



DRAFT

UTILITIES ADVISORY COMMISSION MEETING MINUTES OF JULY 1, 2015

CALL TO ORDER

Chair Foster called to order at 7:02 p.m. the meeting of the Utilities Advisory Commission (UAC).

Present: Commissioners Cook, Danaher, Eglash, Chair Foster, and Schwartz

Absent: Commissioner Hall and Council Liaison Scharff

ORAL COMMUNICATIONS

Jeff Hoel stated that Council received a non-agendized item on CTC and the wireless plan, but the report did not say when the item will go to Council, or even that it should go first to the UAC, but he noted that the items appear on the UAC's rolling calendar for September.

APPROVAL OF THE MINUTES

Commissioner Danaher moved to approve the minutes from the June 1, 2015 UAC meeting as presented and Commissioner Schwartz seconded the motion. The motion carried unanimously (5-0 with Commissioners Cook, Danaher, Eglash, Foster and Schwartz voting yes, Commissioner Hall absent).

AGENDA REVIEW AND REVISIONS

None.

REPORTS FROM COMMISSION MEETING/EVENTS

Commissioner Schwartz went to an event at SRI with many area companies who are working in the smart utilities/smart cities area. She said they have many technically literate young people who are interested in energy management, climate change and related issues. She said that she was pleasantly surprised to find that we have so many issues in common.

UTILITIES DIRECTOR REPORT

1. Community Outreach Events, Workshops and Staff Speaking Engagements in June

Event	Date	Attendance
BAWSCA Design It Yourself Native Garden	June 3	130
(Communications Manager Elvert) presentation to Department of Water Resources about Palo Alto's adoption of the State Water Efficient Landscape Ordinance	June 8	20
BAWSCA Install It Yourself Native Garden	June 13	100
Peninsula SunShares Solar workshop	June 14	15*
Palo Alto Family YMCA - Water Conservation tabling	June 20	50
Net Zero Home Energy Efficiency	June 27	40

*during game 5 of NBA Championship series

2. Drought Update

Staff is closely tracking citywide water use to monitor progress toward meeting Palo Alto's 24% water use reduction goal and posting updates at cityofpaloalto.org/water. Since the beginning of 2015, citywide water consumption has reduced by more than 22%. Staff is focusing educational efforts around the drought, offering free community workshops, attending neighborhood, school and business group meetings, advertising in utility bill inserts, local papers and on television, and encouraging community members to report incidents of water waste through the PaloAlto311 mobile app. The City has also set up a new email address (drought@cityofpaloalto.org) to enhance communication.

3. Marketing Services Update

- **Peninsula SunShares** enrollment and contracted system data as of June 10:
 - Total Peninsula SunShares program registrants (number homes requesting a proposal) = 526
 - Palo Alto registrants = 225 (43%)
 - Palo Alto - Sunrun (10 contracts) = 37.35kW
 - Palo Alto - Skytech (9 contracts) = 50.48kW
- **PaloAltoGreen Gas**: 888 customers signed up as of June 26. All City accounts will join PaloAltoGreen Gas program on July 1 so sales volumes will climb considerably. The results will be reported in the next Utilities quarterly update.

UNFINISHED BUSINESS

None.

NEW BUSINESS

ITEM 1: DISCUSSION: Discussion of Results of Cost-Effectiveness Evaluation of Electrification Options for Appliances and Passenger Vehicles in Single Family Residential Homes

Resource Planner Aimee Bailey summarized the written report

Commissioner Danaher asked what climate was assumed in the evaluation of heat pump performance since the output depends on the difference in temperatures. Bailey said that the analysis did use a climate zone similar to Palo Alto's. Commissioner Eglash added that Palo Alto has an ideal climate for heat pump technologies.

Public Comment

Bruce Hodge, representative of Carbon Free Palo Alto, noted that staff's analysis is very solid and this result should be used to support the scenario that favors electrification since many of these characteristics are under the control of the Utility such as electric rates. He said that a carve-out of low cost energy for those with heat pumps or EVs is one mechanism to consider. The all electric house initiative is a good idea, but we should look for opportunities for retrofits in Palo Alto. He noted that the end of life of natural gas-fueled water heaters is the best time to replace them with heat pump water heaters. He said that if we cannot influence replacement of devices that burn fossil fuels, we will not hit carbon emissions reduction goals.

Commissioner Foster asked if a carve out should apply for new and existing devices. Hodge said that there were not many existing heat pump water heaters in town, maybe 3, but staff would need to determine a carve out for EV owners.

Walter Hays noted that he agrees with everything Mr. Hodge said. He noted that tiered rates are a disincentive to electrification.

Commissioner Danaher noted that special rates, such as a carve out, could be considered in the next phase of the electric rate adjustments as long as the voters approved of such a carve out.

