at up to 3 affordable multifamily properties. The goal of the pilot is to identify the retrofit barriers, the energy savings and GHG reductions from such retrofits. To date, CPAU has contracted with a consultant to manage the pilot and has selected a candidate site (out of 5 potential sites).

[Electrification Webpage](#)

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In October 2019, CPAU unveiled a new [electrification landing page](#) to help homeowners electrify their home. The new [Electric Panel Upgrade](#) webpage provides information on the electric amperage required for different electric appliances including EV charger and battery storage, as well as the steps to upgrade an electric panel. Based on the contents of these webpages, an electrification brochure was also created for distribution. Graphics created for the CPAU pages were shared with other agencies including San Jose Clean Energy for their outreach material.

Electrification Expo

On October 10, 2019, CPAU co-hosted the Bay Area Home Electrification Expo in coordination with local partners. The Expo featured speakers, panel discussion, demonstrations, and vendor exhibits to provide hands-on education and resources to residents and building professionals wanting to further reduce their carbon footprint. Videos of the workshop presentations from the Expo can be found in the [CPAU Youtube channel](#).

Electric Vehicles

EV Solutions and Technical Assistance Program

The EV Technical Assistance Program (TAP) contract was signed with CLEAResult in Q1 and the program was soft launched in October with a workshop hosted for 12 multifamily properties and religious centers. A new [program website](#) as well as [bill insert](#) were designed to introduce the program. In December, CPAU and CLEAResult met with Palo Alto Housing (Palo Alto's largest operator of low-income multifamily properties). By the end of Q2, 26 customers signed a Program Participation Agreement allowing CLEAResult to schedule initial site visits. CPAU was the first in the country to launch a TAP program which has now been duplicated by neighboring Community Choice Aggregators, Peninsula Clean Energy and Silicon Valley Clean Energy. Both agencies are also contracting with CLEAResult to implement their programs.

The California Energy Commission is partnering with five local energy agencies to launch a [\\$33M incentive project](#) for the installation of public electric vehicle (EV) charging stations throughout Santa Clara and San Mateo counties. This project, which is expected to launch in spring 2020, is an initiative of the [California Electric Vehicle Infrastructure Project](#) (CALEVIP), which aims to develop and implement regional incentives to support statewide adoption of EVs. CEC is proposing \$33M in matching funds to these local agencies. CPAU has committed \$1M of LCFS funds, to receive \$1M in grant funding. CPAU expects to complete contracting with the Center of Sustainable Energy – the administrator for the program, in Q3.

Nissan Leaf Rebates for Public Power Utilities

In addition to [SunShares](#), Palo Alto Utilities customers were eligible for rebates on a Nissan Leaf electric vehicle through September 30. This was a new rebate program offered by the American Public Power Association (APPA) and Nissan the 2019 Nissan Leaf Standard and 2019 Nissan Leaf ePlus.

Drive Clean Bay Area

Limited Time EV Discounts - One of 48 Bay Area partners to promote pre-negotiated discounts on 12 models through December 3rd, 2019. Organizer, Cool the Earth plans to run this program again later this year.

Updated City of Palo Alto EV Charger Rebates

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CPAU increased rebate levels to \$8,000 per EV charging port from - \$3,000 for multifamily properties and \$5,000 for non-profits. Residential Transformer Upgrade (Utility Service Capacity Fee) fees were also raised from \$3,000 to \$10,000. CPAU will also pay for commercial transformer upgrades (when necessary and feasible) up to \$100,000 with a minimum of 10 connectors or fully wired EVSE-ready outlets.

viii. Legislative and Regulatory Issues

While the City operates on the Fiscal Year (July through June), the State legislature operates on the calendar year and the federal government, on the Federal Fiscal Year (October to September). In order to provide accurate and timely information, CPAU Legislative staff notes current issues we are working on at the time of this report, regardless of each entity's operating year.

State legislation

Below are bills staff is tracking. The deadline to introduce bills is February 21, so new bills may appear in future reports. Additionally, as of the time of this writing, some two-year bills remain in play, but have not actually moved forward and some new bills are in flux. By the next report we will have a better sense of the viability of two-year bills, and the sufficiency of new, not yet fleshed out bills.

Electricity

SB 802 (Glazer): Emergency backup generators: health facilities: permit operating condition exclusion.

If an electric utility, including POUs, has undertaken a deenergization event during a calendar year, by January 30 of the following calendar year, the utility must submit a report with specified information to each air quality management district and air pollution control district affected by the event.

