George Cavros, Member
8830 Freedom Road
Tallahassee, FL 332305
george@cavros-law.com

March 1, 2023

Talquin Electric Cooperative, Inc.
1640 W. Jefferson Street
Quincy, FL 32351
PURPA2023@talquinelectric.com

Dear Talquin Board and Staff:

This comment letter is in response to the notice issued by Talquin Electric Cooperative, Inc. ("Talquin") on November 10, 2022 regarding the 2021 Infrastructure Investment and Jobs Act, which amended the Public Utilities Regulatory Policies Act of 1978 ("PURPA"). The 2021 Infrastructure Bill established new Federal standards under Section 111(d) of PURPA, which each nonregulated electric utility is required to consider and to "make a determination whether it is appropriate to implement certain Demand Response ("DR") programs and Electric Vehicle ("EV") Charging programs.

Both DR programs and EV Charging programs can provide real value to Talquin customers, not only to those that participate in the programs, but to the general body of ratepayers. No community should be denied options to lower bills and become more energy-secure. As our long-trusted member-owned electric utility, Talquin has an important role to play in providing programs to rural families and businesses that help them lower power bills and participate in new technologies – this is particularly important during periods of significant increases in power bills. The comments below provide information on the benefits of DR programs (and energy efficiency more generally) and on increasing access to EV charging infrastructure for rural customers. It concludes that Talquin should not only consider such programs, but move to adopt them.

1. Demand-Response Practices.

It's well established that demand side management, both demand reductions and energy savings are low-cost, low-risk resources that can place downward pressure on overall bills. After all, the cheapest kWh is one that's never used. Both energy savings and demand reduction play an important role in de-risking the utility's system from fuel price spikes. Unfortunately, due to escalating fuel costs, electricity bills continue to rise for hard working families, including Talquin's member-owners.[1] Fuel costs are expected to remain high for the foreseeable future.

Demand response programs increase overall system efficiency by shifting electricity consumption away from peak load times to more desirable periods. This of course benefits the generation utility in several ways: displacing the need to use less efficient (and more costly) power plants to meet peak demand; as well as deferring the need for new (costly) generation projects.

Likewise, meaningful energy efficiency programs not only help hardworking families lower bills, but they help all customers by reducing the amount of costly fossil fuel burned on the utility's system to generate electricity – a benefit to all. The economic savings of DR and energy efficiency programs can be passed on to families in lower bills which helps keep dollars in the local community.

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[1] Talquin, The Current, July/August 2002 ("Talquin must adjust the Wholesale Power Cost Adjustment (WPCA) for the third time in 2022. Effective September 1, 2022….").

Talquin is a transmission utility purchasing most of its electricity from its Generation and Transmission utility partner, Seminole Electric Cooperative ("Seminole"). Generation and Transmission cooperatives often help their member cooperatives deliver energy efficiency and other services on behalf of their member-owners. In this case, Seminole, could and should identify priority efficiency measures and demand response programs, develop materials and can cultivate partnerships with program implementers. *See* the attached fact sheet (Attachment A) for cooperative energy efficiency strategies and associated benefits.

It's encouraging to see Talquin partner with Seminole on a pilot Smart Thermostat program.[2] The program should be made permanent and incentives for the purchase of Smart Thermostats should be considered as a way to encourage greater participation in the program. Moreover, Talquin should explore what programs it can implement on its own, or with a third-party administrator, to help capture energy efficiency and demand reductions – and bill savings for its member-owners. Florida investor-owned utilities program offerings can serve as a menu of energy efficiency options for consideration by Talquin. In this regard, I would recommend the suite of programs provided by Tampa Electric Company to its customers as a template for Talquin.[3]

In terms of rate recovery for efficiency or DR program investments, Talquin should consider programs that pass cost-effectiveness tests that accurately measures the costs of the programs and the associated utility system benefits. The cost-effectiveness test that most appropriately do so are the Total Resource Cost test and the Utility Cost test.[4]

Lastly, please keep in mind that families in the 4-county region served by Talquin have a considerable level of energy insecurity. For instance, more than 20 percent of Liberty and Gadsen

[2] *See* https://www.talquinelectric.com/wp-content/uploads/Cooperative-Rewards-FAQ-040122.pdf
[3] Tampa Electric Company, DSM report, 2021, https://www.floridapsc.com/pscfiles/website-files/PDF/Utilities/Electricgas/ARDemandSide/2021/Tampa%20Electric%20Company.pdf
[4] *See* https://www.cadmusgroup.com/wp-content/uploads/2012/11/TRC_UCT-Paper_12DEC11.pdf

County families are below the federal poverty level.[5] Energy efficiency measures are critically important for hardworking looking for ways to reduce energy use and save money on bills. Online information, or even energy audits will not help customers who don't have the resources to invest in energy efficiency improvements to their homes. In considering demand side management programs, Talquin should consider the unique economic and information barriers of energy insecure households in adopting efficiency improvements.

2. EV Charging

Rural communities should have access to EV charging infrastructure. EVs offer drivers lower fuel costs, significantly lower maintenance costs, improved performance, while also reducing air pollution, including carbon emissions from the transportation sector. As EVs become more prevalent and are used for longer distance travel, they will require more public Level 2 and DC fast charging infrastructure than currently exists. Talquin can play a role in facilitating the development of publicly accessible EV charging for its customers through rate design.

