# PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

**Agenda ID #24033**
**ENERGY DIVISION** **RESOLUTION E-5452**
**March 19, 2026**

## R E S O L U T I O N

Resolution E-5452. Southern California Edison Orchestrated Charging and Advanced Resiliency for Distribution Vehicle Grid Integration Proposal Using Low Carbon Fuel Standard Holdback Revenue

PROPOSED OUTCOME:

- This Resolution 1) approves with modifications Southern California Edison's (SCE) Advice Letter 5536-E, which requests to update its Low Carbon Fuel Standard (LCFS) Holdback Implementation Plan by including a new vehicle-grid integration (VGI) program in its existing LCFS Implementation Plan and exempting the requirements of Public Utilities Code (PUC) Section 851 as it applies to the LCFS holdback credit sales, 2) approves the orchestrated load management component of the proposal, including the ORCHARD participation incentives, and 3) denies the rebates for bidirectional equipment.

SAFETY CONSIDERATIONS:

- There are no safety considerations associated with this resolution.

ESTIMATED COST:

- There are no costs associated with this resolution.

By Advice Letter 5536-E, Filed on April 29, 2025.

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## SUMMARY

This Resolution approves, with modifications, the request from Southern California Edison (SCE) to establish a new vehicle-grid integration (VGI) program within its existing Low Carbon Fuel Standard (LCFS) Implementation Plan. On April 29, 2025, SCE filed Advice Letter (AL) 5536-E, requesting to (1) include a new VGI program in SCE's existing LCFS Implementation Plan, and (2) exempt the requirements of Public Utilities Code (PUC) Section 851 as it applies to the LCFS holdback credit sales.
The VGI proposal consists of two major components. First, the proposal presents the Orchestrated Charging and Advanced Resiliency for Distribution (ORCHARD), which would integrate a software layer into SCE's Distributed Energy Resource Management System (DERMS) that would optimize customer EV charging times. ORCHARD would offer each participant an annually declining incentive, starting at $50 for the customer's first year of enrollment and fully withholding the incentives by the customer's fifth year of enrollment. Second, the proposal would offer rebates to some participants to cover the costs associated with installing bidirectional charging equipment.

This Resolution relies on Decision (D.) 20-12-027 to assess the merits of the proposal. This Resolution authorizes SCE to allocate $11,464,112 of its LCFS holdback credits toward the orchestrated load management component of SCE's proposal as well as the participation incentives. This Resolution denies the rebates for bidirectional charging equipment as unreasonable.

## BACKGROUND

This Resolution addresses SCE AL 5536-E, filed pursuant to Decision (D.)20-12-027.

In 2009, the California Air Resources Board (CARB) adopted the Low Carbon Fuel Standard (LCFS) and began implementing the regulation in 2011. LCFS encourages the use and production of low-carbon transportation fuels to reduce greenhouse gas (GHG) emissions and petroleum reliance. Low-carbon fuel providers, including electrical distribution utilities (EDUs),[1] generate LCFS credits by obtaining carbon intensity certification by CARB and reporting transaction quantities quarterly. EDUs generate base credits for supplying electricity to customers for EV charging.[2] A portion of these base credits goes toward the California Clean Fuel Reward program while the

[1] EDUs include investor-owned utilities (IOUs).
[2] 17 Cal. Code Regulation (CCR) § 95483(c)(1)(A).

remaining base credits (also called "holdback credits") may be allocated toward programs led by investor-owned utilities (IOUs).

On December 21, 2020, CPUC issued D.20-12-027, concerning the utilization of Low Carbon Fuel Standard holdback revenue. The Decision requires the large IOUs[3] to file LCFS Holdback revenue return[4] Implementation Plans to qualify for an exemption from the requirements of PUC Section 851 pursuant to PUC Section 853(b). PUC Section 851 prohibits IOUs from selling utility assets—including LCFS credits, per D.14-05-021—without CPUC authorization. PUC 853(b) exempts IOUs from this requirement, but the CPUC may still impose requirements to protect IOU customers. The large IOUs' Implementation Plans must include a program proposal and a description of how the large IOU plans to spend the funds. This description must include the status of the development of the program(s), an implementation timeline, and the approximate budget.[5] Additionally, the Implementation Plans must describe how:

- The holdback expenditures are dedicated to equity or resiliency projects, if applicable and as defined by D.20-12-027.
- The holdback expenditures and planned investments benefit current or future EV drivers in California.
- The holdback expenditures comply with all other CARB regulations regarding the use of holdback funds.
- The proposal:
    a. Demonstrates input from environmental justice groups and/or community-based organizations,
    b. Addresses gaps in program design not already addressed through the IOU's transportation electrification (TE) expenditures or other publicly funded program, or in the alternative how the proposed expenditure will reduce costs to ratepayers,
    c. Will address a barrier to TE, equity, and/or resiliency, and
    d. Includes data collection requirements that allow for an evaluation of the effectiveness of the proposal in addressing TE, equity, and/or resiliency barriers.
- Any proposal for an equity project primarily benefits or serves communities eligible for equity project expenditures.

[3] The large IOUs include Pacific Gas & Electric, Southern California Edison, and San Diego Gas and Electric.
[4] Electrical distribution utilities generate base credits for supplying electricity to customers for EV charging, a portion of which goes toward the California Clean Fuel Reward Program while the remaining base credits (also called "holdback credits") may be allocated toward utility-led programs.
[5] D.20-12-027 at 26.

- Any proposal for a resiliency project aligns with other TE-related IOU resiliency efforts, such as Public Safety Power Shutoff (PSPS) or Wildfire Mitigation Plans, and reflects consultation with EV service providers where appropriate.
- Any proposal for a resiliency project aligns with CPUC VGI policy.

