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April 10, 2020

Via E-mail
Mr. John McClenny, CPO
Special Projects Director
The City of Stillwater, Oklahoma

Dear Mr. McClenny:

Per your request, below is an analysis and proposed electric vehicle (EV) charging rate structure for Stillwater Utilities Authority (SUA).

Background

Electric vehicle charging stations have been installed at four locations throughout Stillwater. Some are level 2 chargers, while some are level 3 DC fast chargers. There is a combination of both single and dual chargers in various locations.

Usage at these chargers has been very low to date. Based on information provided by SUA, all four locations had combined total usage of 3,200 kWh for the period mid-November 2019 through March 2020. Assuming that all of this energy went to charging vehicles (rather than powering charger screens, etc.), this would represent approximately 9,600 miles of driving at an average rate of 3 miles per kWh (or 333 Watt-hours per mile). For a gasoline-powered car at an average of 30 miles per gallon, this is the equivalent of 320 gallons of gasoline.

SUA incurred approximately $83,000 in materials costs related to the installation of these chargers.

These charging stations are currently on SUA's general service electric rate schedule. However, it was communicated to the owners of these chargers that a separate EV charging rate would be implemented and applicable to them in the future.

Analysis

Unlike home charging, which often happens during off-peak hours, public EV charging is more likely to occur during on-peak hours. Much of SUA's purchased power expense from the Grand River Dam Authority (SUA's wholesale power supplier) is based on the highest usage hour during a month. Any incremental or marginal usage at this time directly increases SUA's purchased power expense for a month.

EV charging is by its nature a low load factor electric usage. In other words, the charger draws a large amount of power (particularly for a DC fast charger) over a short period of time when a car is charging. The rest of the time, the charger draws little to no power.

Because public EV charging is both more likely to be on-peak and at a low load factor, a demand-charge based rate is appropriate. This means that, in addition to the customer charge and per-kWh energy charge, a demand charge is also applied based on the maximum usage in any one period during a billing cycle. This demand charge recognizes that SUA must build

the infrastructure capable of delivering the maximum amount of power a customer uses during a period. It also recognizes that a significant portion of SUA's wholesale power cost is based on system peak usage.

Demand-based rates typically have a much lower per kWh energy charge than non-demand rates, in recognition of the fact that the demand charge recovers some of the utility's costs. For non-demand charge rates, such as residential and general service, the customer charge collects a very small portion of the utility's fixed costs – all remaining fixed cost recovery must come through the per kWh energy charge.

Proposed Rate

A typical cost-of-service based approach cannot be used to develop a public EV charging rate for SUA because of the very small number of customers and low level of energy consumption at each location. In consultation with SUA staff, we have developed an EV charging rate that reflects the public benefit of EV charging (infrastructure that supports usage of parks and local businesses) while still ensuring equitable cost recovery.

We propose a monthly customer charge of $35 per month. This is above the current general service rate of $18.04, but well below the lowest demand-based customer charge of $226.88 for Power and Light – Secondary service.

We propose a monthly demand charge of $9.53 per kW-month for all months. This is the same rate as the Power and Light – Secondary demand charge for winter months (an $11.37 per kW-month charge applies to P&L – Secondary for summer months).

We propose an energy rate of $0.05529 per kWh for all kWh. This is again the same rate as the Power and Light – Secondary energy charge for all kWh. As with all other SUA rate classes, the Production Cost Adjustment (PCA) would also apply to all kWh sales, as would all applicable sales tax.

Effect of Rate Change on Current Customers

Only one SUA public EV charging customer has sufficient usage history for a rate comparison to be meaningful. This customer has had load factors that have ranged from 3.4% to 6.0% over the past three months. The average rate per kWh has ranged from 16 to 18 cents per kWh (as the Customer Charge is spread over a relatively small number of units). The total bill has ranged from $89 to $155.

