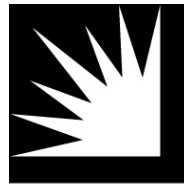


Application No.: A.14-10-014
Exhibit No.: SCE-01, Volume 03
Witnesses: Edward Kjaer
Jessica Lim
David Lotspeich
Daniel Tunnicliff



SOUTHERN CALIFORNIA
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(U 338-E)

***PREPARED TESTIMONY IN SUPPORT OF
SOUTHERN CALIFORNIA EDISON COMPANY'S
CHARGE READY APPLICATION***

***VOLUME 03 – PHASE 2 CHARGE READY
PROGRAM DESIGN, IMPLEMENTATION PLAN,
AND COSTS***

Before the

Public Utilities Commission of the State of California

Rosemead, California
October 30, 2014

**SCE-01: Prepared Testimony in Support of Southern California Edison Company’s
Charge Ready Application
Volume 03 – Phase 2 Program Design, Implementation Plan, and Costs
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I.

INTRODUCTION

Southern California Edison Company (SCE) designed the Charge Ready Program to achieve the objectives described in Volume 1 of this testimony, including accelerating the deployment of electric vehicle (EV) charging stations to support EV adoption and increase EV miles traveled. This volume provides a detailed description of Phase 2 of the Program, its implementation plan, and projected costs.

A. Program Design Overview

SCE proposes to support the deployment of up to 30,000 qualified charging stations¹ in its service territory over five years at participating long dwell-time locations (Participating Sites) owned or operated by SCE non-residential customers (Customer Participants)² where drivers typically leave their cars parked for four hours or more (Long Dwell-Time Locations), including workplaces, multi-unit dwellings (MUDs), and destination locations. Single-family homes are not eligible. This target number of charging stations represents about one-third of the anticipated charging need for SCE’s service territory in 2020.³ As part of the Program, SCE will deploy all supporting electric infrastructure (the Program Infrastructure) needed to serve the charging stations, including:

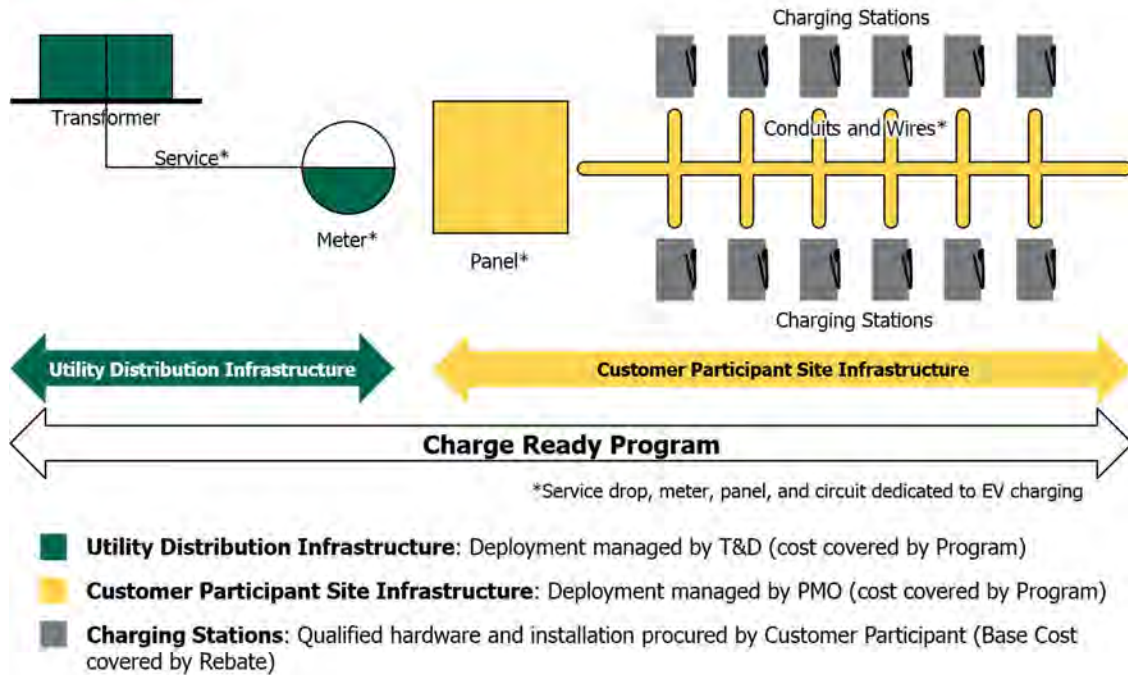
- Utility Distribution Infrastructure: transformers, utility services, and meters, and
- Customer Participant Site Infrastructure (behind the meter): panels, “make ready” stub (including conduits and wiring), and associated infrastructure.

¹ The Charge Ready Program is divided in two phases. Phase 1, described in Volume 2 of SCE’s testimony, includes the deployment of up to 1,500 charging stations. In Phase 2, SCE plans to deploy the remaining qualified charging stations, up to a total of 30,000 across both phases.

² In MUDs, the Customer Participant would be the non-residential customer associated with the Participating Site (e.g., the property management company or homeowners association).

³ See Figure II-3 in Volume 1 of SCE’s testimony.

Figure I-1
Diagram of Charge Ready Program Infrastructure



1 Customer Participants will select EV charging stations to be installed at Participating Sites from
 2 among a group of charging stations pre-qualified by SCE that are able to meet a minimum set of
 3 specified functionalities. Customer Participants will pay the difference in cost, if any, between the
 4 charging stations they select and a per-unit rebate reflecting the Base Cost of qualified charging stations,
 5 as explained below.

6 SCE will coordinate all deployment activities through Business Customer Division
 7 representatives and a new Program Management Organization (PMO) created to handle implementation
 8 of the both Pilot and Phase 2. The PMO is also responsible for coordinating among Customer
 9 Participants, SCE, and vendors, including EV charging station suppliers, installation contractors, EV
 10 charging network service providers, and maintenance providers. SCE will collaborate with EV charging
 11 network service and maintenance providers to help ensure that the charging stations are kept in working
 12 order and to implement potential demand response programs.

13 SCE will cover related upfront costs, including all approved Program Infrastructure costs, and
 14 provide Customer Participants with a Base Cost rebate applicable to the qualified charging stations

1 selected for deployment at Participating Sites and their installation. While SCE will retain ownership of
2 the Program Infrastructure, Customer Participants will own the charging stations, operate them at their
3 discretion through their selected third party network service provider (subject to the Program's terms and
4 conditions) and will be responsible for all related operating costs, including maintenance and electricity
5 usage.

