PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

ENERGY DIVISION

ID #11631
RESOLUTION E-4514
November 8, 2012

R E S O L U T I O N

Resolution E-4514: Southern California Edison Company (SCE) Advice Letter 2699-E

PROPOSED OUTCOME: This Resolution approves SCE's proposal to extend the applicability of Schedule TOU-8, Option A to customers charging zero emissions electric buses, with modifications. In particular, the Resolution directs SCE to include, for a period of three years, a rate limiter of 16 cents per kWh in its TOU-8, Option A tariff applicable to government agencies that have purchased or obtained zero emissions electric buses.

ESTIMATED COST: The costs are unknown at this time.

By SCE Advice Letter 2699-E, filed on February 13, 2012

SUMMARY

This Resolution addresses SCE's request to extend the applicability of Schedule TOU-8, Option A to customers charging zero emissions electric buses. This Resolution approves SCE's request, with modifications. In particular, the Resolution directs SCE to include, for a period of three years, a rate limiter of 16 cents per kWh in its TOU-8, Option A tariff applicable to government agencies that have purchased or obtained zero emissions electric buses.

BACKGROUND

The Commission initiated Rulemaking (R.) 09-08-009 to consider alternative-fueled vehicle tariffs, infrastructure and policies to support California's greenhouse gas emissions reduction goals.

The Commission issued two major decisions in this proceeding. In Decision (D.) 10-07-044, the Commission determined that the legislature did not intend for the Commission to regulate providers of electric vehicle charging services to the public as public utilities. In D.11-07-029, the Commission acknowledged that significant progress in the transportation sector would be critical to achieving the State's emissions reductions goals and directed the utilities and other parties to collaborate and cooperate to achieve these goals. Among other provisions, the Commission directed the parties to assess notification options for electric vehicles and to consider alternative, lower cost metering options and directed the utilities to conduct electric vehicle load research, to file rate design proposals for electric vehicles in 2013, and to allocate some of the upgrade costs associated with electric vehicles to all customers for a limited period of time.

On February 13, 2012, SCE submitted Advice Letter 2699-E. In this advice letter, SCE explains that, in compliance with recent decisions in R.09-08-009, it has proposed several tariff changes to "facilitate market participation by customers and providers of services to electric vehicle owners" and that its proposal in this advice letter is "an additional opportunity to expand the market for electric vehicles."[1]

To this end, SCE proposes to expand the applicability of Schedule TOU-8, Option A to customers for purposes of charging zero emissions buses. In its filing, SCE notes that "[w]ithout this tariff modification, a customer with a large electric bus fleet would be served on Schedule TOU-8 with no special option for charging of environmentally friendly technology."[2] SCE explains that most bus operators would not be eligible for TOU-EV-4 because this schedule is limited to loads of 500 kW or less and that most bus fleets will exceed this level.

SCE indicates that it is working with regional transit agencies in its territory to incorporate electric buses into their fleets, that one transit district has taken delivery of several electric buses and expects to expand its fleet to 12 electric buses, and that SCE expects other transit authorities to follow suit.

[1] SCE Advice Letter 2699-E, February 13, 2012, at p. 1.

[2] Ibid.

To support its proposal, SCE contends that "zero emissions electric bus technology that will be employed will result in a measurable improvement of air quality and improved livability of communities, due to reduction of diesel fuel usage" and that "[t]he California Air Resources Board (CARB) notes that in scaling Greenhouse Gas (GHG) emissions to 1990 levels, clean transit is a key element."[3]

Energy Division staff suspended Advice Letter 2699-E on March 12, 2012 for 120 days for further review. Energy Division staff further suspended Advice Letter 2699-E on July 6, 2012.

NOTICE

SCE states that a copy of Advice Letter 2699-E was served in accordance with Section 4 of General Order (GO) 96-B and served on its GO 96-B and R.09-08-009 service lists.

PROTESTS

On March 2, 2012, Proterra protested SCE's Advice Letter 2699-E. In its protest, Proterra argues that SCE's proposal "discriminates against zero-emission electric transit buses versus other forms of electric mass transit and unless revised will likely discourage the implementation of zero-emission electric transit buses in contravention of California's regulations seeking to accelerate their adoption."[4]

Proterra manufacturers the EcoRide electric bus and Foothills Transit, in SCE's service territory, currently operates three of these electric buses. Proterra explains that its buses can be fully charged in under ten minutes and have a 30 mile range, but are unable to charge at night and run all day because of the current "state of technology" and, even if possible, "would result in cost, safety and weight disadvantages."[5]

[3] Id. at p. 2.