SB 804 (Wiener): Public capital facilities: electric utilities: rate reduction bonds.

Allows electric POUs to issue rate reduction bonds to finance or refinance utility projects for the provision of generation, transmission, or distribution electrical service. Existing law already allows private utilities and water and wastewater agencies to use these bonds.

SB 917 (Wiener): California Consumer Energy and Conservation Financing Authority: eminent domain:

Northern California Energy Utility District: Northern California Energy Utility Services.

This is the bill that would "break up" PG&E. It allows the state to acquire by eminent domain investor owned electric and gas utilities. The state's Power Authority would initiate the purchase of all IOU shares; once acquired, ownership would transition to a publicly owned utility called the Northern California Energy Utility District. A public benefit corporation called Northern California Energy Services would operate the utility on a day-to-day basis.

SB 953 (Wiener): Customer-sited renewable energy or energy storage systems: discriminatory fees or charges.

Ensures IOUs and POUs do not charge "discriminatory" fees to customers with solar and/or storage systems. Currently, "discriminatory" is not defined in the bill.

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State regulatory proceedings

Below, staff notes the issues we've tracked or engaged in with various agencies during the last quarter, primarily through our work with CMUA and NCPA:

Energy Commission

Power Source Disclosure regulations; SB 100 implementation; Renewables Portfolio Standard regulations, specifically related to "green pricing," and new procurement plan templates

Air Resource Board

Low Carbon Fuel Standard regulations, primarily related to cost containment and implementing the clean fuel rewards program

Public Utilities Commission

Despite the lack of jurisdictional authority over POU's, both NCPA and CMUA are tracking various PUC proceedings related to IOU deenergization and wildfire mitigation planning. Such proceedings may impact transmission dependent POU's or may provide insight into how future POU procedures may be viewed by the CEC.

Department of Water Resources

Wholesale water loss recommendations; County drought advisory group recommendations

State Water Resources Control Board

PFAS/PFOA response levels; water loss control; 2020 safe drinking water plan; monthly conservation reporting

Federal legislation

The House Energy and Commerce Committee Chairman released the Committee Democrats' *draft* legislation proposal to address climate change, The CLEAN Future Act. The 622-page proposal is as much a comprehensive energy bill as it is a climate proposal, addressing every sector of the economy that falls within the Committee's broad jurisdiction. Central to the draft legislation is the economy-wide goal of meeting a 100 percent net carbon zero economy by 2050. The committee will hold hearings in the upcoming weeks. A press release [is here](#).

H.R. 1497 (DeFazio) Water Quality Protection and Job Creation Act of 2019

Provides wastewater/stormwater assistance to local water agencies. A press release [is here](#); this bill last moved in October 2019.

H.R. 5217 (McClintock) Water Optimization for the West Act

Advances water storage and provides restoration flows to the San Joaquin river without harming Central Valley Project contractors. A press release [is here](#). The bill has not moved since its November 2019 introduction.

H.R. 5302 (McNerney) Western Water Recycling and Drought Relief Act

Authorizes funding for certain recycled water projects, including two in Palo Alto. A press release [is here](#).

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ix. Utility Financial Summary

This section describes the unaudited actual financial results for FY 2020 for all Utilities funds. The Council-adopted long-term [Financial Plans](#) for the Electric, Gas, Wastewater Collection, and Water Funds have been updated for FY 2020 during the budget review process.

Electric Utility Overview

Sales for the Electric Utility in FY 2020 are projected to be 2.2% higher than forecasted in the FY 2020 Financial Plan. Revenues are also projected to increase by \$8.1 million or 4.8% higher than forecasted. Part of this increase was also due to favorable revenue from surplus hydro sales.

Expenses are projected to decrease by \$8.7 million or 5.2% lower than forecasted. About \$5 million can be attributed to lower than expected electricity purchase costs, and \$3 million related to lower administration, resource management, operations and maintenance, engineering and customer service expenses. The lower spending in operations and maintenance is related to staffing vacancies and contract funding that remains unspent due to challenges hiring contract firms in a tight labor market, and this spending is expected to be higher in future years.

The Electric Supply and Distribution Operations Reserves were within the reserve guideline levels at the beginning of FY 2020, and are currently projected to remain that way going into FY 2021. In addition, due to surplus energy revenues seen in FY 2019 and FY 2020, staff is evaluating starting repayment of a short term \$10 million loan from the Electric Special Projects (ESP) reserve done in FY 2018, as well as providing additional funds to the Hydro Stabilization Reserve for future dry-year conditions and the Capital Reserve for future capital improvement needs.

