

MEMORANDUM

TO: UTILITIES ADVISORY COMMISSION

FROM: UTILITIES DEPARTMENT

DATE: June 1, 2016

SUBJECT: Staff Recommendation that the Utilities Advisory Commission Recommend that the City Council Amend the Net Surplus Electricity Compensation Rate (E-NSE-1)



REQUEST

Staff requests that the Utilities Advisory Commission (UAC) recommend that the City Council amend the Net Surplus Electricity Compensation Rate Schedule (E-NSE) as attached.

EXECUTIVE SUMMARY

Electric utilities must offer Net Energy Metering (NEM) to eligible customers under specific conditions set by state law. One such requirement is that electric utilities establish a Net Surplus Electricity Compensation Rate Schedule to compensate eligible customer-generators for electricity produced in excess of on-site load at the end of each twelve-month period. In December 2010, the City adopted the Net Surplus Electricity Compensation Rate Schedule (E-NSE) rate effective January 1, 2011, to compensate eligible customers for their net surplus electricity at a value of 5.841 cents per kilowatt-hour (kWh), and the rate has remained unchanged since. Staff proposes to update the valuation methodology supporting the E-NSE rate to reflect the City's avoided cost of local solar from the prior calendar year, updated annually. Using this methodology and 2015 data, the proposed E-NSE rate is 7.21 cents per kilowatt-hour effective July 1, 2016.

Staff expects the total cost of energy purchases under the proposed 7.21 cents/kWh rate will be \$15,000 to \$20,000 a year at full NEM program capacity of 9.5 MW, or \$5,000 more per year compared to the current E-NSE rate. The proposed E-NSE rate is a cost-justified rate that meets statutory requirements set out in State law and applies only to NEM customers.

BACKGROUND

Assembly Bill (AB) 920 (2009) modified the California Public Utilities Code's terms and conditions for Net Energy Metering (PUC Section 2827, *et. seq.*). AB 920 required the City Council to establish a Net Surplus Electricity Compensation Rate Schedule effective January 1, 2011, to compensate eligible customer-generators for electricity produced in excess of on-site

load at the end of each twelve-month period. The Net Metering Net Surplus Electricity Compensation rate (Utility Rate Schedule E-NSE-1) was adopted by Council in December 2010 ([Resolution 9124](#)).

Eligible customer-generators may choose to receive their Net Surplus Energy compensation as a monetary bill credit or as cash. Settlement periods are twelve months and are deemed to start when the utility receives the customer’s completed and signed election form. If the customer fails to make an election, electric utilities are not obligated to offer compensation or carry forward the net-surplus electricity: PUC Section 2827(h)(3) requires the City to claim the surplus as its own. State law (PUC Section 2827(h)(6) also requires that the net surplus electricity purchased by the electric utility counts toward the electric utility’s renewables portfolio standard (RPS) annual procurement targets.

In December 2010, the City adopted the E-NSE rate to compensate eligible customers for their net surplus electricity at a value of 5.841 cents/kWh, which is based on the average cost of the City’s renewable portfolio standard (RPS) eligible supply contracts in FY2010. This value includes the value of the electricity and renewable attributes, and excludes the value of avoided costs for transmission and losses. The valuation methodology was chosen because of its simplicity and because it does not shift costs between eligible customer-generators and other bundled service customers, in compliance with PUC 2827(h)(5).

As of April 30, 2016, the City has 885 eligible NEM customers with a total generating capacity of 7.6 MW. Total net surplus generation over the past four calendar years is shown in Table 1. The aggregate amount of net surplus generation is minimal compared to the City’s total energy purchases¹, and predominantly from the residential customer class. The number of net surplus generators is small compared to the overall number of solar customers. Customers may end up producing electricity beyond their on-site needs because of a variety of reasons, including: 1) the customer sized the solar system larger than the current load in anticipation of adopting an electric vehicle, but has not done so yet, 2) the customer decreased load significantly after adopting a solar installation, due to energy efficiency measures or reduced family size, or 3) the solar system was mistakenly sized to be larger than the customer’s on-site needs.

