



**DRAFT**

## **UTILITIES ADVISORY COMMISSION MEETING MINUTES OF OCTOBER 3, 2018 REGULAR MEETING**

### **CALL TO ORDER**

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Chair Danaher called the meeting of the Utilities Advisory Commission (UAC) to order at 7:00 p.m.

Present: Chair Danaher, Vice Chair Schwartz, Commissioners Forssell, Johnston, Segal, and Trumbull  
Absent: Commissioner Ballantine

### **ORAL COMMUNICATIONS**

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Victor Ojakian hoped the UAC would ensure the public was fully informed of any impacts to electric bills resulting from the current negotiation of the Western Area Power Association contract.

### **APPROVAL OF THE MINUTES**

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Vice Chair Schwartz corrected the second paragraph on page 6 of the September 5 minutes to "an industry-led group facilitated by the DOE has developed a voluntary code of conduct ... ."

Commissioner Segal moved to approve the minutes from the August 28, 2018 meeting as presented. Commissioner Trumbull seconded the motion. The motion carried 5-0 with Chair Danaher, Vice Chair Schwartz, and Commissioners Forssell, Segal, and Trumbull voting yes, Commissioner Johnston abstaining, and Commissioner Ballantine absent.

Commissioner Trumbull moved to approve the minutes from the September 5, 2018 meeting as amended. Chair Danaher seconded the motion. The motion carried 5-0 with Chair Danaher, Vice Chair Schwartz, and Commissioners Forssell, Johnston, and Trumbull voting yes, Commissioner Segal abstaining, and Commissioner Ballantine absent.

### **AGENDA REVIEW AND REVISIONS**

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None

### **REPORTS FROM COMMISSIONER MEETINGS/EVENTS**

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Vice Chair Schwartz advised that she attended a webcast and led a workshop of the Low Income Community Solar working group, where discussions included ideas described as community solar for community action, different ways to approach community solar so that it could support other programs, and ways to make access to solar available to more low and middle-income residents. The City of Palo Alto Utilities (CPAU) should explore reasons other than cost for residents to participate in community solar. At the Solar Power International conference, storage and microgrids were a large part of discussions.

Commissioner Trumbull reported Lena Perkins of CPAU was a guest lecturer at his class on September 24. Based on a limited number of responses to a quiz question asking students to compare the pros and cons of investor-owned utilities and municipal-owned utilities, students think municipal-owned utilities are better.

## UTILITIES GENERAL MANAGER REPORT

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Ed Shikada, Utilities General Manager, delivered the General Manager's Report.

**October 7-13 is Public Power Week and Public Natural Gas Week**, two national campaigns organized to build awareness of the benefits of public utilities. Our community-owned utility has been empowering Palo Alto for over 100 years with the electric utility founded in 1900 and followed in 1917 by a natural gas distribution system. It was the forward thinking of two Stanford University professors, Charles "Daddy" Marx and Charles Benjamin Wing, that was largely responsible for the emergence of our municipally-owned utility service. Marx and Wing advocated that the City could provide utility service at rates significantly below those charged by private companies. 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. Follow us on social media with the hashtag #CommunityPowered and help us spread the word about the programs and services that make Palo Alto a unique place to live and work.

**Home Efficiency Genie House Call Refund** - Beginning this month, Palo Alto residents can receive a full refund on the cost of a Home Efficiency Genie House Call if they complete a qualifying home efficiency improvement within 90 days of their assessment. The refund will be covered by CLEAResult, the City's contractor for the Genie program. This offer is intended to encourage action for energy efficiency upgrades, in line with the City's sustainability goals.

**New Solar for Palo Alto Unified School District** – On Friday, September 29, Utilities joined Palo Alto Unified School District staff at Nixon Elementary School to talk about newly installed solar photovoltaic arrays at the school. School District staff arranged two assemblies for students in kindergarten through fifth grades. Solar will now provide enough electricity to meet all of the school's electricity needs, equivalent to powering about 38 average Palo Alto homes. Nixon is one of six school sites in the District installing solar.

**Upcoming Events in October - Details and Registration at [cityofpaloalto.org/workshops](http://cityofpaloalto.org/workshops):**

- Emergency Preparedness and Crime Prevention Fair - Saturday, October 13, 10 am-noon at the Lucie Stern Community Center – Utilities will host an informational booth at a neighborhood emergency preparedness and crime prevention fair. The event will include a presentation from the Red Cross, demonstrations and displays on public safety, bicycle and traffic safety, and CPR, among other topics.
- Is an Electric Vehicle Right for You? Tuesday, October 23, 5:30-7:30 pm at the Mitchell Park Community Center – In partnership with the Stanford Health Improvement Program, Utilities is sponsoring a panel presentation from long-time electric vehicle owners and experts in the industry. Get all your questions answered about driving an electric vehicle. For an hour before the class begins at 4:15 and for 30 minutes after the class ends at 7:30, explore a number of electric vehicles on-site.
- Irrigation Equipment Upgrades & Landscape Water Use Efficiency - Saturday, October 27, 9 am-noon at the Palo Alto Art Center Auditorium – This workshop focuses on landscape irrigation equipment upgrades and rebates for improving outdoor water use efficiency.