The Electric Utility CIP Reappropriation and Commitment Reserves totaled \$20.4 million at the end of Q2 FY 2020.

Gas Utility Overview

Sales for the Gas Utility in FY 2020 are projected to be 1.2% lower than forecasted in the FY 2020 Financial Plan, however, revenues are expected to have a slight increase of \$0.7 million, due to a revision of customer class usage and higher than expected interest income.

Expenses are projected to be around the same level as forecasted. Operations costs are tentatively projected to be lower by about \$0.9 million, but CIP costs are projected to be higher by \$1 million.

The Gas Operations Reserve was within the reserve guideline levels at the beginning of FY 2020 and will remain stable throughout the remaining of FY 2020.

The Gas Utility CIP Re-appropriation and Commitment Reserves totaled \$5.4 million at the end of Q2 FY 2020.

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Water Utility Overview

Sales for the Water Utility in FY 2020 are projected to be 0.6% lower than forecasted in the FY 2020 Financial Plan. This is because of the updated sales forecast that takes into account the lower actual water sales in FY 2019. However, other revenue was higher in FY 2019 due to higher interest income and changes in the value of the City's investments and the updated projection for FY 2020 brings up the overall revenue forecast to \$1.3 million higher than projected in FY 2020.

On the expense side, the most notable change from the FY 2020 Financial Plan is changes to CIP expenditures. Approximately \$13.7 million in projects budgeted in FY 2019 or earlier are slated to be re-appropriated to FY 2020, the largest being Main Replacement Project 27, estimated at \$7.1 million, and some seismic water system upgrades, estimated at \$2.9 million. The FY 2020 Financial Plan estimated the CIP expenditure for FY 2020 to be \$16.9 million while the current estimated CIP expenditure for FY 2020 is \$20.8 million, of which \$5.1 million will be funded through rate revenue, \$13.7 will be funded through reappropriations and \$1.3 million through committed funds.

The Water Operations Reserve was above the reserve guideline levels at the beginning of FY 2020, however, staff plans to transfer reserves from the Operations Reserve to the Rates Stabilization Reserve and CIP Reserve over the next few years to bring the Operations Reserve below the maximum guideline levels.

The Water Utility CIP Reappropriation and Commitment Reserves totaled \$18.7 million at the end of Q2 FY 2020.

Wastewater Collection Utility Overview

Wastewater revenues are projected to be 2.4% higher than forecasted in the FY 2020 Financial Plan, due to increasing revenue from sales and other income from connection fees and interest. Expenses are projected to be 0.6% lower than forecasted due to lower operations cost projections.

During Q1 and Q2 of FY 2020, there has been an increase of \$4.7 million in CIP commitments and reappropriations. This has been funded in part by revenues but is a primary reason for the decrease in the operations reserve of \$3.2 million. The Wastewater Collection Operations Reserve at the end of Q2 in FY 2020 is \$2.2 million, which is below the projected reserve minimum guideline (\$2.9 million) and risk assessment level (\$2.6 million). The CIP commitments and reappropriations reserve balance will be trued-up at the end of the fiscal year based on actual CIP completion, outstanding contracts and revised budget reappropriations. Any unearmarked CIP funds will be released and returned to the Operations reserve at the end of the fiscal year. In addition, revenues during the remainder of the year are expected to bring the Wastewater Collection Operations Reserve up to within the reserve guideline levels at the end of FY 2020.

The Wastewater Collection Utility CIP Reappropriation and Commitment Reserves increased from \$5.7 million at the beginning of FY 2020 to a total of \$10.3 million at the end of Q2 FY 2020.

Fiber Optic Utility Overview

Fiber sales and expenses through the first half of FY 2020 were \$2.0 million and \$1.3 million respectively. Capital expenses are lower than projected, primarily due to delay of the Fiber Optic System Rebuild. There is

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no change in the FY 2020 revenue forecast of \$5.5 million. FY 2020 expenses of \$3.8 million are projected to be \$0.5 million less than previously forecasted of \$4.3 million.

The total Fiber Optic Utility Reserves totaled \$31 million at the end of Q2 FY 2020.