A core purpose of rate design is to promote efficient use of the system. Rates promote efficient use by sending price signals that are cost-reflective, simple, and actionable. Such pricing ensures that customers are charged accurately for the costs that they impose, while keeping rates simple and driving the desired behavioral response.

[5] US Census, Poverty Status in the Last 12 Months of People in Housing Units, Florida https://censusreporter.org/data/map/?table=B17101&geo_ids=04000US12,050%7C04000US12&primary_geo_id=04000US12

Rates for EV customers should also consider the impacts on transportation electrification to ensure that the economics of EV charging are not artificially undermined. In practice, this means that rates should take into account the sophistication of the users and their ability to respond, as well as the extent to which price signals accurately convey system costs.

Overly complicated or volatile rates may provide confusing incentives or price signals that are not actionable. Simple time-of-use ("TOU") rates may be one rate option that's predictable and easy to understand. Accordingly, TOU rates should be considered in lieu of demand charges, particularly for costs that are driven by coincident demand. Demand rates disincentivize investment in EV charging because EV charging infrastructure, at least for the first several years, often leads to high peak demand, but low kWh usage. Therefore, a public EV charging infrastructure developer cannot recoup their investment or earn an acceptable rate of return that justifies the investment in charging infrastructure.

Talquin must consider alternatives or modifications to commercial demand rates to promote the development of EV charging infrastructure. See *Best Practices for Sustainable Commercial EV Rates and PURPA 11(d) Implementation* (Attachment B). Doing so will improve the rural customer driving experience and promote third party EV charging financial investment in Talquin's service territory.

In conclusion, Talquin should not only consider but adopt measures that promote DR, energy efficiency and EV charging infrastructure. Doing so will help lower bills for all customers, provide access to measures for energy insecure families, and increase access to EV charging for families in our region. Thank you for the opportunity to comment. I look forward to Talquin's reply comments.

Sincerely,

/s/George Cavros
George Cavros

ATTACHMENT A

Supporting Rural Electric Co-op Members with Energy Efficiency

Energy efficiency programs benefit rural electric cooperatives (co-ops), their members, and the communities they serve. By offering energy efficiency programs, co-ops invest in their members.

AECC customers Al and Vickey Wright of De Queen, Arkansas: "The benefits we received were amazing. I was surprised to learn our co-op is offering such a wonderful service to help us use our energy more wisely."

How energy efficiency benefits co-ops and the communities they serve[1]

Beneficiary	Energy Efficiency Outcome	Resulting Benefit
Efficiency program participants	Lower monthly utility bills	Lower energy burden and more disposable income
		Reduced exposure to risk from utility rate increase
	Improvement in the efficiency of the housing stock	Increased property value, more reliable equipment, and lower maintenance costs
		Preservation of affordable housing
Co-ops and members	Reduced peak demand	Avoided costs of increased generation, capacity, and transmission
		Reduced coincident peak pricing from wholesale power supplier, demand charges, and power supply costs
	Reduced arrearages, cost of shut-offs, and maintenance costs	Improved customer service and satisfaction
Communities	Lower electricity demand	Reduced environmental pollutants and improved public health
	Lower monthly utility bills due to avoided utility costs	More money spent in local economy because of more disposable income
		Poverty alleviation and improved standard of living
	Improvements in the efficiency of the building stock	Local job creation through efficiency providers and trade allies
		Improved quality of life
		Increased property values and presentation of housing stock

Energy efficiency strategies for co-ops

Generation and transmission (G&T) co-ops and distribution co-ops can use a variety of strategies to deepen energy savings for their members' homes, businesses, industrial facilities, and institutions:

- Pool member, state, and federal resources to fund programs.
- Engage community-based organizations, universities, and other local partners to design and implement programs.
- Develop a pool of contractors to deliver and market efficiency measures. Offer or identify training opportunities when a local efficiency workforce does not exist.
- Bundle low-cost efficiency measures with deeper energy saving measures.
- Use online and/or traditional marketing channels based on customers' access to broadband.
- Pair rollout of broadband services with energy efficiency measures and customer energy data engagement platforms, like Green Button.
- Incorporate energy efficiency programming into broader economic and community development activities.
- Evaluate program performance quantitatively to strengthen offerings and meet customer needs effectively.

Generation and Transmission Co-ops

G&T co-ops, which provide electricity to local distribution co-ops, sometimes help their member co-ops deliver energy efficiency programs or offer these services on behalf of their member co-ops. G&T co-ops can identify priority efficiency measures, develop marketing materials, and cultivate key partnerships with universities or third-party program implementers.

