PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Agenda ID# 21641
ENERGY DIVISION **RESOLUTION E-5274**
June 29, 2023

R E S O L U T I O N

Resolution E-5274 Pacific Gas and Electric Company, San Diego Gas & Electric Company, and Southern California Edison Company request approval of a Plug-In Electric Vehicle Submetering Implementation Plan pursuant to Ordering Paragraph 3 of Decision 22-08-024.

PROPOSED OUTCOME:

- This resolution modifies Pacific Gas and Electric Company's, San Diego Gas & Electric Company's, and Southern California Edison Company's proposed Plug-In Electric Vehicle Submetering Implementation Plan to align with Ordering Paragraph 3 of Decision 22-08-024.

SAFETY CONSIDERATIONS:

- There are no incremental safety considerations associated with this resolution. The utilities must comply with the Safety Requirements Checklist for Transportation Electrification programs the California Public Utilities Commission adopted in D.18-05-040 and D.18-09-034.

ESTIMATED COST:

- Approval of this Resolution will result in an estimate cost of $8,881,931 for Pacific Gas and Electric, $4,500,000 for San Diego Gas & Electric, and $7,480,000 for Southern California Edison.

By Advice Letters 6778-E, 4114-E, and 4913-E filed on December 5, 2022.

SUMMARY

Pacific Gas and Electric Company's (PG&E), San Diego Gas & Electric Company's (SDG&E), and Southern California Edison Company (SCE) — (*collectively, "Joint IOUs"),* requests to establish a plug-in electric vehicle submetering implementation plan, is approved, with modifications.

PG&E's advice letter (AL) 6778-E, SCE's AL 4913-E, and SDG&E's AL 4114-E, each propose to establish a plug-in electric vehicle (PEV) submetering implementation plan (SIP). The Joint IOUs proposals describe how they will each implement the PEV Submetering Protocol, which was approved via Decision (D.) 22-08-024. The Joint IOUs' also propose the roles and responsibilities for Meter Data Management Agents (MDMA), customers, and other interested parties regarding the expectations and processes necessary to implement the PEV Submetering Protocol. Each AL also explains how the IOU will accept PEV submetering application from the MDMA and customer, the process to transfer and process PEV submetering data, and the steps each involved party must take to reconcile data errors.

This Resolution approves, with modifications, PG&E's, SCE's, and SDG&E's proposed SIP. PG&E and SCE must eliminate the 500-customer cap on PEV submetering customer enrollment during the manual billing phase of the SIP. SCE must start implementation of system updates to enable automated submeter billing immediately, rather than waiting until they determine sufficient PEV submetering customer demand justifies the updates. The Joint IOUs must modify their requirement to have MDMAs perform daily file transfers to only require monthly data transfers. Finally, PG&E and SDG&E must propose updated tariff language to additional EV rates to allow for the use of PEV submetering.

1. BACKGROUND

On August 4, 2022, the CPUC issued D.22-08-024, which adopted a PEV Submetering Protocol and Electric Vehicle Supply Equipment (EVSE) Communication Protocols. This provides customers with the opportunity to reduce the cost of PEV charging, by allowing customers to use their EVSE metering equipment in lieu of installing a separate utility meter to measure their PEV charging load. The CPUC anticipates that the adoption of the PEV submetering protocol will lead to further adoption of PEVs, the

deployment of vehicle-grid integration (VGI) use cases, and the realization of corresponding electric grid benefits.

Ordering Paragraph (OP) 3 of Decision (D.)22-08-024 directed the Joint IOUs to file a Tier 2 Advice Letter within 120 days of issuance of the decision to:

1) Update their respective electric rules to implement the adopted PEV Submetering Protocol.
2) Propose revisions to all relevant electric vehicle rates and tariffs applicable to electric vehicle charging to reference the PEV Submetering Protocol, and
3) Propose an implementation plan containing a timeline to modify the utility's billing system to incorporate the PEV Submetering Protocol, the timelines and processes to resolve billing disputes, the estimated costs associated with implementing the requirements of the decision, and a standardized data format and transfer protocol to share data between an electric vehicle service provider (EVSP) / Meter Data Management Agents (MDMA) and a utility.

On December 5, 2022, PG&E filed AL 6778-E, SCE filed 4913-E[1], and SDG&E filed 4114-E.

The Joint IOUs' ALs each propose updates to applicable electric rules, revisions to relevant electric vehicle rates and tariffs applicable to electric vehicle charging to reference the PEV Submetering Protocol, and outlines the timelines and processes to modify the utility's billing system to incorporate PEV Submetering data, the timelines and processes to resolve billing disputes, and the estimate costs to be incurred through implementing the SIP.

Update their respective electric rules to implement the adopted Plug-In Electric Vehicle Submetering Protocol

Decision 22-08-024 directed each IOU to update each applicable electric rule impacted by the adoption of the PEV Submetering Protocol and add the following subsections to "Residential Service" and "Non-Residential Service" to say "Where electricity is furnished for EV charging, a customer may use the EVSE as a submeter to measure EV charging load, and ancillary EV charge service (i.e., demand response, vehicle-grid integration, etc.)".[2]

[1] On December 9, 2022, SCE submitted a substitute sheet correcting the due date for parties to file protests and responses.
[2] D.22-08-024 at 30

a) PG&E's AL 6778-E proposes to modify their applicable electric rules to say "Where electricity is furnished for Electric Vehicle charging, a Customer may use an EV submeter to measure Electric Vehicle charge load, and ancillary EV charge service (i.e., demand response, vehicle-grid integration, etc.). All EV submeters used for submetering purposes must be approved by PG&E and meet the requirements established in Decision 22-08-024, Decision Adopting Plug-In Electric Vehicle Submetering Protocol and Electric Vehicle Supply Equipment Communication Protocols.".

