City of Palo Alto (ID # 10721)

Utilities Advisory Commission Staff Report

Report Type: Agenda Items **Meeting Date: 12/4/2019**

Summary Title: Utilities Quarterly Report for Q4 FY 2019 (info)

Title: Utilities Quarterly Report for Q4 FY 2019

From: City Manager

Lead Department: Utilities

Recommendation

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

Executive Summary

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

Items of special interest for FY 2019 include:

- **Electric Utility:** Hydroelectric generation for FY 2019 was roughly 17% above average. While precipitation was high in the winter of 2018/2019, leading to high hydroelectric generation in Q3 and Q4 of FY 2019, generation in Q1 and Q2 was lower due to lower than average precipitation in the preceding water year. The City's generation for FY 2019 was 20% above load, as compared to 10% above load in an average hydro year. This, along with sales of local generating capacity associated with renewable contracts in Southern California, resulted in $7.4 million in higher revenue, despite the fact that electricity sales were 3% lower than projected. Costs for the electric utility in FY 2019 were 9.1% ($15.5 million) below budget, of which $2 million was related to electric supply cost savings, $7 million related to lower than projected operations and maintenance spending, and $6.5 million related to capital projects that were deferred. These one-time savings can be used to replenish various reserves that were depleted during the last drought. (pages 4, 10, 22, 25)

- **Gas Utility:** Gas market prices spiked in the winter of 2018-2019. Utility costs increased substantially, but because most costs were passed through to customers, the net impact on the utility's financial position was minimal. Offsetting the increased costs, staff began purchasing discounted gas from MuniGas that will reduce annual costs by about $1 million

per year in the long term. Savings since November 2018 from the MuniGas purchase are $530,000. (pages 10-11, 22, 25)

- **Water Utility:** Water consumption and costs for FY 2019 were both about 7% below budget due to higher than anticipated precipitation. Revenues were similar to forecasts. While retail sales revenues were lower due to the lower forecasts, interest on reserves was higher than projected, compensating for the lower retail sales. Expenses were significantly lower due to delays in various capital projects, but these funds are expected to be expended in the next fiscal year. (pages 12-13, 23, 25)

- **Wastewater Utility:** Revenues for the Wastewater Collection utility were roughly in line with forecasts for FY 2019, but expenses were substantially lower due to delayed capital projects, which are expected to be completed in FY 2020. (page 22)

- **Fiber Utility:** An update on rebuild work on the dark fiber network and an update on the Fiber to the Node RFP is provided. A new Fiber Network Expansion Request for Proposals (RFP) has been issued with the goal of getting a contract in place by the end of 2019. (pages 13-15)

- CPAU has received Smart Energy Provider certification from the American Public Power Association. The designation recognizes utilities who implement best practices in customer program design and implementation and customer experience. (page 15)

- CPAU issued its Mayor's Green Building Awards in August, held a ribbon cutting of a 2.3 MW solar system at the HP campus, and kicked off its Sunshares solar group buy program. (pages 15-17)

- A digest of major outreach efforts is provided on pages 17-18, including outreach related to PG&E's Public Safety Power Shutoff program and Public Power and Public Natural Gas week.

- Several pilot and sustainability programs are summarized on pages 18-19, including an update on EV rebate programs.

- Major legislative and regulatory items are summarized on pages 19-21. Major topics include electric system reliability (central capacity procurement), new monitoring rules for certain chemicals (PFAs), and an increase in PG&E gas transmission rates that will affect Palo Alto.

Attachments:

- Attachment A: Utilities Quarterly Report Q4 FY19

Attachment A

Utilities Quarterly Update

Fourth Quarter of Fiscal Year 2019

December 2019

Utilities Quarterly Update
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i. Electricity

Electric Supplies

Western Area Power Administration (Western) Issues

Water year[1] 2019 was an above-average precipitation year that resulted in above-average reservoir levels across the state. For Q4 of fiscal year (FY) 2019, Western delivered 180 GWh to the City (125% of long-term average levels, which is about 140% the amount that was delivered in Q4 of FY 2018). For FY 2019 as a whole, Western generated 382 GWh (5% above long-term average supply levels, and 7% above FY 2018 levels). For FY 2020, Western is projected to generate 444 GWh (22% above long-term average supply levels, and 16% above FY 2019 levels).

Calaveras Hydroelectric Project Issues

As of June 30, 2019, total Calaveras project water storage was at 189,000 ac-ft, or full capacity, at New Spicer Meadows Reservoir (NSMR). The historical average storage level for NSMR for the end of June is 148,469 ac-ft, while end-of-June storage for the most recent wet year, 2017, was 185,695 ac-ft. As of September 30, 2019, the total project was at 122,327 ac-ft of storage. Average end of September NSMR storage since 1990 has been 104,248 ac-ft.

For Q4 FY 2019, the Calaveras project generated 103 GWh (more than triple the amount that was delivered in Q4 of FY 2018). For FY 2019 as a whole, the project generated 195 GWh (70% above FY 2018 supply levels). In FY 2020, the project is projected to generate 125 GWh (36% below FY 2019 supply levels).

Electric Load and Resource Balance

Palo Alto's electric supply portfolio for CY 2019 saw significant volumes of surplus energy, largely owing to an above-average hydro year. The City sold, on a forward basis, nearly 154 GWh of surplus energy (~17% of load) during the spring and summer months of CY 2019, to manage the surplus position. In addition, due to the availability of surplus carbon neutral supplies, as well as the feedback provided by the UAC at its June 5, 2019 meeting, Palo Alto sold Bucket 1 RPS resources 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 will, however, change Palo Alto's RPS level, but the City will still far exceed the state's RPS compliance requirements. The City also made some forward energy purchases for the off-peak hours of the upcoming winter months (Nov 2019 – Jan 2020), to manage the portfolio energy deficits in those months. CY 2020 is currently projected to be a slightly drier hydro year than CY 2019. Overall electric supply resources are projected to be surplus to load by 22% for CY 2019, and by 19% for CY 2020. However, some periods saw significant surplus positions while other periods see deficit positions (see Figure 2 below, representing the monthly load and resource balance for CY 2019).

[1] A "water year" is defined as the 12-month period from October 1 through September 30. "Water year 2019" refers to the period from October 1, 2018 through September 30, 2019.

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, 2018 to 2020 (as of October 8, 2019)