Pursuant to Ordering Paragraph (OP) 1 of D.20-12-027, the Implementation Plans must demonstrate that portions of the holdback revenues are allocated toward equity and resiliency projects. The large IOUs must allocate at least 75 percent of their LCFS holdback expenditures toward the equity project requirement of CARB's LCFS regulations, as harmonized with AB 841 through D.20-12-027. Additionally, the IOUs must spend up to 20 percent of the LCFS holdback expenditures not spent on equity projects on resiliency projects. If the IOU is unable to meet the 20 percent target, the IOU may identify why it is unable to meet the target in its Implementation Plan and any measures taken.

On November 21, 2022, CPUC issued D.22-11-040, concerning Transportation Electrification Policy and Investment. D.22-11-040 established three strategic focus areas for VGI, including (1) rates and demand flexibility programs, (2) technology enablement, and (3) grid planning.[6] D.22-11-040 asserts that customer participation in VGI will be driven primarily by rates and demand flexibility programs. Technology enablement includes various areas of focus such as interconnection standards and electric vehicle supply equipment (EVSE) performance requirements. Lastly, grid planning will require collaboration across various CPUC proceedings and processes to ensure VGI potential is addressed via distribution, generation, and transmission planning.

Pursuant to OP 3 of D.20-12-027, SCE submitted AL 5536-E on April 29, 2025, to propose updates to its LCFS Holdback Implementation Plan. AL 5536-E requests the CPUC's approval to: (1) include a new VGI program in SCE's existing LCFS Implementation Plan, and (2) exempt SCE from the requirements of PUC Section 851 as it applies to the LCFS holdback credit sales. The proposed program consists of two major components: orchestrated load management and bidirectional rebate incentives.

### 1. Orchestrated Load Management

The first component of the proposal presents the Orchestrated Charging and Advanced Resiliency for Distribution (ORCHARD) program. The program would integrate a software layer into the utility's Distributed Energy Resource Management System

[6] D.22-11-040 at 172.

(DERMS) that would optimize customer EV charging times and mitigate localized grid congestion. SCE argues that current load management efforts lack precision as such efforts largely rely on voluntary customer participation, system-wide signals (e.g., time-of-use rates), and customer-driven behavior. SCE assumes that the expected influx of EV load in the coming years will continue to exacerbate the secondary peak that results from EV drivers initiating their charging time during off-peak hours, starting at 9:00 pm. SCE posits that the primary objective of this orchestrated load management approach will be to mitigate those secondary local grid constraints and reduce, delay, or even eliminate the need for distribution infrastructure upgrades,[7] primarily transformers.

The second objective of the program is to reduce customer bills and enable customers to generate revenue. AL 5536-E emphasizes the cost benefits of home energy management, in which customers with bidirectional vehicles would save money by drawing electricity from their own vehicle instead of importing energy from the grid, especially during the more costly peak hours.[8] SCE projects that customers can save at least $500 annually by offsetting home loads via EV discharging.[9] SCE asserts that in addition to these cost savings, customers could generate additional revenue through other channels, including the Dynamic Rate Pilot and Emergency Load Reduction Program (ELRP), or pending rates like the Vehicle Grid Resource Proposal.

The final objective is to achieve scale. SCE argues that as they are projecting high levels of EV adoption in their service territory, efforts are needed to "recruit, manage, and support" EV drivers at scale.[10] SCE strives to keep 75 percent of participants enrolled throughout the initial four years of the program at the fully reduced incentive level and to aim for customers not opting out of more than 25 percent of charging sessions.[11] SCE hypothesizes that with increased participation, program costs are not expected to significantly rise while the benefits (e.g., mitigating distribution congestion, decreasing system costs) will "increase exponentially."[12]

SCE asserts that ORCHARD would enable the utility to maintain direct control of customer devices, and it would shift from "static, system signals to dynamic, localized

[7] AL 5536-E at 3.
[8] AL 5536-E, Appendix A, at 13.
[9] AL 5536,E, Appendix A, at 12.
[10] Ibid.
[11] AL 5536-E, Appendix A, at 20.
[12] AL 5536-E, Appendix A, at 3.

coordination."[13] Within the AL, SCE presents a control scheme that illustrates the communication channels and relevant standards that would facilitate the charging signals between the DERMS, the EV Management System, and the EVs/EVSE. Specifically, the DERMS would communicate with the EV Management System (i.e., third-party vendors and aggregators) using the IEEE 2030.5 protocol, and the EV Management System would communicate with the EVs/EVSE using application programming interfaces (APIs). AL 5536-E states that ORCHARD would not consist of event-based participation, such as the Emergency Load Reduction Program (ELRP).

ORCHARD falls under the unidirectional (V1G)[14] classification, meaning power flows only from the grid to the electric vehicle. Throughout the AL, SCE refers to the ORCHARD approach as "orchestrated managed charging," "utility-orchestrated load management," and additional variations of such naming conventions. For consistency, this Resolution refers to SCE's proposed approach as orchestrated load management, which this Resolution defines as activity through which the utility or third-party vendor/aggregator optimizes customer EV charging times to mitigate secondary distribution peaks induced by system-wide time-of-use (TOU) rate signals and customer charging schedules. The CPUC is considering adoption of a formal definition of orchestrated load management across multiple ongoing proceedings, so this definition should only be applied to ORCHARD. Orchestrated load management should operate in parallel with any existing and future time- or event-based rates.

ORCHARD would offer participants incentives that decline each year, starting at $50 per year and fully reducing the incentives by the fifth year of enrollment. To obtain the incentives, customers would set their preferences for their desired state of charge and other settings upon enrollment so that ORCHARD will distribute the aggregated load appropriately. SCE intends for the charging to occur discreetly, such that customers can carry on with their regular personal schedules without noticing any impact on their ability to use their vehicles while enrolled in the program. SCE is aiming to enroll 25,000 customers on circuits with less than one megawatt of available capacity and at least 100 EVs on the circuit.

