

**BEFORE THE PUBLIC UTILITIES COMMISSION OF THE
STATE OF CALIFORNIA**

Application of Southern California Edison
Company (U 338-E) for Approval of its Charge
Ready 2 Infrastructure and Market Education
Programs.

A.18-06-015

OPENING BRIEF SOUTHERN CALIFORNIA EDISON COMPANY (U 338-E)

ANNA VALDBERG
ANDREA L. TOZER

Attorneys for
SOUTHERN CALIFORNIA EDISON COMPANY

2244 Walnut Grove Avenue
Post Office Box 800
Rosemead, California 91770
Telephone: (626) 302-6713
Facsimile: (626) 302-6693
E-mail: Andrea.Tozer@sce.com

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SUMMARY OF RECOMMENDATIONS

Southern California Edison Company (“SCE”) proposes its Charge Ready 2 program to facilitate and accelerate transportation electrification, as required by statute and consistent with regulatory guidance. Charge Ready 2 will increase access to electricity as a transportation fuel and is an essential step to reduce petroleum use, meet air quality standards, improve public health, and reduce greenhouse gas emissions. This brief demonstrates that Charge Ready 2 satisfies the applicable statutory requirements and regulatory guidance and supports California’s ambitious environmental goals. The Commission, therefore, should promptly approve SCE’s Charge Ready 2 application without modification.

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In accordance with Rule 13.11 of the California Public Utilities Commission’s (“Commission”) Rules of Practice and Procedure (“Rules”) and Administrative Law Judge Goldberg’s E-Mail Ruling of February 4, 2019, Southern California Edison Company (“SCE”) respectfully submits this opening brief.

California’s landmark Clean Energy and Pollution Reduction Act of 2015, also known as Senate Bill (“SB”) 350, states that “[i]t is the policy of the state and the intent of the Legislature to encourage transportation electrification as a means to achieve ambient air quality standards and the state’s climate goals.”¹ The California Legislature found that “[w]idespread transportation electrification requires electrical corporations to increase access to the use of electricity as a transportation fuel.”² SCE’s proposals in this proceeding do exactly that. SCE’s proposed Charge Ready 2 infrastructure program and market education initiatives support electric vehicle (“EV”) charging and adoption, which will in turn more broadly facilitate and accelerate transportation electrification (“TE”).

¹ Cal. Pub. Util. Code § 740.12(a)(2).

² Cal. Pub. Util. Code § 740.12(a)(1)(E).

The Legislature concluded that accelerating transportation electrification is essential to reduce petroleum use, meet air quality standards, improve public health, and reduce greenhouse gas (“GHG”) emissions.³ The state must facilitate widespread transportation electrification immediately, as California has only 11 years to achieve its next climate goal milestone (reducing GHG emissions to 40 percent below 1990 levels by 2030).⁴ To meet these goals, California must reduce emissions at more than three times the annual rate achieved between 2004 and 2015.⁵ The transportation sector represents almost 45 percent of California’s GHG emissions and is the largest GHG-emitting segment in California.⁶ Electrification is the most viable option to progress the light-duty vehicle sector toward carbon-free and petroleum-free transportation goals by 2030.⁷

SCE’s proposals in this proceeding meet the statutory requirements set forth in SB 350 and support California’s ambitious environmental goals. The Commission, therefore, should promptly approve SCE’s Charge Ready 2 application as proposed, to facilitate the state’s ongoing and important progress in electrifying the transportation sector.

I.

INTRODUCTION AND PROCEDURAL HISTORY

As SCE has consistently demonstrated, Charge Ready 2 aligns with statutory requirements to advance widespread transportation electrification and improve air quality, while building on the lessons learned from SCE’s successful Charge Ready Phase 1 Pilot (“Pilot”). Both the scope and scale of Charge Ready 2 are appropriate and have been thoughtfully designed to make significant strides towards achieving California’s ambitious climate and air quality goals, while also providing ample opportunity for non-utility entities to make contributions to the

³ Cal. Pub. Util. Code § 740.12(a)(1)(A).

⁴ See Cal. Health & Safety Code § 38566.

⁵ Exhibit SCE-1, p. 10.

⁶ *Id.*, p. 12.

⁷ *Id.*, p. 13.

transportation electrification market. SCE developed each feature of Charge Ready 2 to specifically target a key barrier or customer need in SCE’s service area, and these features must be maintained to ensure the most effective set of programs for all of SCE’s customers. In particular, SCE’s efforts to address multi-unit dwellings (“MUDs”)—including the “Own and Operate” proposal, the proposed reduction in minimum-port requirements, the New Construction Rebate program, and the marketing, education, and outreach programs—are necessary to target this important customer segment, which has experienced significant barriers to electric vehicle charging station deployment in SCE’s service area to date.

In 2016, the Commission authorized SCE to implement the Charge Ready Pilot to deploy “make-ready”⁸ infrastructure to support light-duty electric vehicle charging and provide complementary market education about EVs and the benefits of fueling from the grid.⁹ The Pilot has successfully deployed 1,063 charge ports at 71 customer sites to date, with reserved funding for 1,280 ports at 79 customer sites,¹⁰ and in that process met its objectives of informing and refining the design and cost estimates of the originally proposed programs, as well as developing the metrics to judge the success of Charge Ready 2.¹¹ Building upon the strength of the completed Pilot and recognizing that utilities are a key driving force in accelerating transportation electrification, in this proceeding SCE proposed the broader next step of its program—Charge Ready 2. Charge Ready 2 is a four-year program that will support and accelerate light-duty EV adoption, in line with California’s goals and federal regulatory

⁸ Make-ready deployment is the installation of generic concrete pads for mounting charging ports and associated utility- and customer-side infrastructure and components such as: meter, panel, conduit, and wires to the pad. See <https://www.sce.com/wps/portal/home/business/electric-cars/Charge-Ready/Charge-Ready-Support/>.

⁹ D.16-01-023.

¹⁰ Charge Ready Pilot Program Report, filed February 28, 2019, in A.14-10-014, pp. A-6 to A-7.

¹¹ See Exhibit SCE-1, Appendix A, *Amended Charge Ready and Market Education Programs Pilot Report* (Amended July 9, 2018).

requirements of substantially reducing GHG emissions and criteria pollutants by 2030.¹² Emission and criteria pollutant reductions are critical to Southern California’s communities, many of which are severely impacted by harmful emissions and located in the only two air basins in the country that are in extreme ozone non-attainment areas.¹³

SCE’s Charge Ready 2 expands the Pilot to a multi-year program and scales up elements of the Pilot’s original features, while also adding new and innovative program components based on important lessons learned from the Pilot. Key elements of Charge Ready 2, described further in SCE’s testimony, include:

- Supporting and accelerating the adoption of light-duty EVs on a trajectory consistent with SCE’s *Clean Power and Electrification Pathway*, which identifies a need for seven million light-duty EVs by 2030 to reach California’s GHG and air quality goals,¹⁴ and at the same time is consistent with being able to meet Governor Brown’s call for five million EVs by 2030;¹⁵
- Installing, operating, and maintaining the “make-ready” infrastructure to support 32,000 charge ports, including direct current fast charging (“DCFC”), with customer rebates to offset a portion of the chargers’ costs, and providing an option for site owners to install and own the customer-side infrastructure for which they would receive a rebate of up to 80 percent of the costs;¹⁶
- Creating new options that provide a range of unique solutions for customers’ charging needs in the MUD segment to support SCE’s target of installing 15

¹² Exhibit SCE-1, p. 1.

¹³ Exhibit SCE-1, pp. 1-2.

¹⁴ See Exhibit SCE-1, Appendix B – Southern California Edison, *The Clean Power and Electrification Pathway* (Nov. 2017).