Co-ops across the country are already doing energy efficiency

Co-ops have already demonstrated leadership by helping their members save energy. Below are two examples:

- **Midwest Energy, Inc**: Based in Kansas, this, vertically integrated electric and natural gas co-op launched its How$mart program in 2007 in response to member bill complaints. Through this tariffed on-bill program, Midwest Energy helps member homes and businesses cover the cost of pre- and post-installation audits and finance energy efficiency improvements.[2] Over the past 12 years, the program has helped over an average of 167 customers per year and saved enough energy to power 65 Midwestern homes per year, all while reducing member bills and improving customer satisfaction.[3]
- **Arkansas Electric Co-operative Corporation**: AECC delivers wholesale electricity to 17 distribution co-ops and offers them the Comprehensive Home Energy Savings Solutions (CHESS) program, which helps members with duct sealing, air sealing, and other efficiency improvements. AECC provides incentives that cover 100% of the initial cost for a certain number of homes per co-op, then splits the cost of work done on subsequent homes. AECC manages trade allies, tracks and reports on program performance, and conducts quality control. AECC began the program as a pilot and expanded it to a year-round option to align with similar energy efficiency offerings from Arkansas investor-owned utilities. Since the program's inception in 2018, CHESS has enrolled nearly 300 homes and saved enough energy to power 52 Southeastern homes. Additionally, several of AECC's member co-ops offer on-bill financing programs.[4]

Endnotes

1 Table adapted from previous ACEEE research. To learn more, see: aceee.org/research-report/u1602 and aceee.org/research-report/u1505.

2 A tariff tied to the property meter that is repaid through customer's utility bill.

3 To calculate the energy savings equivalency, we convert cumulative energy savings over the past 12 years (73.8 million British Thermal Units - Btu) into an annual number (6.2 million Btu). We then divide this number by the average Midwestern household annual energy use (94.3 million Btu). Source: www.eia.gov/consumption/residential/data/2015/c&e/pdf/ce1.1.pdf. To learn more about How$mart, see: www.mwenergy.com/environmental/energy-efficiency/howsmart.

4 To calculate the energy savings equivalency, we convert energy savings since program inception (77.1 million Btu) then divide this number by the average Southeastern household annual energy use (68.9 million Btu). Source: www.eia.gov/consumption/residential/data/2015/c&e/pdf/ce1.1.pdf.

For more information on ACEEE's Rural Energy Initiative, see: aceee.org/topics/rural-and-small-town-communities

ACEEE
American Council for an Energy-Efficient Economy
May 2019

ATTACHMENT B

Best Practices for Sustainable Commercial EV Rates and PURPA 111(d) Implementation

RTI Perspectives December 2022

rti Perspectives

Best Practices for Sustainable Commercial EV Rates and PURPA 111(d) Implementation

Nancy Ryan, Partner, eMobility Advisors
Alissa Burger, Regional Policy Director, CALSTART
Jenifer Bosco & John Howat National Consumer Law Center
Miles Muller, Natural Resources Defense Council

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Regulatory Training Initiative
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Editing: Regina L. Davis
Design: Lisa Mathias
Cover Photo: Copyright Buffaloboy/stock.adobe.com

Introduction

Electric vehicles (EVs) are an essential tool in reducing transportation sector greenhouse gas emissions, while also potentially lowering electricity costs for all customers. One key to unlocking these benefits is thoughtful rate design. Thoughtful design can foster greater EV adoption and encourage EV charging during hours when the grid's capacity is underutilized. Traditional commercial and industrial (C&I) electricity rates may present a barrier to EV adoption, because they erase the EV fuel cost savings relative to gasoline or diesel transportation. Traditional commercial rates were generally designed for large buildings, rather than for public fast charging of passenger vehicles or for depot charging of truck and bus fleets. Some utilities have begun to acknowledge this issue by designing new rates specifically for commercial EV charging.

The 2022 Infrastructure Investment and Jobs Act (IIJA) amended the Public Utility Regulatory Policies Act (PURPA) Section 111(d) to require regulators and nonregulated utilities to consider new rates to support transportation electrification. As a result, regulators and utilities across the country must consider rates that

> promote affordable and equitable electric vehicle charging options for residential, commercial, and public electric vehicle charging infrastructure; improve the customer experience associated with electric vehicle charging; accelerate third-party investment in electric vehicle charging for light-, medium-, and heavy-duty vehicles; and appropriately recover the marginal costs of delivering electricity to electric vehicles and electric vehicle charging infrastructure.[1]

The amendments to PURPA 111(d) were motivated, in part, by problems in some states where existing EV charging rates fail to reflect the unique nature and costs of service for EV charging, harming the value proposition for electrification. Electric buses, trucks, and public fast charging stations have distinct usage patterns that differ from traditional commercial loads like large buildings. EVs charge for only a few hours a day (or even shorter periods at public fast charging locations). In many locations, they can also shift their charging demand to a time when most people are sleeping and there is spare capacity on the electric grid. Until now, however, EVs have generally been forced onto rate plans designed for large buildings and industrial operations that use electricity more constantly. New commercial EV rates that more accurately reflect the flexible nature of EV charging relative to traditional commercial and industrial loads and provide meaningful reductions in monthly charging costs for drivers and fleet operators could

[1] Infrastructure Investment and Jobs Act of 2021, Public Law 117-58, Section 40431, https://www.congress.gov/117/bills/hr3684/BILLS-117hr3684enr.pdf.

significantly improve the economics of EV adoption, while also improving grid utilization and helping to achieve states' climate, equity, and air quality goals.