[13] Ibid.
[14] This resolution uses the "unidirectional" definition adopted by the Joint Agencies Vehicle-Grid Integration Working Group report published on June 30, 2020, which can be accessed here: https://gridworks.org/wp-content/uploads/2020/07/VGI-Working-Group-Final-Report-6.30.20.pdf.

### 2. Bidirectional Equipment Rebate Incentives

The second component of SCE's AL is a proposal that offers income-qualified participants bidirectional rebate incentives. Customers who choose to participate in this part of the program would receive rebates to help offset the costs of the Rule 21 interconnection application and the bidirectional EVSE, which includes inverters, transfer switches, and companion energy storage systems. The program does not compensate customers directly for their energy exports. The emphasis is on the benefits of home energy management using vehicle-to-home (V2H) technology, through which power flows only from the EV to the customer's residence. SCE argues that the customer would save money by using electricity that their own vehicle can supply instead of importing energy from the grid, especially when energy from the grid is more expensive during peak hours. AL 5536-E does acknowledge a potential for vehicle-to-grid (V2G) down the road while citing some barriers to widespread deployment. For example, SCE mentions "higher system design and engineering costs compared to simpler V1G systems, […] more labor-intensive processes," high installation and equipment costs, and high costs associated with potential panel upgrades.[15] Moreover, SCE acknowledges that automotive original equipment manufacturers (OEMs) have largely refrained from enabling V2X technology and have instead prioritized home back-up power. SCE proposes a target to enroll 8,700 customers in the bidirectional rebate incentive program, which would be a subset of the 25,000 customers participating in ORCHARD.

## NOTICE

Notice of AL 5536-E was made by publication in the CPUC's Daily Calendar. SCE states that a copy of the Advice Letter was mailed and distributed in accordance with Section 4 of General Order 96-B.

## PROTESTS

Advice Letter 5536-E was not protested but did receive supportive responses from Alliance for Transportation Electrification (ATE), ChargeScape, Fermata Energy, Green Power Institute (GPI), Hyundai, Itron, Vehicle-Grid Integration Council (VGIC), and WeaveGrid on May 19, 2025.

Several party comments support ORCHARD for its attempt to address statewide goals, including Senate Bill (SB) 676 (Bradford, 2019), SB 59 (Skinner, 2024), and SB 846 (Dodd,

[15] AL 5536-E, Appendix A, at 27.

2022).[16] ChargeScape and WeaveGrid acknowledge that SB 846 established an "urgent need" for VGI initiatives such as ORCHARD.[17] WeaveGrid adds that SB 676 and SB 59 demonstrate an interest from the legislature to advance VGI, and ORCHARD is taking a "significant step forward" to achieve this aim.[18] Additionally, ChargeScape and WeaveGrid argue that ORCHARD reflects the three strategic focus areas for VGI, as outlined in D.22-11-040: rates and demand flexibility, technology enablement, and planning. VGIC observes that ORCHARD aligns with the parameters included in CARB's recent regulatory amendments. Specifically, CARB modified the preapproved list of non-equity holdback projects by adding VGI initiatives, such as managed charging.

Fermata Energy recommends expanding program eligibility to medium- and heavy-duty (MDHD) EVs and commercial fleets, arguing that trucks and buses are optimal use cases for their large batteries, predictable schedules, and reliability for being parked during peak demand.[19]

Several party comments include recommendations regarding the bidirectional equipment proposal, which SCE sometimes refers to as its V2X proposal.

ChargeScape suggests adding an incentive to cover the cost of the "Net Generation Output Meter (NGOM) required to install bidirectional chargers for existing net metering customers with solar PV."[20] Additionally, ChargeScape suggests that SCE should work primarily with automotive OEMs that have demonstrated their EVs are V2X-capable. ChargeScape also recommends proactive engagement "across internal teams to set expectations for V2X aspects of ORCHARD" and work with automotive OEMs to set goals and timelines to facilitate interconnection for V2G exports.[21] Finally, ChargeScape recommends the CPUC incentivize the IOUs "to pursue distribution

[16] SB 676 required IOU TE programs to maximize achievable VGI benefits by 2030 and ordered the CPUC to establish "strategies and quantifiable metrics to maximize the use of feasible and cost-effective" VGI. SB 59 authorized the California Energy Commission (CEC), in consultation with CARB and CPUC, to require any EV weight class have bidirectional functionality if beneficial to the EV operator and electrical grid. SB 846 required CEC, in consultation with CPUC and CAISO, to establish and regularly update a load shifting goal "to reduce net peak electrical demand." Subsequently, CEC adopted a goal to achieve seven gigawatts (GW) of load flexibility by 2027. The SB 846 Load-Shift Goal Report can be accessed here: https://www.energy.ca.gov/publications/2023/senate-bill-846-load-shift-goal-report
[17] ChargeScape response at 1.
[18] WeaveGrid response at 4.
[19] Fermata Energy response at 2.
[20] ChargeScape response at 6.
[21] Ibid.

deferral rather than infrastructure upgrades and deploy localized distribution optimization more broadly" and orchestrated load management solutions more specifically. [22]

Fermata Energy recommends increasing the V2X incentive dollar amounts for V2G participants "if no new V2G export compensation rates, programs, or market mechanisms materialize."[23]

Vehicle Grid Integration Counsel (VGIC) recommends implementing a compensation mechanism for "grid-parallel EV battery discharge," noting that the utility "has elected not to offer export compensation to EV customers in its new Expanded Dynamic Rate Pilot."[24] If SCE does not implement any such export compensation, VGIC advises raising the bidirectional equipment incentive. Finally, VGIC recommends offering bidirectional charging system incentives to MDHD vehicles and commercial fleets, noting that while these customers may have unique transportation characteristics, they may be interested in the potential pathways to reducing the cost of owning an EV.[25]