¹⁵ Exhibit SCE-1, p. 2; Executive Order B-48-18 (Jan. 26, 2018), available at <https://www.ca.gov/archive/gov39/2018/01/26/governor-brown-takes-action-to-increase-zero-emission-vehicles-fund-new-climate-investments/index.html>

¹⁶ Exhibit SCE-1, p. 2.

percent of ports in MUDs;¹⁷ (i) turnkey option with utility ownership and operation of charging stations at a limited number of MUD and government locations;¹⁸ (ii) new construction rebates that will support over 18,000 charge ports;¹⁹ and (iii) infrastructure to support street-side charging;²⁰

- Targeting the needs of low-income and disadvantaged communities (“DACs”), including a commitment to deploy a minimum of 30 percent of the Charge Ready 2 charging infrastructure in DACs;²¹
- Providing a comprehensive marketing, education and outreach (“ME&O”) program for all customers over a four-year period;²² and
- Incorporating learnings from the Pilot and extending to a four-year program to provide more market certainty to contractors and suppliers, enabling economies of scale to reduce costs, and to make meaningful progress in developing the infrastructure needed to enable the emissions reductions in the transportation sector that are necessary to achieve the state’s 2030 objectives.²³

With Charge Ready 2, SCE proposes a program aimed at accelerating light-duty EV adoption by making EV charging available to more customers, addressing barriers to EV adoption, and promoting EV awareness and grid benefits. SCE determined its program size through a bottom-up approach that looked at anticipated incremental market needs and potential customer participation.²⁴ To support EV adoption in line with achieving the state’s climate

¹⁷ Exhibit SCE-2, p. 38.

¹⁸ Exhibit SCE-1, p. 2.

¹⁹ Exhibit SCE-2, p. 28.

²⁰ Exhibit SCE-1, p. 2.

²¹ *Id.*, p. 3.

²² *Id.*

²³ *Id.*, pp. 1, 3.

²⁴ See Exhibit SCE-1, Appendix C – SCE Electric Vehicle Charging Infrastructure Needs Assessment and Appendix D – Program Size and Infrastructures Model.

goals, SCE's proposed Charge Ready 2 program addresses one-third of the projected, incremental market need during the program duration. The scope and scale of each of the Charge Ready 2 programs allow other market players to contribute to infrastructure deployment.²⁵

This is a decisive moment that requires the Commission's leadership, working with stakeholders, to take prompt action to assist the transformation of the TE market. With its proposed scale, Charge Ready 2 will support innovation and the electric transportation market in general with approximately 50,000 charging port installations.²⁶ SCE designed the program to provide benefits for the customers and communities we serve. For example, by establishing a minimum target of 30 percent of installations in DACs, the program will contribute to removing pollution from the gasoline- and diesel-powered vehicles currently traveling in and through these communities. The program will facilitate access to charging stations during the program and beyond, supporting adoption of light-duty electric vehicles in DACs.²⁷ Moreover, SCE estimates that over 20 million metric tons of GHG emissions, over 17,000 cumulative tons of nitrogen oxides ("NOx"), and over 51,000 cumulative tons of volatile organic compounds ("VOCs") could be reduced statewide through 2030 from the transportation sector through electric conversion.²⁸

On September 7, 2018, the Commission held a prehearing conference to discuss procedural and scoping issues. On October 29, 2018, the Commission issued a scoping memorandum and ruling, which set forth a schedule for a workshop, intervenor testimony, rebuttal testimony, evidentiary hearings, and briefing. Intervenors served testimony on November 30, 2018. SCE and intervenors served rebuttal testimony on December 21, 2018.

²⁵ Exhibit SCE-1, p. 3.

²⁶ Exhibit SCE-1, pp. 3-4; Exhibit SCE-2, p. 28 (SCE increased its anticipated ports installed through the New Construction Rebate Program by approximately 2,000 to account for the reduced rebate level).

²⁷ Exhibit SCE-1, p. 4.

²⁸ *Id.*

The Commission held a workshop on January 14, 2019. The Commission conducted evidentiary hearings from January 28, 2019, through February 1, 2019.

This brief demonstrates that SCE's Charge Ready 2 proposals, as described in SCE's testimony, satisfy the applicable statutory requirements and regulatory guidance and should be approved by the Commission without modification.

II.

CHARGE READY 2 MEETS STATUTORY REQUIREMENTS FOR TE PROGRAMS

SB 350 established clear criteria by which the Commission shall evaluate utility TE proposals. Charge Ready 2, including the infrastructure, rebate, and ME&O aspects of the proposal, supports the state's goals and satisfies the statutory requirements for Commission approval.

A. SB 350 Mandates Utility Programs and Investments to Accelerate Widespread TE and Meet State Goals.

SB 350 states that “[i]t is the policy of the state and the intent of the Legislature to encourage transportation electrification as a means to achieve ambient air quality standards and the state's climate goals.”²⁹ SB 350 found that “widespread transportation electrification requires electrical corporations to increase access to the use of electricity as a transportation fuel,”³⁰ and directs the Commission to “approve, or modify and approve, programs and investments in transportation electrification, including those that deploy charging infrastructure,” if they accelerate widespread TE, do not unfairly compete with nonutility enterprises, include performance accountability measures, and are in the interests of ratepayers.³¹

SB 350 makes several findings about the need for and benefits that will arise from widespread TE, and the Commission, like other agencies tasked with implementing the state's

²⁹ Cal. Pub. Util. Code § 740.12(a)(2).

³⁰ Cal. Pub. Util. Code § 740.12(a)(1)(E).

³¹ Cal. Pub. Util. Code § 740.12(b).

directives, should consider these findings in its review of these applications.³² The Legislature found that widespread TE is necessary to:

- Reduce petroleum use, meet air quality standards, improve public health, and achieve GHG emission reduction goals, which include reducing GHG emissions to 40 percent below 1990 levels by 2030 and 80 percent below 1990 levels by 2050;³³ and
- Achieve the goals of the Charge Ahead California Initiative, which include (1) placing in service at least a million zero-emission and near-zero-emission vehicles by 2023, (2) establishing a self-sustaining California market for zero-emission and near-zero-emission vehicles, (3) increasing access to zero-emission and near-zero-emission vehicles for disadvantaged, low-income, and moderate-income communities, and (4) placing zero-emission and near-zero-emission vehicles in those communities to improve air quality, lower GHGs, and promote overall benefits.³⁴

The Legislature found that widespread TE will create many benefits, including:

- Enhancing air quality, lowering GHG emissions, and promoting overall benefits for disadvantaged communities, low- and moderate-income communities, and others;³⁵
- Stimulating innovation and competition, enabling consumer options, attracting private capital investments, and creating high-quality jobs for Californians;³⁶ and

³² See Cal. Pub. Util. Code § 740.12(a)(2), stating that “[a]gencies designing and implementing regulations, guidelines, plans, and funding programs to reduce greenhouse gas emissions shall take the findings described in paragraph (1) into account.”

³³ Cal. Pub. Util. Code § 740.12(a)(1)(A) and Cal. Pub. Util. Code § 740.12(a)(1)(D).

³⁴ Cal. Pub. Util. Code § 740.12(a)(1)(B); Health & Safety Code § 44258.4(b).

³⁵ Cal. Pub. Util. Code § 740.12(a)(1)(C).

³⁶ Cal. Pub. Util. Code § 740.12(a)(1)(F).