[4] Proterra, Protest to Advice 2699-E (U 338-E) Regarding Extend Applicability of Schedule TOU-8, Option A to Customers Charging Zero Emissions Electric Buses Southern California Edison, March 2, 2012, at p. 1.

[5] Id. at p. 2.

Proterra contends that on-peak charging is not unique to electric transit and that light rail systems, BART and electrified street cars also use energy primarily during peak periods. Moreover, Proterra argues that existing mass transit providers have been able to obtain better rates than smaller transit agencies and cites rate benefits for BART codified in statute (see Public Utilities Code Section 701 et seq.).

By contrast, Proterra explains that SCE's rate proposal could result in rates exceeding $0.40 per kWh for pilot deployments of three buses or less and that "[e]ven large scale deployments would result still in rates in excess of $0.20 per kWh."[6] Proterra notes that these rates stem from demand charges set based on "the highest intensity use of electricity during a single 15 minute period" and the fact that buses may "clump" due to traffic, repair and maintenance issues, and other delays.[7] Proterra contends that this issue is even more pronounced for pilot deployments because the fixed demand charges are spread over fewer buses and that this results in a "large cost barrier for these initial deployments."[8]

To address these issues, Proterra urges the Commission to signal that "zero-emission bus deployments are to be favored from a rate perspective and treated in a way that gives transit agencies the rate certainty they need to invest in electric buses, particularly in the early phase of deployments."[9] To this end, Proterra proposes two options: (1) a rate set at the service area average for industrial customers of $0.112 - $0.124 per kWh, or (2) SCE's proposed rate, but modified to move the distribution demand charge into a volumetric charge, with a $0.04 per kWh credit, and a rate cap of $0.125 per kWh.

[6] Id. at p. 4.

[7] Ibid.

[8] Id. at p. 5.

[9] Ibid.

In its reply, SCE argues that Proterra's request should be denied. SCE states that Proterra is requesting a new rate structure, that the advice letter process is not the appropriate forum for such revisions, and that these issues are currently being addressed in the rate design phase of SCE's 2012 General Rate Case.

In addition, SCE makes several points regarding the merits of Proterra's proposal. First, SCE indicates that all customers over 20 kW of maximum demand have had demand charges for the past 25 years and that these charges exist to recover the distribution costs driven by a customer's maximum demand. Second, electric light rail applications have higher load factors and do not have significant spikes in demand. Third, if SCE were to allow electric buses to have volumetric class average rates, other low load factor customers would seek similar treatment. Finally, SCE argues that it developed TOU-8, Option A, with the generation demand charge rolled into the volumetric rate, to help customers reduce their electricity costs and encourage off-peak charging, demand response, and energy efficiency programs.

DISCUSSION

SCE has proposed moving electric buses onto TOU-8, Option A. This rate is currently applicable to customers who participate in Permanent Load Shifting or Cold Ironing pollution mitigation measures.[10] This rate rolls the generation demand charge into the volumetric rate, but retains the distribution demand charge, currently set at $13.15 per kW for service metered and delivered at voltages below 2 kV. SCE explains that this rate "acknowledges the generation

[10] As defined in SCE's tariff, "Cold-Ironing refers to pollution mitigation programs that reduce emissions of nitrogen oxides (NOx), sulfur oxides (SOx), particulate matter (PM), carbon monoxide, or hydrocarbons by replacing electricity generated on-board mobile sources with electricity supplied through SCE's distribution grid, where the on-board electricity generation is produced by fossil fueled internal combustion engines that supply power for general use such as lighting, cooling, and machinery. Eligible Cold-Ironing applications include vessels hotelling at the Port of Long Beach and the Port of Hueneme, and long-haul trucks hotelling at truck stops."

demand diversity associated with customers located across the system and provides an appropriate incentive for eligible customers to reduce their bills."[11]

We agree that electric buses should be able to take service under TOU-8, Option A. As discussed in the previous paragraph, this rate rolls the generation demand charge into the volumetric portion of the rate and this will help electric bus operators, with low load factors in the early stages of deployment, to reduce electricity costs. In addition, this rate retains the distribution demand charge, which we support in most contexts for electric vehicle charging, to the extent that it is cost-based.

