



# City of Palo Alto

## Utilities Advisory Commission Staff Report

(ID # 13426)

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**Report Type: New Business**

**Meeting Date: 9/1/2021**

**Summary Title: Electric Rates Policy Discussion**

**Title: Staff Recommendation that the Utilities Advisory Commission Recommend the City Council Approve Design Guidelines for the 2022 Electric Cost of Service and Rates Analysis**

**From: City Manager**

**Lead Department: Utilities**

### **Recommendation**

Staff requests that the Utilities Advisory Commission (UAC) recommend the Council approve the Design Guidelines for the 2022 Electric Utility Cost of Service and Rates Analysis (Attachment A).

### **Executive Summary**

Electric rates were last adjusted when an 8% rate increase went into effect on July 1, 2019. Staff intends to complete an electric rate cost of service analysis (COSA) in advance of future rates and necessary adjustments. The primary goal of any COSA is to review the allocation of costs to customer classes, and the electric rate design, to ensure customers are charged according to the cost to serve them. This COSA will include a review of the rate design issues created by increasing building electrification, electric vehicle (EV) penetration, EV charging needs and microgrids, and time of use (TOU) rate designs in preparation for the deployment of automated metering infrastructure (AMI). This report discusses the existing rate design, provides an overview of the issues to be addressed in the COSA analysis and sets forth work plans for addressing various types of rate design issues.

### **Background**

COSAs allocate costs among customer classes and are the foundation for equitable and constitutionally compliant rates. COSAs gained a more important role for California publicly-owned gas and electric utilities after the passage of Proposition 26 (2010). Proposition 26 added provisions to the State Constitution essentially defining every local government fee or charge as a tax, requiring voter approval, unless one of seven exceptions apply. Municipal electric rates that do not exceed the reasonable costs to the local government of providing electric service are one exception from the constitutional definition of a tax, and its voter approval requirements.

The current rates, which were last changed on July 1, 2019, are based on a COSA performed in 2015/2016 (“City of Palo Alto Electric Cost of Service and Rate Study” drafted by EES Consulting, Inc.<sup>1</sup>). The fundamental structure of the City’s current rates has remained the same since the early 1980s, though the commodity, distribution, and public benefits portions of the rates were “unbundled,” or separated out, as a result of California’s deregulation of the electric market in the late 1990s. Like many utilities, Palo Alto had declining block rates (rates that decreased with increasing consumption) for all customers until the late 1970s, at which point the City switched to the current system. For residents, the current system includes inclining block rates (rates that increase with consumption, more commonly called tiered rates), and for the more diverse non-residential customer classes, flat seasonal rates with demand charges for larger customers. As Palo Alto transitioned to its current rate design, fixed charges for both types of customers were switched to minimum charges and eventually eliminated. The main driver for these changes was to encourage conservation, within the context of a cost-based rate structure.

Palo Alto now has flat to declining electric loads, as larger, industrial usage is replaced with smaller commercial and residential uses, and the influx of more electric appliances is offset by improvements in efficiency. The direction many utilities are taking in California is towards implementing TOU rates, to better reflect the cost of power being faced by utilities as well as stresses on the California power grid. Palo Alto will seek to implement these kinds of rates as well in the future, as the City’s Advanced Metering Infrastructure (AMI) program progresses over the next five years, and meters capable of providing time-based (interval) data are deployed. Many utilities are also implementing fixed charges, instead of minimum charges, to better fund operations, maintenance and capital costs which do not decrease as less power is used. These trends and pricing methods will be evaluated as part of this COSA.

## **Discussion**

The following sections provide a review of the current rate structure and a discussion of rate design issues affecting the utility in the short term and in the long term. They also include a work plan and a proposed set of COSA and rate design policy objectives to guide the COSA.

### Summary of Existing Rate Structure

Table 1, below, summarizes the number of customers on each electric rate schedule and the percentage of the City’s sales volume they represent. Currently the electric rate for separately metered residential customers (Rate Schedule E-1) has two tiers, with rates that increase when customer use exceeds roughly 330 kilowatt-hours (kWh) per month. Non-residential customers’ rates are flat (not tiered) and are higher during the summer. Larger non-residential customers are billed based on their peak demand (the highest fifteen minutes of consumption in the month, measured in kilowatts, or kW) in addition to their monthly energy use. These demand charges are higher in the summer than in the winter, just like the energy charges.