- Assisting in grid management, integrating generation from renewable energy resources, and reducing fuel costs for vehicle drivers who charge in a manner consistent with grid conditions.³⁷

The Legislature also found that deploying EV charging infrastructure should facilitate increased sales of EVs by making charging easily accessible and should provide the opportunity to access electricity as a fuel that is cleaner and less costly than gasoline or other fossil fuels.³⁸ Furthermore, the benefits of transportation electrification will *increase* as renewable generation increases. Currently, transportation electrification (on a per-vehicle replacement basis) results in approximately 70 percent fewer GHG emitted, over 85 percent fewer ozone-forming air pollutants emitted, and 100 percent less petroleum used than with internal-combustion engine vehicles.³⁹ But pursuant to state law and policy, it is likely if not inevitable that the percentage of renewable-sourced generation resources on the California Independent System Operator (“CAISO”)-operated grid will rapidly increase over time, therefore amplifying the benefits of transportation electrification.

B. Charge Ready 2 Satisfies the Legislative Requirements for Commission Approval of TE Programs.

SB 350 established explicit criteria for Commission approval of TE programs. Cal. Pub. Util. Code § 740.12(b) requires utility TE programs to “seek to minimize overall costs and maximize overall benefits.” It also requires the Commission to “approve, or modify and approve, programs and investments in transportation electrification, including those that deploy infrastructure, via a reasonable cost recovery mechanism, if they are consistent with this section, do not unfairly compete with nonutility enterprises as required under Section 740.3, include performance accountability measures, and are in the interests of ratepayers as defined in Section 740.8.” Charge Ready 2 meets each of these criteria. For all the reasons discussed below,

³⁷ Cal. Pub. Util. Code § 740.12(a)(1)(G).

³⁸ Cal. Pub. Util. Code § 740.12(a)(1)(H).

³⁹ Cal. Pub. Util. Code § 740.12(a)(1)(I).

Charge Ready 2 is consistent with P.U. Code § 740.12. SCE addresses each additional element in further detail below.

1. Charge Ready 2 Seeks to Minimize Costs and Maximize Benefits.

Charge Ready 2 builds on the lessons learned from the Pilot to minimize costs and assure an efficient program design. Specifically, Charge Ready 2 contains costs by including packaged site designs, site feasibility reviews, use of customer distribution facilities where appropriate, streamlined processes, and larger contractor pools in procurement. In addition, SCE proposes to source relevant products and services through a competitive Request for Proposal (“RFP”) process to select vendors and contractors.⁴⁰

Charge Ready 2 will help to increase adoption of EVs in California, which maximizes benefits through the aforementioned reductions in GHG emission and criteria pollutants and by providing downward pressure in electrical rates. A key barrier to greater adoption of EVs is range anxiety, which can be mitigated through more access to charging stations.⁴¹ The charging stations installed through Charge Ready 2 will help to minimize this barrier and together with other market interventions help increase the adoption of EVs in California.

Charge Ready 2 will additionally help minimize electric system costs from charging EVs by requiring that customers participating in the proposed infrastructure program take service on a time-of-use (“TOU”) rate plan, which incentivizes charging in a manner that aligns with grid conditions and helps to maximize GHG reductions by incentivizing EV drivers to charge during periods of abundant solar generation. As noted in the Commission’s decision adopting updated TOU periods proposed by SCE (including shifting the peak period to later in the day and implementing a winter season super-off-peak period during daytime hours), “properly defined TOU periods will provide incentives for customer use and development of

⁴⁰ Exhibit SCE-1, p. 81.

⁴¹ Exhibit SCE-1, pp. 12, 17; SCE-2, p. 31.

future generation that better reflects the state’s electric grid. This, in turn, should assist in reaching state energy goals by minimizing costs, reducing [GHG] emissions, encouraging conservation, and increasing the supply of electricity at times that best serve the needs of the grid.”⁴²

Charge Ready 2’s ME&O proposals are designed to increase participation in the Charge Ready 2 programs and increase awareness about EVs and the benefits of fueling from the grid, which along with other market interventions will help to increase adoption of EVs in California. The Charge Ready 2 ME&O will address key barriers to EV adoption to accelerate transportation electrification.⁴³ Effective ME&O is an essential step in increasing adoption, as consumer awareness of EVs remains a critical barrier to adoption. Specifically, SCE’s ME&O proposals will address consumer awareness issues regarding familiarity with EVs, misperceptions about EV cost, range anxiety, safety concerns, and performance concerns.⁴⁴ Successfully overcoming these barriers are critical to increasing adoption of EVs, leading to downward pressure on rates, which benefits all customers.

Charge Ready 2 also focuses on maximizing its benefits for all customer groups, such as by committing to the deployment of needed infrastructure in DACs and targeting MUDs with diverse offerings to facilitate access to charging stations in these currently underserved segments, providing environmental and other air quality benefits, and increasing customer charging options.⁴⁵

2. Charge Ready 2 Contains a Reasonable Cost Recovery Mechanism.

SCE proposes to separately record all Charge Ready 2 incremental revenue requirements in its existing Charge Ready Program Balancing Account (“CRPBA”) to facilitate

⁴² D.18-07-006, p. 9.

⁴³ Exhibit SCE-1, pp. 21-22, 69.

⁴⁴ Exhibit SCE-2, p. 31.

⁴⁵ Exhibit SCE-1, p. 81; Exhibit SCE-2, p. 38.

recovery of the program costs approved by the Commission. Because the Commission is performing a full review of the scope of Charge Ready 2 activities and the forecast costs in this proceeding, Charge Ready 2 actual direct capital and O&M expenditures that are consistent with the scope and within the cost levels adopted by the Commission should be deemed reasonable and no further after-the fact reasonableness review is necessary.⁴⁶ Pursuant to the Commission-adopted process for reviewing other SCE balancing accounts, including the CRPBA established for the Pilot⁴⁷ and the Transportation Electrification Portfolio Balancing Account (“TEPBA”) established for SCE’s medium- and heavy-duty TE program,⁴⁸ SCE proposes to establish a CRPBA Phase 2 subaccount, the recorded operation of which would be reviewed by the Commission in SCE’s annual Energy Resource Recovery Account (“ERRA”) Review Application. This continuing review of the CRPBA for Charge Ready 2 activity in the ERRA Review proceeding will ensure that all entries to the account are stated correctly and are consistent with Commission decisions.⁴⁹ Commission review procedures for recorded Charge Ready 2 costs should be limited to ensuring that all recorded costs are associated with activities as defined and approved by the Commission in this Charge Ready 2 proceeding.

3. Charge Ready 2 Does Not Unfairly Compete with Nonutility Enterprises.

Charge Ready 2 will follow the same market-neutral approach demonstrated in the Pilot, while balancing customer needs for flexibility. This approach consists of deploying electric infrastructure that the utility owns and maintains (unless participating customers elect to construct and own the portion of the infrastructure on their premises), while site hosts select, own, operate, and maintain qualified charging equipment (except in the case of a MUD or governmental entity that selects SCE ownership and operation of the charging equipment).

⁴⁶ Exhibit SCE-1, p. 85.

⁴⁷ See, e.g., Advice Letter 3502-E.

⁴⁸ See, e.g., Advice Letter 3734-E.

⁴⁹ Exhibit SCE-1, p. 88.

When qualifying charging equipment, SCE plans to rely on adopted efficiency and safety standards to define its requirements and accept a large number of vendors and charging equipment models. SCE also proposes the option to evaluate new and emerging technologies and incorporate them into the program, if appropriate.⁵⁰

Similarly, Charge Ready 2's ME&O programs will use a market-neutral approach to educate customers about EVs and the benefits of fueling from the grid. They will not compete with non-utility enterprises, as they will be brand-neutral communications. Further, SCE will leverage, rather than duplicate or compete with, any other broad education efforts, such as Veloz Electrify America, or Plug In America, to maximize the benefits of the ME&O.⁵¹

4. Charge Ready 2 Includes Performance Accountability Measures.

SCE will prepare annual reports to provide status updates on implementation to the Commission and interested stakeholders. The annual reports will provide a high-level summary, the amount of funds expended to date, and the status of each program. SCE will provide aggregated data about customer participation (*e.g.*, market segment, located in a DAC), operational metrics such as average times to complete milestones in the installation cycle (*e.g.*, average customer "end-to-end" cycle time by segment, number of completed installations), marketing materials (*e.g.*, expended funds, description of materials, media outreach, published articles), and outreach events (*e.g.*, outreach type, location, estimated number of customer interactions). In addition to providing annual reports, SCE will also provide a final report on the completed program, which will include a comprehensive description of the completed initiative, findings, lessons learned, and metrics.⁵²

Furthermore, SCE proposes using two metrics to measure performance: (1) percent of ports in DACs and (2) percent of ports in MUDs. SCE includes in its program design a 30 percent minimum for ports in DACs and a 15 percent target for ports in MUDs. Because

⁵⁰ *Id.*, p. 82.

