Application No.: 07-07-

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Witnesses: L. Ziegler
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An *EDISON INTERNATIONAL* Company

(U 338-E)

EDISON SMARTCONNECT™ DEPLOYMENT FUNDING AND COST RECOVERY

Volume 1 –Policy

Before the

Public Utilities Commission of the State of California

Rosemead, California

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EDISON SMARTCONNECT™ DEPLOYMENT FUNDING AND COST RECOVERY

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EXECUTIVE SUMMARY

Southern California Edison Company (SCE) requests authority to proceed with Phase III of its Advanced Metering Infrastructure (AMI) deployment strategy. Whereas Phase I was dedicated to developing the functional requirements for the next generation of AMI metering systems that would deliver additional functionality and enhanced capabilities, and Phase II was focused on procuring the new AMI technologies, selecting a deployment contractor and validating the costs and benefits of the full deployment business case, Phase III involves the deployment of SCE's cost-effective AMI solution – Edison SmartConnect™ – to all residential and business customers under 200 kW in SCE's service territory. Edison SmartConnect™ is expected to deliver $109 million in net present value benefits to customers over the life of the project.[1]

Scope of SCE's Proposal and AMI Capabilities

In Phase III, SCE proposes to install state-of-the-art "smart" meters in every household and business under 200 kW throughout its service territory (approximately 5.3 million meters) over a five-year period beginning in 2008. These "smart" meters will be part of an advanced metering and telecommunications system that provides customers powerful new tools to manage their energy usage, enhances the customer service efficiency, enables new services with smart technology, provides new rate alternatives, and provides a flexible, robust platform that can create additional future value for SCE's customers. Edison SmartConnect™ provides a powerful tool to support federal and state energy policy objectives.

Edison SmartConnect™ includes meter and communication functionality that (i) measures interval electricity usage and voltage; (ii) supports non proprietary, open standard communication interfaces with technology such as programmable communicating thermostats and device switches; (iii) improves reliability through remote outage detection at customer premises; (iv) improves service and reduces costs by remote service activation; (v) is capable of remote upgrades; (vi) is compatible with

[1] SCE's cost benefit analysis is summarized in Section IV.A of this volume, and described in detail in Volume 3 (Exhibit SCE-3) of this application.

broadband over powerline use by third parties; (vii) supports contract gas and water meter reads; and (viii) incorporates industry-leading security capabilities. These attributes far exceed the six functionality requirements recognized by the Commission and will also accommodate continued innovation in meeting our customers' needs in the future.

Edison SmartConnect™ will provide residential and business customers access to their near real-time energy use and costs, enabling dynamic pricing options that will provide incentives for the first time for many of these customers to shift their usage from on-peak to off-peak hours. On-peak energy usage is a key factor in determining generating capacity requirements and affects the need to build expensive new power plants. With residential and business customers under 200 kW participating in reliability, price responsive load control, and other demand response programs, peak demand could be reduced by as much as 1,000 megawatts -- the entire output of a large power plant -- with related customer cost savings and environmental benefits.

Edison Smart Connect will interface with "communicating" household devices, such as thermostats, lights, electric dryers, major appliances and pool pumps through a non-proprietary open Home Area Network. It will also allow customers to automatically adjust their usage when power costs rise.

Edison SmartConnect™ will enhance customer services by allowing for convenient, remote service activation, tailored service bundles, and new billing and payment programs. Edison SmartConnect™ will also modernize SCE's infrastructure with smart technologies to improve electric power line grid planning, improve outage response, and reduce operations and maintenance expense. Edison SmartConnect™ should continue to provide a catalyst for industry innovation using this new generation technology.

Costs and Benefits

In 2005, SCE faced the reality that the then-available AMI technology did not support a cost-effective solution. Thus, SCE began an ambitious, multi-phased strategy to collaborate with AMI vendors and other utilities to spur the development of the additional AMI capabilities needed to deploy a cost-effective system. SCE's efforts, supported by the Commission through its approval of Phases I and

II, have facilitated the development of a new generation of AMI technology that will provide lasting value for SCE's customers. SCE's expected meter and telecommunications selections are commercially available technologies that meet SCE's business and technical requirements. The selected meter data management system is one of the leading software applications currently in deployment for utilities with similar AMI requirements.

Deployment of Edison SmartConnect™ was made cost effective by SCE's innovative and award-winning approach to AMI.[2] The results of these efforts are reflected in SCE's current business case analysis, which now forecasts approximately $1 billion more net present value benefits than SCE's previous analyses conducted early in 2005.[3] These benefits arose primarily from SCE's work with the meter vendor community to enhance the capability, reliability and useful life of the Edison SmartConnect™ meter.

The five-year deployment period for Edison SmartConnect™ is a major technical, logistical and financial undertaking at an estimated cost of $1.7 billion, corresponding to about a one percent annual increase to SCE's total revenue requirement over the five-year deployment period. Ultimately, Edison SmartConnect™ is expected to deliver $109 million in net present value benefits to customers over the life of the project. Operational savings are expected to provide approximately 63 percent of the benefits, with the remainder of benefits provided through the participation of residential and business customers in dynamic pricing (Time of Use, Critical Peak Pricing), demand response (load control, pay-for-performance), and energy conservation programs.

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[2] SCE's AMI deployment approach has gained international recognition, recently earning the Department of Energy's 2007 Smart Grid Implementation and Deployment Leadership Award. SCE's AMI Phase I was selected by as the 2005/06 Best AMR Initiative in a North American Investor Owned Utility.

[3] From a negative $951 million Present Value Revenue Requirement (PVRR) in 2005 (*see* A.05-03-026) to a positive $109 million PVRR in 2007 for full AMI deployment.

Summary of SCE's Requests

SCE seeks authority to:

(i) proceed with deployment of Edison SmartConnect™ to all residential and business customers under 200 kW (approximately 5.3 million meters) in SCE's service territory over a five-year period beginning in 2008 at an estimated cost of $1.7 billion;

(ii) implement a voluntary Programmable Communicating Thermostat (PCT) load control program throughout the five-year deployment period and to conduct marketing, outreach and education on the dynamic rates and demand response program offerings for customers receiving the Edison SmartConnect™ meters;[4]

(iii) establish the Edison SmartConnect™ Balancing Account (SmartConnect™ BA) to provide for the recovery of Phase III recorded revenue requirements, which include recorded incremental costs and recognition of forecast operational O&M benefits, effective upon a Commission decision on this application;

(iv) reduce its Authorized Distribution Base Revenue Requirement (ADBRR), on an annual basis, in order to recognize the Phase III capital benefits related to specific projects as set forth, and as adopted, in this proceeding, through the effective date of SCE's 2012 GRC Decision;

(v) transfer the balance in the SmartConnect™ BA, each month, to the Base Revenue Requirement Balancing Account (BRRBA) to enable recovery, through distribution rate levels, of the actual Edison SmartConnect™-related revenue requirements for Phase III activities beginning on the effective date of a decision in this proceeding and continuing through the effective date of SCE's 2012 GRC Decision;

(vi) transfer from the AMIMA to the BRRBA the 2007 and 2008 recorded revenue requirements associated with costs that will be incurred in 2007 associated with Phase II activities that did not receive authorization for recovery in D.07-07-042 and 2007

[4] SCE intends to offer Edison SmartConnect customers existing TOU and CPP rates pending approving of modified rates and a new Peak Time Rebate program in Phase II of SCE's 2009 GRC.

and 2008 revenue requirements associated with the $14.1 million of capital expenditures (plus $0.4 million of AFUDC) approved in D.07-07-042 but not allowed rate base treatment;

(vii) recover, through distribution rate levels, SCE's forecast Edison SmartConnect™ revenue requirements for Phase III activities effective upon a Commission decision on this application and continuing through the effective date of SCE's 2012 GRC Decision; and

(viii) limit reasonableness review of the SmartConnect™ BA to ensure all recorded costs are associated with Phase III activities as defined and adopted by the Commission in this proceeding.

