BEFORE THE PUBLIC UTILITIES COMMISSION OF THE

STATE OF CALIFORNIA

Application of the California Energy Commission for Approval of Electric Program Investment Charge Proposed 2012 through 2014 Triennial Investment Plan.	Application 12-11-001 (Filed March 13, 2008)
And Related Matters.	Application 12-11-002 Application 12-11-003 Application 12-11-004

SOUTHERN CALIFORNIA EDISON COMPANY'S (U-338-E) ANNUAL REPORT ON THE STATUS OF THE ELECTRIC PROGRAM INVESTMENT CHARGE PROGRAM

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Dated: **February 28, 2015**

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I.

INTRODUCTION AND SUMMARY

In Ordering Paragraph 16 of Decision 12-05-037, the California Public Utilities Commission (CPUC or Commission) orders Southern California Edison Company (SCE), Pacific Gas and Electric Company (PG&E), and San Diego Gas & Electric Company (SDG&E) and the California Energy Commission (CEC), collectively known as Electric Program Investment Charge (EPIC) Administrators, to file annual reports concerning the status of their respective EPIC programs. Subsequently, in D.13-11-025, Ordering Paragraph 22, the Commission requires the EPIC Administrators to follow the outline contained in Attachment 5 when preparing the EPIC Annual Reports. In Ordering Paragraph 23 of the same Decision, the Commission requires the EPIC Administrators to provide the project information contained in

Attachment 6 as an electronic spreadsheet. In compliance with the Ordering Paragraphs of D.12-05-037 and D.13-11-025, SCE hereby files its annual report on the status of its EPIC activities for 2014. This is SCE's second annual report pertaining to its first EPIC Triennial Investment Plan Application (A.) 12-11-004 subsequent to receiving CPUC approval on November 14, 2013.

Respectfully submitted,

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EPIC ADMINISTRATOR ANNUAL REPORT

Annual Report

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1. Executive Summary

a) Overview of Programs/ Plan Highlights

2014 represented SCE's first full year of implementing program operations of its 2012 – 2014 Investment Plan Application[1] after receiving Commission approval on November 19, 2013.[2] For the period between January 1 and December 31, 2014, SCE expended a total of $3,893,446 toward project costs and $578,224 toward administrative costs for a grand total of $4,471,670. SCE's cumulative expenses over the lifespan of its 2012 – 2014 EPIC program amount to $4,586,147[3]. Furthermore, SCE is pleased to share that approximately $2,301,639 was spent toward California-based businesses and labor resources, amounting to 59% of all 2014 project expenditures. SCE committed $37,016,526 toward projects and encumbered $9,087,067 through executed purchase orders during this period; SCE has $0 in uncommitted EPIC funding.

SCE launched 16 projects and subsequently cancelled 1 project during the calendar year 2014. All 15 projects received funding commitments through SCE's Advanced Technology portfolio management process. In Q3 2014, SCE identified an opportunity to leverage EPIC funding with the U.S. Department of Energy (DOE) and approved the "Cyber-Intrusion Auto-Response and Policy Management System (CAPMS)[4]" project (as one of the 15 projects). Lastly, SCE elected to revise one previously approved project's name from "Regional Grid Optimization" to "Integrated Grid Project" in order to better reflect the project's revised scope to

[1] (A.)12-11-001
[2] D.13-11-025, OP8.
[3] In 2013, SCE expended a total of $114,477 in administrative costs to support business readiness and metrics development activities.
[4] The DOE awarded Viasat (primary funding recipient) a contract (DE-0E0000675) to deploy and demonstrate CAPMS in partnership with SCE and Duke Energy.

include elements of the Distribution Resources Plan (DRP)[5] and the Preferred Resources Pilot (PRP)[6].

b) Status of Programs

As of December 31, 2014, SCE has expended $3,893,446[7] on project costs.

Table 1 below summarizes the current funding status of SCE's EPIC projects:

Table 1: 2012-2014 Triennial Investment Plan: 2014 Projects

1. Energy Resources Integration
• 4 Projects Funded • Total Funding Committed: $9,952,578
2. Grid Modernization and Optimization
• 5 Projects Funded   ○ 1 Project Cancelled in Q2 2014[8] • Total Funding Committed: $8,425,022
3. Customer Focused Products and Services
• 3 Projects Funded • Total Funding Committed: $6,197,568
4. Cross-Cutting/Foundational Strategies and Technologies
• 3 Projects Funded • Total Funding Committed: $12,441,358
Total Projects Funded: 15 Total Funding Committed: $37,016,526[9] *Note: Due to intrinsic variability in TD&D /R&D projects, amounts shown are subject to change*

Table 2 below summarizes SCE's 2014 administrative expenses:

Table 2: 2012-2014 Triennial Investment Plan: 2014 Administration

• Program Administration (Consulting costs included)	Total Funding Committed: $2,495,474 Total 2014 Cost: $578,224 Total Cumulative Cost: $692,701

[5] R.14-08-013.
[6] R.12-03-014.
[7] SCE's cumulative project expenses amounted to $3,822,666 based on the project spreadsheet in Appendix A. SCE's accounting system calculates in-house labor overheads separately which amounted to $70,780. As a result, SCE expended a total of $3,893,446 on project costs.
[8] SCE cancelled the Superconducting Transformer project in 2014. Please refer to the project's status update in Section 4 for additional details.
[9] For additional details regarding SCE's Committed Funds, please see the attached spreadsheet.

2. Introduction and Overview

a) Background on EPIC (General Description of EPIC)

On December 15, 2011, the Commission adopted the Phase 1 Decision[10] in Rulemaking (R.)08-12-009, requiring that the funding levels associated with the renewables and the research, development, and demonstration portions of the Public Goods Charge (PGC) remain in effect through a new Commission-mandated customer surcharge: the EPIC.[11] On May 24, 2012, the Commission issued its Phase 2 Decision, D.12-05-037, which established the EPIC Program to fund applied research and development, technology demonstration and deployment, and market facilitation programs for the purpose of ratepayer benefits.[12] The Phase 2 Decision further stipulates that the EPIC will continue through 2020[13] with an annual budget of $162 million.[14] Approximately 80% of the EPIC is administered by the CEC and 20% is administered by the investor-owned utilities (IOUs). Additionally, about 0.5% of the EPIC budget funds Commission oversight of the Program.[15] The IOUs were also limited to only the area of Technology Demonstration and Deployment (TD&D) activities.[16] The total budgeted amount for IOUs' Demonstrations and Deployments is $30M and the total budgeted amount for administrative activities is $3.3M. SCE was allocated 41.1% of the budget and administrative activities.[17]

SCE collaborated with the other IOUs to develop a common framework to address projects for the TD&D funding category (see Table 3). SCE then conducted two public

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[10] D.11-12-035.
[11] D.11-12-035, OP2.
[12] D.12-05-037, OP3.
[13] D.12-05-037, OP1.
[14] D.12-05-037, OP 7.
[15] Id, OP5.
[16] Id.
[17] D.12-05-037, OP 7.