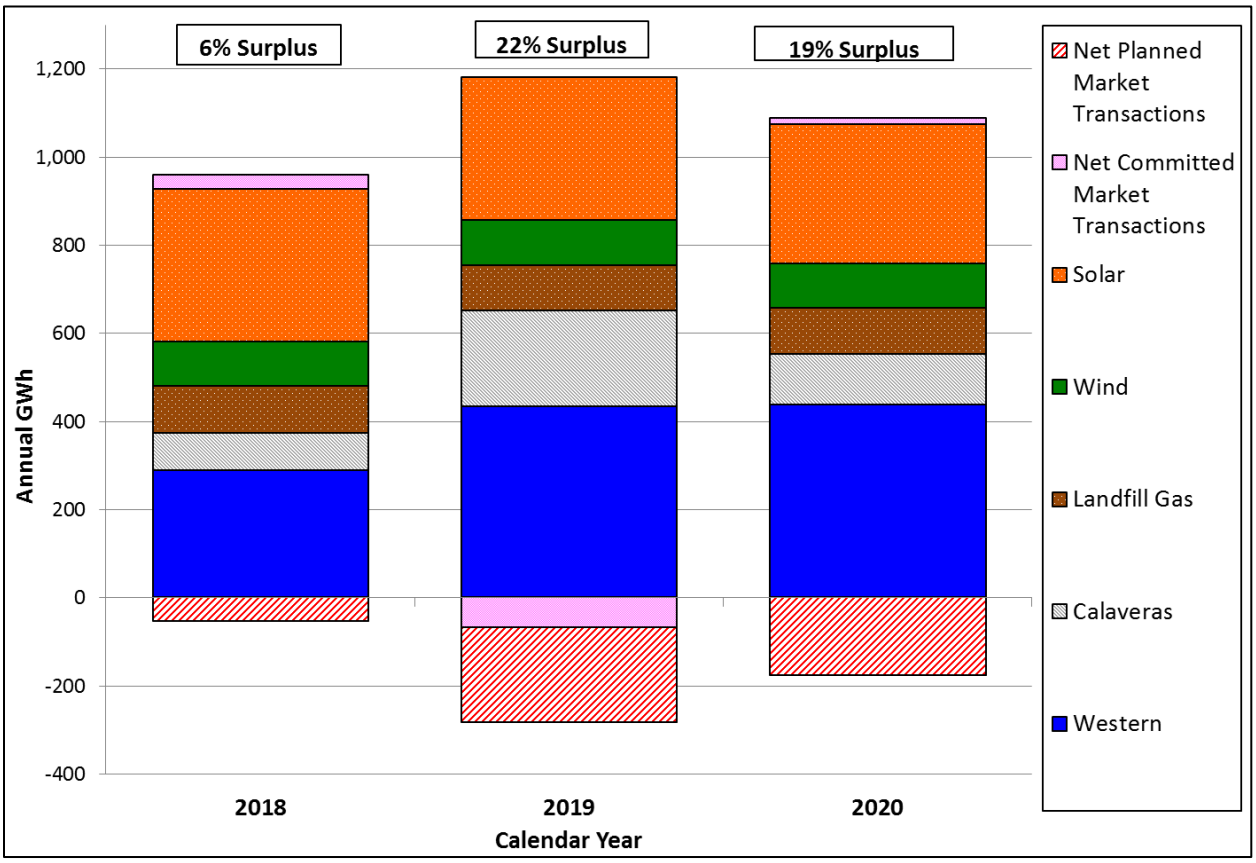
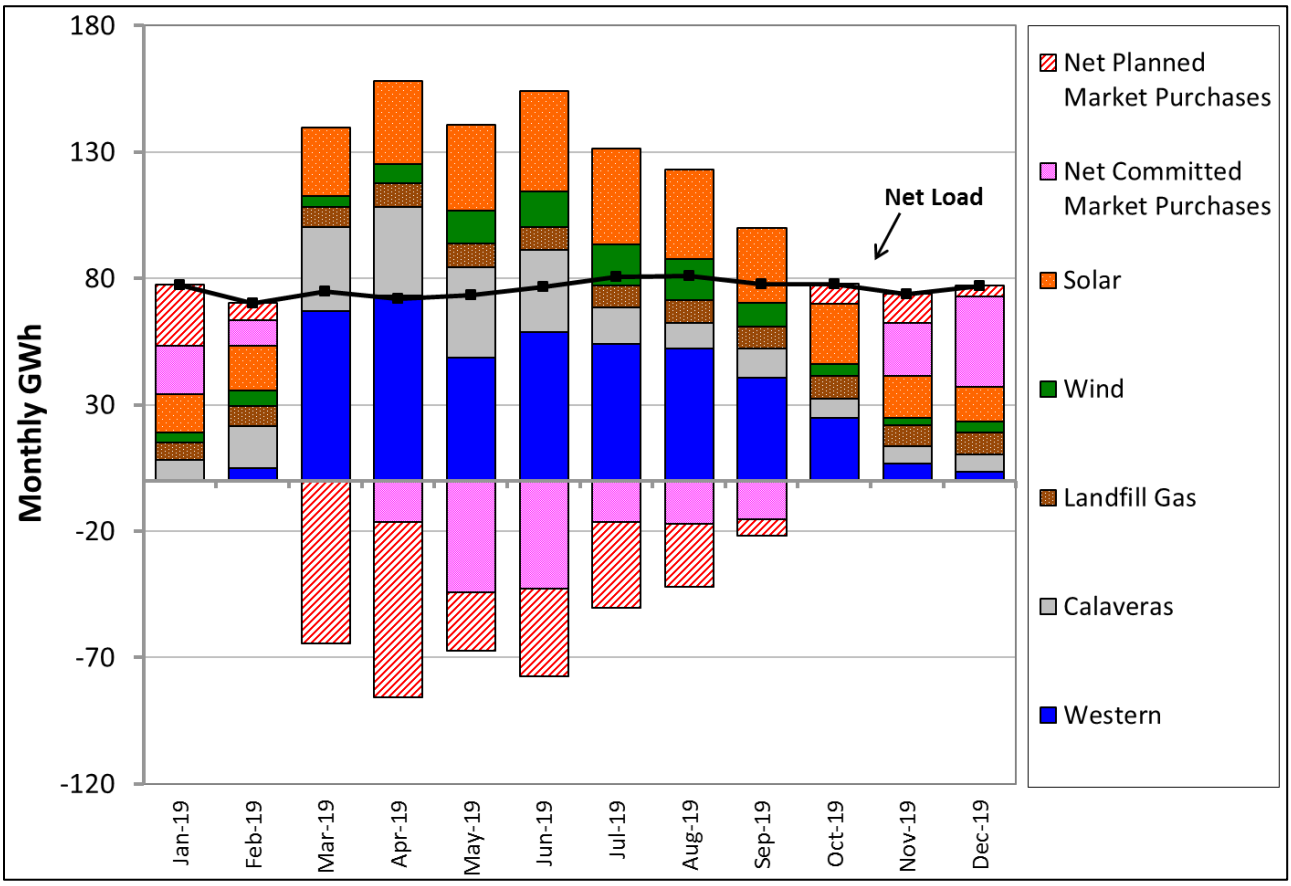


Figure 2: CY 2019 Monthly Electric Supply Resource Projection (as of October 8, 2019)