6 **B. Guiding Principles**

7 The following guiding principles reflect SCE's philosophy to develop an attractive initiative for
8 Customer Participants and EV charging market players.

9 **1. Support the Acceleration of a Competitive EV Charging Market**

10 The Program will significantly increase the current demand for EV charging products and
11 installation services by supporting the deployment of a large number of charging stations through many
12 contractors. However, unlike other utility programs which may source a specific product or service from
13 a few vendors, the Program will allow many qualified vendors to participate, as long as they meet the
14 Program's requirements. The Program will also encourage innovation and competition as SCE will
15 frequently qualify new vendors and charging stations. Finally, the Program is limited-duration, not
16 permanent. In fact, SCE proposes to modify or even terminate the Program early, upon approval by the
17 Commission, if merited by unanticipated circumstances, such as unusually low customer interest or
18 program enrollment.

19 **2. Offer a Turn-Key Experience**

20 SCE designed the Program to include most products and services needed for deploying
21 charging infrastructure, including charging stations and their installation, maintenance and network
22 charging services. Through a clear and established end-to-end process and proactive management of
23 stakeholders, the Program aims to support the deployment of charging installations efficiently while
24 minimizing disruption for Customer Participants.

25 **3. Remove Barriers to Deploying EV Charging**

26 The Program will significantly reduce the cost and complexity of deploying EV charging
27 infrastructure for Customer Participants.

1 By covering most upfront deployment costs for Customer Participants, the Program will
2 remove a significant barrier to widespread deployment of charging stations in SCE's service territory,
3 supporting EV adoption and creating new charging opportunities for EV drivers.

4 When considering deploying EV charging, customers often face many complex questions
5 and do not often have the expertise or the tools to answer them. Consistent with its trusted energy
6 advisor role, SCE will assist Customer Participants in making well-informed deployment decisions
7 while maintaining neutrality throughout the selection process.

8 **4. Maintain Customer Choice**

9 SCE intends for the Program to include a wide range of EV charging stations models
10 from multiple suppliers, representative of the current market place (e.g., Customer Participants will be
11 able to select Level 1 or Level 2 charging stations),⁴ and has designed the Program's vendor
12 qualification process accordingly.

13 **5. Ensure EV Charging Stations Are in Working Order**

14 The Program will ensure that charging stations remain in operation. Customer
15 Participants are required to, at their expense, ensure that the charging stations are maintained in working
16 order for at least ten years following installation.

17 **6. Manage the EV Load**

18 Customer Participants will select the most cost-effective rate schedule among several
19 electricity rate options, but all eligible rates will include time-of-use pricing signals to encourage mid-
20 peak and off-peak charging. In addition, SCE will require that all Level 2 charging stations include
21 demand-response capability, either integrated with the station itself, or through the use of an external
22 device, such as a kiosk or a gateway. SCE will also encourage suppliers to qualify charging stations with
23 additional demand management features, such as power sharing or sequencing.

⁴ SCE will not offer direct current (DC) fast-charging stations through the Program.

1 **7. Manage the Program Costs**

2 SCE will manage Program costs and protect ratepayer funds by (1) working with
3 Customer Participants to ensure near-term demand for charging stations exists, (2) cost-effectively
4 selecting charging locations at each Participating Site, (3) achieving economies of scale by generally
5 requiring a minimum of ten charging stations per Participating Site, and (4) requesting Commission
6 approval to modify or terminate the Program early if merited by unanticipated circumstances, such as
7 unusually low customer interest or program enrollment.

1 II.

2 **ROLES AND RESPONSIBILITIES**

3 **A. SCE Will Coordinate all Deployment Activities and Deploy Utility Distribution**

4 **Infrastructure**

5 SCE will leverage Business Customer Division (BCD) representatives and a new PMO (as
6 described below) to handle implementation of the Program among Customer Participants, SCE, and
7 vendors, including EV charging stations suppliers, installation contractors, EV charging network service
8 providers and maintenance providers.

9 Any transformer or service upgrades needed as a result of the increased load from charging
10 stations will be handled by SCE's Transmission & Distribution operating unit (T&D) through normal
11 T&D processes and staff (including contractors where appropriate), with all related costs covered by the
12 Program.

13 **B. Third-Party Contractors Will Deploy Customer Participant Site Infrastructure**

14 SCE will hire third-party contractors to deploy Customer Participant Site Infrastructure
15 (including dedicated panel, conduits, wiring) at Participating Sites. Because of the target volume of
16 charging stations and the size of SCE's service territory, many contractors will have an opportunity to
17 participate in the Program. All Customer Participant Site Infrastructure costs will be covered by the
18 Program.

19 **C. Third-Party Suppliers Will Provide and Install the Charging Stations**

20 SCE intends to include a broad range of qualified charging station models from multiple
21 suppliers as part of the Program offering.⁵ Customer Participants will procure these charging stations
22 and their installation directly from suppliers pre-qualified by SCE.

⁵ SCE will not manufacture or apply its brand or logo on any charging stations selected by Customer Participants.

1 **D. Customer Participants Will Own, Maintain, and Operate the Charging Stations**

2 Customer Participants will own and maintain the charging stations and operate them at their
3 discretion (subject to the terms and conditions of the Program). Customer Participants will select one of
4 the rate schedules applicable to the Program and will determine their own policy about the use of the
5 charging stations (e.g., access conditions, financial contribution from EV drivers for using the charging
6 stations).

1 **III.**

2 **DETAILED PROGRAM DESCRIPTION**

3 **A. Customer Eligibility**

4 To become a Customer Participant—the host of the site where qualified charging stations are
5 deployed—customers have to meet several requirements, including:

- 6 - Qualify as a non-residential customer;⁶
- 7 - Provide appropriate validation that EVs already utilize parking at the location and estimates
8 of near-term potential growth in EVs;
- 9 - Provide Long Dwell-Time parking to EV drivers. Such locations include: workplaces,
10 MUDs, mass-transit stations, colleges, fleet parking, destination locations (e.g., theme parks,
11 sports arenas), municipal facilities (e.g., parks, beaches), and hotels (generally, retail
12 locations are not eligible for the Program, but may qualify based on employee or fleet
13 demand);
- 14 - Own or lease the Participating Site, or be the customer of record associated with the premises
15 meter (likely the property management company or the building owner), where the charging
16 stations will be deployed;
- 17 - Provide agreement by the Participating Site’s owner to grant SCE continuous access to the
18 Customer Participant Site Infrastructure; and
- 19 - Commit to and provide acceptable proof of qualified charging equipment purchase (together
20 with actual pricing information, net of any rebates consented to Customer Participants) prior
21 to SCE initiating construction of Program Infrastructure.