workshops and incorporated stakeholder comments into the investment plan process. The Commission ordered the EPIC Administrators to file coordinated triennial investment plans in applications covering 2012-2014 by no later than November 1, 2012[18]. SCE filed a well-coordinated investment plan Application[19], which received Commission approval, November 19, 2013.[20]

b) EPIC Program Components

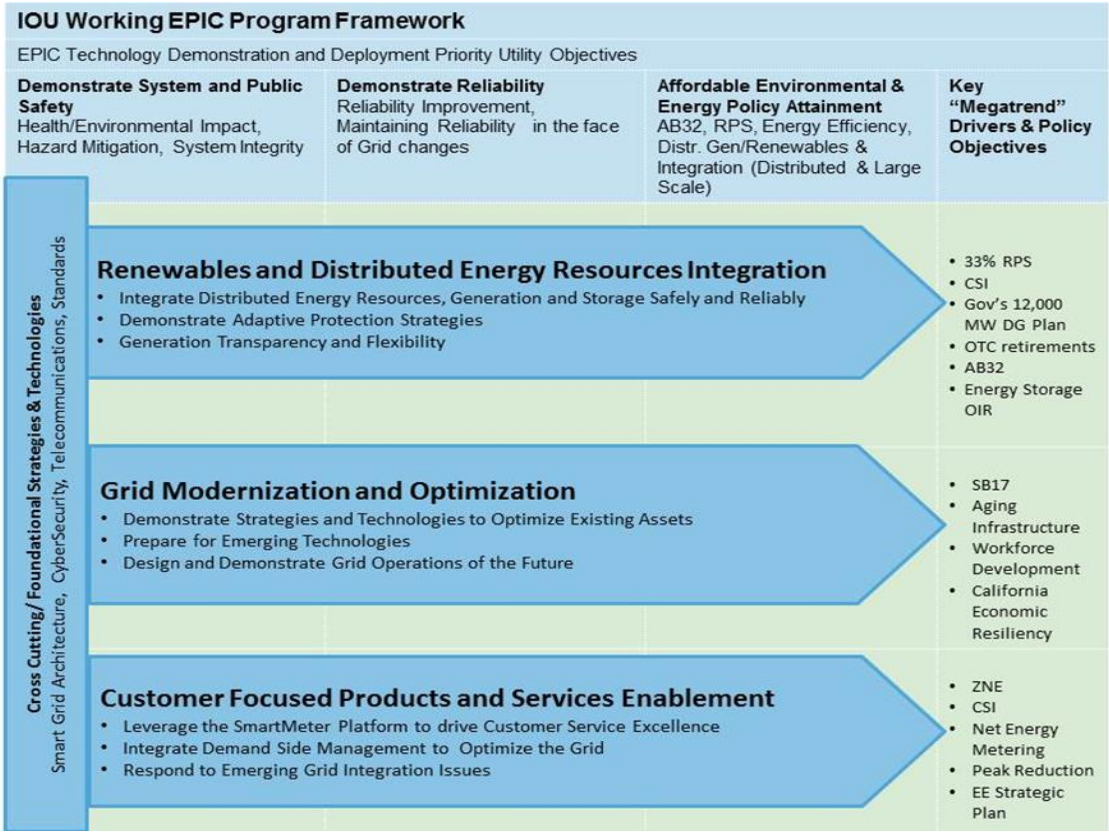
The Commission limited SCE's involvement in its first EPIC Investment Plan to only technology demonstration and deployment projects, per D.12-05-037. In the aforementioned Decision, the Commission specifically defines technology demonstration and deployment projects as the installation and operation of pre-commercial technologies or strategies at a scale sufficiently large and in conditions sufficiently reflective of anticipated actual operating environments to enable appraisal of the operational and performance characteristics and the financial risks.[21]

In accordance with the Commission's requirement for technology demonstration and deployment projects, the IOU's successfully collaborated[22] and developed a joint investment plan framework that the Commission adopted.[23] The joint framework identifies four program categories: (1) energy resources integration, (2) grid modernization and optimization, (3) customer-focused products and services, and (4) cross-cutting/foundational strategies and technologies.[24] SCE's 2012 – 2014 Investment Plan proposed projects for each of these four

[18] D.12-05-037, OP 11.
[19] A.12-11-004.
[20] D.13-11-025.
[21] D.12-05-037, OP3.B.
[22] D.13-11-025, Finding of Fact 24.
[23] D.13-11-025, p. 48.

areas, focusing on the ultimate goals of promoting greater reliability, lowering costs, increasing safety, decreasing greenhouse gas emissions, and supporting low-emission vehicles and economic development for ratepayers, see Table 3 below.

Table 3 Joint-IOU Demonstration & Deployment Framework



c) <u>EPIC Program Regulatory Process</u>

The Commission approved SCE's 2012-2014 application (A.)12-11-004 in Decision (D.)13-11-025 on November 19, 2013. In compliance with the Commission's requirements for the EPIC Program,[25] SCE submits its 2014 Annual Report to provide a status update to the

[25] D.12-05-037, Ordering Paragraph (OP) 16, as amended in D.13-11-025, at OPs 53-54.

Commission and stakeholders on its program implementation. SCE previously submitted its 2013 Annual Report on February 28, 2014.

Per the Commission's filing schedule established in D.12-05-037[26], the Commission convened a Pre-Hearing Conference (PHC) on June, 23, 2014 to discuss the 2015-2017 Investment Plan Applications. During the development of SCE's Investment Plan, SCE consulted with a wide variety of stakeholders including local agencies, national labs, universities, consumer groups, environmental groups, energy efficiency community, clean energy industry and other stakeholders. SCE solicited the input of these stakeholders through public engagements. These stakeholder engagements included a joint IOU webinar on February 21, 2014 and joint EPIC Administrator workshops. The CEC held a Northern California public workshop on March 17, 2014 and SCE, at its Advanced Technology facility, hosted a Southern California public workshop on March 21, 2014. SCE incorporated the feedback received at the stakeholder workshops into its investment plan and submitted the 2015-2017 Application (A.)14-05-005 on May 31, 2014. The Commission held a public workshop to address Administrative Law Judge (ALJ) Gamson's questions posed at the PHC and to clarify programmatic administration on July, 31, 2014. SCE anticipates the Commission will imminently issue a proposed decision (PD) on the 2015-2017 Investment Plan Application.

d) <u>Coordination</u>

The EPIC Administrators have collaborated throughout the execution of the 2012-2014 investment plans and during the development of the 2015-2017 Investment Plans. Specific examples of the EPIC Administrators collaborating to solicit stakeholder input include:

[26] At p. 31.