⁵¹ Exhibit SCE-2, pp. 34-35.

⁵² Exhibit SCE-1, pp. 82-83.

the potential demand for charging at DACs and MUDs is unknown, SCE proposes reserving funds for DAC and MUD sites for two years. At the end of the first two years, any funds remaining in the DAC and MUD reserves will be released for use in any customer segment. SCE believes both the DAC and MUD metrics are appropriate to help meet the overall goal of the program to increase EV adoption in these segments.⁵³

5. Charge Ready 2 Provides Direct Customer Benefits.

Charge Ready 2 is “in the interest of ratepayers as defined in Section 740.8.” To be “in the interests of ratepayers,” P.U. Code § 740.8 requires demonstration of both of the following types of customer benefits:

- Safer, more reliable, or less costly gas or electrical service, consistent with § 451, including electrical service that is safer, more reliable, or less costly due to either improved use of the electric system or improved integration of renewable energy generation; and
- Any one of the following:
 - Improvement in energy efficiency of travel,
 - Reduction of health and environmental impacts from air pollution,
 - Reduction of greenhouse gas emissions related to electricity and natural gas production and use,
 - Increased use of alternative fuels,
 - Creating high-quality jobs or other economic benefits, including in disadvantaged communities identified pursuant to § 39711 of the Health and Safety Code.⁵⁴

Charge Ready 2 meets these requirements for both types of customer benefits identified in § 740.8. Charge Ready 2 contributes to safer, more reliable, and less costly gas or

⁵³ Exhibit SCE-2, p. 38; Exhibit SCE-1, p. 42.

⁵⁴ Cal. Pub. Util. Code § 740.8.

electrical service for customers through improved use of the electric system and improved integration of renewable energy generation.⁵⁵ TE benefits all customers by spreading the recovery of utility fixed costs across incremental load (*i.e.*, demand), putting downward pressure on electricity rates, improving system utilization, and integrating renewable energy by encouraging EV customers to charge their vehicles when renewable energy is more abundant and load is less costly to serve.⁵⁶

As discussed above, Charge Ready 2 supports TE adoption and will help displace petroleum-based fueling with clean electricity, resulting in environmental and societal benefits consistent with §740.8. TE represents the largest opportunity to reduce GHG emissions in California.⁵⁷ TE can also reduce criteria pollutants (*e.g.*, NOx, particulate matter (“PM”) 2.5) and improve air quality, creating public health and environmental benefits.⁵⁸

Specific examples of these benefits are described further below.

a) Charge Ready 2 Will Promote Safer Electrical Service.

SCE’s foremost priority is protecting the safety of the public, its customers, and its employees. Charge Ready 2 aligns with that critical priority. For example, the proposed program provides financial incentives to pay for make-ready infrastructure installed by licensed electrical contractors and for the applicable permits, which promote safety best practices. SCE make-ready infrastructure in Charge Ready 2 that is not performed by SCE employees will be performed by a contractor signatory to International Brotherhood of Electrical Workers (“IBEW”) holding a valid C-10 contractor’s license and using electricians with Electric Vehicle Infrastructure Training Program (“EVITP”) certification. SCE will also leverage the expertise of its Advanced Technology Lab to test new charging technologies or coordinate with

⁵⁵ Exhibit SCE-1, pp. 83-84.

⁵⁶ *Id.*, pp. 15-16.

⁵⁷ *Id.*, pp. 12-13.

⁵⁸ *Id.*, pp. 14-15.

external testing agencies to evaluate charging equipment for eligibility in the programs in order to ensure safe connection to and use on the grid.⁵⁹

b) Charge Ready 2 Will Encourage Charging in a Way that Improves Grid Reliability.

Charge Ready 2 supports grid reliability. As discussed above, participating customers must take service on a TOU rate, which incentivizes customers to charge their vehicles at off-peak periods, when charging is favorable to the grid and grid impacts are limited.⁶⁰ Charge Ready 2 encourages customers to help California use abundant renewable power and improve use of the electric system through these TOU price signals and other load management strategies.⁶¹ TOU price signals and load management strategies offer lower prices for EV drivers during non-peak periods of the day, to incentivize EV load to shift its charging to hours of the day when there is clean, solar photovoltaic (“PV”) on the grid. At these times, load is less costly to serve, providing downward pressure on costs (and eventually rates). This load shifting can also reduce the steepness of the evening ramp during higher-cost times of the day. For active, daytime grid management to become a reality, southern California needs sufficient away-from-home charging during the day to support meaningful load shifting. As California’s “duck curve” imbalance deepens with the significant rise of large-scale and distributed solar in the overall power mix, SCE expects its net load to peak more sharply and more frequently during the evening hours in 2030 when compared to today, unless significant load management is utilized. The region needs to have the appropriate infrastructure and incentives to help manage load accordingly.⁶²

⁵⁹ Exhibit SCE-1, p. 75.

⁶⁰ Exhibit SCE-1, p. 81.

⁶¹ In addition to TOU price signals, SCE is requiring customers to participate in a demand response program. Exhibit SCE-1, p. 33. SCE also anticipates integrating new technologies, including site-based load management, including power sharing or power sequencing. Exhibit SCE-1, p. 54.

⁶² Exhibit SCE-1, p. 16.

c) Charge Ready 2 Will Support Less Costly Electrical Service.

Increasing EV adoption will put downward pressure on rates, particularly when customers charge at times that are less costly to serve.⁶³ As transportation electrification increases, it has the potential to lower the cost of electric service for customers by spreading fixed costs over a larger base of kilowatt hour (“kWh”) sales. EVs provide incremental, flexible load to the electric grid. By increasing overall system load, the fixed costs of the system will be spread over more kilowatt hours. Additionally, EV load is flexible and can be managed to reduce total system costs further. The combination of these two facts leads to downward pressure on rates.⁶⁴ SCE estimates that electrification of the light-duty market, facilitated by SCE’s Charge Ready 2 program, could put downward pressure on rates by 2024 using The Utility Reform Network’s (“TURN’s”) analysis and the California Energy Commission’s (“CEC’s”) EV forecasts. Even under the CEC’s “low case” for EV adoption, downward pressure on rates is expected by 2027.⁶⁵ As discussed above, effective ME&O is essential to increase EV adoption and educate customers about charging consistent with grid conditions, which can maximize downward pressure on rates.

d) Charge Ready 2 Encourages the Use of Alternative Fuels, Reduces GHG Emissions, and Reduces Air Pollution and its Related Health and Environmental Impacts.

Without significant de-carbonization in the transportation sector, California’s goals to reduce the state’s total GHG emissions 40 percent below 1990 levels by 2030 and 80 percent below 1990 levels by 2050 are impossible to achieve.⁶⁶ SCE found the most economical and feasible pathway to reach the state’s 2030 goals requires an electric grid

⁶³ *Id.*

⁶⁴ *Id.*, p. 15.

⁶⁵ Exhibit SCE-2, p. 6.