This paper explores elements of commercial EV rate design and provides several examples of recently adopted commercial EV rates that could serve as helpful models for designing long-term, sustainable solutions for improving the economics of commercial EV charging, without subsidizing EV charging or shifting costs to other customers. To that end, this paper explores the benefits of these models to help state commissions consider the changes they may make pursuant to the PURPA 111(d) amendments in order to ensure benefits accrue to both participating and non-participating customers.

Key Considerations for Designing Rates for Commercial EV Customers

A core purpose of rate design is to promote efficient use of the system. Rates promote efficient use by sending price signals that are cost-reflective, simple, and actionable. Such pricing ensures that customers are charged accurately for the costs that they impose, while keeping rates simple and driving the desired behavioral response.

Rates for EV customers should also consider the impacts on transportation electrification to ensure that the economics of EV charging are not artificially undermined. In practice, this means that rates should take into account the sophistication of the users and their ability to respond, as well as the extent to which price signals accurately convey system costs.

Overly complicated or volatile rates may provide confusing incentives or price signals that are not actionable. Simple time-of-use (TOU) rates may be more effective than hourly pricing for many customers, since such rates are predictable and easy to understand. Accordingly, TOU rates should be considered in lieu of demand charges, particularly for costs that are driven by coincident demand.

TOU rates may also better reflect system costs than coincident demand charges. This is because the Peak Energy Charge applies to the full duration of time a customer is using shared infrastructure during peak periods, rather than focusing only on a customer's single hour of maximum demand. Unlike demand charges, time-varying energy rates are easy to pass through to drivers, and they provide a meaningful price signal that encourages off-peak charging. Notably, demand charges should generally be avoided for customers with low load factors, because they represent a disproportionate share of these customers' bills and can present an obstacle to transportation electrification.

Key Rate Design Considerations for Types of EV Charging

This section describes important rate design considerations for two common types of C&I EV customers, operators of public DC fast charging stations and fleet operators. These descriptions are not exhaustive but provide examples of the different characteristics of the EV customers that utilities seek to serve.

In designing rates for the broad range of customers typically taking service under commercial rates (including workplaces, multi-unit dwellings, public fast charging stations, transit operators, and medium- and heavy-duty fleet operators) utilities should consider the varying priorities, levels of sophistication, and load management capabilities among customer use-cases.

For example, building owners with Level 2 charging at long-dwell locations, workplaces, and multi-unit dwellings have needs different from public fast charging operators. Similarly, public fast charging operators serving public drivers with personally owned vehicles have distinctly different priorities from fleet operators, whose decision to electrify their fleet hinges on total cost of ownership. In the case of public charging operators, there is also an important distinction between the utility customer taking service on the rate (the charging operator) and the end-use drivers (who often see different price signals than those delivered to the utility customer). Utilities should work with the customers in their service territories to learn more about their specific operations and how rate structures can be designed to be both cost-reflective and actionable.

Public DC Fast Charging Stations

Public EV charging stations represent one important category of new C&I EV load. Fast charging stations operate similarly to gas stations, providing a quick recharge when drivers are on the road or have limited access to charging at home and work. DC fast chargers need to be able to provide large amounts of power rapidly, with the newest stations charging vehicles at up to 350 kW. As EVs capable of charging at these fast stations become more common, more of these high-powered stations will be needed.

Public DC fast charging station operators may have particular difficulty adapting their business model to dynamic rates that fluctuate on an hourly basis rather than the fixed schedule of TOU rates. Public DC fast charging stations are generally reluctant to charge their customers dynamic rates, since EV drivers prefer predictable and relatively stable electricity prices. If dynamic price signals are passed through to drivers, their ability to respond may be limited. It is difficult to warn customers on a longer trip that they are approaching a higher price period, as they may live outside of the utility's service territory. Pausing their trip for a period of hours to charge at a lower price defeats the purpose of fast charging. For this reason, dynamic rates could be less effective for this group of utility customers.

Automatic load management, integrated storage, and on-site distributed generation may enable some DC fast charging stations to maintain fixed prices while being served on dynamic rates or rates with demand charges. However, applications are likely limited. Operators may also face customer resistance to throttling load to reduce demand charges, since drivers expect to be able to charge their vehicles as quickly as possible. Sensitivity to demand charges is likely to be even greater for fast charging stations with low load factors, such as those on more remote corridors. Investment in such stations, although essential to making transportation electrification viable, could be discouraged by a demand-based rate design that imposed disproportionate costs on these low load factor stations. Powering the charging station from an on-site battery or through distributed generation during peak periods storage may be particularly effective for avoiding critical peak pricing and demand charges by. However, battery storage is expensive and the locations in which these technologies can be installed are limited due to space constraints.

In light of these challenges, rate designs for EV fast charging stations should recover costs through more predictable rates where possible and impose demand charges and critical peak pricing only to the extent absolutely necessary. TOU energy rates may be a good alternative approach, since these rates are highly predictable and can be clearly communicated to drivers.