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<sup>1</sup> Staff Report 6857 <http://www.cityofpaloalto.org/civicax/filebank/documents/52274>

**Table 1: Existing Electric Rate Schedules**

<b>Rate</b>	<b>Applicability</b>	<b>Description</b>	<b>Number of customers<sup>(1)</sup></b>	<b>Share of sales<sup>(1)</sup></b>
E-1	Separately metered residential customers	Two-tiered rate	25,300	20%
E-2	Small non-residential customers and master metered multi-family customers	Flat energy charge that varies seasonally	3,060	5%
E-4	Demand-metered non-residential customers, peak demand <1000 kW	Flat energy and demand charges that vary seasonally	860	30%
E-7	Demand-metered non-residential customers, peak demand >1000 kW	Flat energy and demand charges that vary seasonally	70	45%

(1) FY 2021

The City also has several optional and special use rate schedules. Both the E-4 and E-7 customer classes have optional time-of-use (TOU) rate schedules, as well as charges for standby service (maintenance of utility distribution system capacity to serve energy when on-site generation is offline). The E-14 rate establishes charges for street and highway lighting, and the E-16 rate covers unmetered electrical equipment such as billboards, wireless antennas, and traffic cameras. There are also generation-related rates, such as the E-3, E-NSE and E-EEC rates. The E-3 rate establishes wholesale energy purchase prices for certain types of customer-owned generating facilities. The City designed this schedule to comply with the Public Utility Regulatory Policies Act of 1978 (PURPA), which Congress enacted to encourage domestic energy resources and promote competition for electric generation, but no customers are on this rate at this time. The E-NSE and E-EEC rates establishes the City’s purchase price for surplus generation from customer-owned net-metered solar systems under NEM-1 and NEM-2 (successor) programs. As part of the last COSA update, the City implemented a Hydro Adjuster rate (E-HYD) to be activated during times of very low, or very high, hydroelectric generation conditions. Lastly, the voluntary PaloAltoGreen rate is still available for certain commercial customers who want it for sustainability reporting purposes.

**COSA and Rate Design Policy Objectives**

In the past, the UAC and Council have expressed concern about having limited ability to make changes to proposed rate structures once a COSA is completed. Staff agrees and has committed to having policy discussions with the UAC and Council prior to embarking on a COSA. Staff is proposing a set of Design Guidelines (Attachment A) to guide its work over the next year. The proposed guidelines are:

- Guideline 1. Rates must be based on the cost of providing service.
- Guideline 2. The effect of proposed rate design changes on low income customers should be considered, to the extent permissible within a cost-based rate structure.

- Guideline 3. Rates should not create unnecessary barriers to building and vehicle electrification, including public EV charging, while remaining cost-based.
- Guideline 4. Rates should not create unnecessary barriers to on-site generation and storage while simultaneously avoiding subsidies between customer classes.
- Guideline 5. The COSA and rate design should support a transition to more time variant rates (such as TOU, seasonal, etc.) as AMI infrastructure is deployed.

#### Guideline 1: Rates to be based on the cost of service

The goal of a COSA is to identify the costs associated with serving each customer class and the rates required to recover those costs. In compliance with Prop. 26, rates cannot be structured solely to achieve policy objectives unless they are also cost-based, absent voter approval. The COSA has become an important tool for demonstrating that utility rates are based on the cost of service. As a result, this guideline must be the overriding one for the COSA.

#### Guideline 2: Impact on low income customers

Changes in rate design can have different impacts on customers who use different amounts of electricity. Staff intends to evaluate the impact of any recommended rate design changes on low-income consumers and may recommend mitigation of those impacts to the extent feasible under current law.

#### Guideline 3: Rates should not create unnecessary barriers to building and vehicle electrification, including public EV charging, while remaining cost-based

Certain rate structures may disincentivize customers from taking up electrification measures, such as fixed or minimum monthly charges, tiered rates for residential customers, or demand charges for commercial customers. Staff will evaluate existing rates designs for consistency with City electrification goals.

The City also has DC Fast charging stations for electric vehicles. These types of customers typically have very high 15-minute energy demand peaks, but serve a limited amount of energy, especially while electric vehicle penetration is still relatively low. This leads to significantly higher costs that charging station owners pass to customers, which makes customers even less likely to use the charging station, exacerbating the issue. Staff will have the consultant evaluate which options best address charging station owner needs, avoid suppressing charging station demand, and are still consistent with Palo Alto's cost structure.

#### Guideline 4: Rates should not create unnecessary barriers to on-site generation and storage

The City has been approached by customers looking to create or install technologies which are not effectively accommodated by the City's existing rate schedules, such as large-scale solar and storage installations. Current rates include standby charges which are designed to apply to engine generators rather than solar and storage installations, and thus need updating. Also, because of the dynamics of energy usage and battery storage capability, rates need to be

designed to prevent these systems from offsetting or bypassing charges collected currently via demand or consumption charges, which has the potential to shift costs to other customers.

Guideline 5: COSA and rate design should support a transition to time variant rates (such as TOU, seasonal, etc.) as AMI infrastructure is deployed

The City's Utilities department is planning on installing advanced, or interval, metering within the next five years, and the trend in rates both in California as well as nationwide is a move towards Time of Use (TOU) pricing. TOU pricing seeks to better align customer rates with the real cost of electricity, but also generally does not involve tiered or block rate pricing mechanisms. Tiered rate pricing can potentially place a higher cost burden on customers moving away from natural gas and installing electric space heating, water heating, induction cooking, etc., as well as for customers opting to own electric vehicles and charging at home.