⁶ Although MUDs are eligible to participate in the Program, and residents may use the charging stations, the Customer Participant must be the non-residential customer associated with the premises meter (such as a property management company or homeowners association).

1 **B. Disadvantaged Communities**

2 SCE will target up to ten percent of the Program’s charging infrastructure deployment in
3 disadvantaged communities, defined using the California Environmental Protection Agency’s
4 (CalEPA’s) California Communities Environmental Health Screening Tool (CalEnviroScreen 2.0)
5 (Disadvantaged Communities). SCE’s ten percent target is modeled after Senate Bill (SB) 535,⁷ which
6 requires that ten percent of the Greenhouse Gas Reduction Fund would be allocated for projects located
7 within Disadvantaged Communities. To account for the estimated initial lower level of EV adoption in
8 these communities and accommodate smaller sites, upon request from a Customer Participant located in
9 a Disadvantaged Community, SCE will reduce the minimum requirement from ten charging stations to
10 five charging stations per Participating Site in appropriate circumstances (additional details about this
11 minimum requirement is described in the Charging Station Procurement section below). All goods and
12 services qualification and procurement processes will include women, minority, and disabled veteran
13 enterprise (WMDVBE) requirements, consistent with the Commission’s General Order No. 156.

14 SCE will engage with eligible customers (including businesses, governmental institutions,
15 colleges, and MUDs) in Disadvantaged Communities and support them through both phases of the
16 Program. SCE will also collaborate with the California Energy Commission (CEC), the California Air
17 Resources Board (CARB), the South Coast Air Quality Management District (SCAQMD), the Southern
18 California Association of Governments (SCAG), and other regional agencies and beneficiaries of
19 vehicle incentive programs authorized by statutes that favor state investments in Disadvantaged
20 Communities, to encourage more vehicle incentives and state investments for these communities.⁸

21 SCE will also collaborate with institutions and employers to support training and education
22 programs for electronics and electrical workers who will become qualified technicians and experts to
23 service the emerging EV repair market, and the installation, operation, and maintenance of charging

⁷ See Cal. SB 535 (2012 Cal. Stats. Ch. 830 § 2).

⁸ See Cal. SB 535 (2012 Cal. Stats. Ch. 830 § 2); Cal. Assembly Bill (AB) 8 (2013 Cal. Stats. ch. 401 § 2); Cal. SB 1204 (2014 Cal. Stats. ch. 524); and Cal. SB 1275 (2014 Cal. Stats. ch. 530).

1 infrastructure. In addition to preparing these communities for promising employment opportunities,
2 these collaborative efforts could be a catalyst to launch new economic development programs,
3 specifically in the emerging fields of digital communication, cybersecurity and control technologies,
4 energy storage, renewable integration, and energy management.

5 **C. Charging Stations**

6 **1. Charging Station Specification and Validation**

7 To be qualified for inclusion in the Charge Ready program, EV charging stations must
8 meet various technical standards and energy efficiency recommendations (e.g., SAE J1772, SAE J2894,
9 SAE J2836, SAE J2847⁹) and must be listed by a nationally recognized testing laboratory. In addition,
10 all Level 2 charging stations must be demand response-capable (i.e., capable of receiving and executing
11 real-time instructions to throttle, suspend, and/or modify end-user pricing of EV charging load)¹⁰ and are
12 encouraged to include additional load management features (e.g., EV charging sequencing or sharing).

13 SCE intends to qualify charging stations according to three defined profiles:

- 14 - Level 1 charging station, without network capability,
- 15 - Level 2 charging station, with network capability integrated into the charging station,
16 and
- 17 - Level 2 charging station, with network capability provided by an external device
18 (such as a kiosk or gateway) shared among multiple stations.

19 To have charging stations included in the Charge Ready program, vendors must agree to
20 provide samples to SCE or its designated third-party lab for testing and “qualification.” SCE will
21 conduct sample testing through its EV Tech Center or through an established third-party laboratory (e.g.,
22 EPRI) to determine if proposed EV charging stations meet the Program’s requirements and to

⁹ See Volume 2 of this testimony, footnotes 8-11 for additional information on these SAE standards.

¹⁰ As in other demand response programs, SCE may send demand-response signals using open, non-proprietary two-way communications. Level 2 charging stations must be capable of receiving these signals either directly or through an EV charging network service provider.

1 demonstrate power quality and system impact. SCE will also validate data generated by the proposed
2 EV charging stations for accuracy.

3 **2. Qualification Process and Establishing the Base Cost Rebate**

4 SCE intends to include a broad range of qualified charging station models from multiple
5 suppliers as part of the Program offering. SCE will issue a Request for Information (RFI) to technically
6 capable and financially viable third-party suppliers of charging stations, including qualified WMDVBE
7 suppliers, to cover the provision, installation, operations, and maintenance of the charging stations.¹¹

8 Prospective suppliers will be asked to submit sample models and relevant pricing to
9 supply and install qualified charging stations, based on the RFI's requirements. Suppliers will also have
10 to demonstrate capabilities to supply qualified stations in appropriate volumes and to provide
11 maintenance and network-related services (e.g., charging data collection and management), either
12 through the charging station or through an external device such as a kiosk or gateway.

13 The best value offered for a charging station and its installation within each defined
14 profile will inform how SCE determines the Base Cost. SCE may supplement submitted pricing
15 information with additional market research and other third-party studies. The Base Cost for each
16 profile will establish the per-charging station rebate amounts available to Customer Participants for their
17 purchase and installation of qualified EV charging stations, described in section 3, below.

18 In addition to current SCE suppliers, any technically capable third-party will be
19 conditionally approved to participate in the RFI. If a technically- and conditionally-approved supplier is
20 selected, the supplier will have to be commercially approved by SCE before being selected to participate
21 in the Program. As part of this commercial qualification, SCE will perform a supplier financial stability
22 analysis based on supplier input to assess a supplier's capability to warrant and remedy the qualified
23 products and services.

¹¹ This RFI is in addition to the RFI issued during the Phase 1 Pilot, described in Volume 2 of SCE's testimony. Suppliers that participated in the Pilot RFI described in Volume 2 are eligible to participate in the Phase 2 RFI, along with any other technically capable and financially viable suppliers.

1 SCE will conduct the RFI process and reset the amount of the Base Cost for each defined
2 profile on a periodic basis (every 12 to 18 months) to ensure best market pricing available and up-to-
3 date technology of the Program’s qualified products. Between each RFI, SCE will accept submission of
4 new models by qualified suppliers on a quarterly basis, although interim qualification of new models or
5 suppliers will not affect the Base Cost.