- A public webinar, jointly hosted by the IOUs on February 21, 2014
- Public workshops, jointly hosted by the Administrators
    - The CEC held a Northern California public workshop on March 17, 2014
    - SCE held a Southern California public workshop on March 21, 2014

SCE also supported the CEC's execution of its 2012-2014 Investment Plan. On December 10, 2014, SCE attended the CEC's workshop on Program Opportunity Notices (PONs) Developing the Smart Grid of 2020[27] and Developing Technology Improvements for a Flexible and Responsive Electricity Grid[28]. SCE attended the workshop to help the CEC identify policy and technology gaps in its aforementioned PONs.

Furthermore, the EPIC Administrators met on a near weekly basis to discuss implementation of the 2012-2014 Investment Plans and program development of the 2015-2017 Investment Plans. The EPIC Administrators are currently collaborating to establish a process to share project lessons learned and to develop a common template for the Commission's required close-out report.[29]

e) <u>Transparent and Public Process/ CEC Solicitation Activities</u>

During the development and execution of the 2012-2014 and the 2015-2017 Investment Plans, SCE has hosted and participated in stakeholder engagements and Commission workshops. For the 2015-2017 Investment Plan, the IOUs held a joint webinar that solicited input from stakeholders on the proposed categories and associated initiatives. The IOUs also jointly engaged the Electric Power Research Institute (EPRI) to conduct a "gaps" analysis to identify

[27] PON, No. S6.
[28] PON, No. S7.
[29] D.13-11-025, at OP 14.

any technology or policy gaps. EPRI concluded there are gaps that could be filled by the initiatives identified by the IOUs. The subsequent joint Administrator workshops built on this framework and provided further context to the Investment Plans by highlighting a few potential projects in each of the four categories of the IOUs' joint framework for TD&D investments. Stakeholders had the opportunity to ask questions and provide input directly into the Investment Plan. The Commission also held a public workshop on July 31, 2014, in part to clarify 2012-2014 EPIC administration issues. During the workshop the Commission hosted stakeholder discussions on such issues as programmatic flexibility and intellectual property (IP) rights. Stakeholders continue to have the opportunity to participate in the execution of the Investment Plans by accessing SCE's EPIC website. On the website the public can access SCE's Applications and directly contact SCE with any questions regarding EPIC.

3. Budget

a) Authorized Budget

- 2012 – 2014

Table 4: 2014 Authorized EPIC Budget

2014 (Jan 1, Dec 31)	Administrative	Project Funding	Commission Regulatory Oversight Budget
SCE Program	$1.4M	$12.4M	$0.329M[30]
CEC Disbursements	$5,252,600	$0	

D.12-05-037 requires SCE to remit programmatic and administrative funding to the CEC, and administrative funding to the Commission. In the case of administrative funding, the IOU administrators are required to submit funds to the CEC on a quarterly basis.[31] SCE remitted four

[30] Advice Letter, 2747-E, p. 6.
[31] D.12-05-037 at OP 9.

quarterly payments totaling $5,252,600 to the CEC for program administrative expenses in 2014. SCE remitted the four quarterly payments to the CEC as follows: $1,313,150 on March 31, 2014; $1,313,150, on June 30, 2014; $1,313,150 on September 30, 2014; and $1,313,150 on December 31, 2014. The CEC has approved all of SCE's remittance payments to date. In the case of programmatic funding, the CEC did not request any project funds in 2014; SCE's total remittances in this category are $0.

Similarly, the utility administrators are required to remit oversight funding to the Commission on an annual basis beginning July 1, 2012.[32] SCE received a letter from the Commission on September 19, 2014 requesting payment for the 2013 and 2014 oversight costs, and further clarified the remittance process for future oversight payments. SCE remitted the 2013 oversight payment of $328,800 as well as the 2014 oversight payment of $328,800 concurrently on September 25, 2014.

The Commission's Phase II Decision also approved an Administration Budget for costs above and beyond project costs. The Commission states these costs include staffing, associated general and administrative expenses and overhead, and related contracting costs to prepare the investment plans, conduct solicitations, select funding recipients and monitor and oversee the progress of projects and investments. Subsequent to the Commission issuing approval of SCE's 2012-2014 EPIC Investment Plan application on November 19, 2013, SCE has incurred administrative expenses that are commensurate with the size and scope of its EPIC program. These administrative expenses included in-house staffing costs for SCE's EPIC program manager, compliance and project support analysts, and consulting fees for staffing to support EPIC portfolio management operations. Table 5 below summarizes SCE's 2014 incurred administrative costs:

Table 5: 2012-2014 Triennial Investment Plan: 2014 Administration

• Program Administration: (Consulting costs included)	Total 2014 Cost: $578,224 Total Cumulative Cost: $692,701

[32] *Id.* at OP 10.

b) Commitments/ Encumbrances

As of December 31, 2014, SCE has committed $39,512,000 and encumbered $9,087,067 of its authorized 2012-2014 program budget.

c) Dollars Spent on In-House Activities

As of December 31, 2014, SCE has spent $993,923[33] on in-house activities.

d) Fund Shifting Above 5% Between Program Areas

As of December 31, 2014, SCE does not have any pending fund shifting requests and/or approvals.

e) Uncommitted/Unencumbered Funds

As of December 31, 2014, SCE has $0 in uncommitted/unencumbered funds.

4. Projects

a) High Level Summary

- As of December 31, 2014, SCE has expended $3,893,446 on project costs. Please see Table 6 below for additional details on funding commitments:

Table 6: 2012-2014 Triennial Investment Plan: 2014 Projects

1. Energy Resources Integration
• 4 Projects Funded • Total Funding Committed: $9,952,578
2. Grid Modernization and Optimization
• 5 Projects Funded   ○ 1 Project Cancelled in Q2 2014 • Total Funding Committed: $8,425,022

[33] SCE expended a total of $923,143 on in-house activities in 2014 based on the project spreadsheet in Appendix A. SCE's accounting systems calculates in-house labor overheads separately which amounted to $70,780. As a result, SCE expended a total of $993,923 on in-house costs.

3. Customer Focused Products and Services
• 3 Projects Funded • Total Funding Committed: $6,197,568
4. Cross-Cutting/Foundational Strategies and Technologies
• 3 Projects Funded • Total Funding Committed: $12,441,358
Total Projects Funded: 15 Total Funding Committed: $37,016,526 *Note: Due to intrinsic variability in TD&D /R&D projects, amounts shown are subject to change*

b) **Project Status Report**

Please refer to Appendix A of this Report for SCE's Project Status Report.

c) Description of Projects:

(i) Investment Plan Period

(ii) Assignment to Value Chain

(iii) Objective

(iv) Scope

(v) Deliverables

(vi) Metrics

(vii) Schedule

(viii) EPIC Funds Encumbered

(ix) EPIC Funds Spent

(x) Partners (if applicable)

(xi) Match Funding (if applicable)

(xii) Match Funding Split (if applicable)

(xiii) Funding Mechanism (if applicable)

(xiv) Treatment of Intellectual Property (if applicable)

(xv) Status Update

The following project descriptions reflect the projects' status information as of December 31, 2014.