Deployment of SCE's AMI project should be implemented without delay to begin achieving the benefits of Edison SmartConnect™ as early as 2009. SCE requests approval of this Application by no later than June of 2008 to remain on schedule for meter installation to begin in January 2009.

I.

INTRODUCTION

The purpose of this Volume 1 (Exhibit SCE-1) is to provide an overview of the policy objectives SCE seeks to achieve with its Edison SmartConnect™ project.

Section I is introductory, and describes the organization of Volume I with a general description of the other volumes of testimony. Section II describes SCE's objectives for AMI, which are focused on empowering customers to manage their energy costs and providing customers with new services through smart technology. Section III discusses how Edison SmartConnect™ meets the state's energy policy objectives and the Commission's functionality requirements. Section IV summarizes SCE's requests in this Application. SCE concludes this volume in Section V.

Volume 2 (Exhibit SCE-2) presents SCE's proposed plan for deploying Edison SmartConnect™, including the schedule, estimated costs and benefits during the Deployment Period (2008-2012) and risk mitigation strategies. Volume 3 (Exhibit SCE-3) contains SCE's cost benefit analysis of Edison SmartConnect™ over the life of the project, and demonstrates why the project is justified. Volume 4 (Exhibit SCE-4) contains a detailed discussion of SCE's proposed demand response programs and dynamic rates for the Deployment Period, including reasonable participation rate assumptions and forecast benefits. Volume 5 (Exhibit SCE-5) sets forth SCE's proposed cost recovery mechanism for Edison SmartConnect™ deployment costs.

II.

EDISON SMARTCONNECT™ WILL DELIVER LASTING CUSTOMER VALUE

SCE's key objective for Edison SmartConnect™ is to provide customers with lasting value through a cost effective AMI investment that can empower them to manage their own energy costs and enable new services through smart technology. SCE also seeks to support federal and state energy policy objectives for AMI, to modernize its infrastructure with smart technologies and to continue to provide a catalyst for industry innovation to leverage this new generation of technology to maximize the value over its life for our customers.

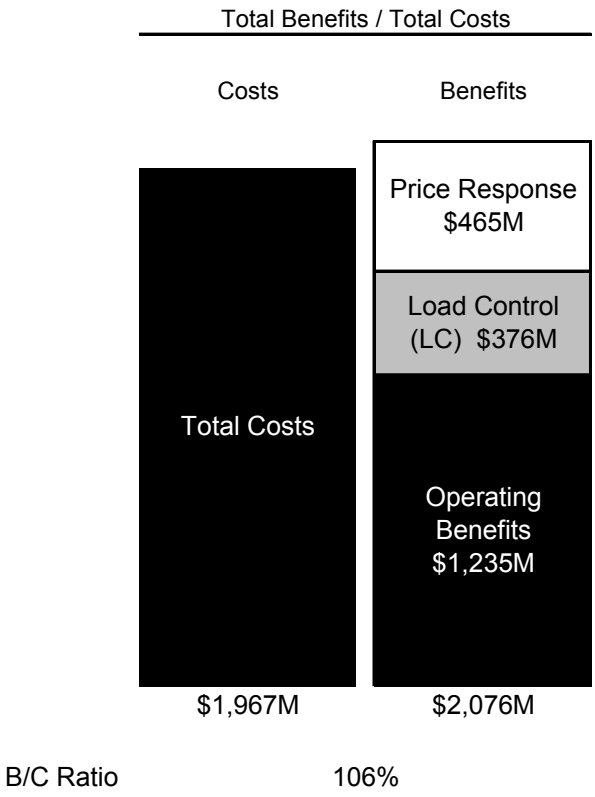
A. New Functionality Increases the Net Benefits of the Investment by Approximately $1 Billion over the 2005 Business Case

Edison SmartConnect™ includes meter and telecommunication functionality that (i) provides advanced metering capability for interval electricity usage and voltage measurement; (ii) supports non proprietary open standard communication interface with load control technology within and around the premise (*e.g.,* programmable communicating thermostats and device switches); (iii) enables improved electric distribution management through outage detection at the customer premise; (iv) improves customer services through an integrated service switch (*e.g.*, remote service activation); (v) does not preclude the potential use of broadband over powerline by third parties (vii) supports ability to provide contract gas and water meter reads; and (viii) incorporates industry leading security capabilities for information and control messaging. These added functionalities and capabilities go far beyond meeting the Commission's six functionality requirements to provide a powerful tool to support federal and state energy policy objectives, and provide an enduring platform for continued innovation in meeting our customers' needs in the future.

Edison SmartConnect™'s added functionalities and capabilities also enable a cost effective business case. SCE projects that Edison SmartConnect™ will deliver $109 million in net benefits

(present value revenue requirement or PVRR) to customers over the life of the project, as shown in Table II-1below.[5]

Table II-1
Edison SmartConnect™ Cost Benefit Analysis is Positive



SCE's cost benefit analysis includes an appropriate discount rate of ten percent (10%), based on the expected long term cost of capital. This discount rate is considerably higher than the discount rates used in the other AMI cases approved by the Commission.[6]

The cost-effective business case for Edison SmartConnect™ has been made possible by SCE's innovative and award-winning approach to AMI.[7] Driven by the state's vision to achieve advanced

[5] The Edison SmartConnect business case is set forth in Exhibit SCE-3 of the supporting testimony.

[6] PG&E used a 7.60% discount rate; SDG&E used a 8.23% rate. If SCE were to use its 2007 authorized cost of capital as a discount rate instead of its incremental cost of capital (similar approach of SDG&E), SCE's net benefits of Edison SmartConnect would increase to $241 million.

[7] SCE's AMI deployment approach has gained national recognition, recently earning the Department of Energy's 2007 Smart Grid Implementation and Deployment Leadership Award as well as the Project Management Institute - Orange

(*Continued*)

metering and demand response for all investor-owned utility customers by 2007, and faced with the reality that a cost effective business case was not possible with then-available AMI technology, in 2005 SCE began an ambitious, multi-phased strategy to collaborate with the AMI vendor community to spur industry development of AMI solutions with the additional functionality and capabilities needed to reduce costs and add benefits of a full AMI deployment.[8] SCE's efforts, supported by the Commission through its approval of Phases I and II, have been successful in facilitating the development of the next-generation AMI solution that will provide lasting value for SCE's customers. SCE's expected meter and telecommunications selections are commercially available technologies that meet SCE's business and technical requirements. The selected meter data management system is one of the leading software applications currently in deployment for utilities with similar AMI requirements.

