



State Commission Staff Surge Call: Electric Vehicle Rate Design and Ownership

October 29, 2018

With electric vehicle (EV) sales [rising](#), drivers need charging stations available in homes, workplaces, public buildings, and along roads. State public utility commissions have a key role in defining charging infrastructure ownership and rate design. Well thought-out rate design can make EVs a grid resource by encouraging EV owners to charge at off-peak times or during periods of high renewable production. One barrier to commercial buildings hosting charging stations is demand charges. Some states have been looking to reduce or eliminate demand charges as a way to encourage building owners to establish public EV charging stations.

On this call, commission staff from California, Oregon, Hawaii, Indiana, Ohio, and Kentucky discussed how their states are approaching commercial EV charging rates, offering ideas for how other states might wish to proceed.

California

California has been considering how to structure EV rates to make potential hosts more open to providing charging stations. Southern Californian Edison (SCE) proposed an EV rate in January 2017 and the commission adopted a modified version in May 2018. The approved tariff provides a demand charge holiday for commercial customers procuring EVs for five years, with all costs recovered through an energy-only volumetric rate in years zero through five, with demand charges gradually phased back in during years six through ten. SCE has designed the volumetric energy charge to recover energy and delivery via a higher per-kWh energy charge that does not shift any costs to non-EV customers. SCE estimates that customers on this rate for ten years will lower their demand charges by 40 percent once SCE fully phases them back by year 11, compared to those not on the rate. SCE also agreed to make some transmission rates time-variant so that in year 11, transmission recovery rates will also have a time-of-use rate to further incentivize off-peak charging.

The SCE rate was modeled on pilot rates from all three of California's large investor-owned utilities. All offered three-year demand charge holidays to government agencies procuring EVs. When they collected data, utilities noted that energy use aligned more with time-of-use rates but that the three-year period was too short for agencies to purchase enough EVs and adapt charging behavior. SCE's proposed longer timeframe should be more conducive to customers developing beneficial charging behaviors. The ten-year period begins once the rate is in place – customers have to join right away to get the full five years of waived demand charges. SCE's rate is available for all customers for private or public charging stations.

Pacific Gas & Electric (PG&E) was also directed to file a commercial EV rate, and the utility has been working with stakeholders to design a rate specifically for EV fleet operators and direct current direct current fast charging stations. The rate will be subscription-based with different levels of kilowatt subscriptions available.

SDG&E has been piloting a [Vehicle Grid Integration](#) (VGI) rate based on the California Independent System Operator's day-ahead hourly rate, allowing customers to program their chargers to take advantage of low prices.



California is trying to test out different charging ownership models and encourage private participation in the EV charging market alongside utilities. SCE does not own charging equipment. SDG&E, on the other hand, owns and operates their own charging stations in a pilot program working directly with commercial customers to install equipment at workplaces, either restricted to workplace employees or open to the public.

Oregon

Oregon passed legislation mandating that utilities provide EV charging. PacifiCorp conducted a survey of EV competitors with varying rate structures: some kWh-only, others combining demand charge with kWh charges. PacifiCorp noted that only one competitor had a per-minute charge, but argued that a lump sum or kWh charge would encourage customers to overuse chargers without making them available for others. PacifiCorp also argued that a per-minute charge would be simpler for customers to understand.

Since PacifiCorp's proposal was approved, Portland General Electric (PGE) has applied for a similar pilot program. They currently offer a monthly membership charge giving a discount on per-kWh or lump sum payments for charging. Oregon has an off-peak energy rate around \$0.04/kWh.

Question & Answer

Staff on the call shared a number of other EV initiatives:

Hawaii: the commission defined some technology-neutral ancillary service tariffs and enabled third-party aggregators to bundle customer-sited resources together. The Hawaiian Electric Companies (HECO) released a [grid services RFP](#) in April 2018. EV charging is one of the first stages of the initiative.

Indiana: Indianapolis Power & Light has a [Blue Indy](#) EV charging and car-sharing program, approved by the commission in 2015 in [Case No. 44478](#). In [Case No. 44016](#), the commission allowed Northern Indiana Public Service Company to implement an off-peak charging rider for a three-year pilot and a number of other EV charging investments, including utility-owned charging infrastructure.

Ohio: American Electric Power Ohio has an EV pilot under Columbus's [Smart City](#) initiative. The program, announced in August 2018, sets aside \$10 million for EV charging throughout the utility's service territory. Charging tariffs have not yet been defined.

Kentucky: [Case 2015-00355](#) created ownership models for Louisville Gas & Electric and Kentucky Utilities for non-residential customers to own charging stations.

Do demand charges account for generation, transmission, and/or distribution?

In Oregon, PGE's demand charges are based on transmission and distribution, not generation. Generation is covered by per-kWh volumetric charges.

In California, SCE's [demand charges](#) cover delivery and generation costs.

How do customers pay for charging?

For private entities in Oregon installing and operating charging stations, charges are presented to customers as lump-sum or per-minute/per-session charges, rolling up all utility fees into one simple number. Utilities have been structuring rates in different ways.



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In California, competitive providers charge a fee on top of electricity costs known as a network service fee. The charge goes to the person using the station or the site host. Competitive station operators have said they are not yet making money because of high demand charges and low utilization, although new tariffs could make the market more attractive.

EVgo and the Rocky Mountain Institute released a [study](#) of charging stations showing how demand charges are eliminating profit margins.

What advice do these states have for other states at earlier stages in the EV rate conversation?

California hosted a rate design forum to hear from entities trying to make a business model for EV charging and customers trying to adopt EVs on a large scale. The commission found the forum to be a valuable opportunity to gather stakeholder input and learn more about EV adoption.

Oregon is following how time-varying rates change EV charging behavior. The commission intends to learn from current pilot programs and make evidence-based decisions in the future.

This call was made possible by the U.S. Department of Energy under cooperative agreement DE-OE0000818. Please address questions to Kiera Zitelman, NARUC Senior Program Officer, at kzitelman@naruc.org.