1. Integrated Grid Project – Phase 1

Investment Plan Period: 1st Triennial Plan (2012-2014)	**Assignment to value Chain:** Grid Operation/Market Design
Objective & Scope: The project will demonstrate, evaluate, analyze and propose options that address the impacts of Distributed Energy Resources (DER) penetration and increased adoption of Distributed Generation (DG) owned by consumers on all segments/aspects of SCE's grid – transmission, distribution and overall "reliable" power delivery cost	

to SCE customers (all tiers). This demonstration project is in effect the next step to the ISGD project. Therefore, this analysis will focus on the effects of introducing emerging and innovative technology into the utility and consumer end of the grid, predominantly the commercial and industrial customers with the ability to generate power with self-owned and operated renewable energy sources, but connected to the grid for "reliability" and "stability" operational reasons. This scenario introduces the need for the utility (SCE) to assess discriminative technology necessary for stabilizing the grid with increased DG adoption, and more importantly, consider possible economic models that would help SCE adopt to the changing regulatory policy and GRC structures. This value oriented demonstration would inform many key questions that have been asked: • What is the value of distributed generation and where is it most valuable? • What is the cost of intermittent resources? • What is the value of storage and where is it most valuable? • How effectively can demand response manage intermittency and what is the value? • What is the value of flexible demand response (e.g. the flexibility to charge a vehicle over an extended range of time)? • What is the value of controlling a thermostat? • How are these resources/devices co-optimized? • What infrastructure is required to enable an optimized solution? • What incentives/rate structure will enable an optimized solution?
Deliverables: • An IGP cost/benefit analysis and business case • A systems requirement specification • An IGP demonstration architecture • A distributed grid control architecture capable of supporting the use of market mechanism, price signals, direct control or distributed control to optimize reliability and economic factors on the distribution grid • A data management and integration architecture supporting the overarching IGP architecture • A supporting network and cybersecurity architecture for the IGP architecture • Incentive structures that encourage technology adoption that provide benefits to overall system operations • A Volt/Var optimization strategy

• RFPs to secure vendor solutions for the field demonstration phase of the IGP project • Post analyses - review, findings and recommendations on GridLAB-D models used in the IGP architecture and design • IGP lab demonstration using a simulated environment • Final project report (Phase 1)
Metrics: 1a. Number and total nameplate capacity of distributed generation facilities 1b. Total electricity deliveries from grid-connected distributed generation facilities 1c. Avoided procurement and generation costs 1d. Number and percentage of customers on time variant or dynamic pricing tariffs 1e. Peak load reduction (MW) from summer and winter programs 1f. Avoided customer energy use (kWh saved) 1g. Percentage of demand response enabled by automated demand response technology (e.g. Auto DR) 1h. Customer bill savings (dollars saved) 1i. Nameplate capacity (MW) of grid-connected energy storage 3a. Maintain / Reduce operations and maintenance costs 3b. Maintain / Reduce capital costs 3c. Reduction in electrical losses in the transmission and distribution system 3d. Number of operations of various existing equipment types (such as voltage regulation) before and after adoption of a new smart grid component, as an indicator of possible equipment life extensions from reduced wear and tear 3e. Non-energy economic benefits 3f. Improvements in system operation efficiencies stemming from increased utility dispatchability of customer demand side management 5a. Outage number, frequency and duration reductions 5b. Electric system power flow congestion reduction 5c. Forecast accuracy improvement 5f. Reduced flicker and other power quality differences 5i. Increase in the number of nodes in the power system at monitoring points 7b. Increased use of cost-effective digital information and control technology to improve reliability, security, and efficiency of the electric grid (PU Code § 8360); 7c. Dynamic optimization of grid operations and resources, including appropriate consideration for asset management and utilization of related grid operations and resources, with cost-effective full cyber security (PU Code § 8360);

<table>
<tr><td colspan="3">7d. Deployment and integration of cost-effective distributed resources and generation, including renewable resources (PU Code § 8360);
7e. Development and incorporation of cost-effective demand response, demand-side resources, and energy-efficient resources (PU Code § 8360);
7f. Deployment of cost-effective smart technologies, including real time, automated, interactive technologies that optimize the physical operation of appliances and consumer devices for metering, communications concerning grid operations and status, and distribution automation (PU Code § 8360);
7h. Deployment and integration of cost-effective advanced electricity storage and peak-shaving technologies, including plug-in electric and hybrid electric vehicles, and thermal-storage air-conditioning (PU Code § 8360);
7j. Provide consumers with timely information and control options (PU Code § 8360);
7k. Develop standards for communication and interoperability of appliances and equipment connected to the electric grid, including the infrastructure serving the grid (PU Code § 8360);
7l. Identification and lowering of unreasonable or unnecessary barriers to adoption of smart grid technologies, practices, and services (PU Code § 8360)
8b. Number of reports and fact sheets published online
8d. Number of information sharing forums held.
8f. Technology transfer
9b. Number of technologies eligible to participate in utility energy efficiency, demand response or distributed energy resource rebate programs
9c. EPIC project results referenced in regulatory proceedings and policy reports.
9d. Successful project outcomes ready for use in California IOU grid (Path to market).</td></tr>
<tr><td colspan="3">Schedule:
IGP Phase 1: Q2 2014 – Q2 2017
IGP Phase 2: TBD</td></tr>
<tr><td colspan="2">EPIC Funds Encumbered:
$2,372,111</td><td>EPIC Funds Spent:
$636,019</td></tr>
<tr><td colspan="3">Partners:
TBD; SCE is currently exploring collaboration opportunities.</td></tr>
<tr><td>Match Funding:
TBD</td><td>Match Funding split:
TBD</td><td>Funding Mechanism:
Pay-for-Performance Contracts</td></tr>
</table>

Treatment of Intellectual Property SCE has no current patents or licensing agreements signed. Future Intellectual Property is to be determined.
Status Update Due to the refinement of the project's scope of work, this project will now align and help to inform corporate and regulatory initiatives, such as the Distribution Resources Plan and Preferred Resources Pilot. Given the modifications in scope, SCE elected to revise the project's name from "Regional Grid Optimization" to "Integrated Grid Project" in order to better reflect the inclusion of these aforementioned initiatives. The RFP package for engineering and consulting services was prepared and issued in the first half of 2014. The contract was awarded to Navigant and a purchase order signed in August 2014. A project initiation meeting was held with Navigant in September. Since then the following has been accomplished: • Held key stakeholder meetings across the organization • Developed a draft work plan for the completion of the RFP package for IGP materials and equipment • Developed draft business requirements • Developed draft use cases • Developed draft system architecture documents

2. Regulatory Mandates: Submetering Enablement Demonstration

Investment Plan Period:	**Assignment to value Chain:**
1st Triennial Plan (2012-2014)	Demand-Side Management
Objective & Scope: On November 14, 2013, the Commission voted to approve the revised Proposed Decision (PD) Modifying the Requirements for the Development of a Plug-In Electric Vehicle Submetering Protocol set forth in D.11-07-029. The investor-owned utilities (IOUs) are to implement a two phased pilot beginning in May 2014, with funding for both phases provided by the EPIC. This project, Phase I of the pilot will (1) evaluate the demand for Single Customer of Record submetering, (2) estimate billing integration costs, (3) estimate communication costs, and (4) evaluate customer experience. IOU's and external stakeholders will finalize the temporary metering requirements, develop a template format used to report submetered, time-variant energy data, register Submeter Meter Data Management Agents and develop a Customer Enrollment Form, and finalize MDMA Performance Requirements. The IOUs will also solicit a 3rd party evaluator to evaluate customer experience.	

