



UTILITIES ADVISORY COMMISSION MEETING MINUTES OF OCTOBER 11, 2023 SPECIAL MEETING

CALL TO ORDER

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

Present: Chair Segal, Vice Chair Scharff, Commissioners Croft, Forssell, Metz, and Phillips

Absent: Commissioner Mauter

AGENDA REVIEW AND REVISIONS

None

ORAL COMMUNICATIONS

Jerry Smith asked if the fiber project would be discussed in this meeting.

Dean Batchelor, Utilities Director, responded that the Finance Committee would discuss fiber and the grid modernization projects together on November 7th.

Hamilton Hitchings was concerned about mitigating risk to the fiber hut and felt City Hall would be unsafe in the case of a large earthquake. With an estimated 20% chance of a 7.5 earthquake in the Bay Area in the next 30 years, placing the fiber hut inside City Hall creates a 20% chance risk of losing half the fiber network indefinitely. He suggested other locations for the fiber hut that would be accessible after a major earthquake.

APPROVAL OF THE MINUTES

ITEM 1: ACTION: Approval of the Minutes of the Utilities Advisory Commissioner Meeting Held on September 6, 2023

Chair Segal invited comments on the September 6, 2023, UAC draft meeting minutes. There were no changes.

ACTION: Commissioner Croft moved to approve the draft minutes of the September 6, 2023, meeting as submitted.

Commissioner Phillips seconded the motion.

The motion carried 6-0 with Chair Segal, Vice Chair Scharff, Commissioners Croft, Forssell, Metz, and Phillips voting yes.

Commissioner Mauter absent.

UNFINISHED BUSINESS

None

UTILITIES DIRECTOR REPORT

Dean Batchelor, Utilities Director, delivered the Director's Report.

Council Decision Regarding Winter 2023-2024 Gas Purchasing: City Council, at its regular meeting on September 18, 2023, adopted a resolution which will modify the gas purchasing strategy for this upcoming winter. Staff will implement the capped-price winter natural gas purchasing strategy in October 2023 for the gas year November 2023-October 2024. The amended rate schedules associated with this implementation will be effective November 1, 2023. The impact on customers of what is, in essence, an insurance policy will be limited to 15 cents per therm. The full Staff Report for is [HERE](#).

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

Residential Electric and Water Customer Satisfaction Surveys: CPAU is participating as a member of the California Municipal Utilities Association (CMUA) in customer satisfaction surveys for residential electric and water customers. CMUA's contractor, GreatBlue Research, completed a statewide survey last month of municipal and investor-owned utilities customers so we can benchmark trending results across the state. We are now about to begin what is called an "oversample" survey of Palo Alto residents so we can gain greater insight into some specific areas of interest in Palo Alto. We will also retain very similar questions to the statewide surveys for comparison purposes. If you receive a survey from GreatBlue Research, we appreciate you taking the time to answer the questions!

Advanced Metering Infrastructure (AMI) Update: By now every commissioner should have an advanced meter (AMI) installed at their home. We invite you to share your feedback with us. AMI is an important component of our customer service and technology offerings to provide better and more timely information on energy and water usage. Learn more at cityofpaloalto.org/AMI

Sanitary Sewer Replacement Project 31: Earlier this summer, CPAU began Sanitary Sewer Replacement Project 31 which involves replacing sanitary sewer pipelines along sections of El Camino Real and Page Mill Road. Work in these streets is governed by Caltrans and the County who require daytime and nighttime work to minimize impacts to residents, businesses, and major traffic corridors. The project is scheduled to be complete by summer of 2024. During October through December, daytime work will be performed on El Camino and night work (8:30 P.M. to 5:00 A.M.) will be performed on Page Mill Road from El Camino Real to Ash Street. This will be a major undertaking and we wish to thank the public in advance for their patience during the nighttime work. The City set up a webpage with information about the project (visit cityofpaloalto.org/utilityprojects), a weekly newsletter to share updates, dedicated email inbox and phone number for community members to contact us with any questions or concerns.