Commissioner Eglash stated that the report noted that the initial cost of heat pump water heaters is high, but the operating costs are low since they are very efficient. He added that the report is fundamentally about energy efficiency. He noted that using electric resistance water heaters are not a good choice since they use much more energy and are very inefficient. He noted that heat pump water heaters should be encouraged, but they do have issues including they are noisy, they require extra space, they cool the surrounding air and are more expensive to purchase. He also noted that the City's electric supplies are carbon neutral, but it is still connected to the grid, which is still supported by fossil fuels so there should be a careful consideration given to the potential impact on the grid from additional use of electricity. He said that there is now so much solar energy now on the grid that there is relatively less demand for power from conventional generators in the middle of the day when the sun is shining, but in the early morning and late afternoon there is a need to run conventional power plants in order to meet demand for electricity. In California, more than half of total electricity is supply by fossil fuels, mostly natural gas. A consequence of more people switching from natural gas water heaters and space heaters to heat pump units and switching to electric vehicles may force California to build more natural gas fired power plants to support the grid.

Commissioner Eglash added that the City Council Colleagues Memo states that natural gas is only slightly better for the environment than coal due to fugitive emissions, but that is a controversial statement, not a fact. Recent research on natural gas emissions has found that in many cases it is due to leaky valves and other components at energy refineries so the amount of fugitive emissions should decrease in the future. He said he supported the recommendation for the work plan (Item 2 on the agenda), but is concerned about overly simplistic thinking and the loss of personal freedom. He would like City to educate the public about heat pump technology, and the City should support their installation. On-bill financing would be a great way to support heat pump technology to deal with the initial cost, but that may be impossible with the current billing system. He also suggestion the use of a trial or demonstration program. However, he noted that heat pumps can be used for both heating and cooling and promoting heat pumps may encourage people to install air conditioning when they did not have that before. He said that the City should not mandate how people heat their water or homes, but provide them options and flexibility. Requiring all electric homes is a bad idea since it takes away choices for residents. He said that he had heard rumors that Palo Alto might require new residential construction to be all-electric and he stated that would be a bad idea. He said that the building codes should be designed to provide options and flexibility for the future by incorporating capabilities during construction when it is most economic to do so, but the building codes should not take away options by mandating or limiting behavior.

Vice Chair Cook noted that these efforts should involve more departments, not just Utilities. The Planning and Building Departments should also be involved. The entire City should consider electric vehicles, not just Utilities. Director Fong noted that the City Manager is very involved with this process and evaluation and it is coordinated with many departments. Vice Chair Cook said that the City should look to see what other entities, such as the City of Quebec, have done.

Vice Chair Cook asked what assumption was used for the electric price forecasts. Bailey said that the forward prices for electricity were used as the base case assumption, which were the same as those used in the long-term financial forecasts. The price for carbon was assumed to be the floor price for the cap-and-trade auction.

Commissioner Schwartz asked if there would be issues with changing the shape of the City's energy use profile by adding lots of electric loads. This could result in using energy at higher cost periods, or could require upgrades to substations and distribution system components. Bailey noted that the analysis was for single family residential appliances only and the entire residential sector uses only 20% of the energy

of the City. She added that the City's substations are only 50-60% loaded at this point so there is sufficient capacity for increases in the use of electricity.

Commissioner Schwartz warned that if there is an electric outage, then there is no heating. Director Fong acknowledged that this could be an issue. Commissioner Schwartz added that if there is massive movement to electrification, the cost per unit of delivered natural gas will rise and it could lead to stranded gas assets. Director Fong acknowledged that this could be an outcome.

Commissioner Danaher noted that this is about efficiency, as noted by Commissioner Eglash, and wondered if there is more greenhouse gas emissions reduction from insulating windows than the use of heat pumps. He asked if the City has looked at a Property Assessed Clean Energy (PACE) program in the past. Bailey replied that the City participates in the California First PACE program, but there has not been a lot of uptake at this point. She noted that they also looked at the Hero PACE program.

Chair Foster asked if he could characterize Commissioner Eglash's comments as "be careful what you wish for" since if we convert everyone away from natural gas, the consequence is that we increase our demand on the grid, which is backed by natural gas. Commissioner Eglash said that the grid is not yet smart, but it will be. Chair Foster noted that if we were to use more electricity, we would buy more renewable energy so we would still be carbon neutral and should not be adding GHG emissions. Commissioner Schwartz said that the carbon neutral calculation is an accounting practice. Commissioner Eglash explained that every hour of every day will not be supplied by renewable resources.