6 **3. Charging Station Procurement**

7 SCE will engage directly with Customer Participants and discuss their charging needs,
8 inform them about qualified charging stations available under the Program, and perform bill impact
9 analyses to assist them in estimating operating costs and deciding which charging stations to select for
10 their site.

11 Subject to all terms and conditions of the Program, Customer Participants may order
12 qualified charging stations to serve up to 4 percent of parking spaces at each Participating Site.
13 Participating Customers will be entitled to receive a rebate for the Base Cost applicable to each charging
14 station and its installation, provided that SCE will exercise discretion to determine the actual number of
15 charging stations based on the volume of current and anticipated EVs parking at the relevant
16 Participating Sites. If a Customer Participant selects qualified charging stations with a unit cost that
17 exceeds the Base Cost rebate, the Customer Participant will pay the amount in excess of the rebate for
18 each charging station the Customer Participant orders.

19 SCE intends to achieve economies of scale when executing the Program and will not
20 deploy Program Infrastructure to serve less than ten charging stations per Participating Site.¹² SCE will
21 exercise its discretion to determine whether to accept Participating Sites where ten charging stations
22 represent more than 4 percent of total parking spaces.¹³

¹² Upon request from a Customer Participant located in a Disadvantaged Community, SCE will reduce the minimum requirement from ten charging stations to five charging stations per Participating Site in appropriate circumstances.

¹³ Unless a Customer Participant can demonstrate greater anticipated demand for EV charging, SCE proposes to install a total number of charging stations that represents no more than 4 percent of total parking spaces at

(Continued)

1 Customer Participants will purchase qualified charging stations and their installation
2 directly from qualified suppliers. SCE will not directly participate in these procurement activities and
3 Customer Participants may negotiate the cost of charging stations (and their installation) with any
4 qualified charging equipment suppliers. If requested by the Customer Participant, the Customer
5 Participant may assign its Base Cost rebate directly to the qualified charging equipment supplier after
6 completing verification of deployment (as described below).¹⁴ Customer Participants will also order EV
7 charging network services directly from qualified vendors. The Program will encourage Customer
8 Participants and suppliers to complete procurement of the charging stations within a reasonable period
9 of time to facilitate execution of the Program.

10 **D. Charge Ready Education and Outreach**

11 SCE will conduct Charge Ready-specific education and outreach (E&O) for the Program through
12 both broad-based and targeted approaches using a variety of data-driven, low-cost channels. This will
13 leverage efforts and collateral developed during the Phase 1 Pilot. Content communicated to potential
14 Customer Participants will provide details on the Program and highlight key areas such as eligible rates
15 and bill impact analysis, metering options, EV infrastructure, access to subject matter expert resources,
16 charging station information, and any other customer support services needed to help implement the
17 Program. Ultimately, SCE will develop E&O materials that provide relevant program awareness while
18 encouraging message recall and driving further interest, information sharing, and enrollment in the
19 Program.

20 **1. Targeted Customer Participants**

21 While the Program will be open to any SCE customers meeting the Program's eligibility
22 requirements, SCE intends to target some of its E&O efforts on those customers more likely to

Continued from the previous page

each Participating Site. SCE proposes this 4 percent cap because EVs are not expected to exceed 4 percent of total vehicles in the next 5 years.

¹⁴ See Section IV.D, *infra*.

1 participate in the Program. To determine relevant customers to target, SCE will compile a list of
2 business customers that fit the Program requirements of installing charging infrastructure at “long dwell-
3 time” locations, including but not limited to workplaces, universities, multi-unit dwellings, park-and-
4 rides, and hotels. To help manage Program Costs, eligible customers will then be selected based on a
5 variety of factors, including geographic location, grid impacts, number of employees/tenants, and
6 individual facility parking spaces. Additionally, SCE will target Disadvantaged Communities, as
7 explained above.

8 **2. Channels**

9 SCE will use a variety of channels to help drive both awareness and enrollment for the
10 Program. With broad-based channels, SCE will ensure a wide business audience develops awareness of
11 the Program. Central to SCE’s broad awareness efforts will be a separate website that will provide EV
12 charging information, frequently asked questions and interactive tools related to the Program. Social
13 media and other owned media will be used to help build general awareness of the Program and its
14 availability. SCE will also take advantage of its *SCE Power Bulletin* and *SCE Small Business*
15 *Connection Newsletter* to provide information on the Program and reinforce central E&O messages.
16 Finally, SCE will ensure that the Program can be incorporated into other relevant campaigns and
17 outreach efforts, including those led by customer-facing SCE organizations such as Local Public Affairs
18 and Corporate Communications.

19 Targeted E&O channels will help drive both awareness and enrollment for those
20 customers most likely to benefit from the Program. Targeted emails to specific customers will allow
21 multiple drops of low-cost direct-to-consumer messaging while direct mail will provide an additional
22 channel to reach out to selected target audience and reinforce digital communications. SCE will also
23 leverage its dedicated BCD account managers who will serve as a direct outreach channel to targeted
24 customers. BCD representatives will also support Customer Participants throughout the deployment
25 process and ensure overall customer satisfaction. Finally, the Program will use SCE group presentations,
26 such as the Electricity Outlook seminars (and possibly standalone Charge Ready seminars), to target key
27 strategic business customers with specific E&O messaging.

1 IV.

2 **PROGRAM INFRASTRUCTURE DEPLOYMENT AND CHARGING STATION**

3 **INSTALLATION**

4 **A. Site Selection Requirements**

5 Sites for installation of charging stations and Program Infrastructure will be selected following
6 the same process used during the Pilot. After receiving a Customer Participant request to participate in
7 the Program, SCE will work with Customer Participants and electrical contractors (coordinated by the
8 Charge Ready PMO) to identify appropriate locations within the Customer Participant's parking lot to
9 deploy charging stations in a cost-effective manner (based on factors such as proximity to transformers,
10 length of trenching, available T&D capacity, and ease of access for EV drivers). SCE representatives
11 will also help identify alternative location options, as needed. All charging stations are expected to be
12 placed on previously disturbed property, such as parking lots, structures, or facilities. All Program
13 Infrastructure are also expected to be over already disturbed property, such as driveways, roads, or
14 parking lots. SCE may deny a customer's request to participate in the Program if the customer and SCE
15 cannot agree upon an installation configuration and location that is reasonably cost-effective as
16 determined by SCE in its sole discretion. The actual location of the deployment will require approval by
17 both the Customer Participant and SCE.