   PG&E proposes to include the language above to the following electric rules: 1) Rule 9 (Rendering and Payment of Bills), 2) Rule 11 (Discontinuance and Restoration of Service), Rule 16 (Service Extension), Rule 18 (Supply to Separate Premise and Submetering of Electric Energy), and Rule 29 (Electric Vehicle Infrastructure).

b) SCE's AL 4913-E proposes to include the language of D.22-08-024 to the following electric rules: 1) Rule 9 (Rendering and Payment of Bills), 2) Rule 16 (Service Extensions), Rule 18 (Supply to Separate Premises and Use By Others), and Rule 29 (Electric Vehicle Infrastructure).

c) SDG&E's AL 4114-E proposes to include the required language to the following electric rules: 1) Rule 16 (Service Extensions), Rule19 (Supply to Separate Premises and Resale), and 3) Rule 45 (Electric Vehicle Infrastructure).

Propose revisions to all relevant electric vehicle rates and tariffs applicable to electric vehicle charging to reference the PEV Submetering Protocol

The Joint IOUs' AL each list out the electric vehicle rates and tariffs that they request to modify to make applicable to utilizing PEV submetering.

a) PG&E proposes to modify the following electric schedules to reflect the eligibility of EV submetering for metering and billing electricity that is furnished for EV charging: 1) Electric Schedule BEV, and 2) Electric Schedule EV2. PG&E is also requesting to add language to Electric Schedule NEM and Electric Schedule NEM2 to reflect that the PEV Submetering Protocol is not extended to Net Energy Metering customers at this time.

b) SCE proposes changes to the following electric schedules to enable the use of PEV submetering for metering and billing electricity to charge an EV: 1) Schedule TOU-D, Time-of-Use Domestic, 2) Schedule TOU-EV-7, General Service Time-of-Use, Electric Vehicle Charging, 3) Schedule TOU-EV-8, General Service Time-of-Use, Electric Vehicle Charging, Demand Metered, 4) Schedule CRP, Charge Ready Program, 5) Schedule CRTP, Charge Ready Transport program.

c) SDG&E proposes modifications to the following electric schedules: 1) Schedule EV-TOU, Domestic Time-of-Use for Electric Vehicle Charging, 2) Schedule TOU-M, General Service-Small Time Metered, and 3) Schedule EV-HP, Electric Vehicle High Power Rate.

Propose an implementation plan containing a timeline to modify the utility's billing system to incorporate the PEV Submetering Protocol, the timelines and processes to resolve billing disputes, the estimated costs associated with implementing the requirements of the decision, and a standardized data format and transfer protocol to share data between an electric vehicle service provider (EVSP) / MDMA and a utility.

Timeline to modify the utility's billing system to incorporate PEV Submetering Protocol and estimate costs associated with implementing the requirements of the decision.

The Joint IOUs' ALs each outline the processes and the timeline to automate the PEV submetering billing and data transfer process and the estimate costs to complete, resolving billing disputes, and for customers/MDMAs to enroll in the IOUs' PEV submetering program.

a) *PG&E's Proposal to Incorporate PEV Submetering Protocol and Estimate Costs*

PG&E expects to perform manual enrollment and billing reconciliation for customers during a period of approximately 18-24 months. They anticipate that the majority, if not all processes in the billing reconciliation process will need to be manually executed during this period.

PG&E asserts this manual process will require significant resources, staff time, and financial allocation to support. Some of the steps necessary for billing an EV customer manually include: 1) PG&E staff manually hold a customer's bill from being automatically sent to the customer to validate the data. Staff will create a work item that

triggers a notification to review the customer's data when a bill is generated. 2) When the bill is generated, staff will validate that the bill reflects utilization for EV load and non-EV load by cross checking with the main meter at the premise. If there are no discrepancies, PG&E's billing system will calculate energy charges according to the associated rates. 3) PG&E bills the customer, or send the billing data to the relevant party for Direct Access or CCA customers.

PG&E states it will have very limited bandwidth for billing system changes over the next several years, as it is currently undergoing a multi-year billing system modernization initiative expected to run through 2026. PG&E is also working to implement already approved and soon to be approved decisions such as the Commercial Electric Vehicle Day-Ahead Hourly Real Time Price Rate (DAHRTP) opt-in rate (D.21-11-017), the adopted E-ELEC electrification rate (D.21-11-015), the pending Percentage of Income Payment Plan pilot rate, the DAHRTP-CEV non-NEM export compensation pilot rates (A.19-11-016), and the residential, small business and large business real time pilot rates (A.19-11-016), and is preparing for the significant billing system programming changes necessary to implement the Net Billing Tariff (D.22-12-056). These projects already have an implementation pipeline planned alongside upgrading PG&E's two legacy billing systems with the goal of minimizing the risks of causing delays in completion of the billing system upgrades and the need to build twice.

Due to this queue of existing work, PG&E proposes an EV submetering billing and IT upgrade completion date of December 2024, with automated customer enrollment and billing by January 2025. The upgrades to support submetering billing require an estimated 14 months and is estimated to start Q4 2023.

PG&E expects to perform manual enrollment and billing reconciliation for customers during a period of approximately 18-24 months, until full automation is completed. PG&E states that the majority, if not all billing processes will need to be manually executed during this period, which will require significant resources, staff time, and financial allocation to support EV submetering. PG&E is prepared to hire, train, and manage up to 15 full-time employees, and estimates that these resources can support the manual billing up to 500 PEV submetering customers. PG&E states they may be able to improve their internal manual billing processes by a 25-50% efficiency margin, which may allow them to support up to 750 customers in total while the automated billing system is completed.