Wooden Utility Pole Inspections: CPAU is inspecting, testing, and reinforcing utility poles in our service area. We have contracted with company Osmoste to perform this work on public streets and private property over a three-year period. The inspections begin this month and are expected to be complete by December 2026. Utility project information can be found at cityofpaloalto.org/utilityprojects

Increasing Load with Tesla: City engineers are working with Tesla for additional load, expected to come online sometime in 2024 at the Hanover Substation, which is in a design and install phase right now. Staff is also working out the details of a public-private partnership with Tesla and will bring it to Council in the coming months. It is mostly a data center, but they are also testing different charging systems and bringing in large charging systems for large transportation trucks. The partnership is inside the substation portion of the project, upgrading a transformer with economy of scales.

Public Power and Natural Gas Week Campaigns: Last week we highlighted two national campaigns to raise awareness about the benefits of public utilities. Staff promoted Public Power and Public Natural Gas Week in our communication channels. Some customers may question why we are highlighting natural gas, considering our sustainability goals to transition from fossil fuels to clean electricity for buildings and transportation. We continue to talk about natural gas and our natural gas utility employees as we still own, operate and maintain a gas system in Palo Alto. It is imperative that we continue to safely operate and maintain this system if customers are still connected to gas.

Recent and Upcoming Workshops and Events: Details and registration at cityofpaloalto.org/workshops

- October 5: New Models and Inside Tips for Going EV
- October 11: e-Bike Essentials Workshop (e-Bike discount campaign is available through end of 2023)
- October 12: SunShares Discount Solar and Battery Storage Program Webinar.
- October 14: EV Expo at the Electric Home Tour

- October 22: Sustainability Faire at Congregation Beth Am
- October 25: Heat Pump Water Heater Day – a campaign the City will promote
- October 28: Succulent Gardening Workshop at Rinconada Library
- October 29: Frunk and Treat EV Expo at the California Ave. Farmers Market

NEW BUSINESS

ITEM 2: ACTION: Utilities Advisory Commission Recommendation that the City Council Adopt a Resolution Approving the 2023 Integrated Resource Plan

PUBLIC COMMENT:

Hamilton Hitchings stated that he is in the process of electrifying his house and noted that his utility bill said 50% of the power was retired unbundled RECs. He explained the problem with RECs is that you are not burning less fossil fuels or generating more renewable, which is why they are so cheap. He stated unbundled RECs are often considered "greenwashing," essentially not really green. He recommended moving away from unbundled RECs to things like hydro.

Jim Stack, PhD, Senior Resource Planner, discussed the background of an Integrated Resource Plan, a long-term plan forecasting electric demand and how to satisfy it with a portfolio of supply- and demand-side resources. The key reason for an IRP is to demonstrate the City is on track to help the State meet its greenhouse gas reduction and renewable procurement targets. Other things accounted for in the plan are minimizing ratepayer bills, ensuring system and local reliability, procuring energy efficiency and demand response, energy storage, and planning for transportation electrification. He displayed a chart showing the resources the recommended portfolio indicates should be added in the coming years, with solar added through the 2030s and also battery capacity in the 2040s. The actual resources that will be contracted for in the future will depend on market conditions, how existing resources change over time, as well as the proposals received when the City decides to buy new resources.

Commissioner Phillips questioned what other types of resources were available to consider.

Dr. Stack responded that a wide variety of resources that are available now or expected to be available during the planned period were considered, including geothermal, biomass, offshore wind, and small modular nuclear reactors.

Vice Chair Scharff questioned if other public utility plans are the same.

Dr. Stack stated other public utilities' resource needs in the future look relatively close to this. Some of their plans include adding storage a little earlier; some of them include different types of resources.

Commissioner Phillips was surprised to see solar given there seems to be too much solar on the system at certain times.

Dr. Stack stated there is a greater move toward broader regional integration of the grid and the ability to export solar out to other areas more rather than just curtailing it, which might mitigate those trends.

Commissioner Croft questioned whether there was any thinking in the model about where the energy purchased for the shoulder periods was coming from, preferring stored solar power to power generated by natural gas.