It is important to note that public fast charging stations are especially important for drivers who do not live in single-family residences with easy access to residential charging. Improved commercial rates that provide the opportunity to realize fuel cost savings for drivers at public fast charging stations are critical for expanding the benefits of transportation electrification to low-income drivers and helping expand EV adoption outside of single-family home owners. Utilities and regulators may also want to consider approaches to further unlock fuel cost savings for low-income drivers at public fast charging locations, given that the cost to refuel at these locations is typically more expensive than that for drivers with access to residential charging.[2]

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2 A number of states and utilities have recently explored policies aimed at lowering the cost of charging at public charging locations for low-income drivers. For example, Xcel proposed a pilot program in Colorado that would have used telematics to bill public charging customers on their home energy bill at their applicable residential rate. The Clean Vehicle Assistance

Fleet Vehicles

Commercial rate design is also crucial to the business case for electrifying medium and heavy-duty fleet vehicles, which can provide much-needed pollution relief to the low-income communities that often live near freeways, ports, railyards, and other facilities that generate significant levels of engine exhaust. Electrifying medium- and heavy-duty fleets like transit and school buses also provides an important opportunity to expand access to clean transportation to low-income residents who may not own personal vehicles.

Fleet operations vary widely. This means that operators' ability to respond to price signals also varies widely. Some fleet customers may have a greater ability to shift load and respond to price signals than DC fast charging stations, because flexibility in their operations enables them to schedule charging for certain times. For example, some fleets may be able to charge overnight, or to charge while parked over the course of the day. Fleet managers may also elect to purchase vehicles with longer ranges to avoid having to charge during more expensive peak hours. This flexibility may make time-varying and dynamic rates highly effective for some fleets. Charging optimization software can also help fleet managers take advantage of these rates and reduce the effort required to oversee charging. Fleets with less flexibility may not be able to take advantage of such rates and find demand charges to be highly punitive, so an option to take service on a TOU tariff should remain available.

Case Studies

Various jurisdictions have already introduced new rates specifically for C&I EV customers. Some of these rates are temporary or include temporary provisions to encourage EV adoption over the next several years while there are still relatively few EVs on the road. Others try to make charges more reflective of the costs associated with EV charging by permanently modifying rate designs to increase the use of TOU energy rates and other time-varying features rather than demand charges. Such rate design modifications are an important mechanism for supporting the development of EV charging infrastructure and EV fleets. Specific examples of EV rates from different

Program in California (the state's low-income scrap and replace program) offers participants the opportunity to receive prepaid charge credits in lieu of residential charging infrastructure, for customers who may not be able to easily install charging at their home. States with discounted rates for low-income customers, such as the California Alternate Rates for Energy (CARE) program, could also look to explore ways to ensure that customers without access to residential charging can access these discounts at public charging locations. Other consumer protections to protect drivers from unreasonable or disproportionate price increases may also be needed. Importantly, however, the cost of service for public fast charging is critically different in most cases from the cost of residential charging, and utilities must evaluate these approaches with consideration for traditional ratemaking principles like cost causation.

jurisdictions and a discussion of the merits and shortcomings of these approaches follow.

Demand Charge Discounts

As described previously, demand charges will be particularly burdensome for EV customers, particularly during the early years when EV charging results in high electrical demand but relatively low energy use. For example, empirical analysis by Rocky Mountain Institute has shown that demand charges can drive over 90 percent of the costs of operating public fast charging stations during summer months in California, making it extremely challenging to recoup costs while EV penetration and station utilization are still low.[3]

To address this issue, numerous utilities are now providing temporary demand charge discounts for commercial EV customers, especially for DC fast charging stations.

For example, in New York, Con Edison's Business Incentive Rate offers rate discounts to public DC fast charging customers until 2025.[4] In Oregon, Pacific Power implemented a rate adjustment for DC fast chargers that temporarily reduces demand charges while increasing on-peak energy charges. Within a decade, the demand charge will be phased back in.[5] Although these temporary discounts may be appealing while EV adoption is still in its early stages, utilities should consider focusing on more sustainable long-term solutions that provide better price signals to EV charging customers.

Explicit discounts also raise questions of equity and access. For example, Tesla was originally excluded from the New York order adopting a "Consensus Proposal" that provided a temporary off-bill incentive to site hosts developing publicly accessible DCFC, because the Tesla network was not "technologically accessible" to non-Tesla drivers. The Commission ruled that Tesla could receive the "per-plug" rebate if Tesla stations were made accessible to all EV drivers, resulting in the automaker challenge the order.[6] This dispute might have been avoided and a more sustainable, long-term solution achieved,

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3 Garrett Fitzgerald and Chris Nelder, "EVgo Fleet and Tariff Analysis" (Rocky Mountain Institute, April 2017), https://www.rmi.org/wp-content/uploads/2017/04/eLab_EVgo_Fleet_and_Tariff_Analysis_2017.pdf.

4 Consolidated Edison Company of New York, Inc., Tariff Book, Revision 5, Leaf 201, Rider J, issued February 7, 2019.

5 Max St. Brown, "Staff Report Re: Schedule 45- Public DC Fast Charger Delivery Service Optional Transitional Rate," Docket No. ADV 485/Advice No. 16-020, May 8, 2017.

6 New York Public Service Commission, *Order Establishing Framework for Direct Current Fast Charging Infrastructure Program,* February 7, 2019; Verified Article 78 Petition and Complaint, *Tesla, Inc., vs New York State Public Service Commission,* filed August 2, 2019.

if Con Edison and the other parties had a cost-based rate available to all EV customers, rather than developing a “discount” on an existing C&I rate that was only made available to certain customers.