**Upgrade Downtown** – Work on University moved to the next block this week. There are still road closures on Bryant to Ramona for restoration work, while the fenced off area has moved to the Ramona to Emerson section. The current plan is to complete the joint trench work up to Emerson by November 16. Work will continue on the Emerson to High block in the new year. Yesterday's gas leak appears to be from a previously cracked PVC gas main and, when the contractor disturbed the soil around the crack, the gas main began to leak—further evidence to support our risk assessment and prioritization for PVC replacement.

## **COMMISSIONER COMMENTS**

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In response to Commissioner Johnston's query regarding the Upgrade Downtown project being on schedule, Ed Shikada, Utilities General Manager, indicated the project is within the contract days but will not be complete by the Thanksgiving Holidays.

## **UNFINISHED BUSINESS**

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**ITEM 1: ACTION:** Utilities Advisory Commission Recommendation that the Finance Committee Recommend that the City Council Adopt a Resolution to Approve the 2018 Electric Integrated Resource Plan (EIRP), Updated Renewable Portfolio Standard Procurement Plan and Enforcement Program, and Related Documents.

Jonathan Abendschein, Assistant Director of Resource Management, recalled that the Commission first heard staff's presentation on the EIRP in September. The Commission will have opportunities to discuss major strategic initiatives described in the EIRP Work Plan in the future.

Jim Stack, Senior Resource Planner, reported CPAU has been planning electric integrated resources (EIR) for many years, most recently under the framework of the Long-term Electric Acquisition Plan (LEAP), which was last updated in 2012. In 2015, SB 350 was passed and established new EIR planning requirements for large utilities like CPAU. SB 350 requires CPAU to submit an Electric Integrated Resource Plan (EIRP) to the California Energy Commission (CEC) every five years with the first one due in early 2019. SB 350 also established aggressive statewide targets related to renewables, greenhouse gas emissions, and energy efficiency. Staff is waiting for the CEC to establish regulations for the requirement to double energy efficiency levels by 2030. The CEC requires the completion of four standardized tables that will provide visibility into the actual details of supply and load forecasts to 2030. CPAU is also required to submit an updated version of its Renewable Portfolio Standards (RPS) Procurement Plan that reflects SB 350 changes to the renewables requirement. While CPAU is not required to submit an updated RPS Enforcement Program, staff updated the Enforcement Program and included it in the documentation. The EIRP details the state of the current (2018) supply portfolio, describes expectations for the 2030 portfolio, and discusses the major decisions to be made. The primary decision is whether to renew the Western Base Resource contract in 2025 for an additional 30-year period. The uncertainty around the decision is represented by the unknown carbon-neutral area of the 2025 portfolio. The EIRP does not discuss energy-efficiency program planning.

In response to Vice Chair Schwartz's query regarding whether staff was recommending elimination of the Western contract, Stack explained that the EIRP highlights the Western contract as an upcoming discussion. The EIRP's default scenario is contract renewal, but alternative options are explored in the EIRP.

Chair Danaher requested staff provide periodic updates on the process, contract issues, and analysis so that the Commission can be educated as the process moves forward.

Stack continued with the EIRP objective, strategies, and work plan. The EIRP objective is modeled after the Electric Utility's mission statement. The seven new initiatives listed in the work plan will be undertaken over the next few years. The California-Oregon Transmission Project (COTP) will return to the City's portfolio in 2024. Within the initiative for carbon accounting, staff is planning to address City communications with customers and the public regarding the portfolio's carbon content. CPAU could partner with external agencies such as Community Choice Aggregation (CCA) organizations.

Vice Chair Schwartz remarked that she could not imagine a partnership with a CCA that would benefit CPAU and questioned whether partnerships were specific to CCAs. Stack clarified that partnerships could include CCAs or other agencies. Staff could explore partnerships with CCAs for commodities trading or customer programs. Abendschein added that staff will look for opportunities to partner with CCAs.

Stack continued with next steps of presenting the EIRP and related documents to the Finance Committee and Council for review; submitting the required documents to the CEC early in 2019; and beginning work on the new initiatives listed in the work plan. Staff will provide periodic updates to the Commission regarding progress.