Table 1: Historical annual net surplus generation by customer class

Customer Class	Annual Net Surplus Generation (kWh)			
	2012	2013	2014	2015
Residential	211,445	238,192	349,857	391,025
Small Commercial	168	212	1,946	4,680
Medium Commercial	0	3	3	0
Total	211,613	238,407	351,806	395,705

¹ Net Surplus compensation paid to customers in 2015 totaled \$10,605.09, or less than 0.02% of total electricity purchases.

DISCUSSION

Public Utilities Code Section 2827 describes the terms and conditions of net energy metering, including the requirements for the net surplus electricity compensation rate. Pertinent sections of the PUC Section 2827 are copied below.

PUC section 2827 (h) (5) (A):

The net surplus electricity compensation valuation shall be established so as to provide the net surplus customer-generator just and reasonable compensation for the value of net surplus electricity, while leaving other ratepayers unaffected. The ratemaking authority shall determine whether the compensation will include, where appropriate justification exists, either or both of the following components:

(i) The value of the electricity itself.

(ii) The value of the renewable attributes of the electricity.

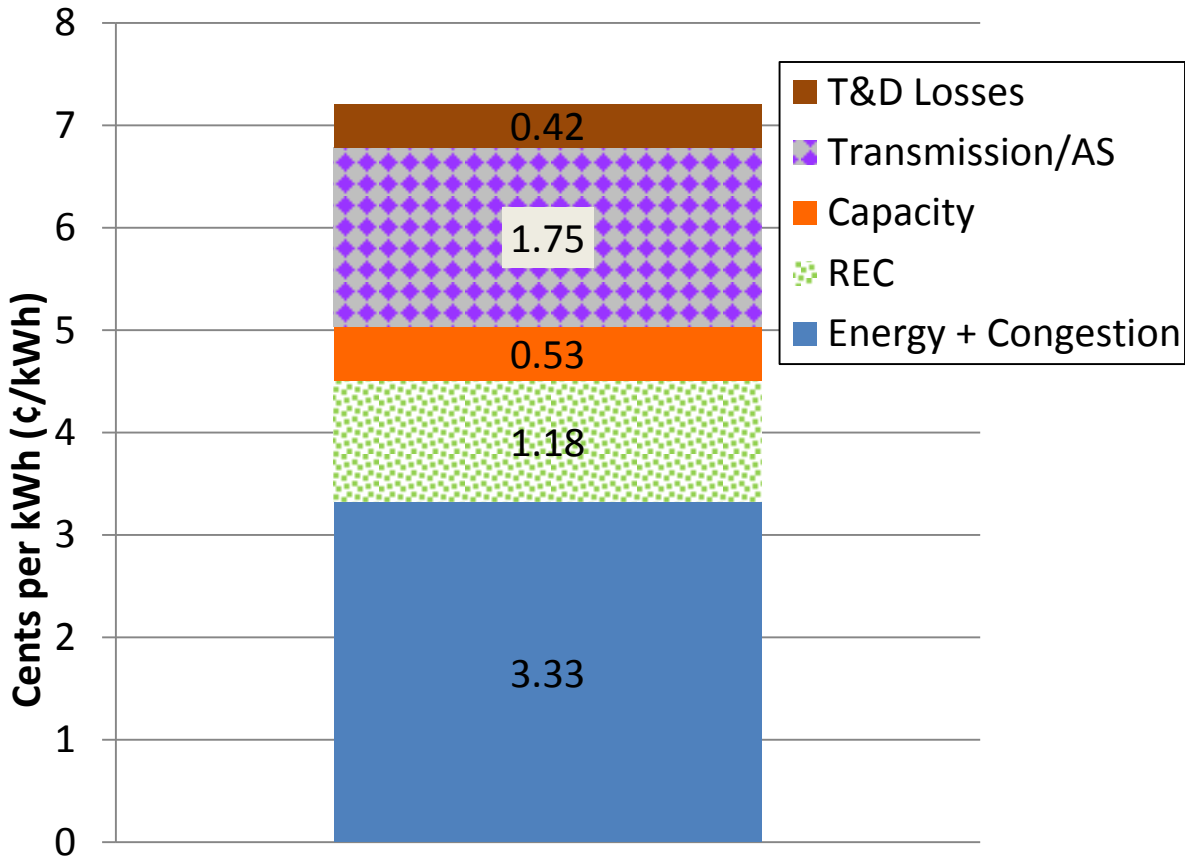
PUC section 2827 (h) (5) (B):