Deliverables: 1. Submetering Protocol Report 2. Manual Subtractive Billing Procedure 3. 3PE Final Report and Recommendation		
Metrics: 6a. TOTAL number of SCE customer participants (Phase 1 & 2 each have 500 submeter limit) 6b. Number of SCE NEM customer participants (Phase 1 & 2 each have 100 submeter limit of 500 total) 6c. Submeter MDMA on-time delivery of customer submeter interval usage data 6d. Submeter MDMA accuracy of customer submeter interval usage data		
Schedule: Q1 2014 – Q2 2016		
EPIC Funds Encumbered: $630,000	**EPIC Funds Spent:** $492,539	
Partners: N/A		
Match Funding: N/A	**Match Funding split:** N/A	**Funding Mechanism:** Pay-for-Performance Contracts
Treatment of Intellectual Property SCE has no current patents or licensing agreements signed. Future Intellectual Property is to be determined.		
Status Update On June 27, 2014, the CPUC issued Resolution E-4651, which approved SCE's request to implement a Plug-In Electric Vehicle Submetering Pilot (PEVSP) in compliance with Decision 13-11-002, in which the Commission ordered the implementation of Submetering pilots to understand the requirements of and customer experiences with non-utility plug-in electric vehicle submetering. Upon this Decision, SCE procured contract project management support (Corepoint and Choice Workforce), launched the Phase 1 Pilot announcement on SCE's plug-in electric vehicle (PEV) website, collaborated with PG&E and SDG&E on an RFP to identify a third-party evaluator, set-up internal processes and training documentation, began working with Meter Data Management Agents (MDMA's) selected by the Energy Division (ED), received CPUC approval of the Submetering Pilot tariff, and officially started the Phase 1 Pilot on 9/1/14. As of 12/31/2014, all three MDMAs had passed SCE's submeter communications testing and NRG's and Ohmconnect's purchase order (P.O.) had been executed, while Electric Motor		

Werks' P.O. was still being processed. Also, only NRG's submeter had met UL safety requirements but NRG was still testing its internal submeter communications. Consequently, SCE did not receive any Customer Enrollment Agreements from any of the MDMA's. In December 2014, the ED requested that the IOUs develop a draft Contingency Plan to possibly extend the Phase 1 Pilot. The Plan was submitted to Energy Division on January 20, 2015. Subsequently, the ED directed the IOUs to send the CPUC Executive Director a Phase 1 Submetering Pilot letter requesting an extension before the end of February 2015.

3. Distribution Planning Tool

Investment Plan Period: 1st Triennial Plan (2012-2014)	**Assignment to value Chain:** Distribution
Objective & Scope: This project involves the creation, validation and functional demonstration of an SCE distribution system model that will address the future system architecture that accommodates distributed generation (primarily solar photovoltaic), plug-in electric vehicles, energy storage, customer programs (demand response, energy efficiency), etc. The modeling software to be used allows for implementation of advanced controls (smart charging, advanced inverters, etc.) using the GridLAB-D engine. These controls will enable interaction of a residential energy module and a power flow module. Combining these two modules in GridLAB-D enables the evaluation of various technologies from an end-use customer perspective, as well as a utility perspective, allowing full evaluation from substation bank to customer. This capability does not exist today. The completed model will help SCE demonstrate, communicate and better respond to technical, customer and market challenges as the distribution system architecture evolves.	
Deliverables: • Grid LAB-D user interface • SCE circuit model • Updated GridLAB-D to handle Cyme 7 database • Base cases & benchmark • Specifications for test cases from stakeholders • Created test cases • Periodic updates/meetings with stakeholders • Executed test cases • Final project report	
Metrics: 1d. Number and percentage of customers on time variant or dynamic pricing tariffs	

1g. Percentage of demand response enabled by automated demand response technology (e.g. Auto DR) 5c. Forecast accuracy improvement 7b. Increased use of cost-effective digital information and control technology to improve reliability, security, and efficiency of the electric grid (PU Code § 8360) 7c. Dynamic optimization of grid operations and resources, including appropriate consideration for asset management and utilization of related grid operations and resources, with cost-effective full cyber security (PU Code § 8360) 7e. Development and incorporation of cost-effective demand response, demand-side resources, and energy-efficient resources (PU Code § 8360); 8c. Number of times reports are cited in scientific journals and trade publications for selected projects. 8d. Number of information sharing forums held. 8f. Technology transfer 9b. Number of technologies eligible to participate in utility energy efficiency, demand response or distributed energy resource rebate programs 9c. EPIC project results referenced in regulatory proceedings and policy reports. 9d. Successful project outcomes ready for use in California IOU grid (Path to market).		
Schedule: Q1 2014 – Q1 2016		
EPIC Funds Encumbered: $527,265	**EPIC Funds Spent:** $389,751	
Partners: N/A		
Match Funding: N/A	**Match Funding split:** N/A	**Funding Mechanism:** Pay-for-Performance Contracts
Treatment of Intellectual Property SCE has no current patents or licensing agreements signed. Future Intellectual Property is to be determined.		
Status Update On January 24, 2014, the "Distribution Planning Tool" project was authorized to proceed according to SCE's Portfolio Management Office (PMO) processes. Since being approved, one of the major accomplishments of the project was the completion of the project's detailed project management plan. Additionally, the project team successfully contracted and on-boarded the Battelle Memorial		

Institute (the developers of GridLAB-D), to support in the modeling effort. With help from Battelle, the Project Team was able to accomplish the following in 2014: • The development of a set of tools that has allowed for the import of SCE owned models in CYME format into the GridLAB-D engine. • Successful customization of the grid command software per SCE's requirements, which was essential to the model development/validation effort. • The development of the Commercial Load Models that represented the diversity of SCE's commercial customers. • The development of a model that allowed for EV Charging loads given various type of inputs (EV Type, Charger Type, Battery Size, etc.). • The development of an Energy Storage Model that can charge/discharge based on various unique parameters. The modeling work will continue in 2015 with the goal of having all of the models completed by year end.