Commissioner Segal appreciated staff including communications to the community in the initiatives.

In reply to Commissioner Johnston's inquiry regarding the meaning of fully deliverable resources, Stack stated fully deliverable is not the same as dispatchable. Fully deliverable is a term used by the California Independent System Operator (CAISO) to describe resources that can be delivered reliably to customers during periods of high demand or congestion on the grid. Other resources can be counted as energy but not as capacity towards resource adequacy requirements; whereas, fully deliverable resources can be counted as capacity. In answer to Commissioner Johnston's question regarding the percentage of current supplies designated as fully deliverable, Stack advised that all resources with the exception of two solar projects are designated as fully deliverable. Staff is working with the developer to have the two solar projects qualified as fully deliverable. Commissioner Johnston commented that the supply chart shows the average cost is 5.9¢ per kilowatt hour (kWh) across the portfolio. The only resource below the average is the Western contract. Removing the Western contract from the portfolio will have a big impact on the overall cost. The EIRP does not detail portfolio rebalancing and replacing existing resources with resources that more closely match load. Staff will work on making the Western contract more favorable while concurrently identifying resources to replace the Western contract. Stack recalled that staff analyzed portfolio rebalancing earlier in the year and discussed the analysis with the UAC in more detail than was presented in the EIRP. Staff felt the analysis was not what the CEC wanted in the EIRP and did not include it.

Vice Chair Schwartz did not feel a goal of 90% adoption of electric vehicles (EV) was realistic as CPAU cannot control residents' behavior. Ed Shikada, Utilities General Manager, explained that the target came from the Sustainability and Climate Action Plan (S/CAP) and agreed to characterize it as an aspirational goal. Staff's efforts will focus on facilitating market adoption of EVs. Vice Chair Schwartz believed that the cost of incentives would be enormous. Chair Danaher noted the projection for the cost of EVs to decrease by 2025. Vice Chair Schwartz stated the goal is unrealistic even if EV costs decrease. If EV adoption is part of the plan, then staff has to include incentives or set a realistic goal. Chair Danaher clarified that the goal does not indicate whether adoption of EVs pertains to new cars or the City fleet. Charging networks are one component of a plan to incentivize EV adoption. Abendschein advised that the list of goals was taken from other City documents. When the S/CAP returns for discussion, the Commission can discuss the goal of 90% adoption of EVs. Stack added that the EIRP assumes 40% of residential customers will adopt EVs. Chair Danaher commented that 40% was the percentage of new electric and hybrid vehicles in Palo Alto. Schwartz expressed that a goal of 40% is ambitious without providing incentives.

In answer to Vice Chair Schwartz's query regarding whether the power supply charts reflect actual purchases, Stack responded no, the charts reflect net purchases, not gross purchases. Vice Chair Schwartz felt the 2018 chart is misleading in that it reflects no thermal purchases. Stack advised that the carbon accounting discussion would include the question of how to accurately reflect purchases. Vice Chair Schwartz suggested the EIRP include a discussion of time-varying rates enabled by advanced metering infrastructure (AMI) because AMI can provide price signals to incentivize desired behaviors, which would justify the Finance Committee's support for investing in AMI. Stack reported a discussion of time-varying rates is included in the Distributed Energy Resources (DER) Plan. Abendschein added that the EIRP pertains to supply. The distributed resources needed to substitute for electric supply are acknowledged in the EIRP, but the details are in the DER Plan. Vice Chair Schwartz was referring to varying rates as providing incentives for people to use less energy. A large portion of the population needs a financial reason to use electricity at specific times. In reply to Vice Chair Schwartz's inquiry regarding the percentage of the population participating in the Residential Energy Assistance Program (REAP), Abendschein answered a fairly low percentage. He could provide the exact percentage at a later time.

Vice Chair Schwartz suggested CPAU offers electricity at lower rates than PG&E because 40% of PG&E customers participate in PG&E's care plan. She wanted to know the resources that could replace Western hydroelectric power. She wanted staff to explain fully and realistically the idea of carbon-neutral resources so that the City Council and the public can understand the need for investment.

In response to Commissioner Forssell's suggestion that the EIRP essentially provides a strategy to answer a set of specified questions, Abendschein concurred that the EIRP is a problem statement, an acknowledgement of the strategic questions for staff to focus on in the next several years. In reply to Commissioner Forssell's question of whether the Western contract projections are placeholders for carbon-neutral energy to be determined rather than a commitment to continue the contract, Stack replied that the projections are placeholders rather than a commitment. The default scenario assumes the continuation of the Western contract. Commissioner Forssell commended staff for identifying key issues and questions and ways to think about them.