18 **B. Utility Distribution Infrastructure and Metering**

19 The charging stations will be served by dedicated electric infrastructure. The Program will
20 otherwise leverage SCE's T&D processes and resources to ensure that the local electric grid is sized
21 appropriately to serve the new EV charging load.

22 SCE's Distribution Business Line (DBL) planners will also determine, based on factors such as
23 cost, practicality, and technical feasibility, whether existing transformers have sufficient unused capacity
24 to serve the new load to the charging stations and if new utility equipment (transformer, conductor) is
25 required.

26 DBL Planning will collaborate with SCE's Metering Services Organization (MSO) to ensure that
27 dedicated metering equipment is installed to serve the charging stations. Each site will be allowed a

1 separate meter and service to serve the charging stations separately from the existing service serving the
2 Participating Site. The DBL planners will determine the best, most cost-effective method of service
3 based on proposed load, service voltage requirements, and SCE construction and engineering standards.
4 Metering needs will be determined based on electric panel configuration, site voltage requirements, and
5 electric rate selected. DBL Planning will also review each proposed meter panel installation at all
6 participating sites to ensure that each installation meets the requirements of SCE’s Electric Service
7 Requirements (ESR) manual, and any applicable local, state, or national electric code.

8 **C. Customer Participant Site Infrastructure**

9 Customer Participant Site Infrastructure will be deployed through third-party contractors,
10 including architects, engineers, and electrical contractors, overseen by SCE. SCE will first issue an RFI
11 to technically-capable third party contractors to determine unit costs for labor and hardware typically
12 required for deploying Customer Participant Site Infrastructure (including architect and engineering
13 drawings, panel installation, stubbing, wiring, trenching, etc.). These unit costs will be part of a rate
14 card for in-scope services proposed by SCE to technically-capable third party contractors through a
15 request for proposal (RFP). From this RFP, SCE will establish a pool of commercially and technically
16 qualified third parties that can meet the deployment requirements. The RFP process will also be
17 competitive and per General Order No. 156 will include qualified WMDVBE suppliers.

18 The contractors will develop a deployment plan for each Participating Site and prepare the
19 architectural and engineering drawings required to obtain appropriate permits for the proposed number
20 of charging stations.¹⁵ SCE will take all reasonable steps to make this process as prompt as possible,
21 leveraging its relationship with cities and counties to manage the increased demand in construction
22 permits resulting from the Program.

¹⁵ SCE will size Customer Participant Site Infrastructure in accordance with the number of charging stations approved by SCE in its sole discretion (i.e., SCE will not deploy more “stubs” than needed to serve the charging stations approved for a Participating Site).

1 **D. Charging Stations Installation**

2 SCE will coordinate the installation of the charging stations with the Customer Participant and its
3 selected charging station supplier, promptly after deployment of the Program Infrastructure. After
4 installing the charging stations, the qualified charging equipment supplier will configure the charging
5 stations, as requested by the Customer Participant, and will confirm communication with any EV
6 charging network service provider, as applicable. SCE will then perform a walkthrough with the
7 Customer Participant and its supplier to verify deployment. SCE will release the rebate to the Customer
8 Participant after the walkthrough has been completed to SCE's satisfaction.

9 **E. Operation of Charging Stations by Participant**

10 Customer Participants will own the charging stations and operate them at their discretion (subject
11 to the terms and conditions of the Program). If a Customer Participant fails to comply with the
12 Program's requirements, the Customer Participant may have to reimburse the rebate, partially or in full.

13 **F. Energy Costs and Billing**

14 Customer Participants will be billed for their energy charges on the selected rate schedule based
15 upon the demand and rate criteria in effect at the time. Payment default will be treated per SCE's regular
16 policies. All usage registered on the meter serving the charging stations must be served on an applicable
17 General Service Time-of-Use (TOU) rate. BCD account managers will perform a rate analysis to assist
18 Customer Participants in selecting the most cost-effective rate based on the anticipated use of the
19 charging stations.

20 Individual MUD residents may be separately metered and billed directly for usage of a charging
21 station on an applicable residential TOU rate if the charging station has been assigned by the building
22 owner or manager to the resident's exclusive use. This may provide an attractive option if the Customer
23 Participant does not want to bear the on-going financial liability associated with usage of the charging
24 stations in MUDs.

1 Eligible Customer Participants interested in minimizing demand charges may enroll in Schedules
2 TOU-EV-3¹⁶ and TOU-EV-4 and will only be charged for aggregated demand since facility-related
3 demand charges will only be assessed when the EV account's maximum demand is higher than the
4 Participating Site account's maximum demand (provided that the Customer Participant is the customer
5 of record for both accounts). If the customer of record is an individual resident of a MUD, no demand
6 charge is assessed on residential Schedule TOU-EV-1.

7 **G. Demand Management**

8 All Customer Participants with Level 2 charging stations must agree to participate in future
9 demand response initiatives designed in connection with the Program and approved by the Commission.
10 SCE intends to submit pilot requests for approval by the Commission to demonstrate various forms of
11 load management, including demand response and site-based demand management (e.g., power
12 sequencing or sharing). SCE will solicit feedback from its Customer Participants and other stakeholders
13 on the design of potential demand response programs, and will seek to offer multiple options to meet
14 Customer Participant needs.

15 **H. Third-Party EV Charging Networks**

16 Customer Participants selecting Level 2 charging stations will be required to sign up with a
17 qualified EV charging network provider to manage the charging stations and access related usage data.
18 Customer Participants will be responsible for payment of all charges resulting from such arrangements,
19 which Customer Participants must agree to maintain for ten years following installation of the charging
20 stations.

21 Customer Participants and their selected EV charging network providers must consent to provide
22 SCE with access to non-personally identifiable information in connection with end-user transactions

¹⁶ The TOU-EV-4 service accounts can be co-located on the same premise as the parent service account, which can reduce the overall level of kilowatt (kW) demand applicable to the EV account. In the 2013 RDW application (A.13-12-015), SCE proposed to add a TOU-EV-3 Rate B that has a compatible rate structure modeled on Schedule TOU-EV-4, where the demand charge structure is designed to cap the level of facilities demand charges applicable to the premises hosting both the general service account and the EV account. Upon Commission approval, TOU-EV-3 Rate B will be available under the Program.

1 (e.g., duration of each charge, rate/cost, load) for ten years. SCE will collect the data directly from
2 Customer Participant-selected EV charging network providers. Aggregated data (not attributable to any
3 specific charging network provider) will be made publicly available, as described below, and will be
4 used to identify load management opportunities and enhance vehicle-grid integration for future utility
5 initiatives.