As a result of these efforts, SCE has added approximately $1 billion (PVRR) in net benefits to its business case since its previous AMI business case analyses in 2005.[9] This is a tremendous achievement that will ensure that AMI will achieve significant, long-term benefits for SCE's ratepayers. These benefits arose primarily from SCE's work to more fully explore the potential uses of the smart meter technology and engagement with the meter vendor community to enhance the capability, reliability, and useful life of the SmartConnect meter.

B. Empower Customers to Manage their Electricity Usage and Costs

Edison SmartConnect™ presents a unique opportunity to provide SCE's customers with new energy management alternatives that will enable them to reduce energy costs by using electricity more effectively and efficiently. By providing access to near real-time energy use and costs and enabling dynamic pricing options for residential and business customers under 200 kW with price signals closer

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Continued from the previous page

County Chapter's Project of the Year Award for 2006. Edison SmartConnect™'s Phase I was selected by The Utility Peer Network as the 2005/06 Best AMR Initiative in a North American Investor Owned Utility.

[8] SCE's Phase I strategy and results and Phase II strategy are well documented in SCE's testimony in the Phase II proceeding (A.06-12-026).

[9] From a negative $951 million Present Value Revenue Requirement (PVRR) in 2005 (*see* A.05-03-026) to a positive $109 million PVRR in 2007 for full AMI deployment.

to actual costs than tiered rate structures, Edison SmartConnect™ will be instrumental in managing peak consumption by providing an incentive for customers to shift some of their usage to off-peak hours. Peak consumption is a key factor in determining generating capacity requirements and customer costs, so managing peak load is essential to controlling the need to build expensive new power plants. Dynamic rates like Time of Use (TOU) and Critical Peak Pricing (CPP) provided peak load reduction in the Statewide Pricing Pilot compared to standard tariffs. Edison SmartConnect™ enables a range of dynamic rate design options that can improve customer acceptance and satisfaction.

Edison SmartConnect™ will inform customers of their costs and provide them options to manage their electric bills. SCE is proposing to provide both next day usage data and analysis tools to customers via the internet as well as near real time access to data directly from the meter as frequently as every 5 seconds through the HAN interface in the meter. This information will not only support adoption and response to dynamic rates and demand response program, but will also result in sustained changes in customer energy consumption. SCE expects a minimum of 1 percent energy conservation to result from the combination of customer access to usage information, dynamic prices and demand response programs. Customers will have access to near real time information, as available directly from the Edison SmartConnect™ meter through the HAN interface, which may result in considerably greater usage reduction according to industry findings. EPRI Solution found reductions ranging from 1 to 20 percent when customers were given real-time feedback,[10] identifying direct feedback as the key link between cause and effect for electric consumers. The review found that the more real-time the feedback is and the more it is offered with the provision of other influences (such as energy-saving information or dynamic prices), the better it influences behavior.

Edison SmartConnect™ will allow all residential and business customers to participate in reliability and economically dispatched base load control and demand response programs, providing the potential to reduce peak demand by as much as 1,000 megawatts -- the entire output of a large power

[10] *See* **Public Utilities Fortnightly** March 2007 at p. 42, *citing Direct Energy Feedback Technology Assessment for Southern California Edison Company*, prepared by Lynn Fryer Stein and Nadav Enbar, EPRI Solutions, March 2006 (noting that there is a risk of self-selection bias toward those more interested in conservation.) *See also* Ontario Energy Board Smart Price Pilot, Final Report July 2007, p. 7, estimating energy conservation to be at six percent.

plant -- with the related customer cost savings and environmental benefits. Through demand response programs enabled by Edison SmartConnect™, customers will be able to reduce their on-peak energy usage and provide SCE and the state with a valuable, dispatchable demand side resource. This long-held goal of the Commission will be realized with Edison SmartConnect™. Further, Edison SmartConnect™ provides the means to accurately measure each customer's response, thereby assuring that customers who do take action during demand response events to curtail peak load can be appropriately rewarded. More precise load impact measurement will greatly facilitate the use of demand response as a reliable alternative to generation resources to meet SCE customers' energy needs.

Edison SmartConnect™ also presents new opportunities to use demand response in ways that were not previously possible. The current proposal by the California Energy Commission (CEC) to require programmable communicating thermostats (PCT) as part of the Title 24 (T24) building code in 2008 provides a unique opportunity for Edison SmartConnect™ to provide an open communication link to the PCT to enable load control for reliability and economic dispatch purposes. Customers with T24 PCTs and SCE-implemented PCT programs will have the potential to realize significant peak load reductions.

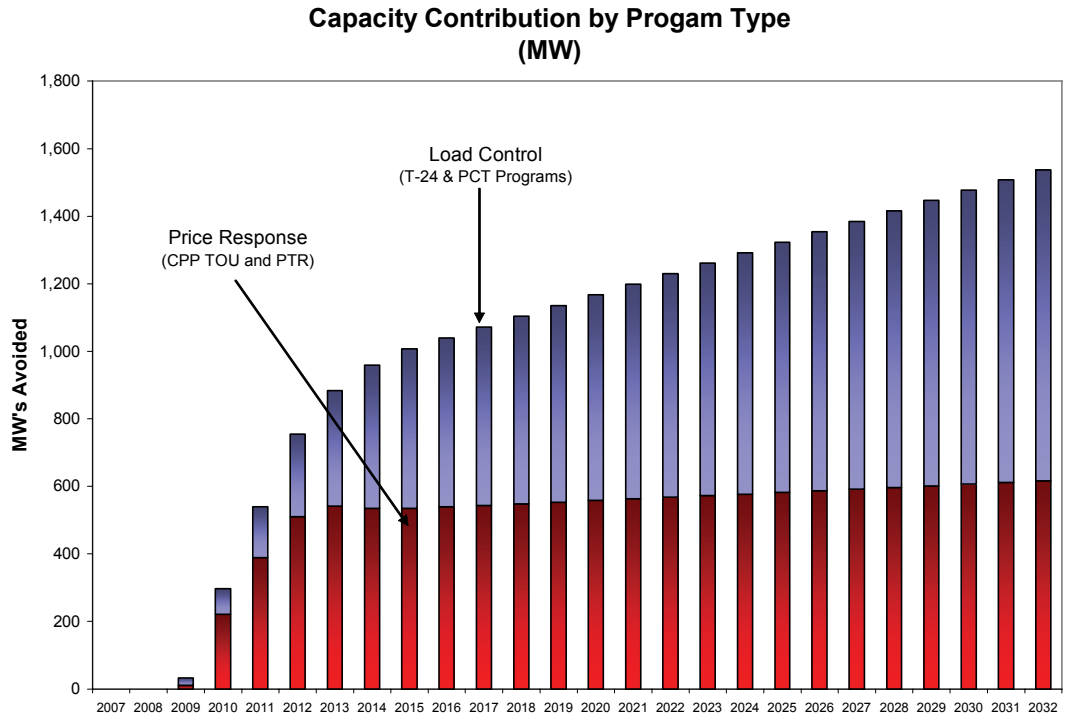
Additionally, with Edison SmartConnect™, SCE expects to increase the benefits from its existing air conditioning cycling program (ACCP). Currently, SCE's ACCP is used for grid reliability and not as a resource to reduce energy procurement costs. With Edison SmartConnect™, ACCP can be dispatched on an economic basis as well as for grid emergencies, making more effective use of that load control program. The estimation of load control impacts would also improve with Edison SmartConnect™ because hourly load reductions could be analyzed in detail.