Dr. Stack explained that when buying market power from the grid due to a deficit, the current carbon neutral plan factors in that that power is "dirtier" than during surplus periods. The IRP does not take that into account. It does a projection of the value of the generation in each hour compared to its cost and the value of the resource adequacy from it.

Commissioner Croft asked if it was possible to do analysis to match the energy supply with the load requirements in terms of price.

Dr. Stack noted there was also separate modeling being done to try to come up with a better match between the load and the resources. That is still a work in progress.

Commissioner Forssell questioned how the different options were priced in the model and asked about the availability of geothermal and landfill gas and extending those contracts when they expire.

Dr. Stack showed a slide of the prices used in the model.

Lena Perkins, PhD, Senior Resource Planner, added that there is a lot of market projection in the model, with assumptions in terms of battery growth and volatility of prices. She also noted there are 6 GW of batteries in California compared to 200 MW 4 years ago. There are assumptions that batteries are coming online, which will help in the evening ramp period. Collierville is also a very dispatchable resource. Pumped hydro is currently seasonal storage because the pumps are not cycled very often, but there are investigations on whether it may be worth upgrading the old pumps so they can actually be cycled more frequently.

Chair Segal asked if power purchased on the open market was projected to get cleaner over time.

Dr. Perkins explained Palo Alto is actually net clean especially on the margins, close to 90% on an hourly basis in average hydro years, which does not show up in the power content label because of the arbitrage. There are valid concerns about out-of-state RECs, but in general, other states are also taking on very aggressive RPS requirements. Ideally, those would converge.

Dr. Stack added that extending the existing contracts when they expire was a possibility that would be discussed with the suppliers. He displayed a slide on the long-term energy balance for the recommended portfolio. The load is projected to increase substantially in the coming years, with some holes in the portfolio to fill. He also showed the projected long-term RPS compliance,

leveling out around 60% in 2030 and exceeding the state's requirement level. He presented a slide of the monthly load resource balance for 2025 and 2045. The recommended portfolio continues the seasonal pattern of surplus/deficit positions, which will be considered when doing the procurement as there are advantages to better matching the load and resources.

Vice Chair Scharff asked why just buying more solar and more storage would not match it. He asked what base resource would bring it up in the winter.

Dr. Stack explained that storage is charged and discharged within the day and would not do anything seasonally to affect the summer and winter disparities. Dramatically over-procuring and using storage to match it hourly could be done but would be expensive. He noted there were complementary resources like out-of-state wind that produce more in the winter than summer.

Dr. Perkins noted wind at competitive prices was considered. The unpredictability of wind hurts its value. The inflexibility of base load resources in the middle of the day would lose money; whereas solar will create negative prices even in December and January.

Commissioner Croft questioned if this mirrored what was going on in California and what the solution was if everyone wants the same resources.

Dr. Stack stated the State was pushing for offshore wind to be developed and more connections between California and the rest of the West will help.

Dr. Perkins explained that interconnection is important, with a west-wide regional transmission organization as a central planner to make use of existing transmission as efficiently as possible. California is 20% hydro and Palo Alto 60% hydro with more base load, so not the same issues.

Commissioner Croft encouraged looking into pumped hydro. She asked if the analysis of the cost of storage, last done in 2020, was being done this year and was part of this planning.

Dr. Perkins responded that that requirement was rolled into the IRP and was evaluated as part of this. She explained that pumped hydro was extremely rare and expensive. The Western Area Power Administration is looking into using the San Luis Reservoir in tandem with batteries for seasonal storage and lowering the exposure to market volatility within the day as well.

Commissioner Phillips asked if hydrogen had been considered in non-battery storage.

Dr. Stack answered that hydrogen was not included in this mix but is being very actively pursued by the Northern California Power Agency, and Staff will be looking into that with them.

Chair Segal asked how much cost was weighted when running the models and how much price was the barrier in weighting more for some kind of clean energy for the half the year that solar is not sufficient.