6 **I. Charging Station Access and Use Policy**

7 Subject to the Program's terms and conditions, policies regarding access and use of charging
8 stations will be decided by Customer Participants, at their discretion. SCE may provide supporting
9 tools, such as frequently asked questions, lessons learned, and customer studies to help Customer
10 Participants develop these policies.

11 **J. Maintenance by Customer Participant**

12 Customer Participants, at their expense, must ensure the charging stations at their sites are
13 maintained in working order for at least ten years following installation.

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V.

OVERALL PROGRAM MANAGEMENT

A. Program Management Organization

The existing SCE Customer Program and Services organization within SCE's Customer Service organization will dedicate a combination of existing and new employees under the PMO to execute the Program's scope of work. In general, the PMO will be responsible for planning the implementation of the Program, working across SCE functions (BCD, Supply Management, T&D, E&O, etc.) and coordinating execution among vendors and contractors hired for the Program.

The PMO will ensure that the Program is executed on time and on budget and will leverage project management best practices, including the active maintenance and review of issue logs, risk logs, and action item logs. The PMO will prepare regular reports to provide status of the Program's implementation. These reports will identify various milestones and metrics, including accomplishments during the relevant reporting period, deployment progress, financials, etc.

B. Program Evaluation and Reporting

The purpose of SCE's Program evaluation is to monitor and evaluate the Program closely through a number of key metrics to ensure that Program objectives are met. SCE will conduct load impact evaluation studies to evaluate the Program's short-term and long-term impact on the grid. Customer Participant experience and satisfaction with the Program will be measured with surveys and evaluation of key Program metrics such as enrollment and charging station utilization. SCE will also identify key barriers to the deployment of EV charging infrastructure and track the Program's ability to overcome these barriers. Finally, the Program will monitor market indicators such as EV adoption in SCE's service territory.

Frequent assessment of the Program metrics and market indicators reported by SCE to the Commission and stakeholders may inform future improvements of its design. In addition, SCE may also propose to the Commission to reduce the size of the Program, including the number of charging stations paid for through the Program, or to terminate the Program before its completion, if merited by unanticipated circumstances, such as unusually low customer interest or program enrollment.

1 SCE will share reports to assess the Program, its implementation, and market conditions with the
2 Commission and other stakeholders at least annually.

3 **C. Program Implementation and Completion**

4 Subject to Commission approval, Phase 2 of the Program will start at the end of the pilot
5 described in Volume 2 of this testimony. For the following four years, SCE will execute the Program as
6 described above. In addition, for ten years following each charging station installation, including those
7 deployed during the Pilot, SCE will monitor and report on the charging station utilization while working
8 with Customer Participants to ensure that the stations remain in working order until the end of the
9 Program.

10 Deployment will be considered completed upon (1) installation of the total number of planned
11 qualified charging stations, (2) exhaustion of the approved deployment budget, or (3) four years after
12 approval of Phase 2 of this Application by the Commission, whichever occurs first, unless otherwise
13 modified, as explained above.

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VI.

ESTIMATED PHASE 2 PROGRAM COSTS (CAPITAL AND O&M)

This section provides estimates of the Phase 2 Charge Ready Program capital cost and operations and maintenance (O&M) components. Although SCE has sound bases for its cost estimates, charging station installation at commercial sites is not uniform in any way. Since one of the objectives of this Program is to better understand project implementation costs, actual aggregated costs will be included in SCE's status reports when available.

A. Capital Cost Components (Table VI-1 and Table VI-3)

1. Utility Distribution Infrastructure-related costs encompass all traditional cost on the utility side of the meter including, but not limited to, transformer upgrades/additions, service drop, labor, materials, hardware, and new service meter. Because each customer site will be unique with many factors influencing costs, a 35 percent contingency is included.
2. Customer Participant Site Infrastructure-related costs were compiled from consultations with internal subject matter experts, external electrical contractors and published costs from historical California Electric Vehicle Supply Equipment (EVSE) installation sites.¹⁷ Costs incorporate customer planning, engineering, construction (including trenching) labor, materials, and panel changes needed to accommodate the increased load from new EVSE. Because each customer site will be unique with many factors influencing costs, a 35 percent contingency was incorporated into the cost estimates.
3. Charging station rebate costs will depend on results of an RFI process yet to be conducted. Detailed assumptions on assumed rebate costs are shown below.

¹⁷ See Electric Power Research Institute (EPRI), Electric Vehicle Supply Equipment Installed Cost Analysis, December 6, 2013, abstract available at <http://www.epri.com/abstracts/Pages/ProductAbstract.aspx?ProductId=000000003002000577> [as of October 27, 2014].

- 1 4. Other capitalized costs include easement fees and services to grant SCE access to customer
 2 sites, internal charging station testing to verify EVSEs meet requirements of program and all
 3 capitalized labor.

Table VI-1
Capital Costs for 2016 – 2019¹⁸
(Constant 2014 \$, Excludes Escalation and Loaders)

<i>(in \$000)</i>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>Total</u>
Utility-Side Costs	\$ 6,707	\$ 11,178	\$ 19,003	\$ 26,828	\$ 63,717
Customer-Side Costs	\$ 15,173	\$ 25,288	\$ 42,990	\$ 60,691	\$ 144,141
Charging Station Rebate	\$ 11,700	\$ 19,500	\$ 33,150	\$ 46,800	\$ 111,150
Other Capital Costs	\$ 262	\$ 416	\$ 687	\$ 958	\$ 2,323
Capitalized Labor	\$ 676	\$ 719	\$ 855	\$ 975	\$ 3,226
Total Capital Costs	\$ 34,518	\$ 57,102	\$ 96,685	\$ 136,252	\$ 324,557

4 **B. O&M Cost Components (Table VI-2 and Table VI-4)**

- 5 1. Labor associated with the Charge Ready Program is forecasted to fluctuate year over year as
 6 the number of installations grows. SCE will continue to utilize the new full-time equivalent
 7 employees hired during the Pilot throughout Phase 2. Table VI-5, below, details the total
 8 full-time equivalent employee need in each year of Phase 2 in the Business Customer and
 9 Customer Programs and Services divisions.
- 10 2. Charge Ready Program-specific education and outreach involves both broad-based (e.g.
 11 websites) and targeted approaches (business customers at long dwell-time locations).
- 12 3. Other non-labor O&M includes software upgrades used for asset management, non-labor
 13 office costs and the compilation and publication of periodic reports reflecting the data
 14 collected during the Program.

¹⁸ These costs are estimates for years two through five of the four-year Phase 2 program. For modelling purposes, cost estimates represent a full year where Phase 2 begins in January 2016 even though actual start date will be dependent upon Commission approval.