4. Beyond the Meter: Customer Device Communications, Unification and Demonstration (Phase II)

Investment Plan Period: 1st Triennial Plan (2012-2014)	**Assignment to value Chain:** Demand-Side Management
Objective & Scope: This project intends to enable advanced control of customer-owned emerging technology. Specifically this project will target electric vehicle charging equipment, residential energy storage units, and solar inverters that leverage open standards-based communications. Ultimately, the project's goal is to demonstrate the use of modern communications (internet based or other) technology to enable advanced control functions of emerging customer technologies. Once complete, SCE will gain knowledge to prepare for anticipated greater customer adoption. SCE will develop and deliver a report on its findings.	
Deliverables: • "Enabling Communication Unification" status report • Written specifications for all three class of devices (EVSEs, solar inverters, and RESUs) • "Industry Harmonization and Closing Gaps" report • Receive devices for testing • Complete final report and recommendations	
Metrics:	

1a. Number and total nameplate capacity of distributed generation facilities
1b. Total electricity deliveries from grid-connected distributed generation facilities
1c. Avoided procurement and generation costs
1e. Peak load reduction (MW) from summer and winter programs
1f. Avoided customer energy use (kWh saved)
1g. Percentage of demand response enabled by automated demand response technology (e.g. Auto DR)
3f. Improvements in system operation efficiencies stemming from increased utility dispatchability of customer demand side management
5b. Electric system power flow congestion reduction
5f. Reduced flicker and other power quality differences
5i. Increase in the number of nodes in the power system at monitoring points
7b. Increased use of cost-effective digital information and control technology to improve reliability, security, and efficiency of the electric grid (PU Code § 8360);
7c. Dynamic optimization of grid operations and resources, including appropriate consideration for asset management and utilization of related grid operations and resources, with cost-effective full cyber security (PU Code § 8360);
7d. Deployment and integration of cost-effective distributed resources and generation, including renewable resources (PU Code § 8360);
7e. Development and incorporation of cost-effective demand response, demand-side resources, and energy-efficient resources (PU Code § 8360);
7f. Deployment of cost-effective smart technologies, including real time, automated, interactive technologies that optimize the physical operation of appliances and consumer devices for metering, communications concerning grid operations and status, and distribution automation (PU Code § 8360);
7g. Integration of cost-effective smart appliances and consumer devices (PU Code § 8360);
7h. Deployment and integration of cost-effective advanced electricity storage and peak-shaving technologies, including plug-in electric and hybrid electric vehicles, and thermal-storage air-conditioning (PU Code § 8360);
7j. Provide consumers with timely information and control options (PU Code § 8360);
7k. Develop standards for communication and interoperability of appliances and equipment connected to the electric grid, including the infrastructure serving the grid (PU Code § 8360);

7l. Identification and lowering of unreasonable or unnecessary barriers to adoption of smart grid technologies, practices, and services (PU Code § 8360) 8b. Number of reports and fact sheets published online 8d. Number of information sharing forums held. 8f. Technology transfer 9a. Description/documentation of projects that progress deployment, such as Commission approval of utility proposals for wide spread deployment or technologies included in adopted building standards. 9b. Number of technologies eligible to participate in utility energy efficiency, demand response or distributed energy resource rebate programs 9c. EPIC project results referenced in regulatory proceedings and policy reports. 9d. Successful project outcomes ready for use in California IOU grid (Path to market).		
Schedule: Q3 2014 – Q4 2016		
EPIC Funds Encumbered: $1,781,200	**EPIC Funds Spent:** $73,997	
Partners: N/A		
Match Funding: N/A	**Match Funding split:** N/A	**Funding Mechanism:** Pay-for-Performance Contracts
Treatment of Intellectual Property SCE has no current patents or licensing agreements signed. Future Intellectual Property is to be determined.		
Status Update On April 4, 2014, the "Beyond the Meter: Customer Device Communications, Unification and Demonstration (Phase II)" project was authorized to proceed according to SCE's Portfolio Management Office (PMO) processes. Since being approved, the project team executed a Request for Proposal (RFP) involving four potential vendors to provide technical support demonstrating advanced control functionality of electric vehicle supply equipment (EVSE), photovoltaic inverters, residential energy storage units (RESUs), and other devices through enabling communications to provide peak load reduction, automated demand response, customer cost savings and other grid control options. The winning bidder was Saker Systems and a purchase order (PO) was issued in December. In addition, an AutoDR system vendor was identified (AutoGrid		

Systems, Inc.) and awarded a PO in December, as well. This is the only AutoDR system vendor available in the market that is capable of transmitting SEP2.0 communications, which was validated two years ago when SCE conducted an RFP for prior development work and AutoGrid was the only bidder capable of meeting SCE's requirements. Due to both procurements taking longer than expected, SCE didn't conduct planned test bed documentation, test bed set-up, or testing of distributed energy resources technologies in 2014. These tasks have now been rescheduled to occur in 2015.

5. Portable End-to-End Test System

Investment Plan Period: 1st Triennial Plan (2012-2014)	**Assignment to value Chain:** Transmission
Objective & Scope: End-to-end transmission circuit relay testing has become essential for operations and safety. SCE technicians currently test relay protection equipment during commissioning and routing testing. Existing tools provide a limited number of scenarios (disturbances) for testing, and focus on testing protection elements; not testing system protection. This project will demonstrate a robust portable end-to-end toolset (PETS) that addresses: 1) relay protection equipment, 2) communications, and 3) provides a pass/fail grade based on the results of automated testing using numerous simulated disturbances. PETS will employ portable Real-Time Digital Simulators (RTDS's) in substations at each end of the transmission line being tested. Tests will be documented using a reporting procedure used in the Power Systems Lab today, which will ensure that all test data is properly evaluated.	
Deliverables: • PETS portable RTDS test equipment • PETS operating instructions • PETS standard test report • Final project report	
Metrics: 3a. Maintain / Reduce operations and maintenance costs 5a. Outage number, frequency and duration reductions 6a. Reduction in testing cost 6b. Number of terminals tested on a line (more than 2 terminals/substations) 7b. Increased use of cost-effective digital information and control technology to improve reliability, security, and efficiency of the electric grid (PU Code § 8360); 8b. Number of reports and fact sheets published online 8d. Number of information sharing forums held. 8f. Technology transfer	

9c. EPIC project results referenced in regulatory proceedings and policy reports. 9e. Technologies available for sale in the market place (when known).		
Schedule: Q1 2014 – Q1 2016		
EPIC Funds Encumbered: $212,837	**EPIC Funds Spent:** $244,863	
Partners: N/A		
Match Funding: N/A	**Match Funding split:** N/A	**Funding Mechanism:** Pay-for-Performance Contracts
Treatment of Intellectual Property SCE has no current patents or licensing agreements signed. Future Intellectual Property is to be determined.		
Status Update On February 21, 2014, the "Portable End-to-End Test System" project was authorized to proceed according to SCE's Portfolio Management Office (PMO) processes. Since being approved, one of the major accomplishments of the project was the completion of the project's detailed Project Management Plan. Additionally, a major focus of the project in 2014 was procuring all of the equipment and materials that are going to be needed for the demonstration phase. Equipment that was procured in 2014 was as follows: • Doble Current Voltage Amplifiers, which will be utilized by field personnel as part of the demonstration. • Real Time Digital Simulator (RTDS) interface cards (GTWIF) that are needed to enhance the existing AT LAB RTDS equipment that will be utilized to accomplish the demonstration's objectives. • General Electric L60 Line Phase Comparison System Relays, which are needed for the relay protection portion of the demonstration. • Schweitzer Communication Test Equipment, which is needed to enable the demonstrations' communications capabilities. The equipment listed above will be tested and demonstrated in 2015 as specified in the project plan.		