Proterra requests either (1) a rate set at the service area average for industrial customers of $0.112 - $0.124 per kWh, or (2) SCE's proposed rate, but modified to move the distribution demand charge into a volumetric charge, with a $0.04 per kWh credit, and a rate cap of $0.125 per kWh.

We decline to adopt a volumetric rate at either of these levels for a number of reasons. First, the rates proposed by Proterra are less than SCE's current system average rate of 14.2 cents per kWh and the electric buses currently in operation are likely to charge primarily during the peak and mid-peak periods. It would be counterintuitive to provide below-average rates for on- and mid-peak usage. Second, we do not believe that it would be appropriate to eliminate time-of-use rates or demand charges. Time-of-use rates provide clear price signals that encourage off-peak usage and discourage summer peak usage, and demand charges, if set correctly, ensure that customers pay their fair share for the use of the electrical system. Finally, Proterra's rate proposals would provide no incentive for electric bus operators to efficiently manage their electricity usage or explore potential electrical storage options.

[11] Reply of SCE to the Protest of Proterra to Advice [Letter] 2699-E, Extend Applicability of Schedule TOU-8, Option A to Customers Charging Zero Emissions Electric Buses, at p. 2.

At the same time, we remain concerned about the level of rates for electric buses, especially in the early stages of deployment and at a time when the electric vehicle and heavy duty transit market remains in its infancy. Proterra contends that SCE's rate proposal could result in rates exceeding $0.40 per kWh for pilot deployments of three buses or less and rates in excess of $0.20 per kWh even for large scale deployments. Energy Division staff have confirmed that transit districts with pilot deployments of electric buses are paying $0.30 to $0.40 per kWh. These rates far exceed SCE system average rate of $0.142 per kWh and even residential average rates of $0.158 per kWh, even though residential customers use energy primarily during the on-peak and mid-peak periods and require substantial distribution infrastructure. Rates at levels exceeding $0.30 to $0.40 per kWh are likely to pose a substantial impediment to transit agencies conducting small scale pilot projects with electric buses.

We do not want to inhibit the development of new technology, or the development of the electric vehicle market, especially given California's ambitious greenhouse gas reduction goals. Absent robust development of the electric vehicle market, our greenhouse gas reduction goals are not likely to be met.

We do not believe that the existing rate structure poses a challenge to operating an electric bus fleet at mature scale. Under a scenario in which a bus operator were using a full fleet of electric buses, the demand charge would be spread out over many buses and would represent a small fraction of their total energy cost. However, the demand charges do pose a challenge to small scale pilot programs that are a necessary step towards reaching full-deployment.

The Proterra bus technology relies on high voltage charging stations. These chargers enable Proterra to have small battery packs and reduce the upfront cost of their vehicles. This particular charging strategy faces high demand charges. Alternative business models for electric buses do not face high demand charges because they use larger batteries that do not require on-peak charging from high voltage chargers. We do not intend to 'pick a winner' between these business models. However, in order to allow the fast-charge electric bus model to have an opportunity to be tested by transit agencies, we seek to reduce the high demand charges facing small deployments of these fast charge buses. We do not intend to

alter the long-term value proposition of fast charging buses relative to large-format battery alternatives.

To address the impact of demand charges on small scale deployments, we will require SCE to include a rate limiter of 16 cents per kWh in its tariff applicable for a period of three years to government agencies that have purchased or obtained zero emissions electric buses. We believe that a 16 cents per kWh rate limiter adopted for a limited period of three years strikes a balance between ensuring electric bus demonstration projects move forward, but not unduly providing an advantage to any particular electric transit battery technology and energy storage strategy. Moreover, we believe that the three year time period will be sufficient for transit agencies to deploy a full complement of buses, which will spread the peak demand charge over additional energy usage provided they move forward with such plans.