Chair Danaher related that the EIRP content is meant to comply with regulatory requirements and to identify areas of future work. At some point, staff should integrate some of the issues with the Commission's calendar. Chair Danaher acknowledged Vice Chair Schwartz's point about staff tracking and reporting fossil fuel purchases.

**ACTION:** Vice Chair Schwartz moved that the Utilities Advisory Commission (1) finds that the 2018 EIRP report is not a project as defined in Public Resources Code 21065 and, therefore, California Environmental Quality Act (CEQA) review is not required and (2) recommends that the Finance Committee recommend that the City Council adopt a Resolution to approve the 2018 Electric Integrated Resource Plan (EIRP), Updated Renewable Portfolio Standard Procurement Plan and Enforcement Program, and related documents. Commissioner Johnston seconded the motion. The motion carried 6-0 with Chair Danaher, Vice Chair Schwartz, and Commissioners Forssell, Johnston, Segal, and Trumbull voting yes, and Commissioner Ballantine absent.

## **NEW BUSINESS**

### **ITEM 2: DISCUSSION:** Discussion of Results of Residential Survey on Adoption of Distributed Energy Resources Technologies.

Christine Tam, Senior Resource Planner, reminded the Commission that the DER Plan was presented in November 2017. The DER Plan contains five objectives, one of which is to understand the community's willingness to adopt DER technologies and the community's needs in order to develop programs. To meet the objective, staff conducted a residential customer survey to assess residential customers' attitudes toward home energy management; to evaluate residential customers' interest in a number of key DER technologies; and to understand the barriers to customers' adoption of DER technologies. The City's consultant, Fairbank, Maslin, Maullin, Metz & Associates (FM3), helped staff design the survey, proposed a sampling methodology, conducted the survey, and tabulated results.

Jonathan Abendschein, Assistant Director of Resource Management, remarked that the survey results will inform the Commission's discussion of the DER Plan in November.

Miranda Everitt, FM3, reported the survey was conducted between June 27 and July 10 during which time period 410 respondents replied via an online survey and 303 respondents replied via phone. The results were weighted to reflect the distribution of the facts known about consumers. A goal of the survey was to learn about customers' attitudes toward energy management. The survey found 31% of customers have at least one smart gadget and 57% have at least one of the listed technologies.

In response to Vice Chair Schwartz's question of an air conditioner being considered smart, Tam explained that a smart thermostat, which regulates the air conditioning system, is considered home energy

management. Everitt clarified that interviewers gave respondents a list of appliances for respondents to indicate they did or did not own one.

Everitt continued by stating saving money on their bill was the number one priority for 38% of respondents and number two for 36% of respondents when making decisions about appliances and utility use. Comfort and convenience was number one for 37% and number two for 27% of respondents. Reducing my carbon footprint was ranked either one or two by 52% of respondents. These results are consistent with survey results in other cities. Next, 70% of respondents agreed that they already try to reduce their energy use at all times of the day; 66% agreed that they would shift their energy use to reduce their carbon footprint; 65% agreed that they would shift their energy use to save money on the utility bill; 37% disagreed and 28% agreed with the statement that they would not shift their energy use if it reduced their comfort and convenience; and 47% disagreed with the statement that with their busy schedule, they were not sure they can make these kinds of adjustments. Next, 15% of respondents reported they currently own or lease an EV. Homeowners are more likely than renters to report owning an EV. Respondents living in a single-family home are much more likely to own an EV than an apartment dweller.

In reply to Chair Danaher's question of EV including plug-in hybrid vehicles, Everitt stated the interpretation of EV was left to the respondent. The interviewer simply stated electric vehicle.

Everitt further explained that a rationale of an EV is better for the environment is by far the top rationale for respondents owning or renting an EV. The rationale of the convenience of doing less maintenance and refilling gas tanks came in second. Rationales of a better driving experience, access to the carpool lane, and trying out new technologies were also important, but they fell well below the concern about the environment. As to where EV owners usually charge their EV, 72% said at home, and 16% said at work. Respondents living in single-family homes were more likely to charge at home. That makes sense given how the technology is implemented.

In answer to Commissioner Segal's request for the meaning of how the technology is implemented, Everitt indicated chargers are more commonly installed at single-family homes. Vice Chair Schwartz added that most EV owners need a place where they can charge their EVs for several hours. Chair Danaher commented that, based on the survey results, providing electrification solutions at multifamily buildings could increase EV penetration. Everitt noted the survey identified the lack of charging facilities as a barrier for people who do not live in single-family homes. Abendschein stated the survey results validate the City's program to use low-carbon fuel standard money to assist with charger installation at multifamily buildings.