Several party comments support ORCHARD for its potential to unlock customer savings. ATE notes that as a software, ORCHARD may demonstrate exponential savings with each additional customer.[26] Fermata Energy also supports the use of orchestrated load management as a "powerful and cost-effective tool" to "defer distribution system upgrades and limit ratepayer impacts."[27] Green Power Institute (GPI) also commends the proposal, recommending establishing cost-effectiveness targets using the Total Resource Cost (TRC) test. Specifically, GPI posits that if after a full year of operation, the program achieves a TRC value exceeding 1.5, "SCE should be required to submit a plan to substantially increase program participation."[28] GPI also recommends exploring other non-LCFS funding opportunities to guarantee the means to scale the program beyond 25,000 participants.[29] While ATE and VGIC support the 25,000-customer enrollment target, GPI asserts that this target is "too conservative in scale and scope relative to the maturity of some of the proposed technology."[30] GPI

[22] ChargeScape response at 7.
[23] Fermata Energy response at 3.
[24] VGIC response at 4.
[25] VGIC response at 4-5.
[26] ATE response at 2-3.
[27] Fermata Energy response at 2.
[28] GPI response at 6.
[29] GPI response at 7.
[30] GPI response at 2.

goes on to recommend the CPUC require SCE to provide a roadmap that demonstrates program expansion to reach 100,000 ORCHARD participants by 2030.

WeaveGrid applauds SCE's effort to integrate ORCHARD into its broader DERMS strategy.[31] ChargeScape recommends SCE consider more cost-effective alternatives to support ORCHARD in optimizing the distribution network, like the embedded functionality in the IOU's Itron AMI meters.[32]

Several parties commented on the benefits of establishing direct partnerships between SCE and the other firms participating in the program implementation. ChargeScape recommends SCE to engage in direct partnerships with automotive OEMs to promote ORCHARD at the point of purchase at the dealership, within the automotive OEMs' apps, or other channels.[33] Fermata Energy also recommends collaborating with industry partners, including aggregators, electric vehicle service providers (EVSPs), automotive OEMs, Community-Based Organizations (CBOs), and other relevant stakeholders, to conduct effective ME&O.[34] Furthermore, Fermata Energy argues that contracting with multiple aggregators and charging service providers may "enhance program reliability, minimize interoperability risks, and ensure broad market participation" as well as "encourage greater diversity in compatible EV models and charging hardware," which would ultimately ensure the program's scalability and effectiveness.[35] VGIC proposes partnerships with more than one aggregator and software provider due to interoperability concerns mentioned in AL 5536-E.[36]

ChargeScape states that evaluating the program with baseline and counterfactual data from the automotive OEMs could guarantee a rigorous assessment of the program's efficacy, especially as it may inform long-term planning.[37] They specifically state that SCE can use data from customers who are not enrolled in ORCHARD as the representative control group and pre-enrollment data from customers enrolled in ORCHARD as the baseline. ChargeScape offers that its OEM partners can supply "aggregated and anonymized demographic data sets to enable robust program evaluation of timer-peak mitigation, including data about consumer charging locations (i.e. home vs. away), level of charging (level 1, level 2 or DC fast), time of day, day of

[31] WeaveGrid response at 3.
[32] ChargeScape response at 5.
[33] ChargeScape response at 3.
[34] Fermata Energy response at 3.
[35] Ibid.
[36] VGIC response at 5.
[37] ChargeScape response at 4.

week, seasonality and vehicle type (plug-in hybrid or full battery EV)."[38] ChargeScape also recommends SCE to consider an approach that provides visibility into all EVs (not just ORCHARD enrollees) through smart meters and data from OEMs to more precisely estimate EV load flexibility and target high-priority customers in a more cost-effective manner.

## DISCUSSION

This section of the Resolution identifies how the CPUC will dispose of the issues associated with the authorization of SCE's LCFS Implementation Plan. We will dispose of these issues based on consistency with CARB's LCFS regulation and compliance with D.20-12-027.

SCE's AL 5536-E is approved with modifications, as discussed in this section. We note here that while we have performed due diligence, this Resolution does not constitute CARB's approval of SCE's LCFS Holdback programs.

### 1. Orchestrated Charging and Advanced Resiliency for Distribution (ORCHARD) Program

SCE proposes implementing an orchestrated load management program that would grant the IOU direct control of customer EV charging schedules to mitigate secondary local grid constraints resulting from TOU rate-induced demand peaks. Implementing ORCHARD would include the deployment of a software layer in the IOU's DERMS as well as coordination with a third-party aggregator (or potentially multiple aggregators) to emit and receive charging signals to and from the EVs and/or EVSE. SCE proposes a total budget of $22,928,224 over four years. The budget would cover the costs associated with the hardware and software needed to deploy the orchestrated load management controls, customer participation incentives, and bidirectional equipment rebates further discussed in Section 3 below. AL 5536-E notes that the budget would be allocated "nearly evenly" across the orchestrated load management component and the bidirectional equipment component.[39] SCE aims to enroll at least 25,000 EV customers on circuits that have less than one megawatt of available capacity and serve at least 100 EVs. Eligibility for ORCHARD includes, among other requirements, submission of a Rule 21 interconnection application.[40]

[38] Ibid.
[39] AL 5536-E, Appendix A, at 16, footnote 43.
[40] AL 5536-E, Appendix A, at 14.