6. Voltage and VAR Control of SCE Transmission System

Investment Plan Period: 1st Triennial Plan (2012-2014)	**Assignment to value Chain:** Transmission
Objective & Scope: This project involves the demonstration of software and hardware products that will enable automated substation volt/var control. Southern California Edison (SCE) will demonstrate a Substation Level Voltage Control (SLVC) unit working with a transmission control center Supervisory Central Voltage Coordinator (SCVC) unit to monitor and control substation voltage. The scope of this project includes systems engineering, testing, and demonstration of the hardware and software that could be operationally employed to manage substation voltage.	
Deliverables: • Demonstration design specification • Construction documents: drawings, cable schedule, and bill of material • Monitoring console software and hardware • Advanced Volt/VAR Control (AVVC) testing • Field deployment • Controller operation monitoring and adjustment • AVVC final report and closeout	
Metrics: 3a. Maintain / Reduce operations and maintenance costs 3c. Reduction in electrical losses in the transmission and distribution system 3d. Number of operations of various existing equipment types (such as voltage regulation) before and after adoption of a new smart grid component, as an indicator of possible equipment life extensions from reduced wear and tear 7b. Increased use of cost-effective digital information and control technology to improve reliability, security, and efficiency of the electric grid (PU Code § 8360) 7c. Dynamic optimization of grid operations and resources, including appropriate consideration for asset management and utilization of related grid operations and resources, with cost-effective full cyber security (PU Code § 8360) 8b. Number of reports and fact sheets published online 8d. Number of information sharing forums held. 8f. Technology transfer 9c. EPIC project results referenced in regulatory proceedings and policy reports. 9d. Successful project outcomes ready for use in California IOU grid (Path to market).	
Schedule: Q1 2014 – Q2 2018	

EPIC Funds Encumbered: $0	**EPIC Funds Spent:** $87,439	
Partners: N/A		
Match Funding: N/A	**Match Funding split:** N/A	**Funding Mechanism:** Pay-for-Performance Contracts
Treatment of Intellectual Property SCE has no current patents or licensing agreements signed. Future Intellectual Property is to be determined.		
Status Update On January 20, 2014, the "Voltage and VAR Control of SCE Transmission System" project was authorized to proceed according to SCE's Portfolio Management Office (PMO) processes. In 2014, the project team focused on gathering all of the requirements that will be needed for the demonstration phase of the project. Moreover, the following SCE Processes were initiated: • Emergent Project Evaluation Form (EPEF) Process, which is required when a project involves equipment installation in a substation or on a transmission line. Additionally, this process is essential for placement in the Integrated Work Plan (IWP), which is a requirement in order to have Substation Construction and Maintenance (SC&M) schedule field resources to support the demonstration work. • CEII / NERC CIP Evaluation Processes, which are required when a project requires communication equipment or sharing specific information about a substation or transmission line that may be classified as critical electric infrastructure information (CEII) or require critical infrastructure protection (NERC CIP). These processes are prerequisites that need to be fulfilled before the project's demonstration phase can commence.		

7. Superconducting Transformer (SCX) Demonstration

Investment Plan Period: 1st Triennial Plan (2012-2014)	**Assignment to value Chain:** Distribution
Objective & Scope: <u>This project was cancelled in 2014. No further work is planned.</u> *Original Project Objective and Scope:*	

SCE will support this $21M American Reinvestment and Recovery Act (ARRA) Superconducting Transformer (SCX) project by providing technical expertise and installing and operating the transformer at SCE's MacArthur substation. The SCX prime contractor is SuperPower Inc. (SPI), teamed with SPX Transformer Solutions (SPX) {formerly Waukesha Electric Systems}. SCE has provided two letters of commitment for SCX. The SCX project will develop a 28 MVA High Temperature Superconducting, Fault Current Limiting (HTS-FCL) transformer. The transformer is expected to be installed in 2015. SCE is supporting this project and is not an ARRA grant sub-recipient. SCE is being reimbursed for its effort by EPIC. SCE's participation in this project was previously approved under the now defunct California Energy Commission's PIER program.		
Deliverables: • N/A		
Metrics: N/A		
Schedule: Project was cancelled in Q2 2014.		
EPIC Funds Encumbered: $0	**EPIC Funds Spent:** $10,241	
Partners: N/A		
Match Funding: N/A	**Match Funding split:** N/A	**Funding Mechanism:** Pay-for-Performance Contracts
Treatment of Intellectual Property SCE has no current patents or licensing agreements signed.		
Status Update SPX Transformer Solutions officially withdrew support from the project in Q2, 2014. As a result, SuperPower could no longer complete the delivery of the HTS-FCL transformer to SCE. SuperPower communicated the desire to identify a new transformer manufacturer as a partner, but was unable to secure one within a reasonable timeframe. At the time of SPX's withdrawal, SCE did not have an executed agreement with SuperPower. SCE formally cancelled this project in Q3 2014.		

8. State Estimation Using Phasor Measurement Technologies

Investment Plan Period: 1st Triennial Plan (2012-2014)	**Assignment to value Chain:** Grid Operation/Market Design

Objective & Scope: Accurate and timely power system state estimation data is essential for understanding system health and provides the basis for corrective action that could avoid failures and outages. This project will demonstrate the utility of improved static system state estimation using Phasor Measurement Unit (PMU) data in concert with existing systems. Enhancements to static state estimation will be investigated using two approaches: 1) by using GPS time to synchronize PMU data with Supervisory Control and Data Acquisition (SCADA) system data; 2) by augmenting SCE's existing conventional state estimator with a PMU based Linear State Estimator (LSE).		
Deliverables: • Demonstrated algorithm performance based on observations. • Report that addresses tests conducted and test results. • Final project report.		
Metrics: 6a. Enhanced grid monitoring and on-line analysis for resiliency 7b. Increased use of cost-effective digital information and control technology to improve reliability, security, and efficiency of the electric grid (PU Code § 8360); 8b. Number of reports and fact sheets published online 8d. Number of information sharing forums held. 8f. Technology transfer 9d. Successful project outcomes ready for use in California IOU grid (Path to market). 9e. Technologies available for sale in the market place (when known).		
Schedule: Q2 2014 – Q3 2017		
EPIC Funds Encumbered: $0	**EPIC Funds Spent:** $5,503	
Partners: N/A		
Match Funding: N/A	**Match Funding split:** N/A	**Funding Mechanism:** Pay-for-Performance Contracts
Treatment of Intellectual Property SCE has no current patents or licensing agreements signed. Future Intellectual Property is to be determined.		
Status Update		

On April 15, 2014, the "State Estimation Using Phasor Measurement Technologies" project was authorized to proceed according to SCE's Portfolio Management Office (PMO) processes. In 2014, the project team focused on gathering all of the requirements that will be needed for the demonstration phase of the project.