Everitt continued her presentation of survey results. Of the respondents who charge their EVs at home, 43% use a standard 110-volt wall outlet, 39% use a Level 2 charger with a 220—240 volt outlet, and 16% use a smart charger with a 220-240 volt outlet. For the next question, interviewers left the interpretation of purchasing a second EV to the respondent. 70% of respondents were very or somewhat likely to purchase a second EV in the next three years, and 25% were not too likely or not at all likely. Of the respondents who do not own an EV, 37% were somewhat likely or very likely to purchase a second EV in the next three years, 29% were not too likely, and 32% not at all likely. For respondents who do not own an EV, 59% said a major reason for not purchasing an EV is no need for a new car in the next three years; 30% said a minor reason is the limited drive distance between charging; but 39% said a major reason is the limited drive distance between charging. No access to a charging station at home is a major reason for 32% and a minor reason for 26% of respondents. Needing a larger vehicle is typically not a concern in urban areas. No access to a charging station at home was the reason 65% of respondents who do not own a single-family home gave for not purchasing an EV in comparison to half of single-family homeowners.

Vice Chair Schwartz requested a breakdown of biking, public transit, and ride-hailing apps to see if age is a factor.

Everitt further stated the results show a rebate would influence 44% of respondents to purchase or lease an EV, more public or at-work charging stations would influence 32%, special rates for EV charging would influence 32%, and assistance with installing charging equipment at home would influence 30%. 7% of customers reported having rooftop solar at home. Most of those, 93%, said wanting to have a renewable energy source is a key reason for installing rooftop solar. 76% of customers stated saving money on the utility bill is a major reason for installing rooftop solar.

Chair Danaher reported rooftop solar does not reduce electric bills in Palo Alto and asked if customers assumed rooftop solar saves money. Everitt explained that the survey measured customers' perceptions. In this case, customers' perception of rooftop solar as a means to lower their electric bill may be incorrect.

Vice Chair Schwartz suggested energy independence be added to future surveys as a reason for installing rooftop solar

In answer to Commissioner Forssell's query regarding the possibility of solar tied to energy storage providing emergency power, Shiva Swaminathan, Senior Resource Planner, advised that the solar has to be disconnected from the grid before it will charge the home energy system. In reply to Commissioner Forssell's question regarding customers having a misguided perception of solar and emergency power, Abendschein suggested it is either a misguided perception or a plan for the future.

Everitt continued with the survey results of reasons for not having rooftop solar. No access to the roof is a major reason for 40% of respondents and a minor reason for 53%. Solar economics don't pan out for my house as a reason fell well behind the no roof access reason. Reasons of no time to look into it, roof not suitable, reducing carbon in other ways, and electricity supply is already carbon neutral are not barriers to installing rooftop solar. Of the respondents without rooftop solar, 8% are planning to install it in the next three years, 12% don't know if they will install rooftop solar, and 80% are not planning to install rooftop solar. 6% of respondents reported they have energy storage or are considering installing it in the next three years. Respondents with EV or photovoltaic (PV) are more interested in storage than those without EV or PV. Next, respondents either read or heard a description of community solar.

Vice Chair Schwartz disagreed with the description stating community solar participants would have the opportunity to meet up to 100% of their electricity needs with locally generated solar electricity when it is impossible.

Everitt continued, stating 53% of respondents were extremely or very interested in community solar, 30% were somewhat interested, and 13% were not too interested. 54% of homeowners and 51% of renters were extremely or very interested in community solar. 55% of single-family homeowners, 53% of condo/townhome owners, and 45% of apartment dwellers were extremely or very interested in community solar. 41% of households with PV and 53% of households without PV were extremely or very interested in community solar. The next question asked the total additional cost per month respondents were willing to pay for community solar.

In reply to Chair Danaher's question regarding the average electric bill per household in Palo Alto, Abendschein indicated the average home electricity bill is in the neighborhood of \$70-\$80 per month. Vice Chair Schwartz suggested the survey question use dollar amounts that reflect actual costs. Chair Danaher suspected the actual additional cost per month would be much greater than \$20. The percentage of respondents interested in community solar would likely decrease substantially after considering the economics. Swaminathan reported CPAU could provide community solar for approximately \$20 per month in addition to the average \$70 bill. Commissioner Forssell questioned whether respondents understood that the community solar is not intended to meet the respondents' own electricity needs. Vice Chair Schwartz believed respondents were interested in community solar because they believe it is a positive program. Tam advised that some of the 7% of respondents with rooftop solar may have misunderstood the question of rooftop PV versus rooftop solar thermal as only 3.6% utilize the Net Energy Metering (NEM)

rate. Everitt concurred that many of the respondents do not understand or do not know the differences in solar systems, but they do support solar power as having positive benefits.