We find SCE's ORCHARD proposal aligns with D.20-12-027 and the LCFS regulations, and is approved with modifications. Ordering Paragraph 1 of D.20-12-027 requires the IOUs to allocate at least 75 percent of their total holdback expenditures toward equity projects and up to 20 percent of their total holdback expenditures toward resiliency projects. D.20-12-027 adds that if the IOU cannot meet the 20 percent resiliency threshold, the Implementation Plan must address why this is the case and what the IOU did to try to meet this target. Although SCE does not consider ORCHARD an equity or resiliency project,[41] we find the orchestrated load management component of ORCHARD does comply with CARB's other (non-equity) pre-approved holdback project types recently updated in the LCFS regulations.[42] AL 5536-E notes that 90 percent of SCE's expenditures across its entire holdback program portfolio is dedicated to supporting equity customers.[43] AL 5536-E goes on to explain that the resiliency requirement is "prohibitively difficult" to meet as D.20-12-027 narrowly defines resiliency by deploying TE infrastructure within the context of grid outages, and ORCHARD is not focused on such backup use cases.[44] The CPUC finds that SCE's reasoning for not meeting the 20 percent expenditure threshold for resiliency projects is sufficient, especially in light of the recent updates by CARB to include VGI in its preapproved list of non-equity holdback projects. Moreover, as several intervenors point out, the ORCHARD scheme addresses several statewide goals, including SB 676, SB 59, and SB 846. The proposal also addresses the strategic focus areas of VGI outlined in D.22-11-040.

Although the CPUC approves the orchestrated load management component of ORCHARD for the reasons above, AL 5536-E lacks sufficient detail on the budget needed to implement the program. AL 5536-E states that the $22,928,224 would be split almost equally among the orchestrated load management component and the bidirectional equipment component. As such, the CPUC authorizes $11,464,112 for SCE to implement the orchestrated load management scheme and directs SCE to submit a Tier 2 AL within 30 days of approval of this Resolution to provide more details on the program budget. SCE's AL must include budget details for the following program components: (1) administrative labor, (2) marketing labor, (3) program costs (IT, third-party implementor costs, fees and subscriptions charged by OEMs for SCE and/or third-

[41] AL 5536-E, Appendix A, at 8-9.
[42] As of July 1, 2025, 17 CCR § 95483(c)(1)(A)5.b states, "[e]xamples of pre-approved uses for other holdback credit proceeds include: […] Support for vehicle-grid integration with projects such as: […] Providing program incentives to encourage driver participation in monitored/managed charging, demand response, or vehicle-to-load / vehicle-to-grid applications."
[43] AL 5536-E, Appendix A, at 8.
[44] AL 5536-E, Appendix A, at 9.

party aggregators to manage the EV charging, etc.), (4) marketing, education, and outreach (ME&O), (5) program evaluation, and (6) customer participation incentives.

### 2. ORCHARD Incentives

SCE proposes providing annually declining incentives to customers participating in the orchestrated load management component of ORCHARD. Specifically, there would be an initial sign-up incentive of $75 and an annual participation incentive starting at $50, as seen in Table 1 below. No parties commented on the ORCHARD participation incentive amounts.

*Table 1: ORCHARD Participation Incentives*

| Year | (Sign-Up) | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| Incentive | $75 | $50 | $40 | $30 | $20 | $0 |

We find this financial incentive to be reasonable. As VGIC acknowledges,[45] the orchestrated load management component of ORCHARD aligns with the pre-approved other (non-equity) holdback projects category described in 17 Cal. Code Regulation (CCR), Section 95483(c)(1)(A)5.b.[46] SCE intends to decrease the incentives annually as illustrated in Table 1 with the possibility of restoring the monetary amount to a previous level if enrollment targets warrant such an adjustment. SCE confirms that "a purpose of ORCHARD is to determine if incentives can modify customer behavior in ways that will allow EVs to be a dependable flexible load resource for the grid, such as plugging in every day."[47] We find that this commitment to continually assess the efficacy of incentive amounts based on program attrition demonstrates an effort to maintain enrollment for adequate program scaling and evaluation, both of which are needed to achieve the objectives of the program. However, more information is needed to understand how such an assessment will be conducted. The CPUC directs SCE to describe the methodology that will be used to determine whether the incentive amounts should be modified and how frequently this assessment will occur. The methodology and frequency should be addressed in the same Tier 2 AL that will provide additional details on the orchestrated load management budget. The methodology should, at minimum, address:

- How often SCE will assess ORCHARD enrollment numbers,

[45] VGIC response at 2.
[46] See footnote #42.
[47] AL 5536-E, Appendix A, at 17.

- What participation or attrition threshold will warrant modification of the incentive amounts,
- What measures SCE will take if participants opt out of more than 25% of charging sessions,
- How, if applicable, participation or attrition differs among the tiers of incentive amounts (e.g., whether attrition is higher at the fully reduced incentive level),
- Whether SCE will use a control group in its analysis,
- Whether SCE will conduct participant surveys to inform the modification of incentive amounts,
- How SCE will inform and educate ORCHARD participants about additional financial incentives made available through enrollment in dynamic rates, after such rates are approved and implemented, and
- How SCE will evaluate the potential bill impact of ORCHARD customers concurrently enrolled in dynamic rates.

### 3. MDHD Participation

AL 5536-E limits the program to residential drivers, arguing that mitigating distribution system upgrades due to increased residential EV load would in turn allow SCE to "direct grid resources toward new electrification goals in the medium- and heavy-duty vehicle sectors."[48] The CPUC does not require SCE to include MDHD customers in the orchestrated load management portion of ORCHARD as the proposal focuses the program learnings on light-duty, residential drivers.

### 4. Bidirectional Equipment Incentives

AL 5536-E proposes two tiers of incentives illustrated in Table 2, which they call V2X incentives. The first tier would provide most participants with an $800 rebate to offset the cost of the Rule 21 interconnection application. The second tier would provide income-qualified customers with additional incentives to offset costs incurred by the installation of bidirectional EVSE, such as bidirectional inverters, transfer switches, and companion energy storage systems.

[48] AL 5536-E, Appendix A, at 12.