Edison SmartConnect™ also enables the use of load control devices for automated load reduction on critical peak days. Customers on a CPP rate or the Peak Time Rebate program could use automated load control to manage their critical peak energy usage and save money, thereby reducing the need for additional incentive payments through load control programs. With Edison SmartConnect™, SCE can offer load control programs as well as dynamic rates that can be supplemented with automated control of the PCT as an enabling load reduction technology on critical peak days. The Statewide

Pricing Pilot results indicated the combination of CPP and automated load control resulted in greater peak reduction than the sum of CPP or load control achieved alone. This type of synergistic effect is precisely what Edison SmartConnect™ seeks to achieve.

Figure II-1 below shows the forecasted peak MW reductions per year expected to result from Edison SmartConnect™.

Figure II-1
Estimated Peak Demand Reduction for Price Response and Load Control Programs



C. Create Lasting Customer Value Through Cost-Effective Advanced Metering Technology Solutions

Promising new technologies enabled by Edison SmartConnect™ offer the potential to significantly broaden the field of stakeholders in the energy management arena of the future. In anticipation of future changes in technology and changes in regulatory policy objectives, SCE has designed flexibility into its Edison SmartConnect™ system to accommodate the likelihood of future rate

options (including plug-in hybrids), contract automated gas and water meter reading, future Title 24 code changes, in-home energy information displays, smart grid management, and distributed resources.

Edison SmartConnect™ will enable the use of "communicating" household devices, such as thermostats, lighting, electric dryers, other major appliances and pool pumps, which can communicate with the new meters through a nationally recognized non-proprietary open Home Area Network (HAN) interface to automatically adjust usage, at customers' direction, when power costs rise. The HAN interface will enable (i) customer access to energy usage information directly from the meter; (ii) a channel for pricing signals or notification of grid events; (iii) communication links to other energy meters for solar, plug-in hybrids, gas and water meters; and (iv) a communication link to T24 and compliant smart thermostats and other potential controllable devices that a customer may elect. Customer access to energy information is one of the core tenants of AMI. SCE believes this HAN interface and some form of in-home energy display could provide the nearly one million SCE customers who do not have internet access, an alternate means to access their usage, which will enable them to make smart choices. Customers would control the HAN as it evolves, with the meter to HAN interface based on nationally recognized non-proprietary open standards that provide effective security.

This type of HAN interface capability, first proposed by SCE in early 2005, has been incorporated into the leading vendors' products based on market demand. For example, the Texas Public Utilities Commission smart meter rules[11] recently adopted the HAN interface in smart meters and this capability is being deployed in Texas, Canada, Australia, Europe and Asia and as part of SCE's Phase II field test.

Edison SmartConnect™ will also make doing business with SCE easier by allowing for convenient, remote service activation, access to near real-time energy and service information, and billing and payment options, among other new customer services. In addition, third party vendors of

[11] The Texas Public Utilities Commission's smart meter rules adopted in May 2007 includes a requirement of "capability to communicate with devices inside the premises, including, but not limited to, usage monitoring devices, load control devices, and prepayment systems through a home area network (HAN), based on open standards and protocols that comply with nationally recognized non-proprietary standards such as ZigBee, Home-Plug, or the equivalent." *See* §25.130.g.1 of such rules.

smart appliances, home automation, demand response and energy efficiency services and products will continue to emerge to assist customers to take advantage of the benefits of Edison SmartConnect™, providing customers information on energy savings options without adding to SCE's cost of service.

D. Support SCE's Strategy of Modernizing its Infrastructure with Smart Technologies Toward an Intelligent Grid

Edison SmartConnect™ will modernize SCE's infrastructure with smart technologies toward an intelligent grid consistent with federal energy policy to reduce peak demand, enable faster outage response, and improve customer service and grid management. Through on-demand energy information, dynamic rates and demand response programs, Edison SmartConnect™ will help customers reduce peak demand, which is essential to controlling the need to build expensive new power plants. Edison SmartConnect™ will also improve basic utility services. By allowing dispatchers to know immediately when and where outages occur, Edison SmartConnect™ will enable utility crews to respond to outages more quickly. Through the remote activation switch, SCE's one million annual requests for turn-on of electric service by residential customers will have the convenience of fast, remote service activation. SCE expects to leverage the outage, power quality and energy usage data from the Edison SmartConnect™ system to improve grid management and power procurement and settlement.

E. Continue as a Catalyst For Industry Innovation to Maximize the Value of the Edison SmartConnect™ Technology

SCE anticipates that Edison SmartConnect™ will continue to be a catalyst for industry innovation to leverage this new generation of technology to enhance our customers' experience and enable smart grid capabilities.

Through a deliberate open innovation process in Phases I and II, SCE involved manufacturers of promising AMI technologies in ongoing dialogue on product enhancements and SCE's desired system functionality. SCE shared its technical requirements and concept definition with communications vendors, meter vendors and utility industry groups. This process helped to establish standards for a new generation of AMI-related meters and communication systems that can better address electric utility

needs. These discussions, and the independent decisions that resulted from them, acted as a catalyst to spur successful industry-wide product development efforts.

As SCE deploys Edison SmartConnect™ in Phase III, it will continue to focus on delivering benefits beyond those that have been identified to date and included in SCE's cost benefit analysis. From a technical perspective, continued effort is required to develop system security requirements and to have such requirements adopted by product vendors. In addition, common information models are needed to ensure interoperability between devices on a smart grid and customer devices that can leverage the Edison SmartConnect™ system. This work will dovetail with the continuing efforts to design and build a smart grid for the 21st century that accommodates the expected increase in customer controlled distributed generation and load resources.

SCE also expects that socio-economic trends and consumer buying behaviors over the Deployment Period will change significantly. Specifically, the trends suggest that as many as one million immigrants moving into Southern California by 2012 and that the retirement segment of the population will grow exponentially as baby boomers are now reaching traditional retirement age at the rate of one person every 8 seconds. These types of customer changes will mean that SCE will need to adapt to serve our customers and achieve state and federal policy objectives. SCE intends to build on the success of Phase I and II, which was recognized by the Department of Energy through the Smart Grid Implementation and Deployment Leadership Award at GridWeek 2007. SCE will continue to lead the way in defining the role of advanced metering in a smart grid and developing its potential to unlock energy savings through different and improved relationships with customers.

III.

EDISON SMARTCONNECT™ SATISIFIES STATE ENERGY POLICY OBJECTIVES AND MEETS MINIMUM FUNCTIONALITY REQUIREMENTS

A. Support the State's Energy Action Plan and Past Decisions

With timely approval, Edison SmartConnect™ will support the Commission's and the state's energy policy to provide all SCE customers with dynamic pricing options and demand response tools without delay. The Commission's directive on expeditious implementation of dynamic pricing for all customers was first articulated in Decision (D.)03-06-032: "All California electric consumers should have the ability to increase the value derived from their electricity expenditures by choosing to adjust usage in response to price signals, by no later than 2007." In D.03-06-032, the Commission established the objective of achieving through demand response a target of five percent reduction in system peak demand by 2007.[12] In early 2007, Commissioner Chong, along with Commissioner Rosenfeld of the California Energy Commission, reiterated the Commission's vision for dynamic pricing and customer choice, and made it clear that AMI was central to that vision.[13] Edison SmartConnect™ will achieve this vision, and provide SCE the ability to strive to meet the Commission's targets for demand response starting in 2009.