The average rate per kWh for the customer at the proposed rates at historical usage would range from 35 cents per kWh to 56 cents per kWh. This wide range is the result of varying energy usage levels and load factors. The total bill would range from $197 to $420. We recognize that this is a significant increase; however, these rates more appropriately recognize the costs that the customer imposes on SUA and provide for recovery of the significant fixed costs that SUA incurred in establishing service to each location.

The customer could significantly reduce the average rate per kWh by increasing the level of energy consumption. We modeled the increase in consumption that would be required to

provide for an average rate that would be equal to the average rate under the current general service rate. In this analysis, we assumed that no demand increase would occur because the maximum draw of the EV charger is fixed. An increase in consumption of between 3.5 and 5.9 times current usage would be required for the rate levels to be the same as under the current rate structure. Given that current usage of the charger is very low; this does not seem unreasonable – even at these higher usage levels, the charger would only be utilized approximately 17% to 22% of the time. If usage were to increase above these levels, the average rate paid would be less than under the current general service rate. Another option to reduce the average rate would be to reduce the peak demand of a charger, although this would result in longer charging times, which may not be preferable.

Thank you very much for the opportunity to perform this work for the City of Stillwater and the Stillwater Utilities Authority. If you have any questions, please feel free to contact me at (612) 252-6531.

Very truly yours,

Avant Energy, Inc.

David W. Niles
Vice President

ELECTRIC RATE
ELECTRIC VEHICLE CHARGING STATION SERVICE (EVC)
Revision 1

I. **EFFECTIVE IN:** All areas served by Stillwater Electric Utility, herein referred to as SEU, of the Stillwater Utilities Authority.

II. **AVAILABILITY**: Electric service for powering charging stations for electric vehicles in public (non-residential) locations.

Service will be furnished in accordance with SEU Rules, Regulations, and Conditions of Service, and the Rules and Regulations of the City of Stillwater and the Stillwater Utilities Authority.

III. **CUSTOMER CHARGE:** $35.00 per bill per month

IV. **DEMAND CHARGE:** $9.53 per kW-month for all months

V. **ENERGY CHARGE:** $0.05529 for all kWh

VI. **MINIMUM BILL:** The minimum monthly bill shall be the Customer Charge, plus the Demand Charge as computed under this Rate Schedule. SEU shall specify a larger minimum monthly bill, calculated in accordance with SEU's Allowable Expenditure Formula in its Terms and Conditions of Service when necessary to justify the investment required to provide service.

VII. **LATE PAYMENT CHARGE:** A late payment charge in an amount equal to ten per cent (10%) of the total amount due on each monthly bill as calculated under this Rate Schedule or $2,500, whichever is less, will be added if the bill is not paid on or before the due date stated on the bill. The due date shall be twenty-one (21) days after the bill is mailed.

VIII. **DETERMINATION OF BILLING DEMAND:** The Billing Demand is the demand value, in kilowatts, upon which the demand charge is based. This value shall be the greater of the following:

a. The Maximum Demand established during the billing month;
b. A value not less than 65% of the highest Maximum Demand, determined during the previous 12 months ending with the current month.

IX. SAMPLE CALCULATION

1. Calculate demand charge by multiplying the Billing Demand as determined in Part VIII by the Demand Charge.
2. Calculate energy charge by multiplying the energy used (kWh) by the Energy Charge.
3. Multiply total energy used (kWh) by the current month's Production Cost Adjustment (PCA).
4. Total Steps 1, 2 and 3.
5. Add the Customer Charge.
6. Multiply total of Step 5 by the applicable tax.

X. SALES OF ELECTRICITY BY CUSTOMER

SALES OF ELECTRICITY BY CUSTOMER: Sales of charging services from the electric vehicle charging station shall not be subject to rate regulation by the Stillwater Utilities Authority.

XI. DEFINITIONS:

A. Maximum Demand: The maximum rate at which energy is used for any period of 15 consecutive minutes during the billing month, as shown by SEU's demand meter or metering equipment.

B. Production Cost Adjustment (PCA): A factor determined by SEU and applied to the cost of energy used by the consumer to account for variations in the cost of generating or purchasing power.