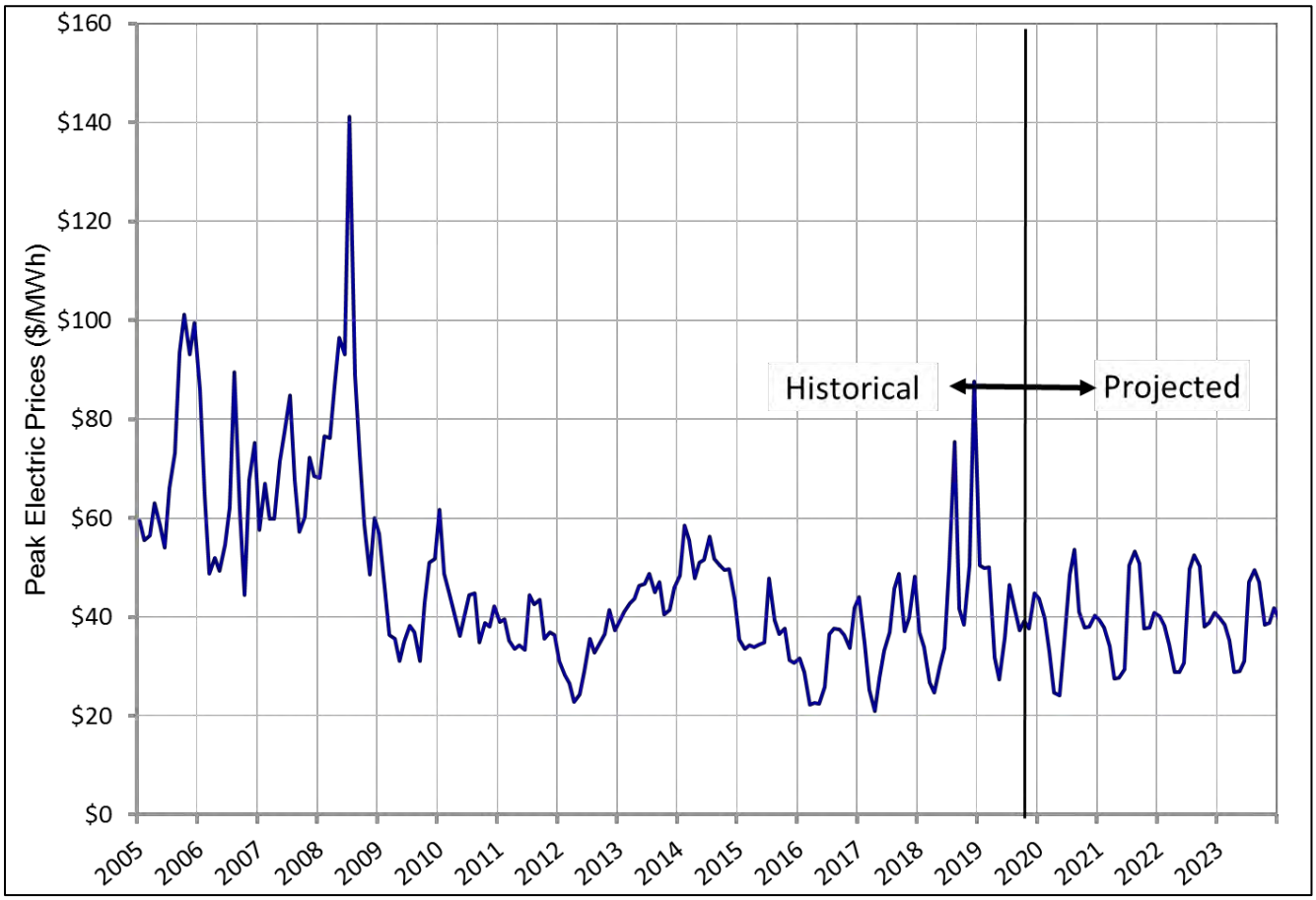


Electric Market Price History and Projections

As of September 16, 2019, the price for on-peak energy for November 2019 in Northern California was $37.60 per megawatt-hour (MWh)[2], while the prices for December 2019 and January 2020 were $44.86/MWh and $43.62/MWh, respectively. These values are approximately $5.84/MWh (or 12%) 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 $38/MWh to $40/MWh for 2020 through 2022. These prices are approximately $4.06/MWh lower than they were at the time of the last quarterly report. Figure 3: Northern California Peak Electric Prices (as of September 16, 2019) below illustrates historical monthly on-peak prices and projected monthly forward prices for Northern California from 2005 through 2023.

[2] Note that $37.60 per megawatt-hour is equal to 3.760 cents per kilowatt-hour.
[3] Market prices for the previous quarterly report were from June 28, 2019.

Figure 3: Northern California Peak Electric Prices (as of September 16, 2019)



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 Q4 FY 2019. Load was about 4% lower than budget. Hydro generation from Calaveras and Western were 30% above budget forecasts, and solar generation was 6% above budget forecast. Due to higher than expected generation from all resources, CPAU had to sell power on the spot and forward market. Net market sales through Q4 FY 2019 were roughly 227 GWh, or 25% of load.

Table 1: FY 2019 Electric Load and Generation Compared to Budget Projections

	Year To Date		Amounts Over(+)/Under(-) Budget	Month by Month Budget Variance
Load	905 GWh		-39 GWh	
Generation Source	**Generation Year To Date**	**% of Portfolio**	**Amounts Over(+)/Under(-) Budget**	**Month by Month Budget Variance**
Calaveras	195 GWh	22%	96 GWh	
Forward Market	-28 GWh	-3%	-34 GWh	
Landfill	100 GWh	11%	-2 GWh	
Solar	338 GWh	37%	18 GWh	
Spot Market	-220 GWh	-24%	-193 GWh	
Western	382 GWh	42%	37 GWh	
Wind	138 GWh	15%	38 GWh	
Total Supply	**905 GWh**	100%	-39 GWh	

Figure 4: FY 2019 Electric Load and Resource Balance

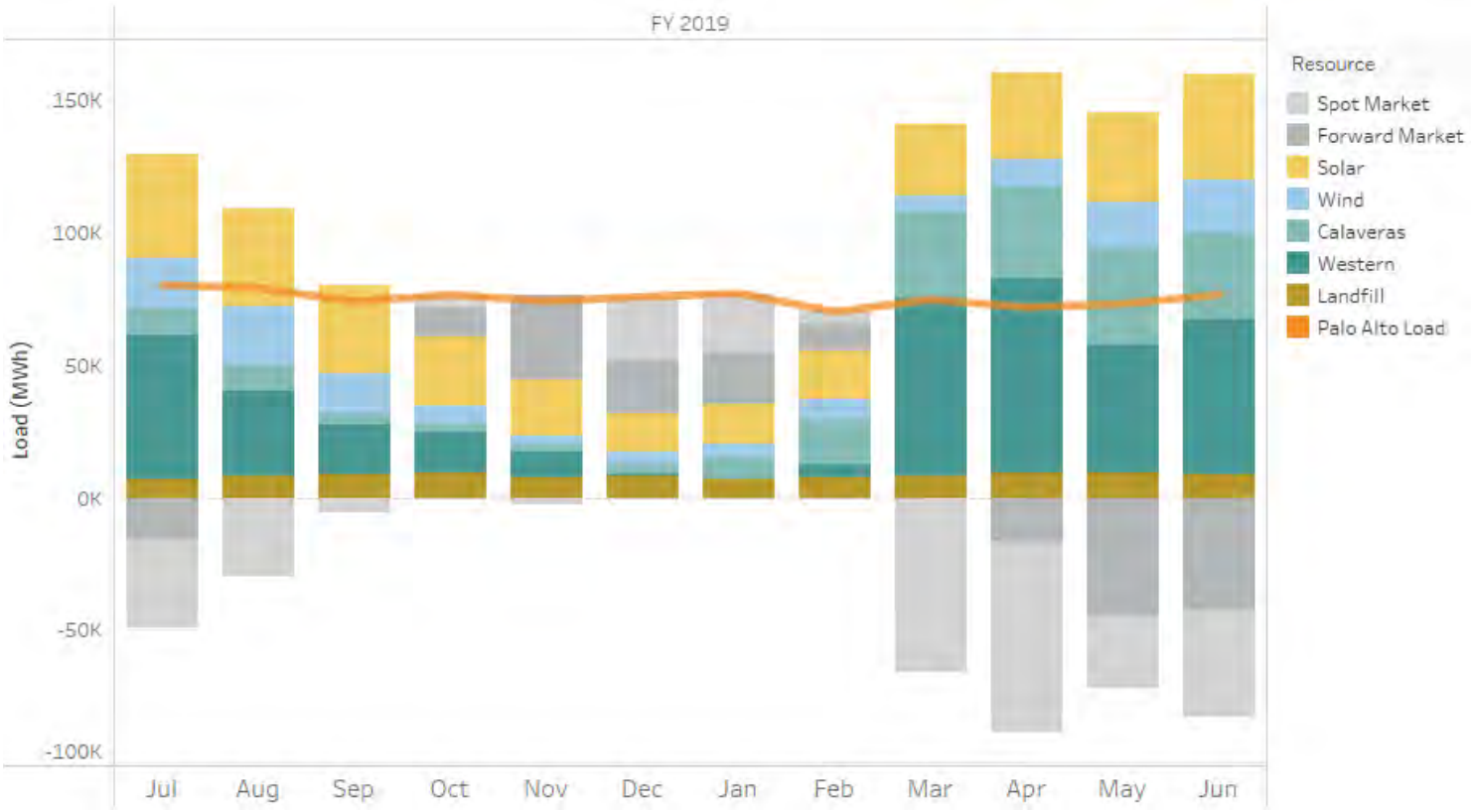


Table 2 below shows CPAU's supply cost by cost category through Q4 FY 2019. Supply costs were $7.7 million or 9% below budget primarily due to higher than expected market sales.

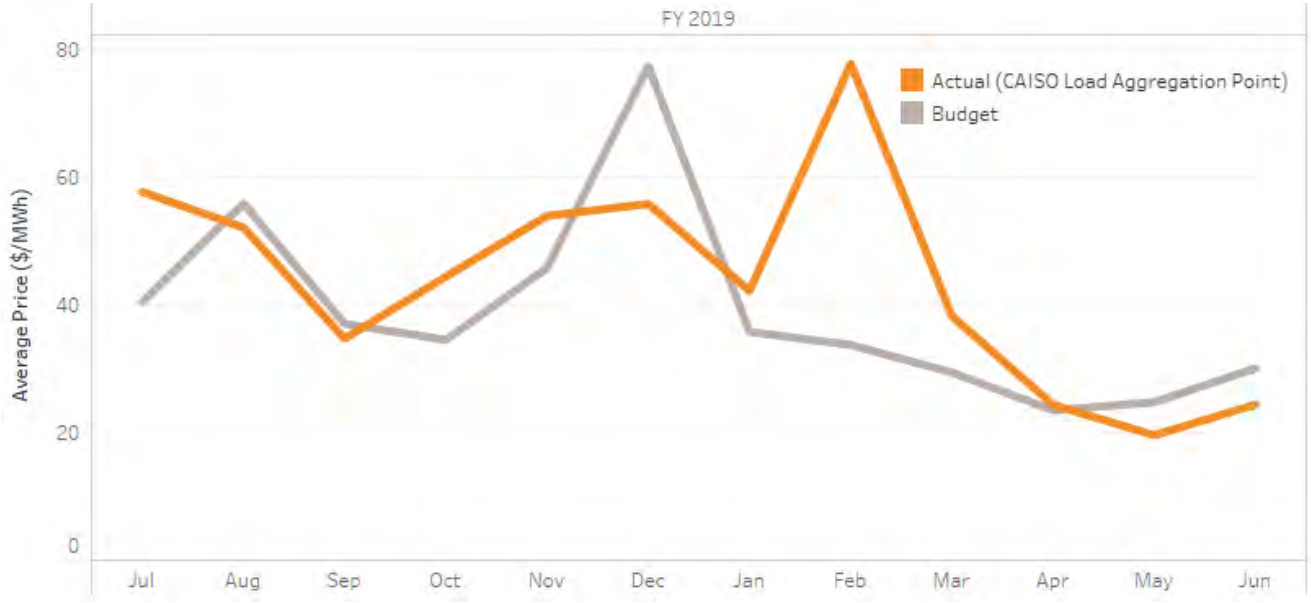
Table 2: FY 2019 Electric Utility Supply Cost Summary