PG&E estimates the total cost for implementing PEV submetering at $8,881,931. PG&E asserts that these estimates were developed with input from subject matter experts and third-party vendors using best available information at the time. This includes the following specific items:

- Manual Billing: estimates assume the process starts no earlier than April 2023 and the maximum 500 customer threshold is met by January 2024. Assumes a monthly cost of approximately $11,500 per full time employee, for up to a maximum of 15 employees. 2023-2025 estimate total costs at $3,612,000.
- Full Automated Billing Integration: estimates assume full automation, including building an MDMA data exchange application, upgrades to field automated system (FAS), meter data management system (MDMS), and PG&E's billing systems. 2023-2025 total costs estimated at $3,057,931.
- Customer Tools: estimates include expanding the customer enablement tools and upgrades. 2023-2025 total estimate costs at $1,462,000.
- Marketing, Education, and Outreach (ME&O): includes materials and platforms, development of education information, content on PG&E's website, customer service training, and targeted outreach at the point of full automation. 2023-2025 estimate total costs are $335,000.
- Program Management: includes managing and coordinating all requirements across the manual billing phase, billing system integration and stabilization, and customer enablement tool enhancement. 2023-2025 estimate total costs are $415,000.

b) *SCE's Proposal to Incorporate PEV Submetering Protocol and Estimate Costs*

In lieu of initiating a process to develop an automated billing system for PEV submetered customers, SCE proposes to utilize manual billing processes indefinitely. Prior to implementing manual billing, SCE states it will need to complete necessary billing system modifications by establishing secure data delivery from MDMAs.

The first step SCE will make is performing system modifications to support the secure data delivery of usage data from MDMAs, as well as configuration changes in billing systems to support manual billing. This will require SCE to establish secure file transfers coordinate with each MDMA to setup unique proper encryption for the exchange, configure SCE's network and firewalls to allow secure connectivity, setup the data interface, and perform tests to ensure the file exchanges are working properly. SCE estimates these activities can take 60 days to complete, depending on the number of

MDMAs to configure and the time required for each MDMA to respond to SCE's inquiries and successfully complete testing and internal testing. To ease the burden of manual uploads of MDMA data and reduce errors, SCE will develop interfaces, including checks to confirm valid file formats and content, to automate the daily data uploads of interval usage data into SCE's meter data management system. As customers enroll, SCE will monitor the level of demand to determine if automation is necessary to accommodate EV submeter billing. SCE states that it will forego automating this process until demand justifies it as a way to balance costs, utility time requirements and operational considerations, and the demands of other CPUC required and critical IT projects.

SCE does not propose to immediately assign a large number of full-time employees (FTE) with knowledge and experience of billing systems to be on standby in case of increased customer demand for EV submeter billing. SCE will instead begin phasing up 15 incremental FTE to be available for manual processing, with the total number of FTEs to be based on operational considerations (i.e., costs, onboarding and training processes, and possibility that this volume may not be needed following full automation).

As they are foregoing automating the PEV submetering billing process until demand justifies the effort, SCE proposes to cap customer participating in PEV submetering to no more than 500 EV Submeter Bills Per Month. SCE asserts the staffing needs and processes involved in manual billing customers justifies capping participation to this level.

SCE proposes to maintain discretion to elect to continue to manually bill PEV submeter customers if participation in PEV submetering is low. If SCE elects to automate, the timeline may range from 18 months to 42 months, with some work in this process not beginning until later years. SCE will work with MDMAs to monitor customer interest and determine the level of staffing required to accommodate any potential EV submetering demand growth up to the 500 monthly account cap. SCE may also elect a hybrid automation approach where it would automate the routine billing processes, but continue to rely on manual processes to handle more complex billing scenarios and exceptions.

Implementing the hybrid solution would entail automating the billing process for the most common PEV submetering billing scenarios, such as performing PEV submeter bill calculation and bill production for customers with standard, routine configurations

and are void of special circumstances or unique configurations that require additional or special handling. This would not cover any automation of the PEV submeter enrollment process, which will still be manually performed. Other billing processes, such as reverse-rebills or less common billing scenarios would still be managed via manual billing.

SCE states they will not start work on full automation until they complete work on hybrid automation. SCE expects full automation efforts will take an additional 24 months to complete following the completion of hybrid automation. These projects are currently planned for execution from Q1 2023 - Q4 2026, and the earliest SCE can get to initiating full automation would be Q3 2026. With work progress being pursued in multiple stages, SCE estimates that full automation would not be available until Q2 2028, at the earliest.

SCE estimates that the total costs to implement PEV Submetering at $12,220,000. For non-billing system PEV submetering costs from 2023-25 at $4,740,000. This includes the MDMA approval process, project management, manual billing, and application processing and billing. The total billing system costs that are estimated to be incurred from 2023-29 are $7,480,000, which include the following: 1) Required System Modifications for Manual Billing, 2) Hybrid Automation, and 3) Full Automation. SCE asserts their costs estimates are based on their understanding of the necessary work to implement the decision. However, they assert actual costs will vary from these estimates based on customer interest in submetering, MDMA interest in serving customers, and any new technical or process requirements to bill customers.

c) *SDG&E's Proposal to Incorporate PEV Submetering Protocol and Estimate Costs*

SDG&E proposes to begin the extensive process of upgrading its systems to fully automate the PEV submetering billing process as soon as the CPUC approves their AL. SDG&E proposes to apply a two-phased approach for system updates to allow for customer enrollment in PEV submetering while the automation process is being implemented

Phase 1- Implementation Plan and Timeline (9 months)

SDG&E will seek to develop a "Minimum Viable Product" that can be used to meet the functionality stated above and ensure overall compliance with the decision. This phase includes standing up a working prototype and then building out the basic end-to-end

functionality to automate the processing for the majority of submetering customers. SDG&E estimates this first phase can be completed in 9-months.

Phase 2 - Implementation Plan and Timeline (12 months)

SDG&E will seek to refine the automated solution to make it more efficient and ensure that it can handle complex submetering scenarios. SDG&E will look for ways to identify potential areas of enhancements from Phase 1 to refine the overall solution, including refining overall data processing and integrations, adding new reports, or configuring the system to handle a new highly complex submetering customer billing setup. As more MDMAs and customers enroll in submetering, additional enhancements may be needed. Phase 2 plan includes allocating IT capacity for designing, building, and testing any new enhancements that are identified and add overall value to the submetering process.