In establishing the rate pursuant to subparagraph (A), the ratemaking authority shall ensure that the rate does not result in a shifting of costs between solar customer-generators and other bundled service customers.

Staff proposal

Staff proposes increasing the net surplus electricity compensation rate to 7.21 cents per kWh, shown in Figure 1, which is calculated based on a historical short-term avoided cost of local solar for calendar year 2015. The value would take effect July 1, 2016, and would be updated annually. The value of 7.21 cents per kWh was determined utilizing historical data and takes into account the value of the energy and congestion, avoided capacity charges, avoided transmission and ancillary service (AS) charges, avoided transmission and distribution (T&D) system losses, and renewable energy credits (RECs), or environmental attributes. The energy component to the overall credit rate is calculated by taking historical wholesale monthly round-the-clock market price data for northern California, and weighting them based on the typical generation profile of rooftop solar PV systems in Palo Alto and the hourly profile of market prices in northern California. In this way, the valuation methodology accounts for the fact that solar energy is often generated at times of peak system demand. Avoided transmission and AS charges are calculated based on the actual charges that the City pays to the California Independent System Operator (CAISO) for these services. The value of the environmental benefits is based on historical market price indicatives for the value of a "Bucket 1" REC. The valuation methodology is consistent with the 2016 electric cost of service analysis (COSA).

Figure 1: Value of net metering net surplus electricity rate (E-NSE)



The proposal uses an updated valuation methodology for two primary reasons. First, the proposal is consistent with the valuation model used to calculate the proposed NEM successor credit rate for energy exports (proposed Utility Rate Schedule E-EEC), which is also a short-term avoided supply cost of local solar. The only difference in the application of the valuation methodology is that the NEM successor credit rate is a forward-looking value that uses input data for the upcoming fiscal year (FY 2017) and the NEM net surplus electricity compensation rate is a backward-looking value that uses input data from the prior calendar year (CY 2015)². Second, the prior valuation methodology adopted in 2010 utilized RPS-eligible renewable energy costs, which are all long-term energy contracts, many of which span multiple decades. The proposed valuation methodology is a short-term avoided cost based on market purchases, which is more consistent with how CPAU balances small amounts of energy (such as that from net surplus electricity generators) when managing the electric supply portfolio.

ALTERNATIVES

There are alternative valuation methodologies that could be used to calculate the net surplus electricity compensation rate that fulfill statutory requirements. Using the same valuation

² Net surplus compensation is for generation in excess over the past 12-month period so it uses data from the past year. The NEM successor credit rate (E-EEC) is for energy that will be generated in the future, which is why it uses forecasts for the input data for the next fiscal year.

methodology as that adopted in 2010 (average cost of RPS-eligible renewable energy supply excluding transmission), the value of the rate would be 6.835 per kWh for FY 2017 (based on FY 2016 costs). Staff does not recommend this alternative because it does not take into account a variety of avoided costs of local generation and it is inconsistent with the proposed valuation methodology to calculate the NEM successor rate for electricity exports. A second alternative would be to adopt the same value as the proposed NEM successor credit rate for energy exports (proposed Utility Rate Schedule E-EEC), which is 7.485 cents per kWh. Staff also does not recommend this methodology since, although the underlying valuation model is the same, the E-EEC rate is forward-looking and based on input data for FY 2017, whereas net surplus compensation is by definition backward-looking and based on input data from CY 2015.