Supply Cost Categroy	Actuals, Year To Date	Amount Over (+) / Under (-) Budget	Month by Month Budget Variance
Calaveras Hydro	11.6 million	-0.4 million	
Capacity	-0.6 million	-0.8 million	
Market Transaction	-5.9 million	-7.4 million	
NCPA Services	2.4 million	-0.3 million	
Renewable Source	39.5 million	2.4 million	
Transmission	20.6 million	1.6 million	
Western Hydro	10.8 million	-2.7 million	
TOTAL	**78.3 million**	**-7.7 million**	

Electric Market Prices

Figure 5 shows monthly market prices. Electric market prices have been slightly higher than budget through Q4 FY 2019.

Figure 5: FY 2019 Electric Market Prices



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 2019. There was a temporary commodity price spike during the winter months of FY 2019 due to low regional gas storage and colder than expected temperatures, which led to increased demand and prices. Gas commodity prices have since returned to normal.

Figure 6: CPAU's Gas Commodity Rates—FY 2013 through FY 2019

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 $692K 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 2019 budget. Natural gas use through Q4 FY 2019 was 4.1% higher than the budget forecast, however, costs were 24.8% higher than budget due to high commodity prices during November through March.

Figure 7: Natural Gas – Budget vs. Actual

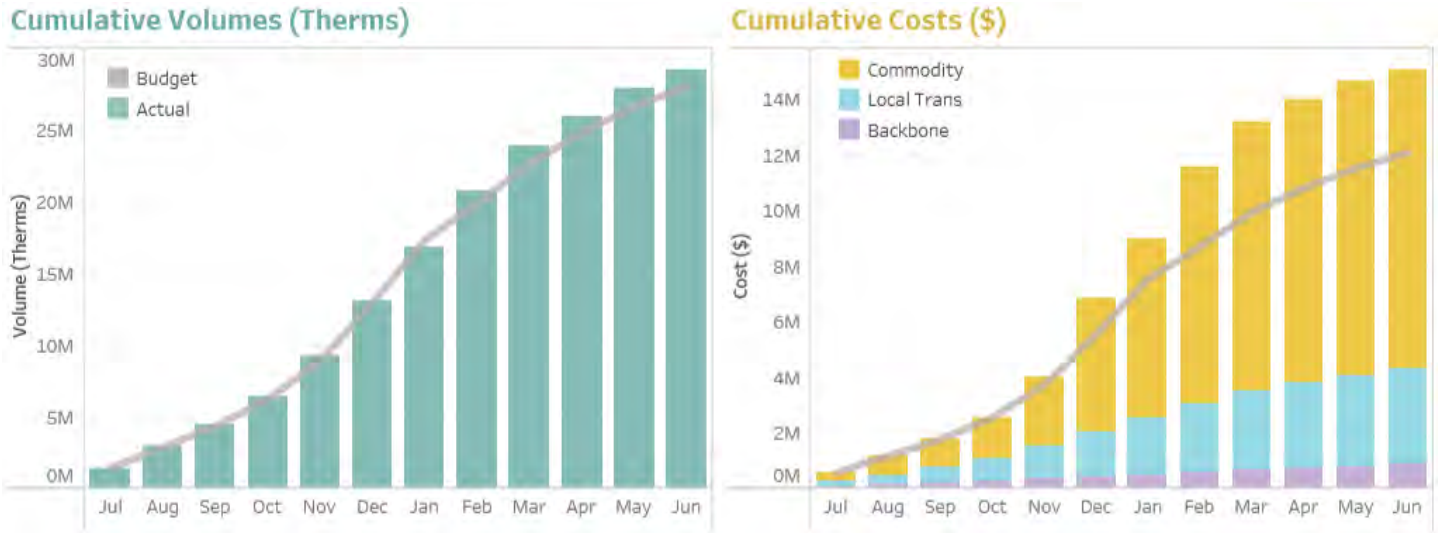
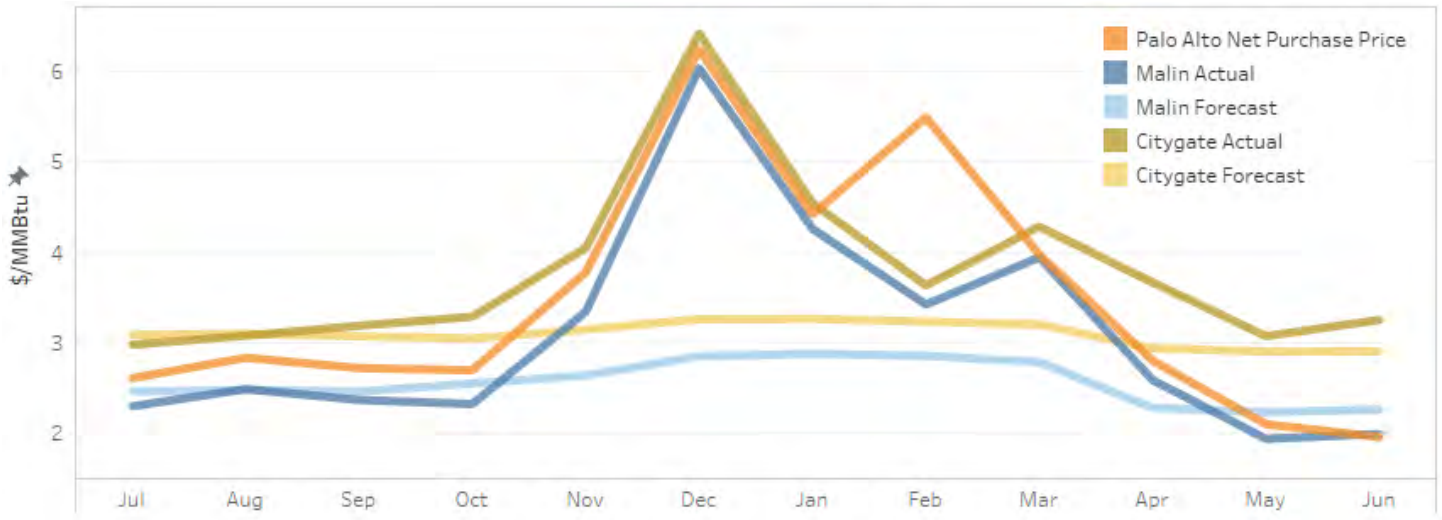


Figure 8 shows actual gas prices at Malin, PG&E Citygate and Palo Alto Net Purchase Cost. Natural Gas prices were higher than average this winter nationwide but have returned to normal.