Southern California Edison

Southern California Edison (SCE) established an EV rate that temporarily eliminates demand charges for EV charging through 2024 (termed a “demand charge holiday”) and instead recovers costs through a TOU energy charge and a small fixed charge.[7] By recovering all costs through volumetric energy charges that vary depending on the cost of providing electricity, SCE’s rate strongly encourages charging at low-cost hours for the grid and avoids penalizing customers with “spikey” loads.

Demand charges will be phased back in beginning in 2024, with the expectation that at that time many DC fast charging stations will have higher load factors and be able to spread the charges over greater total electricity sales. However, there may still be charging stations that have low utilization at that point, both because EV adoption is still at an early stage and because stations will be needed in relatively remote places to allow for longer-distance trips. Indeed, certain stations may never have high load factors.[8] For this reason, SCE has proposed to extend the demand charge holiday for another two years. The SCE example shows that demand charge holidays with uncertain glide paths to full-cost rates and subject to future requests for extension may raise concerns for regulators looking for long-term, sustainable solutions.

Pacific Gas & Electric

Pacific Gas and Electric Company (PG&E) took a ground-up approach in designing new C&I EV rates for various use cases. The utility partnered with the Electric Power Research Institute (EPRI) to conduct customer and stakeholder outreach to inform the resulting rate design. The company received approval for rates that combine a subscription charge with a time-varying energy charge.[9] The subscription charge replaces fixed and demand charges with a per-kilowatt charge based on peak demand. Unlike conventional demand charges, the subscription charge requires a prospective commitment, in which the customer subscribes to a specific level of peak demand in

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7 Decision 18-05-040 at 110, available at https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M215/K783/215783846.PDF

8 SCE Schedule TOU-EV-7. July 26, 2019. Available at https://library.sce.com/content/dam/sce-doclib/public/regulatory/tariff/electric/schedules/general-service-&-industrial-rates/ELECTRIC_SCHEDULES_TOU-EV-7.pdf.

9 Decision Approving Application for Pacific Gas and Electric Company’s Commercial Electric Vehicle Rates, D.19-10-055, in A.18-11-003. October 28, 2019.

advance. The final approved rate provides customers with a grace period of three billing cycles for monthly peak demand exceeding subscription levels.

Notably, the Commission directed that only marginal distribution costs should be recovered through the subscription charge, since the rate would apply to a new rate class without a full revenue allocation study and any revenue collected from the new class beyond the marginal cost to serve them would be an overcollection.[10] This had the effect of substantially reducing the subscription charge below the level originally proposed by PG&E, by around 40 percent. Customers on the commercial EV rate will only pay marginal costs until new rates go into effect in 2025 at the conclusion of the next General Rate Case.[11] Notably, the Commission's decision provides no guidance for whether or how these costs should be reintroduced after 2025, creating uncertainty and potential for rate shock if these costs are not phased in gradually.

The final approved commercial EV rate creates strong incentives to shift electricity consumption to off-peak hours without penalizing low load factor customers. While the subscription format may present new challenges for customers, the reduction in subscription cost and the opportunity for low-cost off-peak charging provide good incentive for transportation electrification for commercial fleets. These rate design modifications will mean substantial savings for C&I EV customers, especially for those with low load factors, for whom a demand-charge weighted rate designs could produce onerous bills. Early implementation data from PG&E shows that customers on the new rate plan save 25 percent to 60 percent or more on their monthly bills, which translates into a cost per gallon equivalent *less than half* the price of gasoline or diesel fuel.[12]

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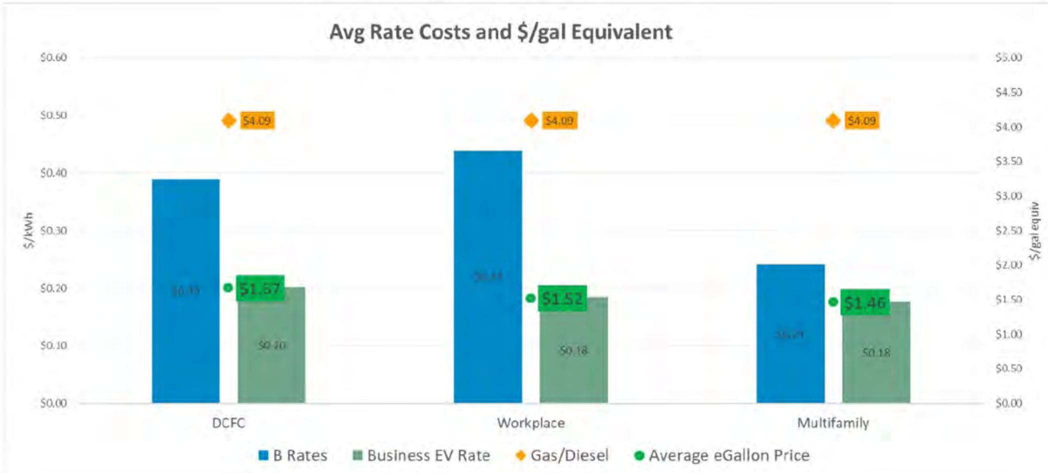
[10] To allocate embedded costs, a revenue allocation study must be performed in which costs are allocated based on class billing determinants (peak demand, energy sales, number of customers, etc.). Such a study has not yet been performed for the new commercial EV customers in PG&E's territory. *See:* Decision Approving Application for Pacific Gas and Electric Company's Commercial Electric Vehicle Rates, D.19-10-055, in A.18-11-003. October 28, 2019.

