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E-01345A-13-0248

Trisha A. Morgan

From: Arizona Corporation Commission
Sent: **DOCKETED**
To:
Cc: JUL 18 2013
Subject:

Charles Whitlatch <cwhitlat@yahoo.com>
Thursday, July 18, 2013 3:31 PM
Pierce-Web; Burns-Web; Stump-Web; BitterSmith-Web; Burns-Web
jeff@sunharvest-us.com; brandon@sunharvest-us.com
APC Solar Net Metering

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Dear Commissioners: *nr*

I read Commissioner Bob Burns' comment on "certain matters related to the Commission's net metering rules and their current and potential future impact on our electric utilities and their customers", and I address the commissioner's comments in this letter to the Arizona Corporation Commission.

Issue 1:

Non-solar customers may pay a disproportionate share of the infrastructure fixed costs now and until the presumed point when the system's benefits to the grid outweigh its costs. A significant percentage of the usage portion of a customer's electric bill is for fixed cost infrastructure. Solar customers reduce or eliminate the usage portion of their bill. As a consequence, it appears that solar customers may significantly reduce their contribution to the support of the infrastructure that they rely on for back-up when the sun is not shining.

Commissioner Burns, yes, you are partially correct in your concerns. If it happens to become possible (in the future) to economically and independently generate residential electricity both day and night, or to economically store solar energy for use at night, many Arizona residents may disconnect entirely from the APS grid and they will not pay for ANY of the infrastructure fixed costs. And yes, those left connected to the grid will pay for its costs.

Residential Solar Distributed Generation (DG) Facilities that supply most, if not all, of their residential electricity needs during peak-demand daytime hours (when the sun shines) are not charged (on the APS Combined Advantage 7pm-Noon service plan) a "Delivery service charge" or a "Demand charge on-peak - delivery" for the electricity they may normally use from APS. However, electricity used by solar customers that exceeds the net delivery of energy to APS during peak solar generation hours, and then used during off-peak hours, is still charged the "Delivery service charge", a "Federal transmission and ancillary services" charge, and a "Federal transmission cost adjustment". These charges support the APS grid infrastructure for electricity that is used during the night, when net use exceeds net generation.

Example: My June 2013 bill shows a \$15.48 "Delivery service charge", a \$5.75 "Federal transmission and ancillary services" charge and a \$7.16 "Federal transmission cost adjustment". These are off-peak (night-time) charges.

Since 80 percent of my electricity is used during "off peak" hours (mostly night-time hours, for a total monthly bill \$142.41), I will still pay a portion of the infrastructure charges that support the APS electric grid, even if I become a residential solar generating facility (GF).

Even more importantly, because solar GFs produce only a small portion of all of the electricity used within a local substation grid, solar-generated power does not need long-distance transmission lines to transport it. The solar-generated power is used entirely within specific electrical substation grids, up to the first voltage regulator. Power from solar GFs literally does not leave that substation but instead is consumed by nearby residential neighbors and adjacent businesses and charged at the APS retail on-peak rate.

Issue 2:

Perhaps an even more significant issue is the possibility that net metering may result in the electric utilities purchasing energy back from customers' rooftop installations at the retail rate when the energy is available to the utility at the lower wholesale rate. This could occur when a customer's meter spins backwards when that customer's solar rooftop installation is producing more power than the customer is using at that particular time. Since the meter is spinning backwards, the utility is paying that particular customer at the same rate the utility is charging that customer, i.e., the retail rate, for the extra energy being produced by that customer's solar rooftop installation. The energy that the utility is buying at that retail rate is the energy that the utility is using to serve its other Customers. It is my understanding that typically the utility would buy energy and/or produce its own energy to serve its customers at a wholesale rate which is less than the retail rate. The lower cost of the energy generated or purchased by the utility at the lower retail costs is presumably passed through to all utility customers.

Commission Burns, yes, net metering typically "banks" energy to the electric grid and (in my understanding) it gives credit, kWh for kWh, regardless of the time-of-day RETAIL rate.

I calculated the retail rate that APS charges me (Summer and Winter). See the Appendix below. On-peak billing is typically about \$0.25 per kWh (Summer or Winter) and the off-peak billing is typically about \$0.05 per kWh (Summer or Winter).