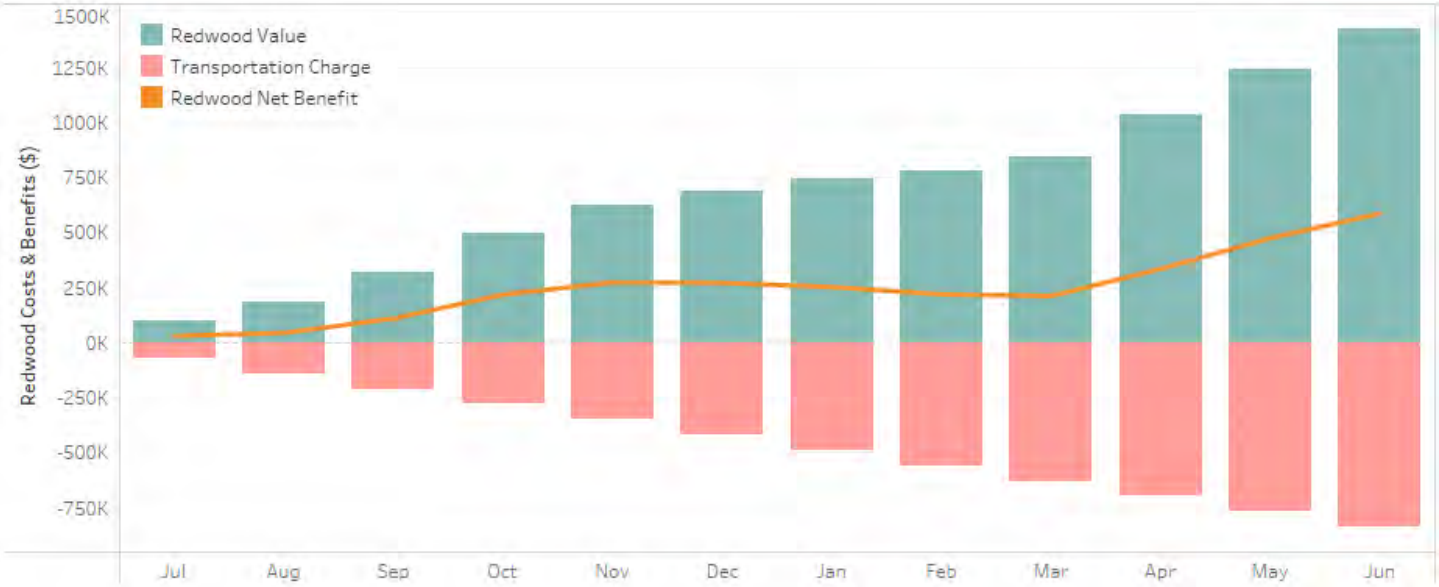
Figure 8: Natural Gas Prices ($/MMBtu) – Malin, Citygate and Palo Alto Net Purchase Costs



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 $587K through Q4 FY 2019. This is the difference between the cumulative value of Redwood capacity of $1,424K (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 $837K.

Figure 9: Cumulative Redwood Pipeline Cost vs. Market Benchmarks



iii. Water

Water Availability

The precipitation season is just beginning. More information on water supply availability will be shared in the next Quarterly Report.

Recycled Water Strategic Plan

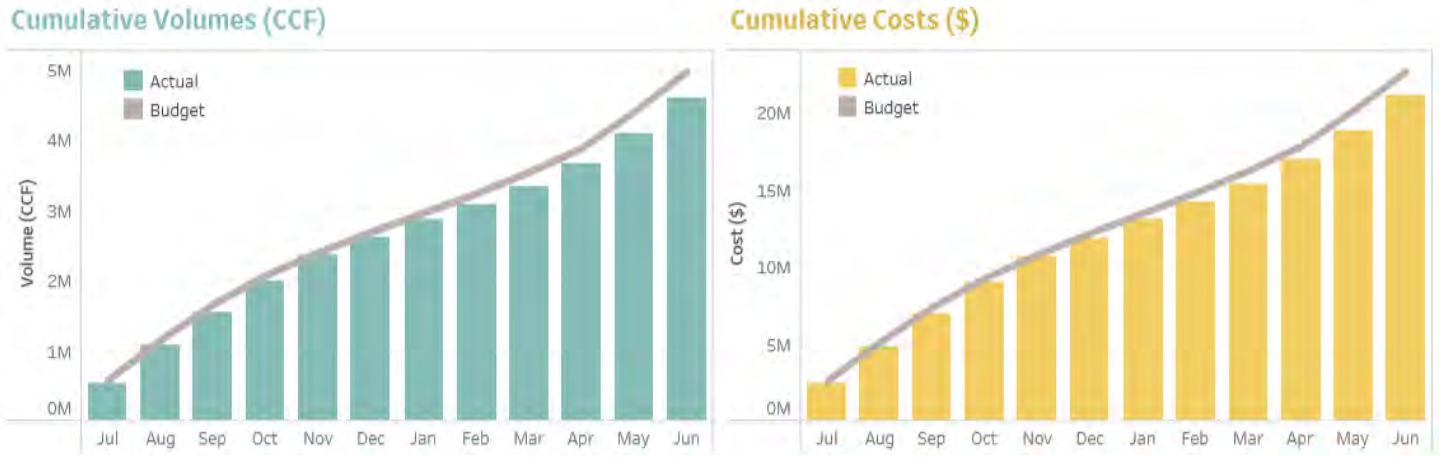
The Northwest County Recycled Water Strategic Plan (see Staff Report 6700) is complete and will be recommended to the UAC for Council acceptance in January 2020. The UAC discussed the local water reuse alternatives identified in the report and a potential regional water reuse agreement with Valley Water at its September 2019 meeting. A Council study session on the same topics was held two weeks later. The agreement with Valley Water is scheduled for Council consideration on November 18, 2019.

Water Budget and Portfolio Performance

Supply Volumes and Costs: Budget vs. Actual

Figure 12 below compares actual water supply volumes and costs to the FY 2019 budget projections. Actual water supply volumes and costs through Q4 FY 2019 were 7.4% and 6.7% lower than budget respectively.

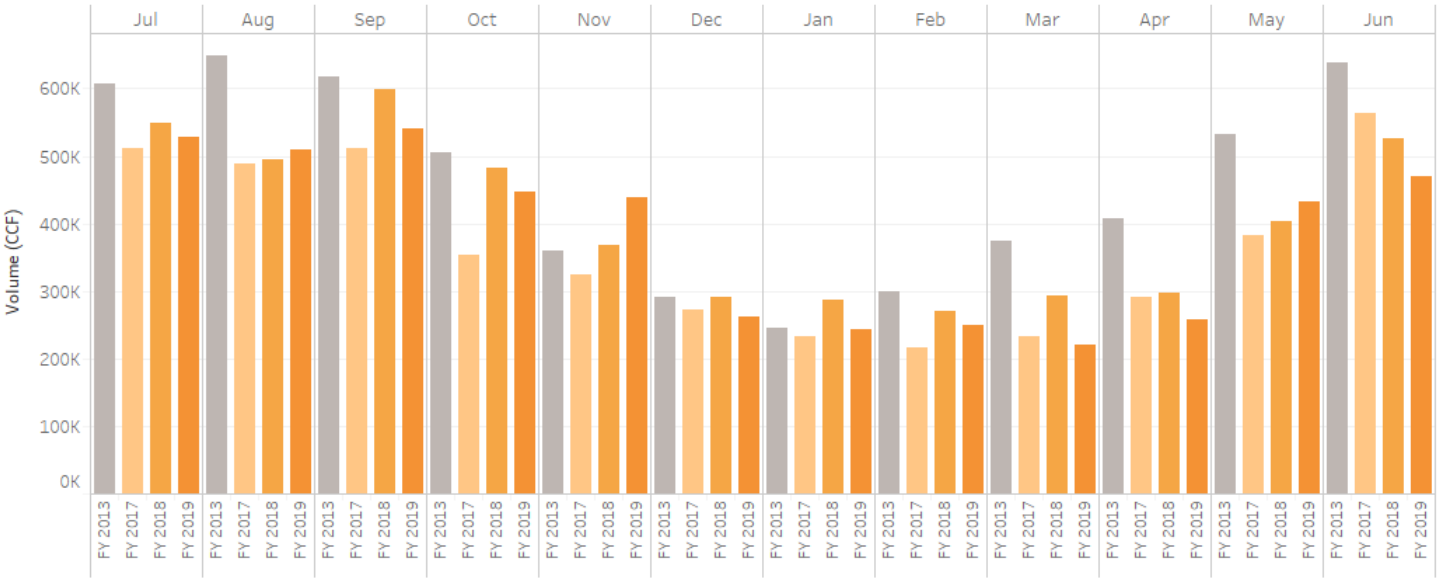
Figure 12: Water Consumption and Cost – Budget vs. Actual



Water Use

Water use through Q4 FY 2019 was slightly lower compared to FY 2018. A factor in the decrease can be attributed to increased precipitation during the Spring season. **Figure 13** below shows the monthly water purchases in FY 2019, compared with FY 2013, FY 2017 and FY 2018.