Dr. Stack stated price was the factor that caused the model to choose more solar rather than geothermal or offshore or out-of-state wind.

Dr. Perkins explained that it was always better to have flexible resources. Hydrogen is expensive, and the projects being evaluated by the NCPA are 10% hydrogen and 90% natural gas by energy, with a 50/50 split by volume. She stated she believes price is a signal of what the grid needs, and helping the grid in what it needs and having a flexible portfolio means bringing everyone along for electrifying everything.

Commissioner Phillips asked what demand response is and why it is not in the chart.

Dr. Stack explained that demand response was not selected under the base portfolio but it was on another scenario. Demand response is essentially calling on larger commercial customers to reduce usage during certain periods, but it is a minimal benefit compared to the overall needs. He explained the scenarios look at different hydro outcomes as that is 50% to 60% of the portfolio and the biggest source of uncertainty. The four scenarios were the base case (recommended portfolio), reduced hydro output for regulatory reasons, dry year/high prices, wet year/low prices. The model showed similar recommendations for both the dry and wet year scenarios. The second scenario suggested adding renewable and new storage capacity earlier, as well as adding wind in one year. He felt it was unlikely that the City would be able to react quickly enough to potential adverse changes to get a resource in place by 2025.

Dr. Perkins explained that that scenario would be the outcome of extended relicensing or federal action, long processes with 2 to 3 years of lead time.

Vice Chair Scharff asked whether the model assumed restriction now and what was put into the model that led it to suggest 2025, as there is nothing like that on the horizon right now.

Dr. Perkins stated this was more of a worst-case scenario but was still useful to see the net cost impacts of forcing the model into a capacity deficit.

Dr. Stack showed a chart of the average financial performance of each model. He noted the mark to market, which represents the value of the overall portfolio compared to its cost. The base case has slightly more value than its cost; the dry and wet year scenarios, the mark to market actually increases; the reduced hydro scenario, which assumes the same hydro contracts even with the regulatory risk, has a negative mark to market. He also explained the risk premium, with the highest risk being the dry year scenario. He then reviewed the overall findings of the IRP. Under the base case, Western looks competitive. The model picks low-cost resources (solar) and also storage in later years. Solar is not the best fit for matching the load and increases market exposure. Other resources will be considered during procurement. Demand-side resources are also competitive. City loads are expected to increase and resource costs expected to decrease, so there should be new procurement in the coming years. He explained the timeline going forward.

Commissioner Forssell asked what happens after this is submitted to the CEC.

Dr. Stack stated the CEC staff reviews each IRP when they receive it. They can request adjustments or additional analysis or information if they find any shortfalls. The plan will be updated every 5 years. There will be updated analysis any time a new resource needs to be procured.

Commissioner Forssell noted a program at Green Mountain Power for utility customers to host a Power Wall battery, regarding demand response. There was further discussion about this.

Commissioner Metz felt the plan needed to be redone. He understood there were regulatory constraints related to the RPS but wanted the published plan to be a real one if this was not what would likely end up being procured. He stated the grid has to balance the amount of energy that goes in and out and felt the plan did not work technically or economically in terms of generating energy when it is convenient and taking energy out at other times. He was concerned about being forced to load match over the long term. He felt central solar costs were likely to be much higher than estimated because interest rates will stay up for a long time and the value of solar would be lower, making it less favorable. He recommended grabbing all the hydro and geothermal possible and not losing the existing contracts, as well as intensifying efforts on energy conservation and demand management. He stated the approach of making short-term market purchases to make up the gaps was the approach that caused trouble with gas this past winter.

Dr. Perkins explained that the California-Oregon Intertie was one of the strongest interconnections and a natural hydrologic hedge. Regarding concerns of free riding, Palo Alto is exporting solar and turning off other dirty resources more broadly, bringing cost down for everyone. Now that the surrounding states have renewable portfolio standards, the imports are also cleaner and cleaner. There was some discussion about this.

Vice Chair Scharff stated he supported the plan because he was confident in the deep knowledge of Dr. Stack and Dr. Perkins and the work they have done on this plan.