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Table 4: Utilities Financials, Q2 FY 2020 Projections

	Sales Volumes	Revenue \$,000	Expense \$,000	Net Reserve Change \$,000
Electric Utility				
FY 20 Financial Plan	858,347 MWh	167,778	(168,637)	(859)
FY 20 Projections	877,297 MWh	175,910	(159,942)	15,968
Change from Financial Plan	18,950 MWh 2.2%	8,132 4.8%	8,695 (5.2%)	16,826
Gas Utility				
FY 20 Financial Plan	27,725,000 therms	39,381	(39,206)	175
FY 20 Projections	27,398,000 therms	40,121	(39,306)	815
Change from Financial Plan	(327,000) therms (1.2%)	740 1.9%	(100) 0.3%	640
Water Utility				
FY 20 Financial Plan	4,607,000 CCF	48,857	(57,732)	(8,875)
FY 20 Projections	4,581,000 CCF	50,205	(44,274)	5,931
Change from Financial Plan	(26,000) CCF (0.6%)	1,348 2.8%	13,458 (23.3%)	14,806
Wastewater Collection Utility				
FY 20 Financial Plan		21,911	(23,216)	(1,305)
FY 20 Projections		22,428	(23,081)	(653)
Change from Financial Plan		517 2.4%	(135) (0.6%)	652
Fiber Optic Utility				
FY 20 Financial Plan		5,544	(4,326)	1,218
FY 20 Projections		5,544	(3,826)	1,718

Table 5: Operations Reserves, as of Q2 FY 2020 (\$000)

	Electric Supply	Electric Distribution	Gas	Water	Wastewater Collection	Fiber Optic *
Beginning	28,709	16,536	9,966	20,652	5,390	30,358
Change	5,328	(1,814)	(716)	3,802	(3,178)	(232)
Q2 FY 2020	34,037	14,722	9,250	24,454	2,212	30,126
Reserve Minimum	17,988	8,594	5,410	7,045	3,904	444
Reserve Maximum	35,977	13,609	10,821	14,119	7,260	887

* For Fiber Optics, the Reserve is the Rate Stabilization (not the Operations) Reserve

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Residential Bill Comparisons

Table 6: Residential Electric Bill Comparison (\$/month)

As of December 2019					
Season	Usage (KWh/mo)	Palo Alto	PG&E	Santa Clara	Roseville
Winter (Nov-Apr)	300	\$41.27	\$70.74	\$36.96	\$70.74
	453 (Median)	69.22	106.82	56.50	106.82
	650	107.37	164.73	81.66	153.28
	1200	213.89	327.95	151.91	310.58

Table 7: Residential Natural Gas Bill Comparison (\$/month)

As of December 2019				
Season	Usage (therms per month)	Palo Alto	Menlo Park, Redwood City, Mountain View, Los Altos, and Santa Clara (PG&E Zone X)	Roseville (PG&E Zone S)
Winter (Nov-May)	30	\$44.47	\$43.79	\$43.79
	54 (Median)	69.37	82.27	85.33
	80	106.41	135.31	138.36
	150	218.17	278.10	281.16

Table 8: Residential Water Bill Comparison (\$/month)

As of January 2020						
Usage CCF/month	Palo Alto	Menlo Park	Redwood City	Mountain View	Santa Clara	Hayward
4	\$46.89	\$56.69	\$54.04	\$37.92	\$43.69	\$37.20
(Winter median) 7	70.28	85.35	72.43	58.74	62.44	54.60
(Annual median) 9	90.42	104.46	85.91	72.62	74.94	67.54
(Summer median) 14	140.77	150.03	122.66	107.32	106.19	103.24
25	251.54	249.10	217.76	225.26	174.94	181.78

Based on the FY 2013 BAWSCA survey, the fraction of SFPUC as the source of potable water supply was 100% for Palo Alto, 95% for Menlo Park, 100% for Redwood City, 87% for Mountain View, 10% for Santa Clara and 100% for Hayward.