Everitt further advised that only 11% of respondents answered correctly that 100% of electricity supplied by CPAU is carbon neutral.

Vice Chair Schwartz did not understand the question because carbon neutral is not the same as 100% renewable or zero carbon. Everitt explained that the question demonstrates customers' lack of awareness of CPAU being 100% carbon neutral and customers' lack of understanding of carbon neutral or net zero emissions. Chair Danaher concurred with the assumption that many customers do not understand the mix of electricity sources. Tam added that the question demonstrates that customers do not understand CPAU's carbon-neutral message.

Everitt continued, stating 12% of respondents who plan to install a PV system in the next three years answered correctly; 54% of respondents extremely or very interested in community solar answered correctly; and 32% of respondents who cited carbon-neutral electric supply as a reason not to install rooftop PV answered correctly.

Abendschein noted respondents who understand that CPAU provides 100% carbon neutral electricity do not cite solar as a renewable resource as a reason for installing solar, but they still want to install solar. They are more likely to want to pair solar with storage.

Everitt further reported 16% of respondents do not know the type of water heater they have; 69% have gas tank water heaters, and 2% have electric tankless water heaters. Some respondents do not know where their water heater is stored. 26% of respondents were very or somewhat familiar with heat pump water heaters, and 51% were not at all familiar. One-third of respondents are interested in switching to heat pump water heaters.

In answer to Commissioner Segal's inquiry about the use of ultra-efficient in the description of heat pump water heaters, Abendschein clarified that staff always wrestles with the amount of explanation provided in questions. Vice Chair Schwartz added that the use of ultra-efficient introduces a bias that the heat pump water heater is more efficient than other types of water heaters.

Chair Danaher reported price is the biggest barrier to respondents switching to heat pump water heaters. EV and PV owners are the likeliest early adopters of DER technologies. Barriers to EV adoption are access to charging and drive range. Barriers to PV adoption are access to the roof and no suitable roof. Cost is the main barrier to adoption of heat pump water heaters. A lot of people in Palo Alto want to do the right thing, even if they do not know what that is. A lot of people may not be aware of the composition of CPAU's electric supply.

Commissioner Segal commented that there is an opportunity to increase the number of EVs by providing charging to renters and multifamily housing.

Commissioner Johnston felt it was important for people to understand that CPAU has largely carbon-neutral electricity because that factor drives some of their decisions.

Vice Chair Schwartz remarked that the percentage of people who are focused on being green is relatively small but the most vocal. The Commission cannot assume they represent the bulk of customers.

Ed Shikada, Utilities General Manager, reported a primary reason for conducting the survey was to determine the scalability of issues discussed with the Commission.

**ACTION:** No action

**ITEM 3. DISCUSSION: Discussion of Recycled Water Expansion and Other Water Reuse Opportunities.**

Karla Dailey, Senior Resource Planner, reported recycled water is a collaborative effort among CPAU, the Public Works Department, and Santa Clara Valley Water District. The purpose of the discussion is to inform the Commission of high-level water reuse opportunities, to assess community acceptance, to gauge the importance of cost versus other evaluation criteria, and to gather feedback on local versus regional reuse. Palo Alto obtains 100% of its potable water supplies from the San Francisco Public Utilities Commission (SFPUC) Regional Water System (RWS), 85% of which is taken from the Tuolumne River and 15% from local reservoirs. The Bay-Delta Plan will almost certainly mean less water for the RWS, particularly in times of drought. Expanding the use of recycled water in Palo Alto could relieve some pressure on the Tuolumne River. Recycled water is used at some City facilities. The City has eight emergency water wells. The Water Integrated Resources Plan looks at many potential water supplies, but the discussion will focus on water from the Regional Water Quality Control Plant. Once staff understands an ideal portfolio, staff needs to evaluate alternatives against moving the water to other parts of the county. The S/CAP discusses reducing the reliance on imported water and developing local drought-proof supplies.

Samantha Engelage, Public Works Senior Engineer, advised that each water reuse opportunity can be implemented in numerous ways. Each implementation alternative will be presented to the Commission for consideration. Each water reuse opportunity can be implemented in conjunction with other opportunities or in a phased approach.

Vice Chair Schwartz requested staff include an indication of cost for each opportunity. Engelage advised that staff will present cost estimates when the Commission discusses implementation alternatives for each opportunity. The water reuse opportunities appear to be feasible and comparable in cost.

In reply to Commissioner Johnston's request for the amount of potable water each opportunity would save, Engelage indicated the impacts to water dependence will be presented shortly.