Figure 13: Potable Water Use



iv. Fiber Optics

Commercial Dark Fiber Service

The total number of commercial dark fiber customers at the end of FY 2019 Q4 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 207 (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.

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.

Rebuild Work Completed

The route from PAIX at 529 Bryant to the Park Boulevard Substation has been completed. This phase of the project included substructure work, fiber pulling and cabinet installation. The new fiber installed for the backbone rebuild is 312-count single-mode fiber (2 x 144-count single-mode fiber, plus 24-count single-mode fiber).

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. Originally scheduled to be completed by end of March 2019; updated schedule – design start date September 2019; expected completion November 2019.
- Install substructure for the new fiber path from Park Boulevard Substation to the Stanford Research Park area. Originally scheduled to begin April/May 2019; updated schedule – begin substructure work April 2020.
- Install dark fiber cable beginning June 2019; updated schedule – begin Installation of fiber cable July 2020.

All scheduled rebuild work noted above is tentative and subject to change. Changes in schedule are due to staffing constraints in engineering and higher competing priority projects.

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.

Request for Proposal for Phased Fiber Expansion

Staff is working on the following project to expand the fiber network:

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 pre-proposal teleconference for potential respondents occurred on September 23, 2019. The RFP submittal deadline was October 21, 2019. Bid evaluations and vendor interviews are planned for mid-November 2019. A contract award will be recommended to the Council by the end of 2019.

This project is divided into four phases in the RFP scope of work:

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.

Contingent on Council approval, staff expects to enter into a contract(s) for all four phases with the selected consultant(s). For Phase 1, the consultant will prepare a final report that will include presentations before the Utilities Advisory Commission by the first quarter of 2020 and for the City Council at a public meeting by the second quarter of 2020. Work on Phases 2, 3 and 4 is contingent on staff's review and approval of the Phase 1 deliverables, and direction from the City Council to proceed.

Staff plans to issue separate RFPs for construction and construction management services for any Phases approved by the City Council for implementation.

v. Efficiency Programs

CPAU earns the Smart Energy Provider designation from the American Public Power Association

The City of Palo Alto Utilities has earned a Smart Energy Provider (SEP) designation from the American Public Power Association for demonstrating commitment to and proficiency in energy efficiency, distributed generation, and environmental initiatives that support a goal of providing low-cost, quality, safe, and reliable electric service. The SEP designation, which lasts for two years (December 1st, 2019 to November 30th, 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. This is the first year the Association has offered the SEP designation. CPAU joins more than 60 public power utilities nationwide that received the inaugural SEP designation.

HP Solar Ribbon Cutting

The City and HP hosted a ribbon-cutting ceremony earlier this month to celebrate completion of a new solar array project on the company's Palo Alto campus this month. The project combines rooftop and carport solar

photovoltaic (PV) systems, which are projected to generate 2,355 megawatt hours of energy, or the equivalent to powering 263 average Palo Alto homes each year. HP is selling the electricity back to CPAU through the Palo Alto CLEAN feed-in tariff program, and this project is now the largest of six solar projects participating in the CLEAN program.

The 2018 Mayor's Green Business Leader Awards

On August 19, the City and Mayor Filseth honored 13 companies with the Mayor's Green Business Leader Award. This award honors the exceptional efforts of Palo Alto Businesses that have earned a U.S. Environmental Protection Agency Energy Star Certification, a U.S. Green Building Council's LEED Certification, or both in 2018. This year, we honored 13 companies with a total of 34 buildings, representing over two million square feet of very efficient commercial floor space in Palo Alto.

SunShares Solar Group Buy

For the fifth year in a row, the City of Palo Alto is participating in Bay Area SunShares, a solar group-buy program administered by Building Council for Climate Change (BC3). Residents and employees of companies in our community are eligible for the program's discounts of roughly 15% on rooftop solar. Two solar installers (Solar Technologies and SkyTech Solar) have been vetted and selected through an RFP process. Two Nissan dealerships—one in Redwood City and one in Richmond—are offering the Nissan Leaf at discounted prices. The program runs for a limited time: registration opened on August 1 and closes on November 15. CPAU held a free educational workshop on Saturday September 21. Contracts for solar installations must be signed by December 31, 2019.

Events and Workshops – www.cityofpaloalto.org/workshops

- Landscape Workshop - Rainwater Harvesting: Rain Gardens, Rain Barrels, and Cisterns – December 7

- Landscape Workshop - Pruning and Making New Plants from Old – November 23
- Electric Cars Demystified – October 23
- Electrification Expo – October 10
- Landscape Workshop with BAWSCA (topic TBD) – October 5
- Landscape Workshop with BAWSCA (topic TBD) – September 28
- SunShares Workshop – September 21
- Midtown Ice Cream Social community event – September 15
- Silicon Valley Safety and Preparedness Fair – July 27
- MSC Open House – July 5
- Community Appreciation Event for Upgrade Downtown Construction – June 11
- Facilities Managers Meeting - June 6 - at VMWare - presentations on the VMWare Microgrid Project, Decarbonization, Distributed Energy Resources, EV chargers installation options, and utility rate changes.
- Maintaining Native Gardens and Leak Detection - June 1
- Is an Electric Vehicle Right for You - May 28
- Irrigation Equipment Upgrades and Landscape Water Use Efficiency - May 11
- Recycled Water Strategic Meeting – April 30
- Great Race for Saving Water & Earth Day Festival – April 13

vi. Communications Highlights

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

New Transformer for Colorado Substation: A new $1.5M, 200,000 KVA transformer was delivered to the City's Colorado Substation on September 20. The new transformer is a replacement for one of the three, nearly fifty-year old units, that receive 115KV primary power from "the grid" and lower it to 60KV to feed Palo Alto's many substations. Watch our photo slideshow of the journey from Colombia, South America to Palo Alto. During the first week of October, the transformer accessories were installed, and the transformer was filled with dielectric oil. The project includes a new 115KV circuit breaker and protective relays and will provide reliable power to our customers for many years to come. The new transformer is scheduled to be energized in early 2020.

PG&E Public Safety Power Shutoff: As a safety precaution, Pacific Gas and Electric (PG&E) continues to issue periodic advanced notification of potential public safety power shutoffs for Santa Clara County and the San Francisco Bay Area. City staff are sharing messaging with community members to help them prepare for potential extended power outages. The City always recommends that people be prepared for unexpected emergencies and utilize resources at www.cityofpaloalto.org/preparedness

We Are #CommunityPowered - Celebrating Public Power & Natural Gas Week: The week of October 6-12, we celebrated Public Power & Public Natural Gas Week. Our community-owned utility has been empowering Palo Alto for over 100 years! City of Palo Alto municipal utility customers benefit from local control and policy setting, community values-driven programs and services, support for Fire, Police, Library and other City services, reliable and safe operations, responsiveness and accountability to utility customers, and competitive rates. We asked community members to tell us what they value about their community-owned utility by taking a photo and sharing it with us via social media using the hashtag #CommunityPowered

Utility Meter Audits in Progress: The Utilities Department is performing an audit of all utility meters in the City in preparation for ultimate rollout of an advanced metering infrastructure. The contractor, PMI Inc., is notifying customers prior to performing the audit in their area.

City of Palo Alto Utilities & Wildfire Safety - Utilities is updating its wildfire mitigation plan and will be presenting it to City Council for approval in December.

Utilities Events
Electric Cars Demystified Workshop - October 23
Bay Area Home Electrification Expo – October 10
Emergency Preparedness Event at First Congregational Church of Palo Alto – September 22
EV Ride and Drive with Acterra During National Drive Electric Week - September 22
SunShares Workshop - September 21
EV Technical Assistance Program Soft Launch Workshop - September 18
Midtown Ice Cream Social - September 15

vii. Innovation and Pilot Programs

Program for Emerging Technologies

CPAU's Program for Emerging Technologies, or PET, (www.cityofpaloalto.org/UTLInnovation) 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 first quarter of FY 2020, the program has received a total of 87 applications. Table 3 below summarizes the status of all applications through the first quarter of FY 2020. In the first quarter of FY 2019, CPAU submitted two letters of support for start-ups with innovative solutions for electricity distribution system optimization and management. Two of the applications from FY 2019 may have potential as emerging technology pilots and are still going through secondary review and scoping of potential projects. 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 dedicated software as a Utilities-only solution.