The obvious problem I see is that APS is not making a profit when it re-sells electricity generated by residential solar GFs. But, as you can see, the RETAIL value of solar-generated electricity is quite high during on-peak hours.

In many cases, with net metering, solar GFs are EXCHANGING very expensive, VERY VALUABLE on-peak electric power generated during daylight hours for much-less-valuable electricity consumed during off-peak and night-time hours.

Sincerely,
Charles Whitlatch

APPENDIX:

Without any regard to additional APS charges for

Customer account charge - \$6.90 (April 2013) \$7.14 (May 2013)

Metering - \$5.39 (April 2013) \$5.58 (May 2013)

Meter Reading - \$1.80 (April 2013) \$1.86 (May 2013)

Billing - \$2.03 (April 2013) \$2.10 (May 2013)

Federal transmission and ancillary services - \$2.92 (April 2013) \$4.16 (May 2013)

Federal transmission cost adjustment - \$3.04 (April 2013) \$4.32 (May 2013)

LFCR adjustor - \$0.13 (April 2013) \$0.19 (May 2013)

or any Taxes, Fees, or Assessments, my cost for purchasing electricity per (kWh) kiloWatt-hour is:

Winter on-peak (April 2013, add the following):

Delivery service charge $\$8.94/562 \text{ kWh} = \$0.01591/\text{kWh}$

Demand charge on-peak delivery $\$3.60/74 \text{ kWh} = \$0.04865/\text{kWh}$

Environmental benefits surcharge $\$5.36/562 \text{ kWh} = \$0.009537/\text{kWh}$

System benefits charge $\$1.67/562 \text{ kWh} = \$0.002972/\text{kWh}$

Power supply adjustment $\$0.75/562 \text{ kWh} = \$0.001335/\text{kWh}$

Generation of electricity on-peak $\$2.47/74 \text{ kWh} = \$0.03338/\text{kWh}$

Demand charge on-peak - generation $\$10.35/74 \text{ kWw} = \$0.1395/\text{kWh}$ (1.5 kW peak demand)

Total: \$0.2516/kWh

Summer on-peak (May 2013, add the following):

Delivery service charge $\$11.20/800 \text{ kWh} = \$0.014/\text{kWh}$

Demand charge on-peak delivery $\$9.00/155 \text{ kWh} = \$0.05806/\text{kWh}$

Environmental benefits surcharge $\$6.00/800 \text{ kWh} = \$0.0075/\text{kWh}$

System benefits charge $\$2.38/800 \text{ kWh} = \$0.002975/\text{kWh}$

Power supply adjustment $\$1.07/800 = \$0.001338/\text{kWh}$

Generation of electricity on-peak $\$10.31/155 = \$0.06652/\text{kWh}$

Demand charge on-peak - generation $\$18.00/155 = \$0.1161/\text{kWh}$ (2.0 kW peak demand)

Total: \$0.2665/kWh

Winter off-peak (April 2013, add the following):

Delivery service charge $\$8.94/562 \text{ kWh} = \$0.01591/\text{kWh}$

Environmental benefits surcharge $\$5.36/562 \text{ kWh} = \$0.009537/\text{kWh}$

System benefits charge $\$1.67/562 \text{ kWh} = \$0.002972/\text{kWh}$

Power supply adjustment $\$0.75/562 = \$0.001335/\text{kWh}$

Generation of electricity off-peak $\$8.30/488 = \$0.01701/\text{kWh}$

Total: \$0.04676/kWh

Summer off-peak (May 2013, add the following):

Delivery service charge $\$11.20/800 \text{ kWh} = \$0.014/\text{kWh}$

Environmental benefits surcharge $\$6.00/800 \text{ kWh} = \$0.0075/\text{kWh}$

System benefits charge $\$2.38/800 \text{ kWh} = \$0.002975/\text{kWh}$

Power supply adjustment $\$1.07/800 = \$0.001338/\text{kWh}$

Generation of electricity off-peak $\$10.31/645 = \$0.01598/\text{kWh}$

Total: $\$0.04780/\text{kWh}$

These are APS-related costs of generating and delivering electrical energy per kWh, not taxes, fees, assessments, federal charges, billing charges, or corporate operating expenses (including the \$4 million CEO bonus).