Engelage continued, stating nonpotable reuse is likely the most familiar reuse opportunity. Nonpotable reuse is enhanced recycled water that is used for irrigation and commercial uses. Benefits include near-term implementation and clear regulations for implementing a nonpotable reuse program.

In answer to Commissioner Forssell's query regarding the definition of near-term, Engelage answered 3-5 years.

Engelage further reported the City has a nonpotable reuse program. For purposes of the Strategic Plan, nonpotable reuse is meant to encapsulate enhanced recycled water, which has a higher quality than recycled water currently produced at the Regional Water Quality Control Plant. Obstacles for nonpotable reuse include limited use of it. Indirect potable reuse is recycled water treated to purified standards, introduced into an environmental buffer, and then connected to the drinking water distribution system.

In response to Commissioner Forssell's question regarding use of nonpotable reuse in conjunction with indirect potable reuse, Engelage advised that both can be implemented simultaneously without contamination.

Engelage continued the presentation, reporting that indirect potable water is comparable to potable water, in that it can be used for showers, pools, and drinking. It has the potential to use a great deal of water from the Regional Water Quality Control Plant and to impact the amount of water reused in the City.

In answer to Chair Danaher's query regarding pumping the water into the aquifer, Engelage explained that the water would be purified and then injected into the aquifer where it mixes with groundwater. Next, water would be extracted through groundwater wells and inserted into the potable system. Following extraction, the water can be treated for taste and odor, but that adds to the cost.

In reply to Commissioner Forssell's inquiry regarding energy usage for additional purification, Phil Bobel, Public Works Assistant Director, reported the cost of treating the water is significant. The cost of injecting the water into the aquifer is unknown.

Engelage further stated one of the obstacles for indirect potable reuse is increased use of groundwater. Direct potable reuse is similar to indirect potable reuse with the exception of the environmental buffer. Without the environmental buffer, direct potable water requires additional treatment.

In answer to Commissioner Trumbull's question regarding indirect potable water's compliance with water quality standards, Engelage advised that regulations for direct potable water are not fully developed. Because of this regulatory uncertainty, implementation of direct potable reuse is a long-term option.

In response to Commissioner Forssell's query regarding standards for purification of direct potable reuse, Carrie Del Boccio, Woodard and Curran, indicated purification standards are not known because regulations have not been developed for direct potable reuse. The State's feasibility study required redundant purification processes.

Engelage continued, explaining that direct potable reuse could utilize a great deal of water from the Regional Water Quality Control Plant. Public acceptance of direct potable reuse is an obstacle, for which feedback is requested.

In answer to Commissioner Segal's inquiry regarding public acceptance of both indirect and direct potable reuse, Engelage related that public acceptance is an obstacle for both. Direct potable reuse may be more of a concern because regulations have not been developed, it has not been implemented in the United States, and the reference to it as toilet-to-tap water is unappealing. Indirect potable reuse has been implemented in Southern California. Vice Chair Schwartz added that public acceptance could depend on the amount of direct potable water customers are asked to drink. The concept of replenishing the aquifer by injecting water into it could increase public acceptance. Bobel reported studies have shown that the environmental buffer removes a significant amount of pollutants.

In reply to Commissioner Forssell's query regarding reverse osmosis, Engelage explained that reverse osmosis provides 0.8 gallon of purified water for every gallon subjected to the process. The remaining 0.2 gallon has to undergo further treatment or be discarded as waste. Del Boccio added that ocean desalinization can provide 1 gallon of purified water for every 2 gallons used. In response to Commissioner Trumbull's question about reverse osmosis purifying sewage water to the level of drinking water, Engelage related that reverse osmosis does purify sewage water to the level of drinking water. The constraint on direct potable reuse is cost rather than purity.

Engelage requested Commissioners comment regarding the community's willingness to accept the use of groundwater and the implementation of direct potable reuse.

Vice Chair Schwartz recommended staff conduct community outreach. Dailey remarked that public outreach for a project 20 years in the future is difficult. Vice Chair Schwartz felt this was a good opportunity to involve school children.

Commissioner Trumbull was optimistic about the ability to change public opinion. He supported staff proceeding with all but direct potable reuse as the other options sell the same concept as direct potable reuse but not as directly.

Commissioner Segal was interested in whether public acceptance increased or decreased with a discussion of cost and tradeoffs.

Commissioner Forssell believed part of community acceptance is the odor and taste of water and requested staff comment on the odor and taste of water from indirect and direct potable reuse. Engelage explained that the final water quality depends on the beginning water quality. Concerns about groundwater are a mineral taste or a musky odor. Commissioner Forssell felt that would result in community pushback. If those concerns are eliminated with direct potable reuse, it could be an attractive alternative following robust community education. Bobel added that indirect potable reuse would result in water containing a high mineral content. In direct potable reuse, the reverse osmosis process can be adjusted to produce water that is very similar to Hetch Hetchy water.