Table VI-2
O&M Costs for 2016 – 2019
(Constant 2014 \$, Excludes Escalation and Loaders)

<i>(in \$000)</i>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>Total</u>
Charge Ready Labor	\$ 200	\$ 215	\$ 266	\$ 311	\$ 992
Charge Ready ME&O	\$ 172	\$ 172	\$ 370	\$ 172	\$ 886
Other non-labor	\$ 79	\$ 46	\$ 2	\$ 102	\$ 229
Total O&M Costs	\$ 451	\$ 433	\$ 637	\$ 585	\$ 2,107

Table VI-3
Detailed Charge Ready Phase 2 Capital Cost Breakdown
(Constant 2014 \$, Excludes Escalation and Loaders)

Year	2016	2017	2018	2019	Total
Chargers	3,000	5,000	8,500	12,000	28,500
Sites	116	193	329	464	1,101

Capital Variables	Cost	Frequency	2016	2017	2018	2019	Total
Site-specific infrastructure							
Utility-Side Costs	2,236	per charger	\$ 6,707,064	\$ 11,178,440	\$ 19,003,348	\$ 26,828,256	\$ 63,717,108
<i>Labor</i>	962	per charger	2,885,547	4,809,244	8,175,715	11,542,187	27,412,693
<i>Non-Labor Materials</i>	478	per charger	1,434,464	2,390,773	4,064,315	5,737,856	13,627,408
<i>Transformer</i>	566	per charger	1,697,634	2,829,389	4,809,962	6,790,535	16,127,520
<i>35% contingency</i>	224	per charger	672,028	1,120,047	1,904,081	2,688,114	6,384,270
<i>Meter</i>	150	per site	17,391	28,986	49,275	69,565	165,217
Customer-Side Costs	5,058	per charger	\$ 15,172,774	\$ 25,287,956	\$ 42,989,526	\$ 60,691,095	\$ 144,141,350
<i>Panel</i>	4,782	per site	554,448	924,079	1,570,935	2,217,790	5,267,252
<i>Panel Installation (contractor)</i>	2,043	per site	236,904	394,840	671,228	947,616	2,250,588
<i>Customer-side work (trenching, conduit, permitting)</i>	3,483	per charger	10,447,740	17,412,900	29,601,930	41,790,960	99,253,530
<i>35% contingency</i>	1,311	per charger	3,933,682	6,556,137	11,145,433	15,734,728	37,369,980
Charging Station Rebate	3,900	per charger	\$ 11,700,000	\$ 19,500,000	\$ 33,150,000	\$ 46,800,000	\$ 111,150,000
Other Capital							
Easement costs	2,000	per site	\$ 231,884	\$ 386,473	\$ 657,005	\$ 927,536	\$ 2,202,899
Station testing	30,000	per year	\$ 30,000	\$ 30,000	\$ 30,000	\$ 30,000	\$ 120,000
Business Customer Division Labor	Total FTE		\$ 103,500	\$ 103,500	\$ 136,800	\$ 170,100	\$ 513,900
<i>Project Manager</i>	110,700	varies					
<i>Senior Technical Specialist</i>	99,900	varies					
Customer Programs and Services Labor	Total FTE		\$ 572,615	\$ 615,815	\$ 718,640	\$ 805,040	\$ 2,712,110
<i>Principal Manager (PMO lead)</i>	190,000	varies					
<i>Project Manager</i>	110,700	varies					
<i>Senior Program/Contract Manager</i>	115,200	varies					
<i>Senior Program Analyst</i>	89,100	varies					
<i>Program Analyst 2</i>	69,900	varies					
TOTAL CAPITAL			\$ 34,517,837	\$ 57,102,185	\$ 96,685,318	\$ 136,252,027	\$ 324,557,367

Table VI-4
Detailed Charge Ready Phase 2 O&M Cost Breakdown
(Constant 2014 \$, Excludes Escalation and Loaders)

O&M Variables	Cost	Frequency	2016	2017	2018	2019	Total
O&M							
Business Customer Division Labor	Total FTE		\$ 51,750	\$ 51,750	\$ 68,400	\$ 85,050	\$ 256,950
<i>Project Manager</i>	110,700	<i>varies</i>					
<i>Senior Technical Specialist</i>	99,900	<i>varies</i>					
Customer Programs and Services Labor	Total FTE		\$ 148,685	\$ 163,085	\$ 197,360	\$ 226,160	\$ 735,290
<i>Principal Manager (PMO lead)</i>	190,000	<i>varies</i>					
<i>Project Manager</i>	110,700	<i>varies</i>					
<i>Senior Program/Contract Manager</i>	115,200	<i>varies</i>					
<i>Senior Program Analyst</i>	89,100	<i>varies</i>					
<i>Program Analyst 2</i>	69,900	<i>varies</i>					
Customer Programs and Services Non-Labor			\$ 78,576	\$ 46,152	\$ 1,728	\$ 2,112	\$ 128,568
Charge Ready ME&O			\$ 172,000	\$ 172,000	\$ 370,000	\$ 172,000	\$ 886,000
Market Reporting	100,000	per report	\$ -	\$ -	\$ -	\$ 100,000	\$ 100,000
TOTAL O&M			\$ 451,011	\$ 432,987	\$ 637,488	\$ 585,322	\$ 2,106,808

Table VI-5
Total Annual Labor Requirements

	2016	2017	2018	2019
Business Customer Division				
Capitalized labor (FTE)	1.00	1.00	1.33	1.67
<i>Project Manager</i>	0.33	0.33	0.33	0.33
<i>Senior Technical Specialist</i>	0.67	0.67	1.00	1.33
O&M labor (FTE)	0.50	0.50	0.67	0.83
<i>Project Manager</i>	0.17	0.17	0.17	0.17
<i>Senior Technical Specialist</i>	0.33	0.33	0.50	0.67
Total Incremental BCD Labor	1.50	1.50	2.00	2.50
Customer Programs and Services				
Capitalized labor (FTE)	4.75	5.13	6.25	7.00
<i>Principal Manager (PMO lead)</i>	0.80	0.80	0.80	0.80
<i>Project Manager</i>	1.70	1.70	1.70	1.70
<i>Senior Program/Contract Manager</i>	1.50	1.88	2.25	3.00
<i>Senior Program Analyst</i>	0.38	0.38	0.75	0.75
<i>Program Analyst 2</i>	0.38	0.38	0.75	0.75
O&M labor (FTE)	1.25	1.38	1.75	2.00
<i>Principal Manager (PMO lead)</i>	0.20	0.20	0.20	0.20
<i>Project Manager</i>	0.30	0.30	0.30	0.30
<i>Senior Program/Contract Manager</i>	0.50	0.63	0.75	1.00
<i>Senior Program Analyst</i>	0.13	0.13	0.25	0.25
<i>Program Analyst 2</i>	0.13	0.13	0.25	0.25
Total Incremental CP&S Labor	6.00	6.50	8.00	9.00
Total Incremental Labor	7.5	8.0	10.0	11.5