Commissioner Croft asked if it would make sense to have a scenario showing what the portfolio would look like if hourly matching was attempted.

Dr. Stack stated that hourly matching is a subset of the base case but optimized toward meeting the load rather than around price and emissions reductions.

Dr. Perkins added that the existing portfolio is at 88% hourly matching already. She stated that a discussion about hourly matching should be kept separate from the IRP.

Commissioner Phillips supported the plan with reservations. The consistent messaging is that we are carbon neutral, which gets incorrectly interpreted by the public as saying any added electricity is carbon neutral. He felt the communications were misleading.

Dr. Perkins agreed it was a hard line to walk and that even renewable energy is not without cost to the environment.

Chair Segal supported the plan. This is a government reporting obligation and does not commit to a certain portfolio or process. There has been consistent feedback from commissioners on what they would like to see going forward. Noting Commissioner Phillips' concern about messaging, she felt it might be time for another conversation about how to keep customers apprised.

Commissioner Croft stated the graph changes over time but always has months that are negative. She asked why the graphs did not show what it would look like to spread the hydro in a way that would accurately match.

Dr. Perkins explained that shaping hydro in a way that loses money and actually emits more carbon on the margin to line up the hours was not something that had ever been considered. Hydro keeps off natural gas plants, lowering emissions. Following the load with the hydro, the natural gas plants would have to be on even more to serve the market load.

Commissioner Forssell added that she learned a lot this evening and has more comfort that what the model is predicting could be the best for Palo Alto and the grid as well as removing carbon emissions from the larger system.

ACTION: Commissioner Scharff move to approve Staff recommendation that the Utilities Advisory Committee (UAC) recommend that the City Council adopt a resolution (Attachment A):

1. Approving the 2023 Electric Integrated Resource Plan (IRP) (Attachment B), which includes the four standardized tables required under the California Energy Commission's (CEC) IRP Guidelines; and
2. Approving the IRP Objective and Strategies to guide future analysis and decisions (Attachment C).

Commissioner Croft seconded the motion.

The motion carried 5-1 with Chair Segal, Vice Chair Scharff, Commissioners Croft, Forssell, and Phillips, voting yes.

Commissioner Metz voting no.

Commissioner Mauter absent.

The UAC took a break at 8:12 pm and returned at 8:24 pm.

ITEM 3: DISCUSSION: Update and Discussion on Undergrounding of the Electrical Distribution System and Electrification Goals

PUBLIC COMMENT:

Hamilton Hitchings supported Staff's position on undergrounding. He agreed with the City's current policy of undergrounding wires in selected areas and noted that insulating wires to mitigate wildfire risk is many times less expensive than undergrounding. He felt it should be put to a ballot if it is planned to incur \$½B cost to underground.

Tomm Marshall, Assistant Director of Utilities Electric Engineering and Operations, reviewed the current underground policy and reviewed some utility statistics related to undergrounding, with about 18,000 housing units that would need to be undergrounded. He presented the rough costs of undergrounding, \$645M to \$990M total, taking 18 years at 1000 homes per year. The City Council's SCAP goal is to achieve wide-scale electrification by 2030; to underground at the same time would delay electrification upgrades to 2041. He showed a map of the underground conversion project. The green is on the map is what is in the plan; the gray areas were undergrounded when they were installed.

Commissioner Phillips asked what the public communication on this has been. He stated some people have an expectation that Palo Alto is going ahead with undergrounding while this suggests most of it will not get undergrounded in our lifetime.

Mr. Marshall stated it was always expected to be 40-50 years and did not think the message had changed but felt there was interest from the community. It would take a policy change to move it a lot faster.

Commissioner Croft asked about the cross section of an undergrounded segment. She questioned whether the conduit was accessed often on an ongoing basis. She asked if the trenches would have to be dug up for the grid modernization project.

Mr. Marshall explained that in the street will be primary and secondary conduits, vaults they pass through, and telephone and cable TV in their own conduits. Once installed, it is not touched very often unless some major development happens. Existing conduits would be used where possible, but there could be some trenching or the need to install a new vault or put a pad-mounted transformer somewhere to add additional capacity in the neighborhoods.