The Energy Action Plan (EAP), adopted in 2003 by the Commission, the California Energy Commission, and the California Power Authority, also seeks the expedient implementation of dynamic pricing. In particular, the first action item under the section entitled *Optimize Energy Conservation and Resource Efficiency* establishes an objective to "[i]mplement a voluntary dynamic pricing system to reduce peak demand by as much as 1,500 to 2,000 megawatts by 2007." The Commission found that implicit in the EAP's objective is the need for the utilities to install technologies to enable consumers to voluntarily respond to such a dynamic pricing system.[14] The Commission acknowledged that being

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[12] *See* D.03-06-032 at Attachment A.

[13] *See* the January 25, 2007 presentation of Commissioner Chong and Commissioner Rosenfeld to the CAISO Market Issue Forum entitled *Demand Response: Policies, Challenges, and Future Possibilities.*

[14] *See* D.05-09-044 *mimeo* at p. 12 (emphasis added).

behind in the timeframe established in the EAP means that the Commission should place a stronger emphasis on authorizing the utilities to move forward as soon as possible.[15] To that end, SCE has accelerated its Edison SmartConnect™ deployment schedule by one full year, to enable initial meter installations to begin in 2009.

The EAP II, adopted in 2005 by the Commission and the California Energy Commission (CEC), contains even more explicit references to AMI deployment. Section 2, entitled *Demand Response* provides,

> "California is in the process of transforming its electric utility distribution network from a system using 1960s era technology to an intelligent, integrated network enabled by modern information and control system technologies. This transformation can decrease the costs of operating and maintaining the electrical system, while also providing customers with accurate information on energy use, time of use, and cost. With the implementation of well-designed dynamic pricing tariffs and demand response programs for all customer classes, California can lower consumer costs and increase electricity system reliability."

The EAP II states that the *first key action* for demand response is to "issue decisions on the proposals for statewide installation of advanced metering infrastructure for small commercial and residential TOU customers by mid-2006 and expedite adoption of concomitant tariffs for any approved meter deployment." With prompt approval, SCE will be able to bring the benefits of Edison SmartConnect™ to SCE's customers and to the state sooner.

B. Meet the Commission's Minimum Functionality Requirements

In D.07-07-042 (the Phase II Decision), the Commission found that SCE's proposed AMI system design will satisfy the Commission's minimum functionality requirements.[16] Those minimum functionality requirements were identified in the February 19, 2004 Joint Assigned Commissioner and Administrative Law Judges Ruling Providing Guidance for the Advanced Metering Infrastructure Business Case Analysis, and are described briefly below.

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[15] *See id.*

[16] *See* D.07-07-042 at Finding of Fact 1.

1. Edison SmartConnect™ System Will Support Implementation of Time-of-use, Critical Peak Pricing and Real-Time Pricing Tariffs to All Customers

Like the other California investor owned utilities, SCE has already installed advanced meters for its customers with demands over 200 kW (approximately 13,000 total). These Real Time Energy Meters (RTEM) are fully capable of supporting Time-Of-Use, Critical-Peak-Pricing and real-time pricing tariffs. Edison SmartConnect™ will expand this capability to include all residential and small commercial customers below 200 kW.

2. Edison SmartConnect™ Will Collect Hourly Usage Data to Support Customer Understanding of Usage Patterns

Edison SmartConnect™ capability requirements include the ability to collect and store hourly usage data for all residential and 15 minute data for commercial customers under 200 kW, regardless of their current rate structure. Edison SmartConnect™ data can be used to support customer understanding of hourly (and 15 minute) usage patterns and how this relates to a customer's energy costs when considering shifting to or from alternative rates.

3. Edison SmartConnect™ Will Provide Customer Access to Personal Energy Usage Data with Sufficient Flexibility to Ensure that Changes in Customer Preference of Access Frequency Do Not Result in Additional AMI System Hardware Costs

Edison SmartConnect™ is designed to provide direct, next-day customer access to their interval usage data and up to 13 months of rolling historical usage data over the internet. The Home Area Network (HAN) interface incorporated into Edison SmartConnect™ will also allow customers to have direct access to near real time (to 5 second intervals) meter data via the customer's energy information device (*e.g.*, display device or simple software on personal computer with HAN communication link.)

This same HAN interface will also be in commercial meters to allow C&I customers direct access to the meter data to facilitate access for energy management and/or building control systems. Historically, the cost of additional equipment to access a commercial meter has been an impediment for the application of energy management systems (EMS) for small to medium C&I

customers. With Edison SmartConnect™, customers will only need to complete a relatively simple registration process to link their EMS to access their meter data.[17]

4. Edison SmartConnect™ Will Be Compatible with Customer Education and Energy Management Applications, Customized Billing and Complaint Resolution Programs that Utilize AMI Data

Edison SmartConnect™ is designed to support the delivery of customer energy information through multiple channels including the Internet as well as customer premise devices (*e.g.*, displays and building management systems). Edison SmartConnect™ system design has the flexibility to enable potential future communication channels such as customer cell phones and other mobile devices. Edison SmartConnect™ will support new services such as tailored billing and payment options that could include a pre-payment option. Finally, Edison SmartConnect™ will allow on-demand reads by call center representatives as well as information regarding outages, thus improving customer service and inquiry and/or complaint resolution.

5. Edison SmartConnect™ System Will Be Compatible with Utility System Applications that Promote and Enhance System Operating Efficiency

The compatibility of Edison SmartConnect™ with other existing and future utility systems was a primary objective of the Use Case Process undertaken in Phase I.[18] SCE expects to leverage the outage, power quality and energy usage data from the AMI system to improve service, grid management and power procurement and settlement. Edison SmartConnect™ will modernize SCE's infrastructure with smart technologies reduce peak demand, enable faster outage response, and improve customer service and grid management.

Through on-demand energy information, dynamic rates and demand response programs, Edison SmartConnect™ will help customers reduce peak demand, thereby reducing the need to build expensive new power plants. Edison SmartConnect™ will also improve basic utility services. By

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[17] For example, McDonalds recently announced that it is installing EMS in its restaurants. This system would be able to access near real-time meter data through the meter's HAN interface.

[18] *See* SCE's August 2006 *AMI Conceptual Feasibility Report*.

allowing dispatchers to know immediately when and where outages occur, Edison SmartConnect™ will enable utility crews to respond to outages more quickly. Through the activation switch, the approximately one million residential accounts that are new or relocate each year will have the convenience of fast, remote service activation.

6. Edison SmartConnect™ System Will Be Capable of Interfacing with Load Control Communication Technology

One of the unique accomplishments of SCE's Phase I concept definition and engineering design process was the ability to define and specify the functional requirements for a HAN interface capability integrated into the AMI meter. This provides the capacity for two-way communications with customer-owned or third-party provided energy management devices; specifically, the CEC's proposed Title 24 PCT. This capability is a critical part of SCE's Metering and Telecommunications product selection.

SCE is planning to implement new load control management software as part of Edison SmartConnect™ that would allow use of the load control system for both grid reliability and economic dispatch. This software application will be integrated with the customer care systems and meter/telecom network to optimize the value of the programs.