RESOURCE IMPACT

Staff anticipates the resource impact due to updating the proposed cost-based net surplus electricity compensation rate schedule for eligible customers will be negligible. Based on the historical levels of net surplus electricity and trends in customer elections discussed above, staff expects the total cost to be approximately \$15,000 to \$20,000 a year at full NEM program capacity of 9.5 MW. This is an additional \$5,000 per year compared to the current E-NSE compensation rate of 5.841 cents/kWh.

POLICY IMPACT

This recommendation does not represent a change to current City policies. The proposed revisions do not have any policy implications.

ENVIRONMENTAL IMPACT

The UAC's recommendation to Council on the proposed net surplus electricity compensation rate does not meet the California Environmental Quality Act's definition of a project pursuant to California Public Resources Code Section 21065, therefore no environmental assessment is required.

ATTACHMENT

- A. Net Surplus Electricity Compensation Rate Schedule

PREPARED BY:

REVIEWED BY:

APPROVED BY:

 **AIMEE BAILEY**, Resource Planner
 **JANE RATCHYE**, Assistant Director, Resource Management


ED SHIKADA
Assistant City Manager/Interim Director of Utilities

NET METERING NET SURPLUS ELECTRICITY COMPENSATION

UTILITY RATE SCHEDULE E-NSE-1

A. APPLICABILITY:

This schedule applies to eligible residential and small commercial ~~net metering~~Net Energy Metering Customers who, at the end of an annual settlement period, as ~~defined by~~described in Rule 29, are ~~net surplus customer generators~~Net Surplus Customer-Generators of electricity ~~and~~ who elect to receive monetary compensation as such preference is indicated on the net surplus electricity election form. This schedule only applies to Customers who participate in Net Energy Metering, and does not apply to Customers that take service under the City’s Net Energy Metering Successor Rate, as each of these terms are defined in Rule and Regulation 2.

B. TERRITORY:

~~Applies to locations within the service area of~~This rate schedule applies anywhere the City of Palo Alto ~~provides electric service.~~

C. RATES:

	<u>Per kWh</u>
Net energy compensation <u>Surplus Electricity Compensation</u> rate	\$0. <u>058410721</u>

D. SPECIAL CONDITIONS

- ~~1. Net surplus compensation eligibility will be determined as specified in Rule 29. The determination of a Customer’s net surplus electricity measured in kWh will be based on a twelve-month settlement period. The twelve-month settlement period starts on the date of Interconnection of the facility, or for Customers with dates of Interconnection of their facilities prior to February 1, 2010, on the day after CPAU’s receipt of the Customer’s net surplus electricity election form.~~Net Surplus Electricity Compensation Rate eligibility shall be determined as specified in Rule 29. Net surplus electricity, as specified in Rule 29, if applicable, will be multiplied by the above compensation rate to determine the Customer’s annual net surplus electricity compensation stated in dollars. ~~This compensation will be provided to the Customer as a credit applied to the Customer’s Utility account.~~
- ~~2. If the Customer does not provide CPAU with an election form selecting a compensation option, the Customer will be deemed to not make an election as required by law, and no compensation will be provided to the Customer for net surplus electricity.~~
- ~~3. In the event a Customer terminates Service prior to the natural expiration of the twelve-month period, the net surplus electricity status will be evaluated at that time. Compensation, if applicable, will be provided in accordance with D.2 above.~~
- ~~4.2.~~For all otherAdditional terms, conditions and definitions ~~please refer to Rule 29,~~govern Net Energy Metering Service and Interconnection, as described in Rule 29.

{End}