⁶⁶ Exhibit SCE-1, p. 11.

supplied by 80 percent carbon-free energy, more than seven million electric vehicles on California roads, and nearly one-third of space and water heaters powered by electricity.⁶⁷ Implementing SCE's *Pathway* would result in 58 million metric tons of CO₂ equivalent abatement in the transportation sector by 2030, representing almost one-third of the reductions needed to meet the state's goals.⁶⁸ In order to support seven million electric vehicles and achieve such substantial emission reductions by 2030, a sufficient amount of electric charging infrastructure needs to be built today, and for years to come, to support both electric vehicle adoption and fueling.⁶⁹

SCE's Charge Ready 2 program is a necessary step to increase vehicle charging infrastructure availability and EV adoption. Charge Ready 2 is designed to address existing barriers that currently limit EV adoption. SCE's proposed programs specifically target barriers, such as insufficient away-from-home EV charging infrastructure and cost of charging infrastructure. Eliminating these barriers should help improve access to charging infrastructure and support more EV adoption.⁷⁰ Charge Ready 2 deployment of EV charging infrastructure will increase the availability of charging stations to reduce range anxiety. Charge Ready 2 will also increase customer awareness about the benefits of EVs through broad and targeted education programs. These programs are intended to facilitate widespread adoption of light-duty EVs throughout California, in support of the state's climate goals.⁷¹

Charge Ready 2 will also reduce dependence on petroleum by supporting EV adoption. Electrification is the most viable option to progress the light-duty vehicle sector toward carbon-free and petroleum-free transportation goals. Although internal-combustion

⁶⁷ *Id.*

⁶⁸ *Id.*

⁶⁹ *Id.*

⁷⁰ Exhibit SCE-1, p. 80.

⁷¹ Exhibit SCE-1, p. 12.

engine vehicles may become more efficient, they will not decarbonize or reduce dependence on petroleum as quickly as EVs.⁷²

Charge Ready 2 will reduce air pollution by supporting EV adoption, which is particularly essential in SCE's service area. SCE serves communities in the only two air basins in the nation that are in extreme ozone non-attainment—South Coast Air Basin and San Joaquin Valley Air Basin.⁷³ The transportation sector emits 80 percent of NOx pollution and is the second-highest source of PM2.5 emissions. Light-duty vehicles account for one-third of NOx emissions and over 40 percent of PM2.5. Electrifying these vehicles will reduce these smog-forming emissions and particulates leading to cleaner air and healthier communities, particularly in disadvantaged communities.⁷⁴

Charge Ready 2 will also reduce GHG emissions by supporting EV adoption. Light-duty transportation electrification offers the largest, economical GHG-reduction opportunity. The transportation sector represents almost 45 percent of California's GHG emissions (including fuel refining), and is the largest GHG-emitting segment in California. Since 2004, the transportation sector has reduced its GHG emissions by only 8 percent. The California Air Resource Board ("CARB") states that the transportation sector will be the largest GHG reduction opportunity in 2030.⁷⁵ As discussed above, currently, transportation electrification (on a per-vehicle replacement basis) results in approximately 70 percent fewer GHG emitted.⁷⁶ Implementing SCE's *Pathway* would result in 58 million metric tons of CO₂ equivalent abatement in the transportation sector by 2030, representing almost one-third of the reductions needed to meet the state's goals.⁷⁷

⁷² Exhibit SCE-1, p. 13.

⁷³ *Id.*, p. 14.

⁷⁴ Exhibit SCE-1, pp. 14-15.

⁷⁵ *Id.*, pp. 12-13.

⁷⁶ Cal. Pub. Util. Code § 740.12(a)(1)(I).

⁷⁷ Exhibit SCE-1, p. 11.

e) Charge Ready 2 Can Encourage High-Quality Jobs and Economic Benefits, Including in Disadvantaged Communities.

Charge Ready 2 will provide employment opportunities. SCE anticipates that Charge Ready 2 will create many jobs for electricians, engineers, and construction workers. SCE plans to contract for many of the required services, potentially including engineering, design, and construction.⁷⁸ SCE fully supports and participates in the Commission’s voluntary supplier diversity program, which sets a goal of procuring 21.5 percent of the Company’s annual spend on goods and services from women, minority, and disabled veteran business enterprises (“WMDVBEs”).⁷⁹ Electrification will lead to economic benefits, including higher statewide gross product, real output, state revenue, and employment, including highly skilled, middle-income jobs to introduce and service new technologies.⁸⁰ Many of these economic and job benefits will likely inure in low-income and disadvantaged communities, where SCE expects to install 30 percent of the Charge Ready 2 ports.⁸¹

III.

CHARGE READY 2 COMPLIES WITH REGULATORY GUIDANCE

In addition to complying with the statutory requirements in Cal. Pub. Util. Code § 740.12, SCE’s proposed Charge Ready 2 program satisfies the regulatory guidance established in the 2016 Assigned Commissioner’s Ruling (“ACR”).⁸²

A. Charge Ready 2 Fits with SCE’s Core Competencies and Capabilities.

Charge Ready 2 focuses on the Company’s core competencies—safely delivering reliable, affordable, and clean electricity to customers and managing effective customer

⁷⁸ Exhibit SCE-1, p. 79.

⁷⁹ Exhibit SCE-1, p. 79; CPUC General Order 156.

⁸⁰ Exhibit SCE-1, Appendix B, p. B-10.

⁸¹ See Exhibit SCE-1, p. 42.

⁸² See Assigned Commissioner’s Ruling (“ACR”), filed September 14, 2016, in R.13-11-007, pp. 15-16.

programs. SCE will work closely with customers, creating safe, economical interconnection with the distribution grid, testing technologies and new grid strategies.⁸³ The ACR encourages projects that would accelerate the adoption of TE. The ACR also acknowledges that “the Legislature recognizes in Cal. Pub. Util. Code § 740.12 that the electric utilities have *a lead role in promoting widespread TE.*”⁸⁴ California’s goals to reduce the state’s total GHG emissions by 40 percent from 1990 levels by 2030 and 80 percent by 2050, as well as its air quality goals, are some of the most ambitious in the world and will be difficult to meet. Given the short amount of time to build infrastructure and change consumer behavior, acceleration of TE is critically important.⁸⁵ Accordingly, SCE should continue to install, own, and maintain the make-ready infrastructure—except where customers elect to install and own the portion of the infrastructure on their side of the meter and receive a partial rebate—to ensure the prompt deployment of this needed infrastructure to broaden access to EV charging.

B. Charge Ready 2 Addresses the Multiple Goals of Widespread TE.

Charge Ready 2 will achieve the multiple objectives outlined in SB 350, namely to reduce California’s current dependence on petroleum, meet air quality standards, lower GHG emissions, and achieve the goals set forth in the Charge Ahead California Initiative.⁸⁶ As described above, SCE targets critical barriers to widespread adoption of EVs through this program. Removing or reducing these barriers, and in turn increasing the amount of EVs on the road, serves SB 350’s goals of widespread TE.

C. Charge Ready 2 Aligns with Local, Regional, and Broader State Policies.

Charge Ready 2 aligns with and supports local, regional, and broader state policies for reducing petroleum use, air pollutants, and GHG emissions because transportation electrification

⁸³ Exhibit SCE-1, p. 72.

⁸⁴ ACR, p. 29 (emphasis added).

⁸⁵ Exhibit SCE-1, p. 73.