C. Satisfy Design Objectives of Phase I Settlement

In Phase I, several other design objectives were identified that SCE will achieve with Edison SmartConnect™, including incorporating interfaces for gas and water utility automated meter reading into the system, as well as incorporating security methods to protect customer privacy.[19]

Interfaces for gas and water utility automated meter reading. SCE has narrowed the choice for AMI technology to vendor products that can support automated reads for gas and water meters. This can be accomplished either through communication with the proprietary local area network or the non-proprietary open standard HAN interface. SCE continues to engage representatives from various utilities with whom SCE currently has meter reading contracts and Southern California Gas Company to

[19] *See* Decision 05-12-001, at Settlement Agreement, Attachment A.

explore potential use of Edison SmartConnect™ for gas and water meter reads and other functionality.[20] While it will be technically possible for SCE to support gas and water reads, it is necessary for the gas and water utilities to retrofit their meters to be able to communicate with the Edison SmartConnect™ system. SCE expects to begin more detailed discussions with gas and water utilities after final vendor selection at the end of 2007 and is contemplating including a pilot of this capability in 2008.

Security. SCE takes security very seriously and has spent a considerable amount of time on assessing the security needs of its AMI system, as evidenced in SCE's conceptual architecture and requirements incorporated in the RFPs as well as evaluating vendor products, identifying security gaps in the technology, and working with vendors to enhance their products to meet SCE's requirements. Additionally, SCE's Technology Advisory Board is comprised of a "blue ribbon" panel of industry experts, most of whom have significant expertise in making information and telecommunications systems like AMI secure. SCE has also engaged security consultants with significant experience in Department of Defense applications and sophisticated electric grid applications. As a result, SCE has proposed one of the most comprehensive and stringent set of security requirements for an AMI system to date and is engaged with utilities and AMI technology and cryptographic vendors through SecurityAMI, T24 PCT specification development and other venues. The objective is to ensure the integrity and confidentiality of the information exchanged through the SmartConnect system and that the system can respond to inadvertent and malicious risks.

[20] SCE engaged these utilities in Use Case Workshops in 2006 that resulted in a fully developed Use Case for Contract Meter Reading, and requirements have been incorporated into SCE's conceptual architecture for meters, telecommunications and back office systems and the RFPs.

IV.

EDISON SMARTCONNECT™ DEPLOYMENT IS COST EFFECTIVE

A. The Cost Benefit Analysis is Positive

Edison SmartConnect™ is expected to deliver $109 million in net benefits (present value revenue requirement or PVRR) to customers over the life of the project. Operational savings are forecast to cover approximately 63 percent of the related costs. Participation by residential and <200kW business customers in dynamic pricing and demand response programs is expected to provide sufficient additional benefits to justify the Edison SmartConnect™ project. The cost-benefit analysis is summarized in Table IV-2 below.

Table IV-2
Cost-Benefit Analysis Results
(Nominal 2007 Present Value of Revenue Requirement, in Millions)

	Nominal	PVRR
Benefits		
Operational Benefits		
During Deployment Years	278.2	
During Post-Deployment Years	4,299.0	
Demand Response Benefits		
During Deployment Years	216.2	
During Post-Deployment Years	2,792.6	
Subtotal Operational Benefits	4,577.2	
Subtotal Demand Response Benefits	3,008.8	
Total Benefits	**7,586.0**	**2,076.00**
Costs		
Phase II Costs (D.07-07-042)	45.2	
Deployment Costs		
Acquisition of Meters and Communication Network Equipment	838.0	
Installation of Meters and Communication Network Equipment	296.6	
Implementation and Operation of New Back Office Systems	191.2	
Customer Tariffs, Programs and Services	112.1	
Customer Service Operations	84.1	
Overall Program Management	45.6	
Contingency	147.3	
Post-Deployment Costs		
Billing	127.1	
Call Center	93.5	
Meter Services	399.1	
Back Offices Systems	344.4	
Customer Tariffs, Programs and Services	245.0	
Subtotal Pre-Deployment Costs	45.2	
Subtotal Deployment Costs	1,714.9	
Subtotal Post-Deployment Costs	1,209.0	
Total Costs	**2,969.1**	**1,967.00**
Total Benefits Less Total Costs	**4,616.9**	**109.0**

The full cost-benefit analysis is provided in Volume 3 (Exhibit SCE-3). It incorporates SCE's expected technology selections and current vendor pricing for full deployment of Edison SmartConnect™ as well as contingency costs reflecting the risk factors still accompanying several key cost areas, which are discussed in detail in Volume 2 (Exhibit SCE-2).

SCE's analysis includes an appropriate discount rate of ten percent (10 percent), based on the expected long term cost of capital. This discount rate is considerably higher than the discount rates used in the other AMI cases approved by the Commission.[21] The cost benefit analysis for deploying Edison SmartConnect™ represents about a $1 billion improvement in net benefits from SCE's previous analysis filed in March 2005.[22]

SCE's efforts over the past two years have focused on maximizing the value of advanced metering for our customers and utility operations. Beginning in Summer 2005, SCE has continually refined its assessment of the cost-effectiveness of AMI. In Phases I and II, through its extensive Request for Proposals (RFP) process and component testing of the first production models of metering and communication products, SCE has gained new insights into the functional capabilities, reliabilities and costs of commercial advanced metering products and deployment. SCE was able to refine its deployment plan and improve upon previous financial analyses with more current market information. Through its customer and market research, SCE was able to refine the demand response offerings that can help advance the state's demand response goals.

SCE's efforts, supported by the Commission through its approval of Phases I and II, have been successful in facilitating the development of a cost-effective advanced metering solution using next-generation technology that will provide lasting value for SCE's customers.

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[21] In comparison, PG&E used a 7.60% discount rate in its AMI case, and SDG&E used a 8.23% rate. If SCE were to use its 2007 authorized cost of capital as a discount rate instead of its incremental cost of capital (similar approach of SDG&E), SCE's net benefits of Edison SmartConnect would increase to $241 million.

[22] *See* A.05-03-026.

B. The Benefits of Edison SmartConnect™ are Real and Long-Term

Through its AMI System Design and Use Case Process, SCE will integrate Edison SmartConnect™ into its operating systems to ensure that the expected benefits accrue in the areas of customer service, billing, outage management, and operations and maintenance. The Use Cases identified potential new uses for Edison SmartConnect™ that were integrated into the technical specifications for the metering and telecommunication systems, thereby enabling SCE to maximize the benefits of Edison SmartConnect™.

The benefits of Edison SmartConnect™ include far more than the most obvious operational benefits resulting from automation of meter reading and field service activities. As discussed in Volume 3 (Exhibit SCE-3), SCE has identified three types of benefits: operational benefits, demand response benefits, and societal benefits. Operational benefits are well within the reach of SCE. Demand response benefits are also within reach, but will require Commission authorization of dynamic tariffs and demand response programs,[23] and action by customers to reduce their peak load through participation in such dynamic tariffs and demand response programs.