C. Billing Month: A period of approximately 30 days extending from the previous meter reading date to the present meter reading date.

Original Issue: 6/01/20

Most Recent SUA Rate Action: Resolution No. SUA-2020-3 (6/01/20)

RESOLUTION NO. SUA-2020-3

A RESOLUTION ADOPTING AN ELECTRIC RATE FOR ELECTRIC VEHICLE CHARGING STATION SERVICE

WHEREAS, the City of Stillwater has owned and operated a municipal electric utility since July 18, 1901 for the benefit of the citizens of said City; and

WHEREAS, the Stillwater Utilities Authority, a public trust, is the operator of the City of Stillwater's municipal electric utility, a provider of retail electric service to residents and businesses located within and outside of the corporate limits of the City of Stillwater; and

WHEREAS, the Trustees of the Stillwater Utilities Authority are charged with the duty and responsibility to establish and set electric rates; and

WHEREAS, the Stillwater Utilities Authority recognizes the need to implement an Electric Vehicle Charging Station Service Tariff for public charging stations to allow for future growth in the electrification of vehicles; and

WHEREAS, it is the responsibility of the Trustees of the Stillwater Utilities Authority to ensure that electric rates are adequate to meet the financial requirements of the electric system and the City; and

WHEREAS, the Stillwater Utilities Authority believes that to maintain a high quality of service, the fees, rates and tariffs charged to the Electric Vehicle Charging Station Service customers should be adequate to cover the cost to provide the service.

NOW, THEREFORE BE IT RESOLVED BY THE CHAIR AND TRUSTEES OF THE STILLWATER UTILITIES AUTHORITY:

SECTION 1. That the Electric Rate for Electric Vehicle Charging Station Service for customers who intend to charge their vehicles on public chargers be approved as follows:

ELECTRIC RATE
ELECTRIC VEHICLE CHARGING STATION SERVICE (EVC)

I. **EFFECTIVE IN:** All areas served by Stillwater Electric Utility, herein referred to as SEU, of the Stillwater Utilities Authority.

II. **AVAILABILITY**: Electric service for powering charging stations for electric vehicles in public (non-residential) locations.

Service will be furnished in accordance with SEU Rules, Regulations, and Conditions of Service, and the Rules and Regulations of the City of Stillwater and the Stillwater Utilities Authority.

III. **CUSTOMER CHARGE:** $35.00 per bill per month

IV. **DEMAND CHARGE:** $9.53 per kW-month for all months

V. **ENERGY CHARGE:** $0.05529 for all kWh

VI. **MINIMUM BILL:** The minimum monthly bill shall be the Customer Charge, plus the Demand Charge as computed under this Rate Schedule. SEU shall specify a larger minimum monthly bill, calculated in accordance with SEU's Allowable Expenditure Formula in its Terms and Conditions of Service when necessary to justify the investment required to provide service.

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before the due date stated on the bill. The due date shall be twenty-one (21) days after the bill is mailed.

VIII. DETERMINATION OF BILLING DEMAND: The Billing Demand is the demand value, in kilowatts, upon which the demand charge is based. This value shall be the greater of the following:

a. The Maximum Demand established during the billing month;
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B. Production Cost Adjustment (PCA): A factor determined by SEU and applied to the cost of energy used by the consumer to account for variations in the cost of generating or purchasing power.
C. Billing Month: A period of approximately 30 days extending from the previous meter reading date to the present meter reading date.

SECTION 2. This Resolution shall become effective July 1, 2020.

PASSED, APPROVED AND ADOPTED THIS ____ DAY OF JUNE, 2020.

STILLWATER UTILITIES AUTHORITY
a public trust

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WILLIAM H. JOYCE, CHAIR

ATTEST:
(seal)

_____
TERESA KADAVY, SECRETARY

APPROVED AS TO FORM AND LEGALITY THIS _____ DAY OF JUNE, 2020.

_____
JOHN E. DORMAN, GENERAL COUNSEL