⁸⁶ See Cal. Pub. Util. Code § 740.12(a)(1)(A) – Cal. Pub. Util. Code § 740.12(a)(1)(B); Cal. Health & Safety Code § 44258.

is necessary to achieve these goals. Examples of the major policies and electrification initiatives that Charge Ready 2 supports include:

- Executive Order B-48-18, which calls for five million EVs in California by 2030,⁸⁷
- Executive Order B-16-2012, which calls for an 80 percent reduction in GHG emissions from the transportation sector by 2050, infrastructure in place to support one million zero-emission vehicles by 2020, 1.5 million zero-emission vehicles (“ZEVs”) on California roads by 2025, and implementation of an Interagency ZEV Action Plan (updated in 2016) for agencies such as the CPUC, CARB, and the CEC,⁸⁸
- California’s efforts to meet National Ambient Air Quality Standard deadlines and the California Clean Air Act,⁸⁹
- California’s Alternative Fuels Plan adopted by the CEC and CARB, which sets a goal of increasing non-petroleum fuel to 20 percent of on-road demand by 2020 and 30 percent in 2030, adopted pursuant to AB 1007,⁹⁰

⁸⁷ Exec. Order No. B-48-18 (Jan. 26, 2018), <https://www.ca.gov/archive/gov39/2018/01/26/governor-brown-takes-action-to-increase-zero-emission-vehicles-fund-new-climate-investments/index.html>

⁸⁸ Exec. Order No. B-16-2012 (Mar. 23, 2012), *available at* <https://www.ca.gov/archive/gov39/2012/03/23/news17463/index.html>; Office of Governor Edmund G. Brown Jr., *2016 ZEV Action Plan*, *available at* https://www.gov.ca.gov/wp-content/uploads/2018/01/2016_ZEV_Action_Plan-1.pdf

⁸⁹ SCAQMD, *National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) Attainment Status for South Coast Air Basin*, *available at* <http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/naaqs-caaqsfeb2016.pdf?sfvrsn=2>. *See also* CARB, *Mobile Source Strategy* (May 2016), pp. 20-23, *available at* <https://www.arb.ca.gov/planning/sip/2016sip/2016mobsrc.pdf>.

⁹⁰ CARB & CEC, *State Alternative Fuels Plan*, p. 36 (Dec. 2007), *available at* <http://www.energy.ca.gov/2007publications/CEC-600-2007-011/CEC-600-2007-011-CMF.PDF>. <http://www.energy.ca.gov/2007publications/CEC-600-2007-011/CEC-600-2007-011-CMF.PDF>.

- SB 1275 “Charge Ahead California Initiative,” which increases customer access to EVs by creating vehicle rebates and financing for low- and moderate-income consumers,⁹¹ and
- Executive Order B-55-18, which directs California to achieve carbon neutrality no later than 2045.⁹²

To ensure alignment and support, SCE actively sought feedback from public agencies (federal, state, regional, and local) and stakeholders from the private and non-profit sectors prior to finalizing this proposed program. SCE held a workshop with over 140 invited participants and additional meetings to solicit feedback from a board variety of stakeholders and customers.⁹³

D. Charge Ready 2 Promotes Safety.

As discussed above, Charge Ready 2 promotes customer and worker safety by providing financial incentives to pay for make-ready infrastructure installed by licensed electrical contractors. SCE make-ready infrastructure in Charge Ready 2 that is not performed by SCE employees will be performed by a contractor signatory to IBEW holding a valid C-10 contractor’s license and using electricians with EVITP certification. SCE will also test new charging technologies and evaluate charging equipment for eligibility to ensure safe connection to and use on the grid.⁹⁴

E. Charge Ready 2 Leverages Non-Utility Funding.

Charge Ready 2 provides funding for make-ready infrastructure and charging station rebates, which will complement public funding targeting the incremental cost of electrifying vehicles and support acceleration of transportation electrification by mitigating cost barriers to

⁹¹ Cal. SB 1275 (2014 Cal. Stats. ch. 530), *available at* https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201320140SB1275.

⁹² Executive Order B-55-18 (Sept. 10, 2018), *available at* <https://www.gov.ca.gov/wp-content/uploads/2018/09/9.10.18-Executive-Order.pdf>

⁹³ Exhibit SCE-1, pp. 74-75.

⁹⁴ Exhibit SCE-1, p. 75.

adoption. SCE will also encourage participating customers to apply for available third-party funding. For example, SCE will be providing grant writing services to assist customers in applying for grants that fund acquisition of EVs for fleet conversion or for demonstration and evaluation purposes. SCE intends to provide technical writing assistance and to leverage industry expertise to help qualified customers prepare such applications.⁹⁵

F. Charge Ready 2 Provides Anonymous and Aggregated Data for Evaluation.

As discussed above, SCE plans to report anonymous and aggregated data to the Commission and interested stakeholders annually. SCE also proposes to provide a final report once Charge Ready 2 concludes. These annual and final reports will inform future Commission policy and help guide the design of future utility EV-related programs.⁹⁶

IV.

CONCLUSION

For the reasons discussed above, SCE's Charge Ready 2 proposal satisfies the applicable statutory and regulatory criteria and should be approved by the Commission without modification.

⁹⁵ Exhibit SCE-1, pp. 75-76.

⁹⁶ Exhibit SCE-1, p. 76.

Respectfully submitted,

ANNA VALDBERG
ANDREA L. TOZER

/s/ Andrea L. Tozer

By: Andrea L. Tozer

Attorneys for
SOUTHERN CALIFORNIA EDISON COMPANY

2244 Walnut Grove Avenue
Post Office Box 800
Rosemead, California 91770
Telephone: (626) 302-6713
Facsimile: (626) 302-6693
E-mail: Andrea.Tozer@sce.com

Dated: March 15, 2019

**BEFORE THE PUBLIC UTILITIES COMMISSION OF THE
STATE OF CALIFORNIA**

Application of Southern California Edison
Company (U 338-E) for Approval of its Charge
Ready 2 Infrastructure and Market Education
Programs.

A.18-06-015

CERTIFICATE OF SERVICE

I hereby certify that, pursuant to the Commission's Rules of Practice and Procedure, I have this day served a true copy of **OPENING BRIEF SOUTHERN CALIFORNIA EDISON COMPANY (U 338-E)** on all parties identified on the attached service list(s) for **A.18-06-015**. Service was effected by one or more means indicated below:

- Transmitting the copies via e-mail to all parties who have provided an e-mail address.
- Placing the copies in sealed envelopes and causing such envelopes to be delivered by US Mail to the offices of the Commissioners(s) or other addresses(s).

**ALJ Sasha Goldberg
CPUC
505 Van Ness Avenue
San Francisco, CA 94102**

Executed on **March 15, 2019**, at Rosemead, California.

/s/ Sandra Sedano

**Sandra Sedano
Legal Administrative Assistant**

SOUTHERN CALIFORNIA EDISON COMPANY
2244 Walnut Grove Avenue
Post Office Box 800
Rosemead, California 91770



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Parties

JULIA M. REGE
 DIR - ENVIRONMENTAL & ENERGY
 ASSOCIATION OF GLOBAL AUTOMAKERS, INC.
 1050 K ST., NW, STE. 650
 WASHINGTON, DC 20001
 FOR: ASSOCIATION OF GLOBAL AUTOMAKERS,
 INC.

SAMANTHA HOUSTON
 VEHICLES ANALYST
 UNION OF CONCERNED SCIENTISTS
 1825 K STREET NW, SUITE 800
 WASHINGTON, DC 20006
 FOR: UNION OF CONCERNED SCIENTISTS

JOSEPH HALSO
 SIERRA CLUB
 1536 WYNKOOP STREET, SUITE 312
 DENVER, CO 80206
 FOR: SIERRA CLUB

THOMAS ASHLEY
 VP - GOVN'T AFFAIRS & PUBLIC POLICY
 GREENLOTS
 925 N. LA BREA AVE., 6TH FL
 LOS ANGELES, CA 90038
 FOR: GREENLOTS

KATHERINE STAINKEN
 POLICY DIR.
 PLUG IN AMERICA
 6380 WILSHIRE BLVD., STE. 1000
 LOS ANGELES, CA 90048
 FOR: PLUG IN AMERICA

JESSALYN ISHIGO
 ENVIRONMENTAL BUSINESS DEVELOPMENT OFF.
 AMERICAN HONDA MOTOR CO., INC.
 1919 TORRANCE BLVD.
 TORRANCE, CA 90501
 FOR: AMERICAN HONDA MOTOR CO., INC.