While SDG&E performs the steps above for automated billing, they may leverage a partially manual process for any highly complex submetering setups while its system is being fully configured for automation. If this occurs, SDG&E would temporarily add additional billing FTE resources to process these accounts, and record the costs in their EV Submetering Protocol Memorandum Account.

Based on SDG&E's assessment, they warn that performing manual billing reconciliations will be a very challenging effort. The amount of data and complexity of subtractive billing, which requires an individual staff person to manually enroll a customer, process the interval data coming from an MDMA, perform subtractive billing, and then manually generate a bill, will require dedicated staffing resources. SDG&E estimates this could take 4-8 hours to process per customer bill, each month. SDG&E would also need to make several temporary IT changes to its billing system to allow a user to manually process the submetering bills, which could delay the 9-month timeline for implementing the automated billing solution. SDG&E plans to perform the billing reconciliation for any missed months leveraging its automated solution once it is deployed. Any customers who submit a submetering application and have a full month of submetered billing prior to SDG&E's Phase 1 deployment will receive a corrected bill with the corresponding reconciliation of submetering charges. If the corrected bill approach described above does not support a MDMA or specific customer request, SDG&E will proceed with creating a manual submetering bill. If this scenario occurs, SDG&E will temporarily add additional FTE resources to process these accounts.

SDG&E estimates the total costs to implement the PEV submetering protocol at $4,500,000. With Phase 1 of the billing automation process estimated at approximately $2,500,000, and Phase 2 activates estimated at $2,000,000.

SDG&E asserts they developed their cost estimates upon their review of the decision and high-level solutioning for the automated solution.

A summary of each utilities' implementation timeline and cost estimates are seen in Table 1.

Table 1 SIP Comparison

Utility	Timeline for Full PEV Submetering Billing Automation	Total Cost for PEV Submetering Implementation
PG&E	Q4 2023 – Q4-2024	$8,881,931 from 2023-2025 • Manual Billing: $3,612,000 • Full Automated Billing Integration - $3,057,931. • Customer Tools - $1,462,000. • Marketing, Education, and Outreach (ME&O) - $335,000. • Program Management - $415,000.
SCE	Q1 2023 - Q4 2026 for hybrid automation Q2 2028 for full automation	$12,220,000 from 2023-2029 • Non-billing system - $4,740,000. • Billing system - $7,480,000
SDG&E	Total of 21 months from approval of AL 4114-E. Phase 1: Develop minimum viable product (9-months) Phase 2: Enhance and refine product for full or near full automation (12-months)	$4,500,000 from 2023-2025 • Phase 1: $2,500,000 • Phase 2: $2,000,000

Process to resolve billing disputes

a) *PG&E's Proposal to Resolve Billing Disputes*

PG&E envisions three main types of data and billing disputes will exist, including 1) Missing MDMA Data, 2) Invalid MDMA Data, and 3) Customer-borne Disputes. The processes to resolve each dispute include:

- Missing MDMA Data: 1) PG&E will notify the MDMA of a data transmittal failure and log it for performance tracking purposes. 2) PG&E will record the usage for all affected intervals as 0 (zero). 3) The MDMA shall submit missing data within 7 calendar days and pass PG&E's validation checks. PG&E will then update the affected intervals to reflect corrected data. Otherwise, recorded usage from previous step shall be used for billing purposes and the customer will be billed for all usage at the primary meter rate for the time intervals during which the disputed charging occurred.
- Invalid MDMA Data: PG&E proposes the following resolution process. 1) PG&E will notify the MDMA of the interval data's failure and log for performance tracking purposes. 2) PG&E will record the usage of all intervals affected by data quality issue as 0 (zero). 3) The MDMA shall submit corrected data within 7 calendar days and pass PG&E's validation checks. PG&E will then update the affected intervals to reflect corrected data. Otherwise, recorded usage from previous step shall be used for billing purposes and the customer will be billed for all usage at the primary meter rate for the intervals during which the disputed charging occurred.
- Customer-borne Disputes: PG&E proposes the following resolution process. 1) The receiving party (MDMA/IOU) will document the customer issue, inform the customer of the dispute resolution process and timeline, and promptly notify the counterparty. For the MDMA, this will be a call or email to PG&E and for PG&E this will be a call or email to the MDMA help desk. 2) Within 30 calendar-days of mutual notification, the MDMA will perform all necessary checks and due diligence to exclude their hardware, systems, and processes as the root cause of the dispute. If issues are found, the MDMA is solely responsible for resolving this dispute with the customer. 3) In parallel and within 30 calendar-days of mutual notification, PG&E will perform all necessary checks and due diligence to exclude PG&E systems and processes as the root cause of the dispute. If issues are found, PG&E will provide a modified bill to the customer. 4) If no issues are found by either the MDMA or PG&E, a joint resolution process will be initiated

by the MDMA. Given the novelty of submetering, this joint resolution process will be documented and refined as issues rise to this level and in accordance with the findings of this decision referenced above. Both parties will make a concerted effort to finalize resolution within 30 additional calendar-days. In total, the goal is to resolve billing disputes within one to two billing cycles.

b) *SCE's Proposal to Resolve Billing Disputes*

SCE proposed process to resolve billing data disputes determines that the customer data transmitted from an MDMA lacks the necessary quality for SCE to perform subtractive billing and issue an EV submeter bill, SCE will contact the MDMA and request that the data be cured and resubmitted. If the MDMA fails to make needed corrections within seven calendar days to SCE's satisfaction, SCE will default to the primary meter bill for the current billing system, and the'primary account holder will be responsible for any charges stemming from the usage recorded on the primary meter. SCE will begin billing the EV submeter as soon as feasible provided SCE receives conforming data from the MDMA.

SCE will prepare its Customer Contact Center phone representative staff to take calls from both primary account and EV submeter account holders. SCE representatives will attempt first call resolution (i.e., resolution of the customer's concerns on the first call), if the billing dispute requires further investigation, SCE will follow up with the appropriate department for resolution and get back to the customer.