*Table 2: Proposed Interconnection and Bidirectional Equipment Incentives*

| | Interconnection Discount | Additional System Costs | Covered by Other Programs | Total |
|---|---|---|---|---|
| Tier 1 | $800 | n/a | n/a | $800 |
| Tier 2 | $800 | Up to $7,800 | Up to $4,200 for panel (Charge Ready Home) | Up to $12,800 |

SCE's AL 5536-E does not propose ORCHARD as an equity program. CARB's LCFS regulations do not stipulate any requirements for non-equity holdback expenditures, other than obligating the funds to "further transportation electrification efforts in California."[49] While the LCFS regulations do include "supporting the deployment and installation of bidirectional charging equipment" on the list of pre-approved non-equity projects, we find that SCE's proposal for the bidirectional equipment incentives is not sufficiently justified for the reasons listed below.

AL 5536-E states that one of its three main goals is to enable "customer savings and/or potential revenue through optimized EV charging and discharging […] during peak pricing periods."[50] However, AL 5536-E states that most bidirectional-capable vehicles "are being sold today as back-up only" use cases, meaning these systems will normally be operated only when SCE's electric service is not available.[51] According to SCE's website, backup systems operate either under a Momentary Parallel (MP) operation mode, or Isolated operation mode.[52] SCE defines MP as a mode in which a backup generator "interconnects and operates on a momentary parallel basis with SCE's electric system for a duration of one (1) second or less through transfer switches or operating schemes specifically designed and engineered for such operation."[53] SCE defines Isolated as a mode in which a backup generator is "isolated and prevented from becoming interconnected with SCE's electric system through a transfer switch or operating scheme specifically designed and engineered for such operation."[54] SCE's

[49] 17 CCR 95491(e)(5).
[50] AL 5536-E, Appendix A, at 12.
[51] AL 5536-E, Appendix A at 27.
[52] SCE's Backup Systems web page can be accessed here: https://www.sce.com/business/smart-energy-solar/solar-for-business/grid-interconnections/backup-systems
[53] Ibid.
[54] Ibid.

Form 14-732 (Request for Payment Instructions Rule 21 – Non-Exporting Generators) clarifies that the $800 application fee applies only to Momentary Parallel operation, not Isolated operation mode. AL 5536-E does not clearly explain whether participants will be required to operate EVs that discharge via MP or Isolated operation mode. Furthermore, if the EVs will be connected as MP, AL 5536-E does not justify why this operational state, rather than Isolated operation mode, would be required. It is unclear why the IOU would encourage customers to connect as MP mode and thus pay an $800 application fee. Given this context, AL 5536-E does not clearly explain the benefit of offering such a significant financial incentive to customers that may not be required to pay this application fee for home back-up purposes.

SCE states in the AL that enabling an EV's grid-parallel functionality would only require "an over-the-air software update from the manufacturers," and as such, it's important to locate such systems on the grid for safety purposes.[55] However, SCE does not attest to how likely automotive OEMs are to enable these software updates or whether there are any safeguards in place that would prevent customers from receiving and enabling these updates and exporting energy while grid-tied. SCE also does not demonstrate any consideration of the likelihood of whether customers will want to enable the grid-parallel functionality in addition to deferring charging entirely to the IOU.

Moreover, AL 5536-E makes clear that it is not proposing any export compensation mechanism[56] and instead relies on other provisional mechanisms, namely, the pending Vehicle Grid Resource Proposal and the Dynamic Rate Pilot that lacks sufficient funds to compensate the 8,700 drivers to whom SCE is aiming to issue the bidirectional charging equipment incentives.[57] SCE's proposal does not clearly state why bidirectional charging equipment incentives are necessary.

We do not find the V2X proposal, including the incentives, to be reasonable and hereby reject them without prejudice. In rejecting SCE's V2X proposal, all outstanding comments and recommendations on this component are moot.

### 5. Costs and Funding

Although cost effectiveness targets, as proposed by GPI, seem reasonable, we find that using a TRC metric after only one year of program implementation is not enough time

[55] AL 5536-E, Appendix A, at 27.
[56] AL 5536-E, Appendix A, at 13.
[57] AL 5536-E, Appendix A, at 18-19.

to meaningfully measure progress or determine the cost-effectiveness of this program, especially since SCE acknowledges in AL 5536-E that enrollment is expected to ramp up to ideal levels by the fourth year.[58] Moreover, AL 5536-E asserts that SCE will use cost-effectiveness tests in accordance with the California Standard Practice Manual.[59] As neither CARB nor CPUC mandate specific cost-effectiveness targets for LCFS holdback programs, we decline to adopt GPI's recommendation. We also decline to adopt GPI's recommendation to explore non-LCFS funding opportunities as we find that the nascency of the proposal and the use of LCFS funds for the orchestrated load management proposal to be reasonable and within the scope of the CARB regulations and CPUC decisions.

### 6. Scale

We do not agree with GPI that 25,000 participants would be a conservative enrollment target. As ORCHARD would be the first program through which SCE would conduct orchestrated load management at scale, we find that 25,000 participants are sufficient to assess the feasibility of orchestrated load management in SCE's territory at such a nascent stage. As noted in AL 5536-E, 25,000 EVs make up less than 5 percent of the total EV population in SCE's territory.[60] Thousands of these EV drivers have already allowed OEMs or third-party apps to control and align EV charging with TOU periods. We direct SCE to keep the CPUC's Energy Division staff informed about how the IOU will measure program success if participation is lower than expected. Specifically, we direct SCE to report on enrollment numbers and evaluation efforts every quarter once the program is open for enrollment. Such updates should be shared via email with Energy Division staff.