Societal benefits are real but they reflect improvements in services or conveniences with value to customers or to society in general that are not reflected in utility cash flow. These benefits include improvements in customer experience, reductions in energy theft, greenhouse gas reductions, and other societal benefits. Societal benefits are not included in SCE's cost benefit analysis because the value of such benefits does not flow through to SCE's revenue requirement. However, such benefits are often considered important by the Commission.[24] SCE has prepared a qualitative discussion of the societal benefits and other non-quantifiable future benefits such as the use of the load limiting capability of the service switch and the conservation effect from the HAN near real time data access. The value of the societal benefits should serve to further justify the Edison SmartConnect™ project.

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[23] SCE intends to propose modified TOU and CPP rates as well as a Peak Time Rebate program in Phase II of its 2009 General Rate Case.

[24] For example, the Commission in D.05-06-016 approved the AG-ICE program of incentives for agricultural customers who convert engines used for agricultural pumping from diesel fuel to electricity, in an effort to achieve a significant improvement in the air quality of the San Joaquin Valley.

V.

SUMMARY OF REQUESTS

Phase III of SCE's AMI project should be implemented without delay to begin achieving the benefits of Edison SmartConnect™. Accordingly, SCE seeks authority to:

(i) proceed with full deployment of Edison SmartConnect™ to all residential and business customers under 200 kW (approximately 5.3 million meters) in SCE's service territory over a five-year period beginning in 2008 at an estimated cost of $1.7 billion;

(ii) implement a voluntary Programmable Communicating Thermostat (PCT) load control program throughout the five-year deployment period and conduct marketing, outreach and education on the dynamic rates and demand response program offerings for customers receiving the Edison SmartConnect™ meters;[25]

(ix) establish the Edison SmartConnect™ Balancing Account (SmartConnect BA) to provide for the recovery of Phase III recorded revenue requirements, which include recorded incremental costs and recognition of forecast operational O&M benefits, effective upon a Commission decision on this application;

(x) reduce its Authorized Distribution Base Revenue Requirement (ADBRR), on an annual basis, in order to recognize the Phase III capital benefits related to specific projects as set forth, and as adopted, in this proceeding, through the effective date of SCE's 2012 GRC Decision;

(xi) transfer the balance in the SmartConnect BA, each month, to the Base Revenue Requirement Balancing Account (BRRBA) to enable recovery, through distribution rate levels, of the actual Edison SmartConnect™-related revenue requirements for Phase III activities beginning on the effective date of a decision in this proceeding and continuing through the effective date of SCE's 2012 GRC Decision;

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[25] SCE intends to re-activate the CPP rate(s) used for the SPP via an advice filing, and offer existing TOU rates and re-activated CPP rates pending approval of a modified TOU and CPP rates in Phase II of SCE's 2009 GRC. SCE also plans to seek approval of a new Peak Time Rebate program in Phase II of SCE's 2009 GRC.

(xii) transfer from the AMIMA to the BRRBA the 2007 and 2008 recorded revenue requirements associated with costs that will be incurred in 2007 associated with Phase II activities that did not receive authorization for recovery in D.07-07-042 and 2007 and 2008 revenue requirements associated with the $14.1 million of capital expenditures (plus $0.4 million of AFUDC) approved in D.07-07-042 but not allowed rate base treatment;

(xiii) recover, through distribution rate levels, of SCE's forecast Edison SmartConnect™ revenue requirements for Phase III activities effective upon a Commission decision on this application and continuing through the effective date of SCE's 2012 GRC Decision; and

(xiv) limit reasonableness review of the SmartConnect BA to ensure all recorded costs are associated with Phase III activities as defined and adopted by the Commission in this proceeding.

SCE requests Commission approval of these requests by June of 2008 to remain on schedule for meter installation to begin in January 2009.

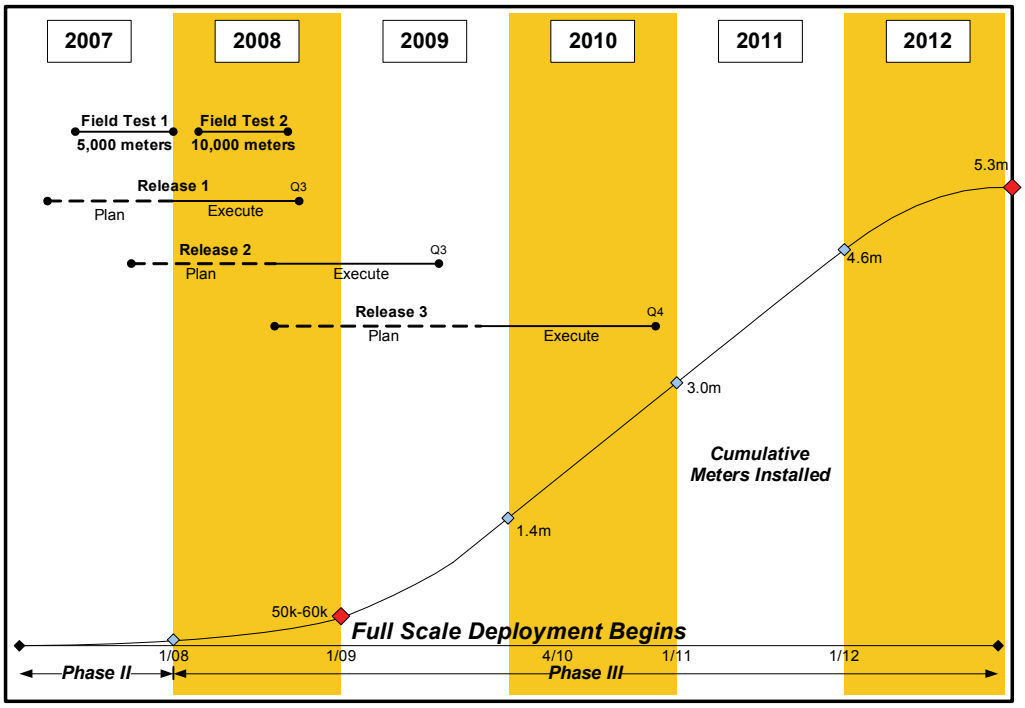
A. SCE's Deployment Plan for Edison SmartConnect™ Should be Approved

As part of the detailed planning for deployment, SCE identified three distinct releases for all the systems development and integration work associated with Edison SmartConnect™. Phase III will begin with the execution of the first release, which involves the final development and testing of the Meter Data Management System and telecommunications network management system and integration with the customer billing system. A second field test of up to 10,000 additional meters will validate the installation processes and the expected revised version of the meter/telecom products based on Phase II engineering and development.

Phase III deployment will include two additional releases of the AMI system, each being slated to achieve a higher and more complex level of functionality than the previous one. These progressively increasing functionalities will be timed as illustrated in Figure V-2 below. This figure also shows the

ramping-up of meter installations in relation to each respective Release and over time through June 2012 for the full Phase III deployment period.

Figure V-2
Timeline for AMI Phases II and III



The activities and estimated costs and benefits for Phase III are described in detail in Volume 2 (Exhibit SCE-2). The costs and benefits of the Edison SmartConnect™ over the entire life of the project are discussed in Volume 3.

B. SCE Should be Authorized to Offer Voluntary Load Control Programs as SmartConnect Meters are Installed

SCE requests authority to implement a voluntary PCT load control program as the Edison SmartConnect™ meters are installed during the deployment period. SCE plans to seek rate design authorization for other demand response programs (*e.g.,* Peak Time Rebate) and modified TOU and CPP rates in its 2009 GRC Phase II application.