Chair Foster said there were three potential paths to take with respect to electrification: do not encourage it, encourage it, or mandate it. Chair Foster said that under the current regime, as the City's use of electricity increases, it will buy more renewable power to support the increased use and that there will not be any change in terms of gas-fired generation on the grid. He indicated that he was supportive of moving towards electrification. He said there were many ways besides mandates to encourage electrification including rebates and education.

Chair Foster asked if Walt Hays had a comment on what's been said. Walt Hayes said that small steps are not appropriate given the level of the crisis. He said that it will take a long time to get fully electrified in Palo Alto.

Chair Foster said that turning off natural gas for existing houses is challenging, but that mandating it for new homes may not be a bad idea. He acknowledged that, in the grand scheme, what Palo Alto does will not affect things, but it can serve as a model for others, so he would err on side of pushing for electrification.

Commissioner Schwartz said that renewable energy currently only provides 20% of the state's energy and so electrification is not realistic. And, to expect it to change in five years is unrealistic. Chair Foster asked what the downside would be. Commissioner Schwartz said that it's not necessarily efficient and it is using a blunt instrument to achieve goals.

Vice Chair Cook said that renewable energy will provide a greater and greater proportion of the state's energy over the next 5 to 10 years, noting that it will move to 33% in five years and 50% in ten years. This is a radical change in a short period of time.

Public Comment:

Hiroshi Keltly said that she lives in a very old house and is undergoing a remodel to go all electric along with solar PV on the roof. She noted a barrier in the form of the new green building codes that make it hard to do the right thing.

Commissioner Schwartz said that it should be easy for people to choose what they want to do, but there is not just one path and choices should be available for people.

Chair Foster said that choices are fine, but there may be consequences in terms of greenhouse gas emissions that must be thought through.

ITEM 2: ACTION: Staff Recommendation that the Utilities Advisory Commission Recommend that Council Review and Approve the Proposed Work Plan to Evaluate and Implement Greenhouse Gas Reduction Strategies by Reducing Natural Gas and Gasoline Use Through Electrification

Chief Sustainability Officer Gil Friend said that his report is a comprehensive report addressing social, economic, and environmental aspects of electrification. He noted that the December 2014 Council Colleagues Memo directed staff to identify the resources required to evaluate electrification issues. In February 2015, staff provided a work plan to respond to the Colleagues Memo and this is the Phase I work plan. Friend stated that the proposed work plan evaluates fuel switching options, but doesn't necessarily recommend implementation at this time.

Commissioner Schwartz said she was delighted to see Utilities working with the Sustainability Office, but she saw that the plan includes boundaries that do not necessarily make sense, for example, advanced meters may be beneficial for more than just EV owners. Friend responded that the overall effort may be broad, but what's referred to in this work plan is for electrification only.

Vice Chair Cook stated that the action is to provide a recommendation for what staff is proposing to explore. This does not mean that a direction has been selected, but only to explore the various areas. This does not limit flexibility and choice. He advised that the points made in the last item merit consideration as the exploration is done. Friend agreed that flexibility is very important.

Vice Chair Cook stated that the TOU rates will likely evolve so that we shouldn't refer to EV charging at night since the best time to charge may change as more renewables come onto the grid. He recommended that work plan item #7 should remove "for residential EV charging" to make the item more broad.

Commissioner Eglash supports the proposed work plan. He commented that the tasks were largely using existing staff so this effort will not require additional staff.

Commissioner Danaher said that the City is only carbon neutral for electricity in the short term due to the purchase of offsets. Director Fong noted that by 2017, the City will be carbon neutral with long-term renewables plus large hydroelectric resources. Director Fong stated that who pays and who benefits must be considered.

Chair Foster noted that natural gas is one of the remaining two sources of the City's GHG emissions. Friend confirmed that about 61% is from mobile transportation and use of natural gas is about 31%. Chair Foster asked if electrification reduces GHG emissions in the grand scheme of things. Friend confirmed that it is important.

Public Comment

Walt Hays urges that the UAC recommend that the Council adopt the proposed work plan.

Bruce Hodge stated that Carbon Free Palo Alto had a large part in writing the Council Colleagues Memo and that it has been a long time coming. He said that the proposed plan is reasonable and supportable. He advised that the City become active in many EV-related events. He said that TOU rates can be useful as devices can be grid-interactive and add value from that capability.

Commissioner Danaher asked if the timeline could be sped up. Director Fong said that the plan was developed in consideration of the existing staff resources available for the work.

ACTION:

Vice Chair Cook moved to recommend that Council approve the proposed work plan with the insertion of “for example” in work plan item #7 so that it would read: “Explore offering Time-of-Use electric rate options; for example, for residential EV charging.” Commissioner Eglash seconded the motion. The motion carried unanimously (5-0 with Commissioners Cook, Danaher, Eglash, Foster and Schwartz voting yes, Commissioner Hall absent).