[11] SDG&E has proposed to take a similar approach for its Electric Vehicle High-Power (EV-HP) Rate, initially collecting only marginal costs in its subscription charge and phasing embedded costs in over a period of 10 years. Although not yet approved, this signals a growing endorsement of marginal-cost based rate design for commercial EV rate reform.

[12] Exhibit PGE-1, Pacific Gas and Electric Company Commercial Electric Vehicle Rate Proposal Prepared Testimony, November 5, 2018, p. 1-27.

Figure 2. PG&E Customer Savings



To highlight a specific case study, PG&E reports that the San Joaquin Regional Transit District achieved cost savings of nearly $15,000 across three stations in just the first month, reducing its overall fuel cost per mile from $2.31 to $0.68 with the new rate.[13]

Figure 3. PG&E Customer Savings: San Joaquin Regional Transit District[14]

Site	Billing Details	June Bill A10 rate	July Bill BEV rate	Savings
RTC	5 Depot Chargers; No time-of-use charges	$3,181	$1,001	$2,181
DTC	2 Overhead Chargers; Demand Management Software in Place	$8,334	$1,707	$6,627
UTS	2 Overhead Chargers; No Demand Management Software	$9,437	$3,423	$6,014
Fleet cost per mile		$2.31	$0.68	$1.63

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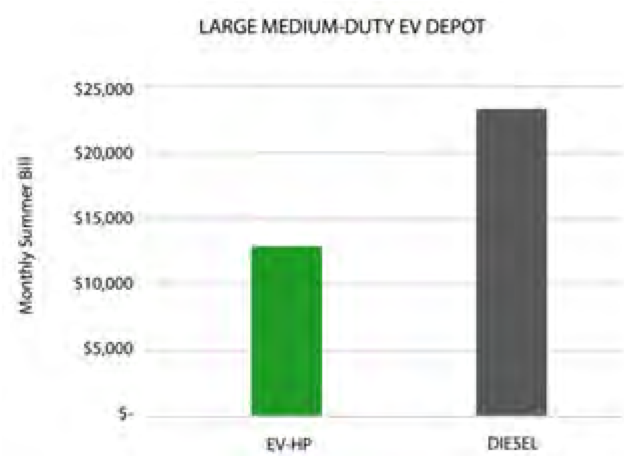
13 See PG&E, *Transit Agency Pioneers Electric Bus Program with Positive Results,* available at https://www.pge.com/pge_global/common/pdfs/solar-and-vehicles/your-options/clean-vehicles/charging-stations/ev-fleet-program/sjrtd-case-study.pdf.

14 See PG&E, *Transit Agency Pioneers Electric Bus Program with Positive Results,* available at https://www.pge.com/pge_global/common/pdfs/solar-and-vehicles/your-options/clean-vehicles/charging-stations/ev-fleet-program/sjrtd-case-study.pdf.

San Diego Gas & Electric

Borrowing from the innovative structure of PG&E's rate, SDG&E proposed its own new commercial and industrial rates, replacing demand charges with more predictable monthly subscriptions. SDG&E's "EV-HP" rate goes beyond PG&E's model to collect only marginal distribution *and commodity* costs, while phasing these costs back linearly over a predictable 10-year period. The Commission's final decision approving the rate directed SDG&E to make these modifications to align with the principles set out in a joint-party Settlement Agreement that had broad support from a diverse group of organizations including SDG&E, the California Public Advocates Office, the Coalition of California Utility Employees, Environmental Defense Fund, Union of Concerned Scientists, Sierra Club, NRDC, Enel X, Siemens, Greenlots, ChargePoint, Tesla, EVgo, EVBox, and Plug In America. Early implementation data from SDG&E's rate is not yet available, but the company estimates that customers taking service under the new rate could save roughly 20 to 50 percent on their monthly bills relative to the otherwise applicable rate.

Figure 4. SDG&E Illustrative Rate Savings[15]



To align with the Commission's historical treatment of Economic Development Rate loads and reduce the likelihood of the rate unintentionally imposing additional costs on other ratepayers, the Commission directed SDG&E to treat commercial EV load on the EV-HP rate as retained or incremental load, to measure EV-HP revenue relative to the

[15] See *SDG&E EV-HP Fact Sheet*, available at https://www.sdge.com/sites/default/files/documents/SDGE.PYDFF%20-%20EVHP%20Fact%20Sheet%202021.pdf. This example compares the cost of charging an EV fleet using SDG&E's EV-HP rates to the cost of fueling a similar diesel fleet, assuming a fleet of 50 medium-duty vehicles driving 50 miles per day, charging during weekday summer, super off-peak hours.