### 7. DERMS and Utility Operations

Although there may be value in testing whether an Itron AMI approach is more cost effective than deploying a new software in SCE's DERMS, ChargeScape's suggestion to consider more cost-effective alternatives to optimize the distribution network does not fall within the scope of SCE's objectives, nor is it required by CARB regulations or CPUC mandates. AL 5536-E makes it clear that the status quo (e.g., voluntary participation in load management strategies, system-wide price and/or event signals) is untenable for the anticipated increase in TE. SCE asserts that enabling direct control of end use devices will allow ORCHARD to enable dynamic, localized load management. The CPUC finds that it is unnecessary to test the abilities of the AMI meters to achieve

[58] AL 5536-E at 3.
[59] AL 5536-E, Appendix A, at 31.
[60] AL 5536-E, Appendix A, at 3.

these objectives and would require SCE to make significant program modifications. As such, we reject ChargeScape's recommendation.

Additionally, GPI suggested requiring SCE to demonstrate how successful program outcomes could be incorporated into its broader operations and planning. Specifically, it recommends that SCE address how load flexibility capabilities as demonstrated by ORCHARD will be incorporated into distribution planning processes, how learnings from ORCHARD will inform future resource adequacy frameworks, and how SCE will integrate VGI into standard operations instead of treating it as a program or resource.[61] We decline to adopt GPI's recommendations as this resolution is not the appropriate venue for exploring the merits of this suggestion.

### 8. Partnerships

We agree with ChargeScape, Fermata Energy, and VGIC that direct partnerships with automotive OEMs, EVSPs, and aggregators, may help augment customer enrollment and mitigate interoperability issues. The CPUC encourages SCE to enter into direct agreements with the necessary service provider(s) to implement ORCHARD but declines to require SCE to partner with multiple aggregators. The CPUC encourages SCE to work with aggregators if they determine it's necessary to ensure interoperability success. SCE must report on partnerships with aggregators, EVSPs, automotive OEMs, CBOs, and any other firms that help facilitate ORCHARD, including the number of partnerships, the names of the firms entering such partnerships with SCE, and any opportunities and challenges in establishing such partnerships. Such updates should be shared quarterly via email with Energy Division staff.

### 9. Data

While the CPUC does not maintain regulatory authority to require the automotive OEMs to provide SCE or CPUC with vehicle telemetry data, as some parties propose, we do encourage SCE to work with the OEMs to leverage these data points when possible. We reject this proposition as it beyond the scope of this Resolution and should be addressed in another more appropriate venue.

## 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. Any comments are due within

[61] GPI response at 6.

20 days of the date of its mailing and publication on the CPUC's website and in accordance with any instructions accompanying the notice. Section 311(g)(2) provides that this 30-day review period and 20-day comment period may be reduced or waived upon the stipulation of all parties in the proceeding.

The 30-day review and 20-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 CPUC's agenda no earlier than 30 days from today.

## FINDINGS

1. The Low Carbon Fuel Standard (LCFS) fuel providers, including electrical distribution utilities, generate LCFS credits by obtaining carbon intensity certification by the California Air Resources Board and reporting transaction quantities quarterly.
2. Electrical distribution utilities generate base credits for supplying electricity to customers for EV charging, a portion of which goes toward the California Clean Fuel Reward Program while the remaining base credits (also called "holdback credits") may be allocated toward utility-led programs.
3. Decision (D.)20-12-027 requires that the electric investor-owned utilities file an initial Implementation Plan regarding their Low Carbon Fuel Standard (LCFS) Holdback funds, which must include: (1) a proposal for at least one program, and (2) a description for how the large IOUs plan to spend the rest of the funds, which shall include the status of the program development of the remaining program(s), an implementation timeline, and the approximate budget.
4. D.20-12-027 required that the Implementation Plans address certain general informational questions, as well as questions specific to the utility's LCFS expenditures, program proposals, and specific programs.
5. D.20-12-027, Ordering Paragraph 1, requires that the Implementation Plans demonstrate that a percentage of the holdback revenues are being utilized to fund equity and resiliency projects.
6. Pursuant to D.20-12-027, Ordering Paragraph 3, SCE submitted its 2021-2024 LCFS Holdback Implementation Plan with its request for an exemption to the requirements of PUC Section 851 via AL 4518-E, filed on June 15, 2021, and as modified by AL 4518-E-A, filed on February 24, 2022.
7. SCE proposed nine distinct programs to be funded with Holdback revenue.

8. Resolution E-5236 authorized five of the programs, including (1) Pre-Owned EV Rebate, (2) Home Electrification Readiness, (3) Drayage Truck Rebate, (4) Zero Emission Truck, Bus, and Infrastructure Finance, and (5) Transportation Electrification Research and Studies.
9. On April 29, 2025, Southern California Edison filed advice letter 5536-E, which requests authorization to update its LCFS Holdback Implementation Plan by including a new vehicle-grid integration program, Orchestrated Charging and Advanced Resiliency for Distribution (ORCHARD), in its existing LCFS Implementation Plan and exempt the requirements of PUC Section 851 as it applies to the LCFS holdback credit sales.
10. The primary objective of ORCHARD is to mitigate secondary local grid constraints and reduce, delay, or even eliminate the need for distribution infrastructure upgrades, primarily transformers, necessitated by the secondary peak resulting from EV drivers initiating their charging time during off-peak hours, starting at 9:00 pm.
11. The secondary objective of ORCHARD is to reduce customer bills via home energy management and enable customers to generate revenue through other channels, including the Dynamic Rate Pilot and Emergency Load Reduction Program (ELRP), or pending rates like the Vehicle Grid Resource Proposal.
12. The last objective of ORCHARD is to achieve scale and demonstrate that, with increased participation, program costs are not expected to significantly rise while the benefits (e.g., mitigating distribution congestion, decreasing system costs) will increase exponentially.
13. On May 19, 2025, Alliance for Transportation Electrification (ATE), ChargeScape, Fermata Energy, Green Power Institute (GPI), Hyundai, Itron, Vehicle-Grid Integration Council (VGIC), and WeaveGrid submitted supportive responses to AL 5536-E.
14. The orchestrated load management component of the ORCHARD proposal complies with the requirements outlined in D.20-12-027.
15. SCE does not consider ORCHARD an equity or resiliency project.
16. The orchestrated load management component of ORCHARD does comply with CARB's other (non-equity) pre-approved holdback project types recently updated in the LCFS regulations.
17. ORCHARD addresses several statewide goals, including SB 676, SB 59, and SB 846.
18. ORCHARD addresses all three strategic focus areas of VGI outlined in D.22-11-040.
19. AL 5536-E lacks sufficient detail on the budget needed to implement ORCHARD.
20. The CPUC finds the ORCHARD participation incentive to be reasonable.
21. The commitment to continually assess the efficacy of incentive amounts based on program attrition demonstrates an effort to maintain enrollment for adequate

program scaling and evaluation, both of which are needed to achieve the objectives of the program.