MAX BAUMHEFNER
 ATTORNEY
 NATURAL RESOURCES DEFENSE COUNCIL
 111 SUTTER ST., 21ST FL.
 SAN FRANCISCO, CA 94104
 FOR: NATURAL RESOURCES DEFENSE COUNCIL

ANDREA TOZER
 SR. ATTORNEY
 SOUTHERN CALIFORNIA EDISON COMPANY
 2244 WALNUT GROVE AVE. / PO BOX 800
 ROSEMEAD, CA 91770
 FOR: SOUTHERN CALIFORNIA EDISON COMPANY

MICHAEL CHIACOS
ENERGY PROGRAM DIR.
COMMUNITY ENVIRONMENTAL COUNCIL
26 W ANAPAMU ST.
SANTA BARBARA, CA 93101
FOR: COMMUNITY ENVIRONMENTAL COUNCIL

DAVID SCHLOSBERG
ELECTRIC MOTOR WERKS, INC.
846 BRANSTEN RD
SAN CARLOS, CA 94070
FOR: ELECTRIC MOTOR WERKS, INC.

TOVAH TRIMMING
CALIF PUBLIC UTILITIES COMMISSION
LEGAL DIVISION
ROOM 4107
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3214
FOR: ORA

MEGHA LAKHCHAURA
EVBOX INC.
845 MARKET ST., LEVEL 4, STE. 450A
SAN FRANCISCO, CA 94103
FOR: EVBOX, INC.

EVELYN KAHL
ATTORNEY
BUCHALTER, A PROFESSIONAL CORPORATION
55 SECOND STREET, SUITE 1700
SAN FRANCISCO, CA 94105-3493
FOR: ENERGY PRODUCERS AND USERS
COALITION

RACHELLE CHONG
COUNSEL
LAW OFFICES OF RACHELLE CHONG
345 WEST PORTAL AVENUE, STE. 110
SAN FRANCISCO, CA 94127
FOR: LYFT, INC.

FRANCESCA WAHL
SR. POLICY ASSOCIATE
TESLA, INC.
6800 DUMBARTON CIRCLE
FREMONT, CA 94555
FOR: TESLA, INC.

TADASHI GONDAI
DIR - LEGAL ADVOCACY
NATIONAL ASIAN AMERICAN COALITION
15 SOUTHGATE AVE., STE.200
DALY CITY, CA 94015
FOR: NATIONAL DIVERSITY COALITION AND
NATIONAL ASIAN AMERICAN COALITION

MARC D. JOSEPH
ATTORNEY
ADAMS BROADWELL JOSEPH & CARDOZA
601 GATEWAY BOULEVARD, SUITE 1000
SO. SAN FRANCISCO, CA 94080
FOR: COALITION OF CALIFORNIA UTILITY
EMPLOYEES

ELISE TORRES
STAFF ATTORNEY
THE UTILITY REFORM NETWORK
785 MARKET STREET, SUITE 1400
SAN FRANCISCO, CA 94103
FOR: TURN

IVAN R. JIMENEZ
REGULATORY ATTORNEY
SMALL BUSINESS UTILITY ADVOCATES
548 MARKET STREET, STE. 11200
SAN FRANCISCO, CA 94104
FOR: SMALL BUSINESS UTILITY ADVOCATES
(SBUA)

MICHAEL B. DAY
ATTORNEY
GOODIN, MACBRIDE, SQUERI, & DAY, LLP
505 SANSOME STREET, STE 900
SAN FRANCISCO, CA 94111-3133
FOR: EVGO SERVICES LLC

CHRIS KING
CHIEF POLICY OFFICER
SIEMENS
4000 E. THIRD AVE.
FOSTER CITY, CA 94404
FOR: SIEMENS

JOEL ESPINO
LEGAL COUNSEL
THE GREENLINING INSTITUTE
360 14TH STREET, 2ND FL.
OAKLAND, CA 94612
FOR: THE GREENLINING INSTITUTE

ALEX J. MORRIS
 VP - POLICY & OPER
 CALIFORNIA ENERGY STORAGE ALLIANCE
 2150 ALLSTON WAY, SUITE 210
 BERKELEY, CA 94704
 FOR: CALIFORNIA ENERGY STORAGE ALLIANCE

GREGORY MORRIS
 DIRECTOR
 GREEN POWER INSTITUTE
 2039 SHATTUCK AVENUE, STE 402
 BERKELEY, CA 94704
 FOR: GREEN POWER INSTITUTE

JAMES HALL
 GENERAL MOTORS LLC
 1121 L STREET, STE. 700
 SACRAMENTO, CA 95814
 FOR: GENERAL MOTORS, LLC

LAURA FERNANDEZ
 ATTORNEY
 BRAUN BLAISING SMITH WYNNE, P.C.
 915 L STREET, STE 1480
 SACRAMENTO, CA 95814
 FOR: CALIFORNIA CHOICE ENERGY
 AUTHORITY (CCEA)

STEVEN P. DOUGLAS
 SR. DIR - ENVIRONMENTAL AFFAIRS
 ALLIANCE OF AUTOMOBILE MANUFACTURERS
 1415 L STREET, STE. 1190
 SACRAMENTO, CA 95814
 FOR: ALLIANCE OF AUTOMOBILE
 MANUFACTURERS

LYNN HAUG
 ATTORNEY
 ELLISON SCHNEIDER HARRIS & DONLAN LLP
 2600 CAPITOL AVE., STE. 400
 SACRAMENTO, CA 95816
 FOR: CHARGEPOINT, INC.

ANDREW B. BROWN
 ATTORNEY AT LAW
 ELLISON SCHNEIDER HARRIS & DONLAN LLP
 2600 CAPITOL AVENUE, SUITE 400
 SACRAMENTO, CA 95816-5931
 FOR: ELECTRIC VEHICLE CHARGING
 ASSOICATION

Information Only

BARBARA BARKOVICH
 CONSULTANT
 BARKOVICH & YAP
 EMAIL ONLY
 EMAIL ONLY, CA 00000

CATHERINE BUCKLEY
 PACIFIC GAS AND ELECTRIC COMPANY
 EMAIL ONLY
 EMAIL ONLY, CA 00000

JOHN W. LESLIE, ESQ.
 DENTONS US LLP
 EMAIL ONLY
 EMAIL ONLY, CA 00000

MICHAEL CADE
 BUCHALTER
 EMAIL ONLY
 EMAIL ONLY, CA 00000

PAUL D. HERNANDEZ
 PUBLIC POLICY & GOV. RELATIONS
 ENVOY TECHNOLOGIES INC.
 EMAIL ONLY
 EMAIL ONLY, CA 00000

PHIL VILLAGOMEZ
 SHELL NEW ENERGIES
 EMAIL ONLY
 EMAIL ONLY, AA 00000

MRW & ASSOCIATES, LLC
 EMAIL ONLY
 EMAIL ONLY, CA 00000

JENIFER BOSCO
 STAFF ATTORNEY
 NATIONAL CONSUMER LAW CENTER

7 WINTHROP SQUARE, 4TH FL.
BOSTON, MA 02110

COLEY GIROUARD
PRINCIPAL
ADVANCED ENERGY ECONOMY
1000 VERMONT AVE NW, 3RD FL
WASHINGTON, DC 20005

ADRIANO MARTINEZ
ATTORNEY AT LAW
EARTHJUSTICE
800 WILSHIRE BLVD., SUITE 1000
LOS ANGELES, CA 90017
FOR: UNION OF CONCERNED SCIENTISTS