In reply to Commissioner Johnston's query regarding any other city utilizing direct potable reuse, Engelage reported direct potable reuse has not been implemented in the United States. Bobel stated Southern California would be the first to implement direct potable reuse. The City's partners in the Regional Water Quality Control Plant may find many ways to utilize recycled water.

Commissioner Johnston commented that implementation in other cities would help alleviate Palo Alto residents' concerns. Randy Raines, Woodard and Curran, shared the experiences of the City of San Diego in developing recycled water. Currently, the City of San Diego is planning direct potable reuse. Commissioner Johnston noted only the four potable reuse alternatives result in a savings of Hetch Hetchy water. Water is a scarce resource, and any actions should result in a savings of potable water.

Vice Chair Schwartz felt the concept of recycling water is appealing to people. This is an opportunity to engage CPAU customers in environmental awareness.

Chair Danaher concurred that the taste and odor of water is important to consumers. The alternatives could potentially impact the demand for potable water. There may be other contributors to the solution.

Engelage requested Commissioners provide feedback regarding staff reserving a portion of the City's wastewater or recycled water for City of Palo Alto use or exploring a long-term contract for transferring water outside the City. Currently, the Santa Clara Valley Water District is preparing a countywide Water Reuse Master Plan to evaluate methods for wastewater treatment plants in Santa Clara County to provide water to different areas of the county. Under a regional transfer, the City of Palo Alto would transfer a portion of its treated wastewater or recycled water to the Santa Clara Valley Water District for use elsewhere in the county. A regional transfer would utilize a large amount of water from the Regional Water Quality Control Plant and could occur in the next 5-10 years. If a regional transfer occurs, the amount of water available for use in the City would be restricted for the life of the contract.

Chair Danaher noted the decision is quantitative; however, staff provided no data. Bobel advised that staff will preserve 50% of the amount of water produced by the Regional Water Quality Control Plant for local use. The amount is based on conservative estimates of the amount of water needed over the next ten years. It is difficult to predict the need for water beyond ten years. Staff is communicating the local need estimate to Santa Clara Valley Water District. The questions are should staff preserve more than the estimate; should staff estimate water needs for the next 60 years, which is the length of a contract; and should staff pursue a contract with a term of less than 60 years. Dailey clarified that the 50% amount would include the full potential of local nonpotable reuse. Adding indirect potable reuse or direct potable reuse to the conversation results in a clash between keeping water in the City and transferring it. The south part of the county needs water, and the Santa Clara Valley Water District wants water; therefore, the water would be put to good use. Giving up a resource for a long period of time can be risky.

In answer to Commissioner Forssell's question about payment for the water, Dailey indicated the City would sell the water.

Commissioner Johnston questioned whether the City could negotiate different contract terms. Receiving a return on water would be helpful while the City develops technology to use the water. Ensuring the City has

sufficient water reserved for its use over the next 20 or 30 years is logical. Bobel advised that staff would need to consider the length of a contract, the amount of water provided under a contract, and conditions for terminating and renegotiating a contract. While the Santa Clara Valley Water District does not object to the concept of conditions, it may object to some specific conditions.

Chair Danaher remarked that 40 or 60 years is a long time given climate uncertainty. A much shorter time period or very strong conditions would be logical.

In response to Commissioner Trumbull's query regarding the role of the Regional Water Quality Control Plant partners in negotiations, Bobel reported the City of Mountain View, as the largest partner, is playing a major role. , Mountain View is comfortable with an agreement between the City of Palo Alto and the Santa Clara Valley Water District, and staff is providing details of the negotiations to Mountain View. The Santa Clara Valley Water District understands that one of the necessary conditions is the City of Palo Alto making good faith efforts to secure agreements with its partners in the Regional Water Quality Control Plant within two years of executing a contract with the Santa Clara Valley Water District.

Commissioner Forssell opined that a transfer of water is worth exploring if there is a good use for the water.

**ACTION:** No action

**ITEM 4. DISCUSSION:** Discussion of CPAU's Role in Community Resilience Including Workshop Summary and Draft Vision and Goals.

Chair Danaher announced this item is continued to the next meeting.

**ACTION:** No action

**ITEM 5. ACTION:** Selection of Potential Topic(s) for Discussion at Future UAC Meeting.  
None

**ACTION:** No action

**NEXT SCHEDULED MEETING:** November 7, 2018

Meeting adjourned at 9:34 p.m.

Respectfully Submitted,  
Rachel Chiu  
City of Palo Alto Utilities