** FTE = Full-Time Employee

Appendix A
Witness Qualifications

1 **SOUTHERN CALIFORNIA EDISON COMPANY**
2 **QUALIFICATIONS AND PREPARED TESTIMONY**
3 **OF EDWARD T. KJAER**

4 Q. Please state your name and business address for the record.

5 A. My name is Edward Kjaer, and my business address is 2244 Walnut Grove Avenue,
6 Rosemead, California 91770.

7 Q. Briefly describe your present responsibilities at the Southern California Edison Company.

8 A. I am the Director of the Transportation Electrification Division within Energy and
9 Environmental Policy section of SCE's Regulatory Affairs operating unit. I am
10 responsible for the division's efforts to perform cross-functional planning and
11 coordination of Transportation Electrification activities for SCE (including
12 light/medium/heavy duty EVs, SCE's fleet electrification, electrified ports, forklifts,
13 transit and other goods movement).

14 Q. Briefly describe your educational and professional background.

15 A. I attended Massey University in New Zealand, where my studies focused in the areas of
16 marketing and business economics. Between 1980 and 1985, I held a number of
17 advertising positions in New Zealand culminating in the position of Account Director in
18 charge of the Nissan and Sanyo advertising accounts. After emigrating to the U.S. in
19 1985, I worked on the launch of the Acura Division (1985-1988) for American Honda's
20 Advertising Agency, rising to the position of Vice President. From 1988 through 1995, I
21 worked for Mazda Motor of America, rising to the position of Corporate Marketing
22 Manager. Beginning in 1996 and to the present, I have held several positions in the
23 Edison family of companies including: Director of Sales and Marketing, Edison EV;
24 Director, Automotive Division, Edison EV; and at Southern California Edison- Director
25 of ET Division; Director EV Readiness and finally today, I am the Director of the
26 Transportation Electrification Division.

1 Q. What is the purpose of your testimony in this proceeding?

2 A. The purpose of my testimony in this proceeding is to sponsor the portions of the
3 following volumes of Exhibit SCE-01, entitled *Prepared Testimony in Support of SCE's*
4 *Charge Ready Application*, as identified in the Tables of Contents thereto: Volume 01 –
5 Policy; Volume 02 – Phase 1 Charge Ready and Market Education Pilot; and Volume 03
6 – Phase 2 Charge Ready Program Design Implementation Plan, and Costs.

7 Q. Was this material prepared by you or under your supervision?

8 A. Yes, it was prepared under my supervision.

9 Q. Insofar as this material is factual in nature, do you believe it to be correct?

10 A. Yes, I do.

11 Q. Insofar as this material is in the nature of opinion or judgment, does it represent your best
12 judgment?

13 A. Yes, it does.

14 Q. Does this conclude your qualifications and prepared testimony?

15 A. Yes, it does.

1 **SOUTHERN CALIFORNIA EDISON COMPANY**
2 **QUALIFICATIONS AND PREPARED TESTIMONY**
3 **OF JESSICA LIM**

4 Q. Please state your name and business address for the record.

5 A. My name is Jessica Lim, and my business address is 1515 Walnut Grove Avenue,
6 Rosemead, California 91770.

7 Q. Briefly describe your present responsibilities at the Southern California Edison Company
8 (SCE).

9 A. I am the Manager of Offer Management and Marketing in the Customer Programs and
10 Services division of Southern California Edison. In this role, I am responsible for SCE's
11 marketing and communications associated with Customer Service programs, rates and
12 services.

13 Q. Briefly describe your educational and professional background.

14 A. I received my Masters of Science in Leadership and Management, with a concentration in
15 Organizational Development, from the University of La Verne in 2013, and my
16 Bachelor's degree in Administrative Studies, with an emphasis in business administration
17 and marketing, from U.C. Riverside in 1992. I have worked at SCE for approximately
18 nine years in Customer Service. Prior to my current function which I described above, I
19 was the Manager of Planning, Performance, and Integration in the Customer Service
20 Operating Division for approximately two years. Prior to that position, I was the
21 Manager of Customer Strategy in Customer Experience and Management for
22 approximately five years. Prior to SCE, I have over 10 years of experience in business
23 working in disciplines such as advertising, marketing, and e-commerce for a variety of
24 profit and not for profit organizations and clients.

25 Q. What is the purpose of your testimony in this proceeding?

26 A. The purpose of my testimony in this proceeding is to sponsor the portions of the

1 following volumes of Exhibit SCE-01, entitled *Prepared Testimony in Support of SCE's*
2 *Charge Ready Application*, as identified in the Tables of Contents thereto: Volume 02 –
3 Phase 1 Charge Ready and Market Education Pilot; Volume 03 – Phase 2 Program
4 Design, Implementation Plan, and Costs; and Volume 04 – Phase 2 Market Education
5 and Costs.

6 Q. Was this material prepared by you or under your supervision?

7 A. Yes, it was.

8 Q. Insofar as this material is factual in nature, do you believe it to be correct?

9 A. Yes, I do.

10 Q. Insofar as this material is in the nature of opinion or judgment, does it represent your best
11 judgment?

12 A. Yes, it does.

13 Q. Does this conclude your qualifications and prepared testimony?

14 A. Yes, it does.

1 Program Design, Implementation Plan, and Costs; and Volume 04 – Phase 2 Market
2 Education and Costs.

3 Q. Was this material prepared by you or under your supervision?

4 A. Yes, it was.

5 Q. Insofar as this material is factual in nature, do you believe it to be correct?

6 A. Yes, I do.

7 Q. Insofar as this material is in the nature of opinion or judgment, does it represent your best
8 judgment?

9 A. Yes, it does.

10 Q. Does this conclude your qualifications and prepared testimony?

11 A. Yes, it does.

1 and Costs.

2 Q. Was this material prepared by you or under your supervision?

3 A. Yes, it was.

4 Q. Insofar as this material is factual in nature, do you believe it to be correct?

5 A. Yes, I do.

6 Q. Insofar as this material is in the nature of opinion or judgment, does it represent your best
7 judgment?

8 A. Yes, it does.

9 Q. Does this conclude your qualifications and prepared testimony?

10 A. Yes, it does.