The 16 cent rate limiter is intended to approximate the average rate facing a full fleet of electric buses, where the demand charge can be spread over a relatively high level of monthly consumption. After the expiration of the three year period, transit agencies with electric buses would default to Schedule TOU-8, Option A, without a rate limiter or to a different rate, should the Commission explore electric vehicle rates in another proceeding. In this context, it is unclear if charging for a fleet of buses can be optimized to actually reach 16 cents per kWh, since there is little experience charging these buses under real world conditions. If these rates are examined more closely in a proceeding using actual field data, it may be necessary to adjust rates applicable to electric buses.

SCE, in its response, indicates that it does not believe that the advice letter process is the appropriate forum for a "change to the underlying rate structure for Schedule TOU-8, Option A."[12] We understand and appreciate SCE's concern, but in this instance we believe that a rate limiter applicable to a narrow group of customers does not change the underlying rate structure. Moreover, we have addressed experimental rates through the advice letter process in the past.

[12] SCE Reply, p. 1.

SCE also indicates that these types of changes should be addressed in the rate design phase of SCE's 2012 General Rate Case proceeding. However, it is our understanding that settlement discussions in that proceeding are largely complete and it would be difficult to expand the scope of that proceeding for this narrow issue at this point.

Finally, SCE also argues that, "[i]f the Commission were to endorse rates that would subsidize low load-factor equipment, as proposed by Proterra, then other similarly situated commercial and industrial customers would seek similar treatment." Given the extremely small number of electric buses in service currently and expected over the next three years, we believe the magnitude of any potential subsidy will be small – on the order of $9,000 - $12,000 per bus or likely less than $1.2 million for 100 buses.[13] In addition, we have specifically limited the applicability only to government agencies under General Order 96-B, Section 8.2.3, which states that a utility may provide service to a government agency "for free, or at reduced rates and charges, or under terms and conditions otherwise deviating from its tariffs then in effect" and that the Commission may determine the reasonableness of such service.

COMMENTS

Public Utilities Code Section 311(g)(1) provides that this Resolution must be served on all parties and subject to at least 30 days public review and comment prior to a vote of the Commission. Section 311(g)(2) provides that this 30-day comment period may be reduced or waived upon stipulation of all parties in the proceeding. The 30-day comment period for the draft of this resolution was neither waived nor reduced. Accordingly, this draft was mailed to parties for comments and will be placed on the Commission's agenda for November 8, 2012.

FINDINGS AND CONCLUSIONS

1. On February 13, 2012, SCE submitted Advice Letter 2699-E, proposing to expand the applicability of Schedule TOU-8, Option A to customers for purposes of charging zero emissions buses.

[13] Assuming 2 kWh per mile, 30,000 miles per year and a rate discount of approximately $0.15 - $0.20 per kWh.

2. On March 2, 2012, Proterra protested SCE's Advice Letter 2699-E and on March 12, 2012, SCE submitted a reply.
3. We decline to adopt a volumetric rate at the levels proposed by Proterra because this would be less than SCE's system average rate of 14.2 cents per kWh and we do not believe it would be appropriate to eliminate time-of-use rates or demand charges.
4. However, we remain concerned about the level of rates for electric buses, with high demand charges and effective rates in excess of 30 to 40 cents per kWh, when these projects are in the early stages of deployment and at a time when the electric vehicle and heavy duty transit market remains in its infancy.
5. We do not believe that the existing rate structure poses a challenge to operating an electric bus fleet at mature scale.
6. To address issues that arise because of small scale deployments, we will require SCE to include, for a period of three years, a rate limiter of 16 cents per kWh in its tariff applicable to government agencies that have purchased or obtained zero emissions electric buses.
7. We find that a 16 cents per kWh rate limiter strikes a balance between ensuring electric bus demonstration projects move forward and not unduly providing an advantage to any particular electric transit battery technology and storage option.

THEREFORE IT IS ORDERED THAT:

1. This Resolution approves SCE's request, with modifications.
2. Within 10 days of the effective date of this Resolution, SCE shall file a Tier 1 Advice Letter and include a rate limiter of 16 cents per kWh in its TOU-8, Option A tariff applicable for a period of three years to government agencies that have purchased or obtained zero emissions electric buses.

This Resolution is effective today.
I certify that the foregoing resolution was duly introduced, passed and adopted at a conference of the Public Utilities Commission of the State of California held on November 8, 2012; the following Commissioners voting favorably thereon:

PAUL CLANON
Executive Director