marginal cost price floor of a contribution-to-margin analysis, and to continually review implementation data to evaluate whether future modifications are necessary to ensure that the rate results in a positive contribution-to-margin. Further, the Commission directed that if any future analyses reveal a negative contribution-to-margin (under-collection), SDG&E must submit a proposal within 90 days detailing future modifications to eliminate it. As described in the joint party settlement agreement:

> This approach aligns with the Commission's treatment of Economic Development Rate load as retained or incremental load, helps avoid rate shock and customer confusion, and provides a more predictable estimate of the future cost of electricity as a fuel for customers. Improving the economics of commercial EV charging, while providing a predictable phase-in of [embedded costs], will encourage greater commercial EV adoption. Such adoption promotes the achievement of state climate, equity, and air quality goals. In addition, it promotes the integration of incremental load which, when the rate provides positive CTM, can potentially help put downward pressure on rates to the benefit of all electricity customers in the long term.[16]

The Commission concluded that because new commercial load taking service on the rate would be considered incremental load,

> revenues collected under the EV-HP rate will benefit ratepayers as long as the EV-HP rate is set above a price floor of marginal costs and non-bypassable charges. Ratepayers benefit even if the revenues collected under the EV-HP rate are substantially lower than would have been collected under [SDG&E's pre-exiting rates].[17]

Alabama Power

Similar to SDG&E's rate, Alabama Power offers an Economic Development Incentive (EDI) Rate Rider which customers enrolled on their Business EV Rate (BEV) can enroll in.[18] With the EDI Rider, customers' base rate is discounted to 110% of their estimated marginal cost (based on their specific service characteristics, including location, load and load shape), with a maximum discount on their base rate which declines over a predictable multi-year period. This model could present an alternative to developing

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16 A.19-07-006, *Joint Motion of Settling Parties for Commission Adoption of Settlement Agreement* at 5, available at https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M342/K864/342864901.PDF.

17 A.19-07-006, *Decision Authorizing San Diego Gas & Electric Company Rate for Electric Vehicle High Power Charging* at 29, available at https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M356/K212/356212154.PDF.

18 See Alabama Power, Rate Rider EDI (Economic Development Incentive), available at https://www.alabamapower.com/content/dam/alabama-power/pdfs-docs/Rates/EDI.pdf.

separate EV-specific commercial rates, with utilities instead opening up existing technology-agnostic economic development rate riders to commercial EV customers.

Marginal Cost Based Rates

By recognizing that commercial EVs are new load on the system and charging these customers only the additional costs they impose on the grid, marginal cost based rates like PG&E's, SDG&E's, and Alabama Power's can help improve the economics of commercial EV adoption, without subsidizing EV charging or shifting costs to other customers.

Commercial EV charging is generally a new type of load on the system. Accordingly, encouraging fuel switching from historically gasoline- or diesel-powered vehicles presents an opportunity to bring incremental load onto the grid and spread the fixed costs of the system over a greater volume of electricity sales, putting downward pressure on rates for all electricity customers. However, significant levels of fuel switching and the resulting downward pressure on rates will not materialize unless the rates available to commercial EV drivers are cost-competitive with gasoline or diesel.

Setting rates at marginal cost, as has historically been done for economic development and business attraction rates, incentivizes greater commercial EV adoption and recruitment of incremental load during the critical developing years of the commercial EV market, and would better reflect the true cost of serving new commercial EV load on the system during those years. Because utility revenue requirements are largely reflective of historical expenditures, rates are typically set to recover embedded costs. Because the historical investments in the grid (embedded costs) exist regardless of this new EV charging load and were not incurred because of it, setting rates at marginal cost better reflects the actual cost new commercial EV load imposes on the system during the initial years. Over the long-term, however, marginal costs become embedded costs, making it appropriate to gradually transition to recovering embedded costs from EV customers. As long as rates are set to recover at least marginal costs, existing customers will bear no additional costs from bringing this new load onto the system, while benefitting in the long-term from downward pressure on rates due to the addition of incremental commercial EV load onto the grid.[19]

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[19] Synapse Energy Economics, Electric Vehicles Are Driving Electric Rates Down, June 2020, available at https://www.synapse-energy.com/sites/default/files/EV_Impacts_June_2020_18-122.pdf.

Conclusion

In considering new rates to support transportation electrification as required by the amendments to PURPA 111(d), regulators and utilities should look to examples from recently approved commercial EV rates as helpful models for designing long-term, sustainable solutions for improving the economics of commercial EV charging. Key principles emerging from these early examples should inform the considerations undertaken by regulators and utilities, including the recognition that traditional demand charges present an unnecessary barrier to transportation electrification, setting rates to recover marginal costs can help attract beneficial load, and that rates should be designed to reflect the varying levels of sophistication and motivations among customers.

Designed well, new commercial EV rates can improve the economics of EV adoption during the critical developing years of the market to help facilitate public policy goals, provide significant fuel cost savings to drivers and fleet operators who charge in a manner that supports the electric grid, reflect the underlying costs of serving commercial EV load, and avoid subsidizing EV charging or shifting costs to other customers.

NARUC
National Association of Regulatory Utility Commissioners

1101 Vermont Ave. NW, Suite 200, Washington, DC 20005

www.naruc.org · (202) 898-2200

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