Council Member Lauing questioned the phrase "property owners must construct the service infrastructure." He felt the report was very informative in that it explains the priorities and the much greater need of having to redo the grid and get the city electrified.

Mr. Marshall explained that the City only constructs the utility infrastructure in the street area. The Customer would have to trench from their meter location out to the box in the street. The way the program is set up today is that is paid by the customer. It can run between \$4000 and \$10,000.

Dean Batchelor, Utilities Director, added that the plan is to go to Council with discussion on whether Council wants to change the policies and/or priorities.

Commissioner Croft asked for clarification on the sentence, "In the long term the coordination of undergrounding and electrification could result in savings of between \$150M and 220M due to elimination..." She asked where the savings comes from.

Mr. Marshall explained it was from avoiding having to upgrade the overhead system.

Chair Segal questioned the survey of poles noted in the report as there had been a recent survey by Magellan. She noted a November 2011 Finance Committee report that talked about a public opinion survey about undergrounding; she wondered what had happened with that.

Mr. Marshall explained the poles were tested to see if they were rotten or needed to be treated in the field. About a tenth of the system is done each year, and the poles go onto a replacement list if they are rotten. The recent survey with Magellan looked at the conductors on the poles. He explained that when forming an underground district, a survey will be done in the neighborhood to see if there is interest, with the information typically going back to Council at the time of formation of the district. He thought that might be what was referred to.

Commissioner Croft asked why the green sections are scheduled for undergrounding.

Mr. Marshall explained the green areas are areas believed to qualify under the CPUC rules requiring AT&T to pay a portion of the costs in the underground district, making it lower cost for the City. He explained there are ways for them to go through an assessment district process to form underground districts, but it is very rare.

ACTION: None

COMMISSIONER COMMENTS AND REPORTS FROM MEETINGS/EVENTS

None

FUTURE TOPICS FOR UPCOMING MEETINGS:

Commissioner Forssell suggested a discussion topic on 24/7 load following, which could be agendized for a future meeting if there was interest in recommending a policy.

Commissioner Metz additionally wanted to address distributed energy resources, demand management, storage, all the possibilities that flow from having to match load.

Commissioner Phillips suggested discussing gas hedging.

Dean Batchelor, Utilities Director, stated gas hedging would be added to either the November meeting or the beginning of next year.

Commissioner Metz also suggested grid modernization connected with some of those topics, including discussion of the \$300M cost.

Commissioner Croft stated it was mentioned at the last meeting talking to contractors that could do that together with fiber. She asked if the plan comes before talking to the contractors or as a result of that.

Mr. Batchelor believed the costs had been discussed, with that \$300M for design, equipment, labor, and upgrades to substations. The fiber and grid mod projects will be running parallel at this point, and this could be discussed in December alongside the SCAP discussion.

Commissioner Croft stated there is a figure 2 in the DSM that talks about the composition of net electric efficiency savings in fiscal year 2022 and the majority comes from nonresidential lighting. She was interested in more about the segments using the electricity to determine efficiency targets. She asked if there was a way the City could help people understand how to improve the envelope of a house. The Genie did not address that part of it. She had suggestions on what to do within her house but did not know how to take the next step and wondered if the City had ways to make that easier.

Mr. Batchelor stated it could be a discussion item or a report to the entire Commission.

Commissioner Croft was happy to have a discussion with Staff and report back to the Commission if she learned anything important to share.

NEXT SCHEDULED MEETING: November 1, 2023

Vice Chair Scharff moved to adjourn.

Commissioner Phillips seconded the motion.

Motion carries 6-0 with Vice Chair Scharff, Vice Chair Scharff, Commissioners Croft, Forssell, Metz and Phillips voting yes.

Commissioner Mauter absent.

Meeting adjourned at 9:00 p.m.

Respectfully Submitted
Jenelle Kamian
City of Palo Alto Utilities