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	2	4	0	3
FY 2020	1	0	1	0	0
TOTAL	**87**	**2**	**63**	**0**	**21**

Electrification Activities

EV Charger Rebate Program and New EV Solutions and Technical Assistance Program
CPAU staff and its contractor CleaResult, met with a small group of multifamily and nonprofit representatives who have expressed interest in the EV Solutions and Technical Assistance Program. This "soft launch" for the program allowed for an active discussion of what questions and concerns are on the customer's mind and what obstacles they foresee regarding installing EV chargers at the facilities. This proved to be a useful interaction for all involved and many follow up site visits were scheduled following the meeting.

State Proposes $33M in New Funding for Electric Vehicle Charging in Santa Clara and San Mateo Counties: The California Energy Commission is partnering with five local energy agencies to launch an 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, pending approval by their respective governing boards or city councils. By leveraging local investment, CALeVIP funds will further expand EV charging accessibility in the region.

Special 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.

Try an Induction Cooktop For Free: This summer, CPAU began offering a new program for our customers to test out an electric induction cooktop. This is a new loaner program in partnership with Acterra to encourage adoption of electric appliances.

i. 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 here current issues we are working on at the time of this report, regardless of each entity's operating year.

State legislation

The State legislature concluded its 2019 session in September, and the Governor has acted on all bills. Below, we note the final disposition of the bills we've reported on in these quarterly updates. Staff will appear before the UAC in December to discuss the 2019 session and preview the 2020 session.

Water

AB 756 (Garcia): *Public water systems: perfluoroalkyl and polyfluoroalkyl substances*. Authorizes the Water Board to order a public water system to monitor for PFAS chemicals and establishes a separate customer notification process as a result of any confirmed detection. **Signed into law**.

SB 134 (Hertzberg): *Water conservation: water losses: enforcement*. Prohibits the Water Board from imposing liability for violation of the performance standards for the volume of water losses except as part of the enforcement of an urban water use objective. **Signed into law**.

Electricity

AB 56 (Garcia, E.): *Electricity*: *procurement by the California Alternative Energy and Advanced Transportation Financing Authority.* Authorizes an existing state entity to procure energy on behalf of IOUs, CCAs, and ESPs in order to meet gaps in procurement. While all references to POUs were deleted, CPAU continues to monitor the bill as it sets new precinct in establishing the State as a central buyer for energy procurement. **2 year bill**; meaning, it carries over into the 2020 session.

SB 676 (Bradford): *Transportation electrification: electric vehicles: grid integration*. Mandates that larger POUs (those that must file Integrated Resource Plans) "consider" Electric Vehicle grid integration strategies in our IRPs. **Signed into law.**

State regulatory proceedings

Below, staff notes the issues we tracked or engaged in with various agencies during the last quarter:

Energy Commission
Power Source Disclosure regulations; SB 100 implementation kick off; Renewables Portfolio Standard regulations

Air Resource Board
Low Carbon Fuel Standard regulations

Public Utilities Commission: PG&E Rate Case
A final decision on PG&E's 2019 Gas Transmission and Storage (GT&S) proceeding was issued in September. The adopted revenue requirement is about 10% less than that in PG&E's original proposal mainly due to updated forecasts. Palo Alto expects to see a 5.5% increase in local transmission rates and a 19% increase in

backbone transmission rates. The increases are largely due to the 2015 Aliso Canyon storage leak and the resulting new storage field regulations. PG&E's storage facilities will require significant upgrades. Part of PG&E's plan involves retiring older storage fields that will be too expensive to operate under the new rules and relying heavily on Independent Storage Providers (ISPs) to provide the needed storage services on the system.

Federal legislation

No changes from the last quarterly report.

ii. Utility Financial Summary

This section describes the unaudited actual financial results for FY 2019 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 FY 2019 overall were 3.1% lower than forecasted in the FY 2019 Financial Plan, however overall revenues were 4.5% higher than originally projected by about 4.5%. This increase is due to favorable revenue from surplus hydro sales, a trend which is anticipated to continue into FY 2020.

Total expenses were 9.1% lower relative to the forecast in the FY 2019 Financial Plan. About $2 million can be attributed to lower than expected electricity purchase costs resulting from lower sales, $7 million related to lower operations and maintenance, customer service and demand side management expenses, with the remainder a result of lower than projected CIP related budgeting from what was in the FY 2019 financial plan. 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.

These savings from the FY 2019 fiscal year may enable staff to replenish various electric utility reserves that were below target guideline levels, such as the Hydroelectric Stabilization Reserve, the Electric Special Projects Reserve, and the Operations Reserves, while potentially setting aside some funds for a capital reserve (which is a goal of the Utilities Strategic Plan). Staff will provide proposals and a more complete analysis in the FY 2021 Financial Plan.

The starting balance for the Electric Supply Operations Reserve was below the reserve minimum guideline level at the beginning of FY 2019. In the FY18 and FY19 Financial Plans, several proposed transfers from the Hydro Rate Stabilization ($1 million) and Rate Stabilization reserves ($9 million) were proposed and approved, as well as an additional $10 million from the Electric Special Projects (ESP) reserve as a short term loan. The City executed the ESP transfer and the Rate Stabilization reserve transfer but has not executed the Hydro Rate Stabilization transfer. With the transfers performed, the Electric Supply Operations Reserves is above minimum levels at the end of FY 2019.

The Electric Utility CIP Reappropriation and Commitment Reserves totaled $10.7 million at the end of FY 2019.

Gas Utility Overview

Sales for the Gas Utility in FY 2019 were 6.6% higher than forecasted in the FY 2019 Financial Plan, which led to higher than expected revenue of about $6 million. In addition, interest income was about $1 million higher than was projected.

Higher sales also resulted in higher purchase costs of about $3 million. Due to a gas price spike in the winter, not all gas supply costs were passed through to the customers. Gas supply costs are passed to customers using a rate adjuster that changes monthly, but the gas price spikes occurred within the month. This had a modest impact on gas utility reserves. Furthermore, $5 million was encumbered at the end of the fiscal year for gas purchases, most of which will be returned in FY 2020. This will return to the operating reserves and may result in lower future rate increase projections.

The Gas Operations Reserve was within guideline levels at the end of FY 2019 and the Rate Stabilization Reserve is projected to be exhausted by the end of 2020 to help smooth rate increases over several years. The Gas Utility CIP Re-appropriation and Commitment Reserves totaled $3.8 million at the end of FY 2019.

Water Utility Overview

The FY 2019 Financial Plan anticipated water usage would continue its post-drought recovery and plateau and slowly decline in the future. In FY 2019, water usage declined slightly relative to FY 2018 and is 6.3% lower than the projection in the FY 2019 Financial Plan. Revenue is similar to the projection from the FY 2019 Financial Plan. Expenses are lower than anticipated in the Financial Plan, primarily due to changes in the timing of CIP expenditures.

Some CIP projects budgeted in FY 2019 or earlier, including one main replacement and seismic water system upgrades, are now projected to be completed in FY 2020. These CIP expenditure changes together with operations expense decreases have a net effect on the FY 2019 expense projections of a decrease of $14.2 million or 25.7% from the total expenses projected in the FY 2019 Financial Plan. The 2020 Financial Plan recommends moving some of these CIP funds to the CIP Reserve for use in future years, while some of the funds will be used for rate stabilization in FY 2020. The Water Operations Reserve was above the target guidelines at the end of FY 2019, however staff anticipates a transfer to the CIP reserve will bring the Operations Reserve below the maximum level.

The Water Utility CIP Reappropriation and Commitment Reserves totaled $14.8 million at the end of FY 2019.

Wastewater Collection Utility Overview

Wastewater revenue in FY 2019 was 2.5% higher than forecasted in the FY 2019 Financial Plan. This is the net effect of increasing revenue from sales and decreasing income from connection fees and interest. Expenses were much lower than projected due to CIP projects being appropriated to future years. Staff projects higher CIP expenses in FY 2020. The Wastewater Collection Operations Reserve is within the target guideline levels at the end of FY 2019.

The Wastewater Collection Utility CIP Reappropriation and Commitment Reserves totaled $5.7 million at the end of FY 2019.