BREA CHILDS
LITIGATION ASSISTANT
EARTHJUSTICE
800 WILSHIRE BLVD., SUITE 1000
LOS ANGELES, CA 90017
FOR: UNION OF CONCERNED SCIENTISTS

SARA RAFALSON
DIR - MKT DEVELOPMENT
EVGO SERVICES LLC
11390 W. OLYMPIC BLVD., STE. 250
LOS ANGELES, CA 90064
FOR: EVGO SERVICES LLC

CASE ADMINISTRATION
SOUTHERN CALIFORNIA EDISON COMPANY
EMAIL ONLY
ROSEMEAD, CA 91770

MELODEE BLACK
REGULATORY AFFAIRS ADVISOR
SOUTHERN CALIFORNIA EDISON COMPANY
2244 WALNUT GROVE AVE.
ROSEMEAD, CA 91770

MARC MONBOUQUETTE
SR.MGR - REG & GOV'T AFFAIRS
EMOTORWERKS
846 BRANSTEN ROAD
SAN CARLOS, CA 94070

MILES MAURINO
ASSOCIATE ATTORNEY
ADAMS BROADWELL JOSEPH & CARDOZO
601 GATEWAY BLVD., STE. 1000
SOUTH SAN FRANCISCO, CA 94080
FOR: COALITION OF CALIFORNIA UTILITY
EMPLOYEES

RACHAEL E. KOSS
ATTORNEY
ADAMS BROADWELL JOSEPH & CARDOZO
601 GATEWAY BLVD., SUITE 1000
SOUTH SAN FRANCISCO, CA 94080

ALAN BACH
CALIF PUBLIC UTILITIES COMMISSION
ENERGY SAFETY & INFRASTRUCTURE BRANCH
AREA
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3214

AUDREY NEUMAN
CALIF PUBLIC UTILITIES COMMISSION
PROCUREMENT STRATEGY AND OVERSIGHT BRANC
ROOM 4-A
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3214

CAROLYN SISTO
CALIF PUBLIC UTILITIES COMMISSION
PROCUREMENT STRATEGY AND OVERSIGHT BRANC
AREA
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3214

CHLOE LUKINS
CALIF PUBLIC UTILITIES COMMISSION
ENERGY SAFETY & INFRASTRUCTURE BRANCH
ROOM 4102
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3214

DANIELLE DOOLEY
CALIF PUBLIC UTILITIES COMMISSION
ENERGY SAFETY & INFRASTRUCTURE BRANCH
AREA
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3214

ENRIQUE GALLARDO
CALIF PUBLIC UTILITIES COMMISSION

FIDEL LEON DIAZ
CALIF PUBLIC UTILITIES COMMISSION

LEGAL DIVISION
AREA
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3214

ENERGY SAFETY & INFRASTRUCTURE BRANCH
AREA
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3214

JENNIFER KALAFUT
CALIF PUBLIC UTILITIES COMMISSION
ENERGY EFFICIENCY BRANCH
ROOM 5303
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3214

JOSEPH A. ABHULIMEN
CALIF PUBLIC UTILITIES COMMISSION
ENERGY SAFETY & INFRASTRUCTURE BRANCH
ROOM 4209
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3214

LIAM WEAVER
CALIF PUBLIC UTILITIES COMMISSION
ENERGY SAFETY & INFRASTRUCTURE BRANCH
AREA
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3214

NATHAN CHAU
CALIF PUBLIC UTILITIES COMMISSION
ELECTRICITY PRICING AND CUSTOMER PROGRAM
AREA
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3214

SARA M. KAMINS
CALIF PUBLIC UTILITIES COMMISSION
PROCUREMENT STRATEGY AND OVERSIGHT BRANC
AREA
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3214

SARAH OWENS
CALIF PUBLIC UTILITIES COMMISSION
COMMISSIONER RECHTSCHAFFEN
ROOM 5200
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3214

YULIYA SHMIDT
CALIF PUBLIC UTILITIES COMMISSION
COMMISSIONER RECHTSCHAFFEN
ROOM 4209
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3214

ERIC BORDEN
ENERGY POLICY ANALYST
THE UTILITY REFORM NETWORK
785 MARKET STREET, STE. 1400
SAN FRANCISCO, CA 94103

JAMES M. BIRKELUND
PRESIDENT
SMALL BUSINESS UTILITY ADVOCATES
548 MARKET STREET, STE. 11200
SAN FRANCISCO, CA 94104

MILES MULLER
LEGAL FELLOW
NATURAL RESOURCES DEFENSE COUNCIL
111 SUTTER STREET, 21ST FL.
SAN FRANCISCO, CA 94104

AMIE BURKHOLDER
BUCHALTER, A PROFESSIONAL CORPORATION
55 SECOND STREET, STE. 1700
SAN FRANCISCO, CA 94105

NORA SHERIFF
ATTORNEY
BUCHALTER, A PROFESSIONAL CORPORATION
55 SECOND STREET, SUITE 1700
SAN FRANCISCO, CA 94105

BUCHALTER, A PROFESSIONAL CORPORATION
55 SECOND STREET, SUITE 1700
SAN FRANCISCO, CA 94105

SAM ARONS
DIR
LYFT, INC.
185 BERRY STREET, STE. 5000
SAN FRANCISCO, CA 94107-5705

BENJAMIN C. BODELL
ATTORNEY
GOODIN MACBRIDIE SQUERI & DAY LLP

MEGAN SOMOGYI
ATTORNEY
GOODIN, MACBRIDE, SQUERI, & DAY, LLP

505 SANSOME STREET, STE. 900
SAN FRANCISCO, CA 94111

505 SANSOME ST., STE. 900
SAN FRANCISCO, CA 94111

PAUL R. CORT
EARTHJUSTICE
50 CALIFORNIA ST., STE. 500
SAN FRANCISCO, CA 94111

CASE COORDINATION
PACIFIC GAS AND ELECTRIC COMPANY
PO BOX 770000; MC B23A
SAN FRANCISCO, CA 94177

BONNIE DATTA
SIEMENS
4000 E. THIRD AVE.
FOSTER CITY, CA 94404

PAUL NELSON
CONSULTANT
BARKOVICH & YAP, INC.
PO BOX 11031
OAKLAND, CA 94611

TAM HUNT
CONSULTING ATTORNEY
2039 SHATTUCK AVENUE, SUITE 402
BERKELEY, CA 94704
FOR: GREEN POWER INSTITUTE

ANTHONY HARRISON
DIR - PUBLIC POLICY
CHARGEPOINT
254 E. HACIENDA AVENUE
CAMPBELL, CA 95008

RENEE SAMSON
DIR - UTILITY SOLUTIONS
CHARGEPOINT, INC.
245 HACIENDA AVENUE
CAMPBELL, CA 95008

CHASE HOPKINS
LEGISLATIVE AIDE
OFFICE OF SENATOR STEVEN BRADFORD
STATE CAPITOL, ROOM 2062
SACRAMENTO, CA 95814

MATTHEW WILLIAMS
CLEAN TRANSPORTATION INCENTIVES
CALIFORNIA AIR RESOURCES BOARD
1001 I STREET
SACRAMENTO, CA 95814

REGULATORY CLERK
BRAUN BLAISING SMITH WYNNE, PC
915 L STREET, STE. 1480
SACRAMENTO, CA 95814

SCOTT BLAISING
COUNSEL
BRAUN BLAISING SMITH WYNNE P.C.
915 L STREET, SUITE 1480
SACRAMENTO, CA 95814

State Service

SASHA GOLDBERG
CALIF PUBLIC UTILITIES COMMISSION
ADMINISTRATIVE LAW JUDGE DIVISION
ROOM 5021
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3214

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