If SCE determines an issue to be non-billing or outside of SCE's control, SCE will direct the customer to their MDMA so that the MDMA can resolve the issue. SCE phone representatives will provide the customer with the MDMAs contact information and will require each participating MDMA to establish a customer support desk. The MDMA will be responsible for resolving the issue in a timely manner.

c) *SDG&E's Proposal to Resolve Billing Disputes*

SDG&E proposes to resolve billing disputes by requiring the Primary Account Holder, or the submeter account holder to first contact SDG&E's Customer Care Center (CCC) if they are disputing their bill. The CCC will determine if the customer the call is regarding the customer's primary meter or PEV submeter. If the issue stems from the customer's primary meter, a resolution will be achieved within 30 days. If the CCC determines a customer's inquiry is the responsibility of the MDMA, SDG&E will direct the customer to their MDMA for their lead in resolving the issue as the Protocol

identifies the MDMA as the single point of contact for all submeter data issues. If the MDMA is unable to address the customer's concerns, the MDMA can contact SDG&E's submetering group.

When a call is received from either a primary account holder or a submeter account holder regarding a billing issue, the CCC will forward the inquiry to the SDG&E billing department for resolution, which is expected within 30 days under normal business circumstances.

Standardized data format and transfer protocol to share data between an EVSP/MDMA and the utility.

The Joint IOUs' each propose a standardized data format and transfer protocol that can be used in the short term and for long-term automated solution.[3] While the adopted PEV submetering protocol cites to Electric Data Interchange (EDI) and Energy Service Provider Interface (ESPI) as possible format for transferring utilization data between the MDMA and utility, the Joint IOUs assert that these formats could pose challenges for the EVSPs, MDMAs, and utility in the short term. The Joint IOUs assert their proposed approach would simplify the process of transferring data between MDMAs and utility by standardizing the process across all utilities, avoiding the need for MDMAs to be subject to different data transfer protocols across service territories, and will support the Manual Billing Period and seamlessly adopt for automated solutions. The Joint IOUs also state that as permitted in D.22-08-024, they may modify the standardized data formats and transfer protocol in the future.

NOTICE

Notice of ALs 6778-E, 4913-E, and 4114-E were made by publication in the CPUC's Daily Calendar. PG&E, SCE, and SDG&E each state that a copy of the ALs were mailed and distributed in accordance with Section 4 of General Order 96-B.

PROTESTS

On January 10, 2023, ChargePoint, Inc. (ChargePoint) submitted a joint response to PG&E's AL 6778-E, SCE's AL 4913-E, and SDG&E's AL 4114-E. Also on January 10,

[3] See PG&E's AL 6778-E, SCE's AL 4913-E, and SDG&E's AL 4114-E

2023, the Vehicle-Grid Integration Council (VGIC) submitted a separate response to each, PG&E's AL 6778-E and SDG&E's AL 4114-E. On January 17, 2023, SCE submitted a joint response on behalf of PG&E and SDG&E to ChargePoint's response.

ChargePoint's response recommends modifications to each utilities' AL, including 1) the frequency of submeter file transfers, 2) the timeline for billing system automation, and 3) the scope of MDMA/EVSP participation in PEV submetering.

VGIC's response to PG&E and SDG&E recommends each utility revise the tariff sheets for their day ahead EV tariffs to allow for PEV submetering implementation, as soon as those tariffs are established by the utility.

DISCUSSION

This section of the Resolution identifies how the CPUC dispose of the issues associated with the adoption of the Joint IOUs' proposed Submetering Implementation Plans.

We find that the Joint IOUs' proposed requirement for daily PEV submetering data transfers is unnecessary.

The Joint IOUs' each propose to require participating MDMAs to provide daily file transfers to the utility. The utilities all require a minimum of 24-hour interval data, with each hour including minimum data inputs to reflect the total load consumed, even if consumption is 0 (zero).

ChargePoint's response notes that the daily transfer of PEV submetering data to the utility may be unduly burdensome on MDMAs, especially in the manual transfer process. Additionally, they note that some situations may delay the transfer of data to the utility, such as Wi-Fi and cellular network connectivity issues. Since the MDMAs' data will always be timestamped, ChargePoint recommends the Joint IOUs modify this requirement to require data transfers on a monthly, rather than daily basis. ChargePoint further recommends this monthly data transfer be performed prior to the end of the applicable billing period, rather than within three days of the data being recorded.

In their response to ChargePoint, the Joint IOUs' note that they understand ChargePoint's concerns, but believe daily data transfers are necessary to ensure smooth daily operations and timely billing. The Joint IOUs argue that the daily transfer requirement will provide the utility and MDMA with time to address any anomalies encountered with the data to ensure timely delivery of the bill to customers. Their

response states that the inconsistencies of customer billing would make a monthly file transfer require significant coordination and shifting of data transfer schedules. The Joint IOUs assert they have not conceived of a process to continuously update MDMAs on established or changing customer-specific billing cycle dates due to the immense complexity involved in the process. Therefore, the most efficient approach for billing data transfers is to ensure daily MDMA data file submission to the utility.

ChargePoint raises further concern with the Joint IOUs' proposed data protocol statement that the utility will not process partial day data. ChargePoint states that MDMAs may not be able to comply with this requirement, as they may not collect data for every interval for 24 hours, and instead, may only collect intervals in which a charging session has occurred.

The Joint IOUs highlight the importance of MDMAs providing complete data to the utility for each hourly interval, even if no data is recorded during the time period. To reconcile this concern, the Joint IOUs will require the MDMAs to input a 0 (zero) in any data interval that does not have any EV charging consumption. The inclusion of the numerical zero will allow the utility to analyze the data and determine if intervals are missing, or if no consumption was made.

We agree with the Joint IOUs regarding any data interval where no data consumption was made to record a 0 (zero). As the Joint IOUs highlight in their response, this will ensure the utility is able to determine if an interval had no charging consumption, or if the interval is missing data. The Joint IOUs' must ensure the finalized data transfer protocol clearly states that all time intervals must be filled with a numerical value, including time intervals where no charging data was recorded.