Fiber Optic Utility Overview

Fiber sales of $4.6M in FY 2019 was 8% below the forecast of $5.0M. However, investment income including unrealized gains of $1.5M far exceeded forecast of $0.4M by 350%. The current market value of the City's portfolio is 100.6 percent of the book value and last year it was 97.7 percent. The market value of securities fluctuates, depending on how interest rates perform. When interest rates decrease, the market value of the securities in the City's portfolio will likely increase; likewise, when interest rates increase, the market value of the securities will likely decrease. Understanding and showing market values is not only a reporting requirement, but essential to knowing the principal risks in actively buying and selling securities. It is important to note, however, that the City's practice is to buy and hold investments until they mature so changes in market price do not affect the City's investment principal.

Fiber expenses of $2.6M was 37% lower than the FY 2019 budget of $4.2M. Fiber expenses are significantly lower due to delay of the Fiber Optic System Rebuild CIP project. The CIP project delay is due to staffing constraints in engineering and higher competing priority projects.

The total Fiber Optic Utility Rate Stabilization totaled $30.4 million at the end of FY 2019.

Table 4: Utilities Financials, FY 2019

	Sales Volumes	Revenue $,000	Expense $,000	Net Reserve Change $,000
Electric Utility				
Financial Plan	910,883 MWh	164,336	(170,938)	(6,602)
FY 19 Actuals	882,506 MWh	171,807	(155,379)	16,428
Change from Financial Plan	(28,377) MWh (3.1%)	7,471 4.5%	15,559 (9.1%)	23,030
Gas Utility				
Financial Plan	27,289,000 therms	36,361	(38,728)	(2,367)
FY 19 Actuals	29,077,156 therms	43,517	(46,745)	(3,228)
Change from Financial Plan	1,788,156 therms 6.6%	7,156 19.7%	(8,017) 20.7%	(861)
Water Utility				
Financial Plan	4,706,962 CCF	49,619	(55,449)	(5,830)
FY 19 Actuals	4,411,015 CCF	49,239	(41,206)	8,033
Change from Financial Plan	(295,947) CCF (6.3%)	(380) (0.8%)	14,243 (25.7%)	13,863
Wastewater Collection Utility				
Financial Plan		20,444	(23,113)	(2,669)
FY 19 Actuals		20,949	(17,684)	3,265
Change from Financial Plan		505 2.5%	5,429 (23.5%)	5,934
Fiber Optic Utility				
Financial Plan		4,990	(4,165)	825
FY 19 Actuals		6,155	(2,618)	3,537

Table 5: Operations Reserves, as of Ending FY 2019 ($000)

	Electric Supply	Electric Distribution	Gas	Water	Wastewater Collection	Fiber Optic *
Beginning	9,537	10,363	8,638	20,924	7,415	26,040
Change	19,172	6,173	1,328	(272)	(2,025)	4,318
FY 19 Ending	28,709	16,536	9,966	20,652	5,390	30,358
Reserve Minimum	17,554	10,880	5,533	7,197	2,775	687
Reserve Maximum	35,108	16,055	11,067	14,498	6,939	1,374

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

Residential Bill Comparisons

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

As of May 1, 2019					
Season	Usage (KWh/mo)	Palo Alto	PG&E	Santa Clara	Roseville
Summer (May-Oct)	300	$38.61	$68.92	$35.89	$66.84
	365 (Median)	49.22	87.14	43.95	81.33
	650	104.17	167.05	79.29	152.37
	1200	210.20	321.27	147.48	306.58

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

As of May 1, 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)
Summer (Jun-Oct)	15	$24.42	$19.62	$20.06
	18 (Median)	27.12	23.54	25.78
	30	43.23	46.25	48.67
	45	65.27	74.86	77.28

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

As of May 1, 2019						
Usage CCF/month	Palo Alto	Menlo Park	Redwood City	Mountain View	Santa Clara	Hayward
4	$44.99	$50.55	$54.04	$37.47	$23.92	$35.20
(Winter median) 7	67.71	72.46	76.09	58.08	41.86	56.62
(Annual median) 9	86.59	87.07	90.79	71.82	53.82	70.90
(Summer median) 14	133.79	125.41	138.94	106.17	83.72	108.51
25	237.63	210.78	267.39	222.94	149.50	201.02

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 May 1, 2019						
Palo Alto	Menlo Park	Redwood City	Mountain View	Los Altos	Santa Clara	Hayward
$38.66	$93.83	$78.24	$40.80	$37.36	$42.91	$32.85

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

As of May 1, 2019						
Utility and Usage	Palo Alto	Menlo Park	Redwood City	Mountain View	Santa Clara	Hayward
Electricity (365 kWh/mo)	$ 49.22	$ 87.14	$ 87.14	$ 87.14	$43.95	$ 87.14
Gas (18 th/mo)	27.12	23.54	23.54	23.54	23.54	23.54
Wastewater	38.66	93.83	78.24	40.80	42.91	32.85
Water (9 CCF/mo)	86.59	87.07	90.79	71.82	53.82	70.90
TOTAL	201.59	291.58	279.71	223.30	164.22	214.43

Table 11: Q4 FY 2019 Reserve Report from the City's Financial System ('000)

City Of Palo Alto
Utility Fund Reserve
Q4 Reserve Report - Detail
as of June 30, 2019 - UNAUDITED

	Beginning Reserve Balance as of 7/01/18 FY 2019	Changes to Reserves Summary ASD	Current Projected Reserve Balance as of 6/30/2019 FY 2019	Addl Changes to Reserves to 6/30/2019 Util	Current Projected Reserve Balance for 6/30/2019 FY 2019 (Util)
Electricity					
Supply/Dist Operations	$ 19,900	$ 25,345	$ 45,245		
CIP Reappro/Commit	13,975	(3,318)	10,657		
Hydro Stabilization	11,400	-	11,400		
CIP Reserve	880	-	880		
Rate Stabilization	9,011	(9,011)	-		
Public Benefit	681	129	810		
ESP	41,665	-	41,665		
GASB 68 Pension Rsrv	(29,511)	(1,813)	(31,324)		
GASB 75 OPEB Rsrv	(14,168)	12	(14,156)		
All Others	4,453	184	4,637		
Net Capital Investment	193,313	7,436	200,749		
Total	$ 251,599	$ 18,964	$ 270,563		
Gas					
Operations Reserve	$ 8,638	$ 1,328	$ 9,966		
CIP Reserve	3,820	-	3,820		
Rate Stabilization	7,090	(4,556)	2,534		
CIP Reappro/Commit.	7,511	(3,740)	3,771		
GASB 68 Pension Rsrv	(13,278)	(546)	(13,824)		
GASB 75 OPEB Rsrv	(6,235)	5	(6,230)		
All Others	1,957	6,317	8,274		
Net Capital Investment	98,213	6,480	104,693		
Total	$ 107,716	$ 5,288	$ 113,004		
Water					
Operations Reserve	$ 20,924	$ (272)	$ 20,652		
CIP Reserve	2,726	-	2,726		
Rate Stabilization	4,069	-	4,069		
CIP Reappro/Commit.	11,042	3,745	14,787		
GASB 68 Pension Rsrv	(12,455)	(621)	(13,076)		
GASB 75 OPEB Rsrv	(4,350)	4	(4,346)		
All Others	3,503	418	3,921		
Net Capital Investment	93,490	4,759	98,249		
Total	$ 118,949	$ 8,033	$ 126,982		
Fiber Optic					
Rate Stabilization	$ 26,040	$ 4,318	$ 30,358		
CIP Reappro/Commit.	1,776	(986)	790		
GASB 68 Pension Rsrv	(1,855)	(147)	(2,002)		
All Others	1,123	(63)	1,060		
Net Capital Investment	8,750	415	9,165		
Total	$ 35,834	$ 3,537	$ 39,371		
WasteWater Collection					
Operations Reserve	$ 7,415	$ (2,025)	$ 5,390		
CIP Reserve	978	-	978		
Rate Stabilization	342	-	342		
CIP Reappro/Commit.	1,206	4,452	5,658		
GASB 68 Pension Rsrv	(7,449)	(379)	(7,828)		
GASB 75 OPEB Rsrv	(2,384)	2	(2,382)		
All Others	62	12	74		
Net Capital Investment	87,133	1,203	88,336		
Total	$ 87,303	$ 3,265	$ 90,568		