Load control programs provide significant peak load reductions and power procurement benefits. An essential part of SCE's approach to load control is a PCT compatible with the anticipated Title 24

building code standard under development by the California Energy Commission (CEC) for implementation in 2009. In Phase III, SCE will continue to work with the CEC and other utilities on developing the PCT technology that is compatible with Title 24 and AMI. SCE envisions leveraging the Title 24 compliant PCTs purchased and installed by customers pursuant to Building Code requirements and also offering rebates for purchasing and installing Title 24 compliant PCTs to customers with existing air conditioning units. SCE will continue to work with thermostat vendors and other parties to accelerate the testing of affordable PCTs.

Dynamic pricing options like TOU, CPP and PTR will provide significant peak load reductions. SCE has existing opt-in TOU and CPP rates for residential and business customers, which are available to customers as their advanced meters are deployed in 2009. SCE will seek to modify these existing rates in Phase II of its 2009 GRC. Pending a decision approving the modified rates in Phase II of the 2009 GRC (expected in October 2009), SCE seeks to re-activate the Critical Peak Pricing rate(s) used for the SPP, and plans to offer its existing, voluntary TOU rates, to residential and business customers under 200 kW as the advanced meters are rolled out in 2009. SCE also plans to request authority in Phase II of the 2009 GRC to implement a Peak Time Rebate (pay-for-performance) program for residential and business customers under 200 kW during the deployment period.

SCE provides a detailed discussion of the dynamic rates and demand response programs planned for the deployment period in Volume 4 (Exhibit SCE-4).

C. SCE Should be Authorized to Recover Costs Incurred during the Deployment Period through a Balancing Account

SCE requests approval to recover the revenue requirement associated with the costs of Phase III activities described in Exhibit SCE-2. These costs are estimated at approximately $384.2 million in O&M and $ 1,330.7 million in capital expenditures over the 2008 through 2012 deployment period.[26]

[26] These amounts include $8 million of capital expenditures and O&M expense that will be incurred in 2007 associated with Phase II activities that did not receive authorization for recovery in the Commission's Phase II Decision No. 07-07-042. In addition, SCE will include in the Edison SmartConnect™ revenue requirement $14.1 million of capital expenditures (plus $0.4 million of AFUDC) approved in D.07-07-042, but not allowed rate base treatment.

SCE proposes to establish an Edison SmartConnect™ balancing account mechanism to provide for recovery of the deployment period revenue requirement, which will include the recognition of operational benefits in the form of offsets to the Phase III costs.[27] This forecast revenue requirement will be recovered in distribution rates from 2009 through 2012 based on the estimated O&M expenses, depreciation, taxes, and authorized return on rate base amounts as derived from the estimated capital expenditures and the estimated operational benefits as set forth in this application. Beginning in 2009, the forecast Phase III revenue requirement for 2009 and any undercollection in the Base Revenue Requirement Balancing Account (BRRBA) arising from deployment activities in 2007 and 2008 will be reflected in SCE's total distribution rates. However, the proposed operation of the Edison SmartConnect™ balancing account mechanism (*i.e.*, the actual revenue requirement recorded in the Edison SmartConnect™ balancing account will be transferred to the BRRBA each month) will ensure that no more and no less than the reasonable revenue requirement associated with Phase III activities is ultimately collected from customers.

Assuming the Commission approves the scope of activities proposed by SCE and the forecast Phase III costs in this application, SCE's incurred costs that are consistent with the scope and within the cost levels adopted by the Commission should not be subject to an after-the-fact reasonableness review. If actual costs exceed the forecast, or if the scope of activities differs from what the Commission has approved, then SCE would file an application, or other appropriate procedural vehicle, to request approval of the activities and recovery of the additional costs subject to a traditional after-the-fact reasonableness review.

SCE's revenue requirement and cost recovery mechanism for Phase III is set out in Volume 5 (Exhibit SCE-5) of the supporting testimony of this Application.

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[27] SCE proposes to flow back all Phase III capital-related benefits outside of the SmartConnect™ balancing account mechanism. *See* Exhibit SCE-5.

VI.

CONCLUSION

Phase III should be approved by no later than June 2008 so that SCE can begin delivering the benefits of Edison SmartConnect™ to its customers and the state.

Appendix A

Witness Qualifications

SOUTHERN CALIFORNIA EDISON COMPANY

QUALIFICATIONS AND PREPARED TESTIMONY

OF LYNDA L. ZIEGLER

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

A. My name is Lynda L. Ziegler, and my business address is 8631 Rush Street, Rosemead, California 91770.

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

A. As Senior Vice President, Customer Service Business Unit, I am responsible for Edison's customer experience, industry-leading demand-side management programs and advanced metering, as well as customer-facing operations, phone center activities, field services, account management, and local public affairs.

Q. Briefly describe your educational and professional background.

A. I received a Bachelor of Science degree in Marketing from California State University, Long Beach, in 1982, and an MBA from California State University, Fullerton, in 1988. In 1981, I joined the Southern California Edison Company. I have held a number of different positions, several in the energy efficiency area. I have been a program planner, a field supervisor, major account executive, Manager of Energy Efficiency Programs, Director and later Vice President of Customer Programs and Services. Outside of the energy efficiency arena, I have served as a Customer Service Manager, Service Planner, and Credit Manager.

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

A. The purpose of my testimony in this proceeding is to sponsor the portions of this Exhibit SCE-1, as identified in the Table of Contents herein.

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

A. Yes, it was.

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

A. Yes, I do.

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

A. Yes, it does.

Q. Does this conclude your qualifications and prepared testimony?

A. Yes, it does

SOUTHERN CALIFORNIA EDISON COMPANY

QUALIFICATIONS AND PREPARED TESTIMONY

OF PAUL J. DE MARTINI

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

A. My name is Paul J. De Martini, and my business address is 2244 Walnut Grove Avenue, Rosemead, California 91770.

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

A. I am the Edison SmartConnect™ Program Director. I am responsible for managing all aspects of the AMI program feasibility, system design, development and deployment efforts.

Q. Briefly describe your educational and professional background.

A. I hold a Master of Business Administration (M.B.A) degree from the University of Southern California and a Bachelor of Science (B.S.) degree in Applied Economics from the University of San Francisco. I also completed Certificates in Project Management from the University of California, Berkeley and Technology Management from the California Institute of Technology. I have been at Southern California Edison for about five years during which I was the IT Project Manager on AMI beginning in 2004, prior to assuming the overall program management responsibility in 2005. Relevant positions prior to joining Southern California Edison included Vice President of the Energy Strategy practice at ICF International in 2000-2002 with a focus on demand response, advanced metering and distributed generation technologies. I began my career at PG&E Corporation in both regulated and unregulated businesses for nearly twenty years. I held positions at the utility with increasing responsibility involving electric systems operations, T&D project management, and wholesale power procurement and ultimately at the unregulated subsidiary PG&E Energy Services as Vice President, Integrated Services.

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

A. The purpose of my testimony in this proceeding is to sponsor portions of this Exhibit SCE-1 as identified in the Table of Contents herein.

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

A. Yes, it was.

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

A. Yes, I do.

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

A. Yes, it does.

Q. Does this conclude your qualifications and prepared testimony?

A. Yes, it does.