We also agree with ChargePoint's concerns that the Joint IOUs' proposal for daily data transfers is unduly burdensome for the MDMAs. While the Joint IOUs propose this requirement to ensure smooth daily operations and timely billing by allowing the utility to identify anomalies before billing a customer, the adopted PEV Submetering Protocol includes measures to assure consistent and reliable data is submitted to the utility. Importantly, the adopted PEV Submetering Protocol requires each MDMA to store 30 days of submetered data on site, and 90-days of data remotely to ensure any inconsistencies with the data can be resolved. The Joint IOUs shall modify their data transfer processes to require MDMAs to transfer PEV submetering data on a monthly basis.

SCE must immediately begin efforts to automate the PEV submetering billing process.

ChargePoint states in their response that though they are understanding of the resources required for the utilities to perform system upgrades, automatic billing system are a necessity to reduce program costs and to maximize PEV submetering benefits and participation. ChargePoint commends SDG&E's effort to create a minimum viable product within nine months to serve as a prototype to automate the process.

The Joint IOUs' response urges the CPUC to not require investments in automation.

We agree with ChargePoint's comment that automating the PEV submetering billing system is necessary to maximize the benefits of PEV submetering and commend SDG&E for their efforts to develop a product within nine months.

While PG&E's proposal notes that they will have very limited bandwidth for billing system changes over the next several years due to a number of projects already in the queue, we find their targeted completion date December 2024 to be reasonable, and aligned with the timeline proposed by SDG&E. PG&E shall informally notify Energy Division staff during the implementation of their efforts if they determine they will not be able to meet the December 2024 billing system automation completion date. Energy Division staff will collaborate with PG&E to explore options to allow for timely completion of their billing system automation efforts. PG&E's notice should outline the issue(s) causing the delay, the efforts PG&E is taking to resolve the issue(s), and an updated completion timeline.

We find SCE's proposal to postpone initiating billing system automation processes until SCE determines sufficient PEV submetering demand warrants the efforts to not comply with the intent of D.22-08-024, which directed the utilities to incorporate submetering into their billing systems within a 24-month timeline. SCE's proposal to utilize manual billing until SCE determines demand justifies hybrid or full automation is inconsistent with the intent to incorporate submetering into its billing system. While we understand we have directed SCE to conduct numerous IT system upgrades which could delay initiating work to automate PEV submetering billing, the CPUC still finds ensuring an efficient and simply billing process for all relevant PEV submetering participants is essential. SCE's proposal to delay initiating this work until they determine sufficient demand warrants it conflicts with the CPUC's goals for submetering. Therefore, we direct SCE to start efforts to automate the PEV submetering billing process

immediately. SCE shall seek to develop a minimum viable product for full or hybrid automation within 24 months of the approval of this resolution. SCE shall informally notify Energy Division staff during the implementation of their automation efforts if they determine they will not be able to complete the necessary work to either fully, or partially automate the PEV submetering billing process. Energy Division staff will work with SCE to identify options to ensure timely completion of their PEV submetering billing system automation efforts.

PG&E and SCE must remove the 500-customer cap for PEV submetering enrollment while billing automation is being pursued.

PG&E and SCE both propose to limit initial PEV submetering participation to no more than 500 customers, with PG&E stating they may allow up to 750 customers depending on the efficiency of their manual billing process. Both utilities cite to the complexity, necessary resources, and staff time needed to perform manual billing solutions, which includes setting up PEV submetering accounts accounts, analyzing and handling individual PEV submeter data files, manually subtracting PEV submeter data from the master meter, and managing all trouble shooting efforts as they arise.

PG&E and SCE state that the 500-customer cap is the maximum number of customers the anticipated 15 FTE employees hired to manage the PEV submetered data can manually process each month. Both utilities anticipate incremental hiring FTE up to the 15 employees but note they may determine the reasonableness to hire and train additional FTE employees if sufficient demand justifies.

In establishing the 500-customer cap, PG&E and SCE both cite to a survey conducted by SCE, on behalf of the utilities, to measure EVSP and MDMA participation and expected customer. SCE asserts that out of the 42 EVSPs and MDMAs they reached out to, only 5 responded that demonstrated interest in participating in a PEV submetering program. PG&E and SCE therefore assert this survey demonstrates the potential limited initial interest in PEV submetering. Each utility believes the limited interest justifies their effort to take a cost-effective approach for deploying utility resources to support PEV submetering, including the 15 FTE employees assumed to be needed to process and manage the 500 PEV submetering customers.

We find PG&E's and SCE's proposal to cap PEV submetering enrollment during the manual billing process to be unsupported and conflicting with the intent of D.22-08-024.

While initial interest for EVSP or MDMA and customer participation in PEV submetering may be low, we do not find this survey to support PG&E's and SCE's proposal to cap customer participation. If interest in PEV submetering is low, then a cap on customer participation is unnecessary, and may instead serve as a potential deterrent for customer participation if they are to assume investing in eligible PEV submetering technology will still not guarantee their participation in the program. Further, we believe the utilities will be incentivized to accelerate the automate billing process upgrades to avoid additional resources needed for manual billing customers if initial PEV submetering demand exceeds the 500 customer cap.

Additionally, D.22-08-024 does not discuss allowing any numerical limitations to PEV submetering customer participation while the utilities' conduct efforts to incorporate PEV submetering into their billing systems. Demonstrating the desire to allow all interested customers to participate in PEV submetering, the decision discussed and ordered expanding PEV submetering participation to both single customer of record (SCOR), and multiple customers of record (MCOR). The only limitations the decision placed on PEV submetering participation are to simultaneous PEV submetering and NEM participation, which was delayed until legal and technical issues can be resolved.