Staff feels it is the appropriate time to evaluate existing residential tiered rates, to see if tiered rates should be continued or modified to reflect changing load patterns. Analysis will also be done to see if rates should include a seasonal component or designed on a uniform basis prior to introducing TOU rates. Other local and regional utilities who have transitioned to TOU pricing from tiered rate mechanisms have done so through a combination of minimizing the number of tiers, increasing tier allocation levels to make prices more uniform, or moving to uniform rates entirely, prior to launching TOU pricing.

As part of this COSA and rates update, the consultant will address the following work plan items:

Work Item 1: Evaluate TOU rates for all customer classes

While TOU rate options exist for the E4 and E7 rate categories currently, these should be evaluated for the E1 and E2 categories as well. An evaluation should be made of the time periods used, as well as the applicability of seasonal variation.

Work Item 2: Evaluate minimum charges and fixed charges

For this COSA, staff recommends evaluating the minimum charge and fixed charge as a way of ensuring that all customer groups contribute their share of the utility's operating costs. This is consistent with the approach currently being implemented by PG&E and other investor-owned utilities, as well as a number of publicly owned utilities throughout California. Many of these utilities are considering eventually implementing fixed charges rather than minimum charges. Staff recommends considering whether the City should implement a minimum charge or proposed a fixed charge instead.

Work Item 3: Evaluate the division of distribution costs between demand and energy charges

For customers with demand metering (E4 and E7), an evaluation will be made as to the allocation of charges between energy (kWh) and demand (kW).

Work Item 4: Update rates for large scale energy storage and intermittent generation, such as solar photovoltaic (PV) and microgrids

As mentioned in Guideline 4 above, new and existing rates for microgrids, battery storage, as well as standby rates, need to be evaluated and implemented.

Work Item 5: Update rates to accommodate public vehicle charging

As mentioned in Guideline 3 above, new or modified cost of service-based rates should be implemented to help facilitate and foster the growth of DC fast charging stations.

Work Item 6: Evaluate rates for electrified homes and vehicles

While this may be covered under the evaluation of TOU options, until such time that AMI can be implemented, an evaluation should be made to see if other rate options are applicable for these types of customers (such as different rate tiers, uniform rates and/or seasonal pricing).

**Next Steps**

After receiving the UAC's recommendation, staff will take the COSA design guidelines to the Finance Committee, followed by consideration by the City Council. The COSA is expected to be completed within FY 2022 so that updated rates can be adopted as part of the FY 2023 budget process or soon thereafter.

**Resource Impact**

The work associated with this project will be absorbed using existing staff and contract budgets. Any new rates adopted as a result will be designed to generate adequate sales revenue to fund the electric utility's operations in FY 2023 and beyond. As discussed in the FY 2022 Electric Utility Financial Plan ([Staff Report 11887<sup>2</sup>](#)), for FY 2023, the utility is currently projected to need roughly 5% more sales revenue than is generated by current rates. Expenses are projected to exceed revenues, with reserves being used to moderate customer impacts as rates are brought to parity over several years.

**Policy Implications**

The process of adopting these design guidelines provides the UAC and Council an opportunity to provide policy guidance to staff before work begins on the COSA.

**Environmental Review**

Adoption of these Design Guidelines for the 2022 Electric Utility Cost of Service and Rate Analysis does not meet the definition of a project, under Public Resources Code Section 21065 and CEQA Guidelines Section 15378(b)(5), because it is an administrative governmental activity which will not cause a direct or indirect physical change in the environment, thus no environmental review is required.

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<sup>2</sup> <https://www.cityofpaloalto.org/files/assets/public/agendas-minutes-reports/reports/city-manager-reports-cmrs/2021/id-11887.pdf>

**Attachments:**

- Attachment A: Proposed Design Guidelines

**Design Guidelines for the 2022 Electric Utility Cost of Service and Rates Analysis**

1. Rates must be based on the cost of providing service. This is the overriding principle for the cost of service analysis (COSA); all other rate design considerations are subsidiary to this basic premise.
2. The effect of proposed rate design changes on low income customers should be considered, to the extent permissible within a cost-based rate structure.
3. Rates should not create unnecessary barriers to building and vehicle electrification, including public electric vehicle charging, while remaining cost-based.
4. Rates should not create unnecessary barriers to on-site generation and storage while simultaneously avoiding subsidies between customer classes.
5. The COSA and rate design should support a transition to more time variant rates (such as TOU, seasonal, etc.) as AMI infrastructure is deployed.

Approved by the Palo Alto City Council on \_\_\_\_\_