22. More information is needed to understand how the incentive assessment will be conducted.
23. CARB's LCFS regulations include supporting bidirectional charging equipment on the list of pre-approved non-equity projects.
24. SCE's proposal for the bidirectional equipment incentives is not sufficiently justified.
25. As a software solution, ORCHARD may demonstrate exponential savings with each additional customer.
26. Although cost effectiveness targets seem reasonable, using a total resource cost (TRC) metric after only one year of program implementation is not enough time to meaningfully measure progress or determine the cost-effectiveness of this program, especially since SCE acknowledges in AL 5536-E that enrollment is expected to ramp up to ideal levels by the fourth year.
27. AL 5536-E asserts that SCE will use cost-effectiveness tests in accordance with the California Standard Practice Manual.
28. Neither CARB nor CPUC mandate specific cost-effectiveness targets for LCFS holdback programs.
29. As ORCHARD would be the first program through which SCE would conduct orchestrated load management at scale, 25,000 participants are sufficient to assess the feasibility of orchestrated load management in SCE's territory at such a nascent stage.
30. Although there may be value in testing whether an Itron AMI approach is more cost effective than deploying a new software in SCE's DERMS, requiring SCE to consider more cost-effective alternatives to optimize the distribution network does not fall within the scope of SCE's objectives, nor is it required by CARB regulations or CPUC mandates.
31. It is unnecessary to test the abilities of SCE's AMI meters to achieve ORCHARD's objectives, and this additional activity would require SCE to make significant program modifications.
32. ORCHARD is limited to light-duty, residential drivers.
33. Direct partnerships with automotive OEMs, EVSPs, and aggregators may help augment customer enrollment and mitigate interoperability issues.

**THEREFORE IT IS ORDERED THAT:**

1. The request of Southern California Edison to update its Low Carbon Fuel Standard (LCFS) Holdback Implementation Plan by including a new vehicle-grid integration program in its existing LCFS Implementation Plan and exempting the requirements of Public Utilities Code Section 851 as it applies to the LCFS holdback credit sales is approved with modifications as specified herein.
2. Southern California Edison is authorized to implement the orchestrated load management portion of its Orchestrated Charging and Advanced Resiliency for Distribution program and deploy the participation incentives illustrated in Table 1 of Section 2 of the discussion section.
3. Southern California Edison must submit a Tier 2 advice letter within 60 days of the adoption of this Resolution. The advice letter must detail the budget for its Orchestrated Charging and Advanced Resiliency for Distribution program as described in Section 1 of the discussion section. The budget must be broken out into the following components: administrative labor; marketing labor; program costs (information technology; third-party implementor costs; fees and subscriptions charged by original equipment manufacturers for Southern California Edison and/or third-party aggregators to manage the electric vehicle charging, etc.); marketing, education, and outreach; program evaluation; and customer participation incentives). The Advice Letter must also describe the methodology that will be used to determine whether the orchestrated load management incentive amounts should be modified and how frequently this assessment will occur. The methodology should, at minimum, address:
    - How often Southern California Edison will assess Orchestrated Charging and Advanced Resiliency for Distribution enrollment numbers,
    - What participation or attrition threshold will warrant modification of the incentive amounts,
    - What measures Southern California Edison will take if participants opt out of more than 25% of charging sessions,
    - How, if applicable, participation or attrition differs among the tiers of incentive amounts (e.g., whether attrition is higher at the fully reduced incentive level),
    - Whether Southern California Edison will use a control group in its analysis,
    - Whether Southern California Edison will conduct participant surveys to inform the modification of incentive amounts,
    - How Southern California Edison will inform and educate Orchestrated Charging and Advanced Resiliency for Distribution participants about

additional financial incentives made available through enrollment in dynamic rates, after such rates are approved and implemented, and

- How Southern California Edison will evaluate the potential bill impact of Orchestrated Charging and Advanced Resiliency for Distribution customers concurrently enrolled in dynamic rates.

4. Southern California Edison's request to deploy bidirectional charging equipment incentives is denied due to deficiencies in Advice Letter 5536-E that are addressed in Section 3 of the discussion section.
5. Southern California Edison (SCE) must send Energy Division staff a quarterly email to provide information on enrollment numbers and evaluation efforts once the program is open for enrollment, as well as partnership updates with aggregators, electric vehicle service providers, automotive original equipment manufacturers, community-based organizations, and any other firms that help facilitate Orchestrated Charging and Advanced Resiliency for Distribution program, including the number of partnerships, the names of the firms entering such partnerships with SCE, and any opportunities and challenges in establishing such partnerships that would inform the scaling of Orchestrated Charging and Advanced Resiliency for Distribution.

This Resolution is effective today.

The foregoing resolution was duly introduced, passed and adopted at a conference of the Public Utilities Commission of the State of California held on [DATE]; the following Commissioners voting favorably thereon:

Commissioner Signature blocks to be added upon adoption of the resolution

Dated _____, at <Voting meeting location>, California
(EDTU will fill-out the date and location)