We order PG&E and SCE to remove all caps on PEV submetering customer participation during the manual billing process. Each utility shall make efforts to ensure they have the necessary staffing to support the manual billing of all customers interested in participating in PEV submetering during the manual billing process. If demand exceeds staffing and resource availability, each utility shall seek to add additional resources to manage their programs and record all incremental costs in their PEV Submetering Memorandum Accounts. Additionally, each utility shall seek to accelerate the upgrades needed to support automation of the PEV billing process if customer demand exceeds their forecasted customer participation estimates.

PG&E, SCE, and SDG&E shall clarify that participating EVSPs and MDMAs may choose to participate in specific PEV submetering use cases.

ChargePoint's response to the utilities' proposals raises concerns with implied requirements that any participating EVSP and MDMA must serve all PEV submetering use cases (i.e., SCOR and MCOR, or residential and commercial customers). ChargePoint states that if required to serve all use cases, some EVSPs and MDMAs may opt to not participate in PEV submetering, which will limit customer equipment and

service choices. To resolve this, ChargePoint recommends the CPUC clarify that EVSPs and MDMAs may choose to participate in specific use cases, rather than serve them all, which will allow companies with expertise in specific customer bases to focus efforts on serving those customers.

We find ChargePoint's recommendation to clarify the scope of EVSP and MDMA participation in PEV submetering to be reasonable. We agree that there may be unintended consequences to customers and the efficiency of each utilities' PEV submetering program if we require all EVSPs and MDMAs to serve customers that they do not specialize in serving. PG&E, SCE, and SDG&E shall clarify in their EVSP/MDMA enrollment process that their participation in PEV submetering can be limited to the use cases they specialize in serving based on EVSP/MDMA choice.

PG&E and SDG&E shall ensure to allow PEV submetering participation for customers enrolled in all Electric Vehicle tariffs, once available for enrollment.

VGIC's responses to PG&E's and SDG&E's proposals were generally supportive. VGIC raised minor concerns with each utilities' potential oversight of updating their tariff sheets for all EV rates. Specifically, VGIC identifies PG&E's still pending DAHRTP and SDG&E's EV-TOU-5.

Within the decision approving PG&E's DAHRTP[4], the CPUC noted that it was premature to require PG&E to enroll submetered customers onto the DAHRTP rate, as the CPUC was still considering the PEV Submetering Protocol. However, the CPUC further stated that when submetering becomes an approved and accepted means of metering commercial EVSE load, then a separate meter should no longer be required to take service on a BEV rate, including customers enrolling on the DAHRTP rate. As D.22-08-024 extends PEV submetering participation to all customers, excluding those enrolled in NEM, we find that PG&E shall ensure that they modify the DAHRTP tariff sheet to allow for participation in PEV submetering, in lieu of installing a second utility meter.

We additionally find it reasonable to direct SDG&E to update their EV-TOU-5 tariff sheet to allow for PEV submeter participation in lieu of requiring the customer install a second utility meter.

Within 30 days of approval of this resolution, SDG&E shall file a T2 AL to update the EV-TOU-5 tariff sheet to be consistent with the language in D.22-08-024, ordering to be

[4] D.21-11-017

added to all applicable EV tariffs. PG&E must file a T2 AL consistent with the tariff language ordered in D.22-08-024, within 30 days of offering customers enrollment within the DAHRTP rate.

Safety Considerations

There are no incremental safety implications associated with approval of this resolution. As this resolution addresses the utilities' PEV submetering implementation plans, there is not direct impact to safety.

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 period may be reduced or waived upon the 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 resolution was mailed to parties for comments, and will be placed on the Commission's agenda no earlier than May 18, 2023.

FINDINGS

1. Ordering Paragraph 3 of Resolutions D.22-08-024 directs PG&E, SCE, and SDG&E to each file a tier 2 advice letter within 120 days of the decisions' approval to propose PEV Submetering Implementation Plan.
2. On December 5, 2022, PG&E filed AL 6778-E, SCE filed 4913-E, and SDG&E filed 4114-E to propose a PEV Submetering Implementation Plan, a standardized data transfer protocol, and Electric Rule and EV tariff revisions to allow for the use of a PEV submeter.
3. On January 10, 2023, ChargePoint submitted a joint response to PG&E's AL 6778-E, SCE's AL 4913-E, and SDG&E's AL 4114-E requesting modifications on the proposed frequency of submeter file transfers, the timeline for billing system automation, and the scope of MDMA/EVSP participation in PEV submetering.
4. On January 10, 2023, VGIC submitted a response to PG&E's AL 6778-E and SDG&E's AL 4114-E requesting updates to permit PEV submetering on PG&E's DAHRTP and SDG&E's EV-TOU-5 tariffs.

5. On January 17, 2023, SCE submitted a joint response on behalf of PG&E and SDG&E to ChargePoint stating why the CPUC should not further modify their proposals.
6. Decision 22-08-024 directed each IOU to update each applicable electric rule impacted by the adoption of the PEV Submetering Protocol and add the following subsections to "Residential Service" and "Non-Residential Service" to say "Where electricity is furnished for EV charging, a customer may use the EVSE as a submeter to measure EV charging load, and ancillary EV charge service (i.e., demand response, vehicle-grid integration, etc.)"
7. PG&E proposes to modify the following electric rules to permit PEV submetering: 1) Rule 9 (Rendering and Payment of Bills), 2) Rule 11 (Discontinuance and Restoration of Service), Rule 16 (Service Extension), Rule 18 (Supply to Separate Premise and Submetering of Electric Energy), and Rule 29 (Electric Vehicle Infrastructure). PG&E also proposes modifications to the following electric schedule tariff sheets to permit PEV submetering: BEV and EV2.
8. D.21-11-017 directs PG&E to allow customers enrolled in DAHRTP to utilize a PEV submeter for billing purposes, if and when the CPUC authorizes a PEV Submetering Protocol.
9. SCE's proposes to include the language of D.22-08-024 to the following electric rules: 1) Rule 9 (Rendering and Payment of Bills), 2) Rule 16 (Service Extensions), Rule 18 (Supply to Separate Premises and Use By Others), and Rule 29 (Electric Vehicle Infrastructure). SCE also proposes revisions to the following electric schedule tariff sheets to permit PEV submetering: 1) TOU-D, Time of Use Domestic, 2) TOU-EV-7, General Service Time of Use, Electric Vehicle Charging, 3) TOU-EV-8, General Service Time of Use, Electric Vehicle Charging, Demand Metered, 4) Schedule CRP, Charge Ready Program, and 5) Schedule CRTP, Charge Ready Transit Program.
10. SDG&E's AL 4114-E proposes to include the required language to the following electric rules: 1) Rule 16 (Service Extensions), Rule19 (Supply to Separate Premises and Resale), and 3) Rule 45 (Electric Vehicle Infrastructure). SDG&E also proposes to request revisions to the relevant electric schedule tariff sheets after approval of AL 4114-E.
11. PG&E expects to perform manual enrollment and billing reconciliation for customers during a period of approximately 18-24 months.
12. PG&E is estimates up to 15 full-time employees can support 500 PEV submetering customers, with a potential for up to 750 customers in total while the automated billing system is completed.