ITEM 3. PRESENTATION: Update on Spring 2015 Request for Proposal for Renewable Energy Projects

Assistant Director Jane Ratchye presented early results from the City's Request for Proposals (RFP) for renewable energy projects. Ratchye said that even though the City has contracts in place to achieve a Renewable Portfolio Standard (RFP) of 57% by the end of 2016, the earliest renewable project contract the City entered into, for a wind project, is expiring in 2021. She said that renewable energy prices are still very low, but may rise after the end of 2016 when the Investment Tax Credit (ITC) falls from 30% to 10%. In addition, there is some uncertainty that some of the solar projects that the City has signed contracts for will be completed, and there is the chance of low hydro output in the future.

The City sought proposals for projects that would come on line in 2021 for 3% to 8% of the City's needs. 40 projects were proposed in response to the RFP including 32 solar projects, 5 wind projects, 2 biomass projects 1 geothermal project and 1 ocean wave project. Ratchye stated that the criteria used to evaluate the proposals included price/value and project viability. The price/value was evaluated by calculating the "green premium", which is the difference between the price proposed and the levelized value of power from the market over the life of the contract. Ratchye provided a chart of the green premium for each project type, noting that the prices have fallen from those seen in the last RFPs.

Ratchye stated that staff is currently conducting interviews with the top ten proposers and will select the best project, with which to negotiate a final contract. She expects that a recommendation to execute a contract will be ready for the UAC's consideration in October, followed by Finance Committee consideration and Council action. The preliminary timeline assumes that a new contract would be in place by the end of 2015.

Chair Foster asked whether selection criteria included a desire for diversity of supply sources. Senior Resource Planner Jim Stack said that diversity is a “pro” and that the cost of integrating different types of intermittent resources into grid was considered.

Commissioner Eglash noted that this is yet another example of Palo Alto looking several years ahead. He asked if staff is concerned that in timeframe from 2020 to 2030, solar might become less valuable if the state has so much solar that it can't use it. He questioned whether we should value dispatchable sources more highly. Ratchye replied that she expects that storage technologies will be improved and costs will come down so that issue will likely be addressed in the marketplace. Stack added that a significant number of proposals were for projects to be built by end of 2016, so that the seller takes the risk to find another buyer/short term sale before 2021 when the City would take the output. In addition, since there is a higher risk associated with projects to be built later, staff requested a higher development deposit.

Commissioner Eglash said he was not sure how comforting the risk mitigation is since we don't know the value of dispatchability versus solar output and whether projects are best if completed soon or in 2021. He said that the need to back up solar generation needs to be considered.

Commissioner Schwartz asked about whether the financeability of the project is evaluated. Stack said that he takes into account the financeability of project based on the availability of financing, noting that some projects can finance themselves based on balance sheet funds so have little financing risk. All three solar projects that are slated to come on line next year are being constructed on balance sheet.

Vice Chair Cook asked about the viability of the ocean wave project proposed. Ratchye stated that since the RFP evaluation process is ongoing, staff is unable to speak directly to any particular proposal. Stack noted that the requirement of providing a fairly large development assurance is one of the best tools to assess viability.

Chair Foster wondered if there should be a discussion about the selection criteria for renewable projects prior to release of an RFP.

ITEM 4: ACTION: Selection of Potential Topic(s) for Discussion at Future UAC Meeting

Chair Foster noted that he was disappointed that the Community Solar program ended and he hoped that a new program could be developed.

ACTION:

None.

ITEM 5: DISCUSSION: Update and Discussion on Impacts of Statewide Drought on Water and Hydroelectric Supplies

Assistant Director Jane Ratchye presented an update on the impacts of the drought. She noted that recently, the State Water Resources Control Board (State Board) has taken action to issue curtailment notices to water rights that emanate from before 1914, the year the State Board was created. These notices have gone to the City and County of San Francisco.

Ratchye said that regional water use for 2015 to date is well below the 10% request and also below the State Board mandated reductions that are in place starting June 2015. She noted that regional system storage is down, but still amounts to over three years of supplies. The City of Palo Alto has reduced water use even more than the 24% mandate, but conservation must persist to meet the goal for the entire period since savings are easier to make in the summer, than in the winter.

On the electric side, Ratchye noted that the increased costs due to the drought are about \$13.5 million for Fiscal Year (FY) 2015. For FY 2016, the expected increase costs due to drought are about \$10.5 million, but could approach \$13 million if FY 2016 is critically dry.

Commissioner Eglash asked what the increased costs amount to in terms of a rate increase. Ratchye replied that they are about a 10% rate increase for each year.

Meeting adjourned at 10:00 p.m.

Respectfully submitted,
Marites Ward
City of Palo Alto Utilities