Table 9: Residential Wastewater Collection (Sewer) Bill Comparison (\$/month)

As of January 2020						
Palo Alto	Menlo Park	Redwood City	Mountain View	Los Altos	Santa Clara	Hayward
\$41.37	\$98.08	\$81.76	\$42.05	\$38.44	\$42.91	\$34.30

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Table 10: Median Residential Overall Bill Comparison (\$/month)

As of January 2020						
Utility and Usage	Palo Alto	Menlo Park	Redwood City	Mountain View	Santa Clara	Hayward
Electricity (453 kWh/mo)	\$ 69.22	\$ 106.82	\$ 106.82	\$ 106.82	\$56.50	\$ 106.82
Gas (54 th/mo)	69.37	82.27	82.27	82.27	82.27	82.27
Water (9 CCF/mo)	90.42	104.46	85.91	72.62	74.94	67.54
Wastewater	\$41.37	\$98.08	\$81.76	\$42.05	\$42.91	\$34.30
TOTAL	201.59	291.58	279.71	223.30	164.22	214.43

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Table 11: Q2 FY 2020 Reserve Report from the City's Financial System ('000)

City Of Palo Alto Utility Fund Reserve Quarterly Projections - Unaudited As of 12/31/2019 - UNAUDITED (in thousands)						
	Beginning Reserve Balance as of 7/01/19 FY 2020 (ASD)	Current Projected Reserve Balance as of 12/31/2019 FY 2020 (ASD)	Current Projected Reserve Balance for 12/31/2019 FY 2020 (Util)	Budgeted Reserve Guideline Range for FY 2020		Projected Reserve Balance (based on Budget) for FY 2020
				Minimum	Maximum	
Electricity						
Supply/Dist Operations	\$ 45,245	\$ 48,761	\$ -	\$ 23,231	\$ 46,462	\$ 21,969
CIP Reapp./Commit.	10,657	20,415	-			
Hydro Stabilization	11,400	11,400	-			7,400
CIP Reserve	880	880	-			880
Rate Stabilization	-	-	-			
Public Benefit	810	810	-			
ESP	41,665	41,665	-			41,838
GASB 68 Pension Rsrv	(31,324)	(31,324)				(29,511)
GASB 75 OPEB Rsrv	(14,156)	(14,156)				(14,168)
All Others	4,637	5,808	-			730
Sub total Cash Reserves	69,814	84,259				
Net Capital Investment	200,749	201,499	-			
Total	\$ 270,563	\$ 285,758	\$ -			\$ 29,138
Gas						
Operations Reserve	\$ 9,966	\$ 9,250	\$ -	\$ 5,410	\$ 10,821	\$ 8,095
CIP Reserve	3,820	3,820	-			3,820
Rate Stabilization	2,534	5,645				
CIP Reapp./Commit.	3,771	5,398	-			
GASB 68 Pension Rsrv	(13,824)	(13,824)				(13,277)
GASB 75 OPEB Rsrv	(6,230)	(6,230)				(6,235)
All Others	8,274	4,927	-			
Sub total Cash Reserves	8,311	8,986				
Net Capital Investment	104,693	104,261	-			
Total	\$ 113,004	\$ 113,247	\$ -			\$ (7,597)
Water						
Operations Reserve	\$ 20,652	\$ 24,454	\$ -	\$ 7,045	\$ 14,119	\$ 26,344
CIP Reserve	2,726	2,726	-			2,726
Rate Stabilization	4,069	4,069				4,069
CIP Reapp./Commit.	14,786	18,728	-			
GASB 68 Pension Rsrv	(13,076)	(13,076)				(12,455)
GASB 75 OPEB Rsrv	(4,346)	(4,346)				(4,350)
All Others	3,922	6,300	-			
Sub total Cash Reserves	28,733	38,855				
Net Capital Investment	98,249	97,817	-			
Total	\$ 126,982	\$ 136,672	\$ -			\$ 16,334
Fiber Optic						
Distribution	\$ 30,358	\$ 30,126	\$ -	\$ 444	\$ 887	\$ 31,844
CIP Reapp./Commit.	790	1,739	-			
GASB 68 Pension Rsrv	(2,002)	(2,002)				(1,855)
All Others	1,060	1,123	-			1,000
Sub total Cash Reserves	30,206	30,986				
Net Capital Investment	9,165	9,074				
Total	\$ 39,371	\$ 40,060	\$ -			\$ 30,989
Wastewater Collection						
Operations Reserve	\$ 5,390	\$ 2,212	\$ -	\$ 2,904	\$ 7,260	\$ 3,843
CIP Reserve	978	978	-			
Rate Stabilization	342	342				
CIP Reapp./Commit.	5,658	10,321	-			
GASB 68 Pension Rsrv	(7,828)	(7,828)				(7,449)
GASB 75 OPEB Rsrv	(2,382)	(2,382)				(2,384)
All Others	74	267	-			
Sub total Cash Reserves	2,232	3,910				
Net Capital Investment	88,336	88,049				
Total	\$ 90,568	\$ 91,959	\$ -			\$ (5,990)