13. PG&E estimates the upgrades needed to support automatic PEV submetering billing require an estimated 14 months and will start Q4 2023 and wrap up Q4 2025.
14. PG&E estimates the total cost for implementing PEV submetering enrollment and billing at $8,881,931 by 2025.
15. SCE believes anticipated customer demand for PEV submetering does not justify dedicating resources to complete automation of PEV submetering billing. If they determine automation is needed, SCE estimates that full PEV submetering billing automation would not be available until Q2 2028.
16. SCE proposes to limit participation in PEV submetering during the manual and hybrid billing processes to no more than 500 customers.
17. SCE estimates that the total costs to implement PEV Submetering at $12,220,000 by 2028.
18. SDG&E proposes to begin PEV submetering billing system updates upon approval of AL 4114-E.
19. SDG&E may leverage a partially manual process for any highly complex submetering setups while its system is being fully configured for automation.
20. SDG&E estimates the total costs to implement the PEV submetering protocol at $4,500,000 by 2025.
21. PG&E's and SCE's proposal to cap PEV submetering enrollment during the manual billing process conflicts with the intent of D.22-08-024.
22. D.22-08-024 ordered the IOUs to expand PEV submetering participation to both single customer of record (SCOR), and multiple customers of record (MCOR).
23. D.22-08-024 does not permit for IOUs to limit PEV submetering customer participation, except for the sole situation of a customer simultaneously enrolling in a NEM program.
24. Automating the PEV submetering billing system is necessary to maximize the benefits of PEV submetering.
25. The CPUC directed the IOUs in D.22-08-024 to start efforts to automate the PEV submetering billing process.
26. ChargePoint's recommendation to clarify the scope of EVSP and MDMA participation in PEV submetering to be reasonable.
27. It is reasonable to direct SDG&E to update their EV-TOU-5 tariff sheet to allow for PEV submeter participation in lieu of requiring the customer install a second utility meter.
28. PG&E, SCE, and SDG&E each propose comprehensive process to resolve billing data disputes.

29. PG&E, SCE, and SDG&E propose to jointly utilize a standardized data format and transfer protocol that can be used in the short term and for long-term automated solution.
30. PG&E, SCE, and SDG&E each propose to require the EVSP/MDMA to make daily data transfers of PEV submetering billing data.

THEREFORE IT IS ORDERED THAT:

1. Pacific Gas and Electric Company's Advice Letter 6778-E, San Diego Gas & Electric's Advice Letter 4114-E and Southern California Edison Company Advice Letter 4913-E are approved with modifications.
2. Pacific Gas and Electric Company, San Diego Gas & Electric Company, and Southern California Edison Company must ensure the finalized data transfer protocol requires all time intervals to be filled with a numerical value, including time intervals where no charging data was recorded being marked with a zero.
3. Pacific Gas and Electric Company, San Diego Gas & Electric Company, and Southern California Edison Company shall each modify their plug-in electric vehicle submetering data transfer processes to require Meter Data Management Agents to transfer submetering data on a monthly basis.
4. Southern California Edison Company (SCE) must start efforts to automate the plug-in electric vehicle submetering billing process immediately. SCE shall seek to develop a minimum viable product for full or hybrid plug-in electric vehicle submetering billing automation within 24 months of the approval of this resolution. SCE shall informally notify Energy Division staff during the implementation of their automation efforts if they determine they will not be able to complete the necessary work to either fully, or partially automate the billing process.
5. Pacific Gas and Electric Company must informally notify Energy Division staff if they determine they will not be able to complete the plug-in electric vehicle submetering billing automation process by December 31, 2024.
6. Pacific Gas and Electric Company and Southern California Edison Company must remove all caps on plug-in electric vehicle submetering customer participation throughout their efforts to automate the billing process.
7. Pacific Gas and Electric Company, San Diego Gas & Electric Company, and Southern California Edison Company must each clarify within their Electric Vehicle Service Provider (EVSP) / Meter Data Management Agent (MDMA) enrollment

process that participation in plug-in electric vehicle submetering can be limited to the customer bases each EVSP/MDMA specializes in serving based on EVSP/MDMA decision.

8. Within 30 days of approval of this resolution, San Diego Gas & Electric Company shall file a Tier 2 Advice Letter to update the EV-TOU-5 tariff sheet to be consistent with the language directed in Decision 22-08-024, ordering to be added to all applicable electric vehicle tariffs.
9. Prior to offering customers the option to enroll in the Commercial Electric Vehicle Day-Ahead Hourly Real Time Price Rate (DAHRTP-CEV RTP), Pacific Gas and Electric Company must file a Tier 2 Advice Letter to modify the tariff language to be consistent with the electric vehicle tariff language ordered in D.22-08-024.

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 June 29, 2023 the following Commissioners voting favorably thereon:

_____

Rachel Peterson
Executive Director