9. Wide-Area Reliability Management & Control

Investment Plan Period: 1st Triennial Plan (2012-2014)	**Assignment to value Chain:** Grid Operation/Market Design	
Objective & Scope: With the planned wind and solar portfolio of 33% penetration, a review of the integration strategy implemented in the SCE bulk system is needed. The basic premise for the integration strategy is that a failure in one area of the grid should not result in failures elsewhere. The approach is to minimize failures with well designed, maintained, operated and coordinated power grids. New technologies can provide coordinated wide-area monitoring, protection, and control systems with pattern recognition and advance warning capabilities. This project will demonstrate new technologies to manage transmission system control devices to prevent cascading outages and maintain system integrity.		
Deliverables: • Lab demonstration of control algorithms using real time simulations with Hardware in the loop (RTWHIL). • Develop recommendations based on the control system testing. • Final project report		
Metrics: 6a. Enhanced contingency planning for minimizing cascading outages 8b. Number of reports and fact sheets published online 8d. Number of information sharing forums held. 8f. Technology transfer		
Schedule: Q2 2014 – Q2 2017		
EPIC Funds Encumbered: $600,000	**EPIC Funds Spent:** $44,003	
Partners: N/A		
Match Funding: N/A	**Match Funding split:** N/A	**Funding Mechanism:**

		Pay-for-Performance Contracts
Treatment of Intellectual Property SCE has no current patents or licensing agreements signed. Future Intellectual Property is to be determined.		
Status Update On March 6, 2014, the "Wide-Area Reliability Management & Control" project was authorized to proceed according to SCE's Portfolio Management Office (PMO) processes. Since being approved, the project team successfully contracted and on-boarded the V&R Energy Systems Research Inc. (V&R) to support SCE in the use of V&R Energy's Physical and Operational Margins (POM) suite of software. Moreover, V&R assisted SCE in the use of its Potential Cascading Modes (PCM) tool to determine conditions for which SCE's transmission system may potentially move towards cascading outages. For next steps, the project will demonstrate new operating strategies and technologies in SCE's AT Lab environment to avoid cascading outages.		

10. Distributed Optimized Storage (DOS)

Investment Plan Period: 1st Triennial Plan (2012-2014)	**Assignment to value Chain:** Distribution
Objective & Scope: This field pilot will demonstrate end-to-end integration of multiple energy storage devices on a distribution circuit/feeder to provide a turn-key solution that can cost-effectively be considered for SCE's distribution system, where identified feeders can benefit from grid optimization and variable energy resources (VER) integration. To accomplish this, the project team will first identify distribution system feeders where multiple energy storage devices can be operated centrally. Once a feeder is selected, the energy storage devices will be deployed and tested to demonstrate seamless utility integration, control, and operation of these devices using a single centralized controller. At the end of the project, SCE will have established clear methodologies for identifying feeders that can benefit from distributed energy storage devices and will have established necessary standards-based hardware and control function requirements for grid optimization and renewables integration with distributed energy storage devices.	
Deliverables: • Target feeder models • Selected feeders for the project • Requirement development for solution • RFP for all devices	

• Procurement of all devices • Evaluation of centralized controller and representative energy storage devices • Test platform readiness for protection evaluation • Testing of various energy storage footprints for protection • Engagement of all expected SCE departments for deployment • Procurement of M&V equipment • Deployment of M&V Equipment and energy storage devices and centralized controller • M&V complete and final report	
Metrics: 1c. Avoided procurement and generation costs 1i. Nameplate capacity (MW) of grid-connected energy storage 3b. Maintain / Reduce capital costs 5f. Reduced flicker and other power quality differences 5i. Increase in the number of nodes in the power system at monitoring points 6a. Benefits in energy storage sizing through device operation optimization 6b. Benefits in distributed energy storage deployment vs. centralized energy storage deployment 7a. Description of the issues, project(s), and the results or outcomes 7b. Increased use of cost-effective digital information and control technology to improve reliability, security, and efficiency of the electric grid (PU Code § 8360) 7c. Dynamic optimization of grid operations and resources, including appropriate consideration for asset management and utilization of related grid operations and resources, with cost-effective full cyber security (PU Code § 8360) 7l. Identification and lowering of unreasonable or unnecessary barriers to adoption of smart grid technologies, practices, and services (PU Code § 8360) 8b. Number of reports and fact sheets published online 8d. Number of information sharing forums held. 8f. Technology transfer 9c. EPIC project results referenced in regulatory proceedings and policy reports.	
Schedule: Q2 2014 – Q4 2016	
EPIC Funds Encumbered: $0	**EPIC Funds Spent:** $28,297
Partners: TBD	

Match Funding: N/A	**Match Funding split:** N/A	**Funding Mechanism:** Pay-for-Performance Contracts
Treatment of Intellectual Property SCE has no current patents or licensing agreements signed. Future Intellectual Property is to be determined.		
Status Update On February 7, 2014, the "Distributed Optimized Storage" project was authorized to proceed according to SCE's Portfolio Management Office (PMO) processes. For 2014, one of the key activities included site visits and meetings with potential energy storage solution providers to discuss the capabilities of their equipment. This was the first initial investigating step in the process for procuring the equipment for this project. For next steps, SCE is working to finalize its requirements specification for the project's energy storage system demonstration and initiate the procurement process.		

11. Outage Management and Customer Voltage Data Analytics Demonstration

Investment Plan Period: 1st Triennial Plan (2012-2014)	**Assignment to value Chain:** Grid Operation/Market Design
Objective & Scope: Voltage data and customer energy usage data from the Smart Meter network can be collected and leveraged for a range of initiatives focused on achieving operational benefits for Transmission & Distribution. Before a full implementation of this new approach can be considered, a Pilot project will be conducted to understand how voltage and consumption data can be best collected, stored, and integrated with T&D applications to provide analytics and visualization capabilities. Further, Smart Meter outage and restoration event (time stamp) data can be leveraged to improve customer outage duration and frequency calculations. Various stakeholders in T&D have identified business needs to pursue more effective and efficient ways of calculating SAIDI (System Average Interruption Duration Index), SAIFI (System Average Interruption Frequency Index), and MAIFI (Momentary Average Interruption Frequency Index) for internal and external reporting. Before a full implementation of this new approach can be considered, a Pilot project will be conducted to understand the feasibility and value of providing smart meter data inputs and enhanced methodology for calculating the Indexes. The Pilot will focus on a limited geography (SCE District or Region) to obtain the Smart Meter inputs to calculate the Indexes and compare that number with the current	

methodologies to identify any anomalies. A hybrid approach using the Smart Meter-based input data combined with a better comprehensive electric connectivity model obtained from GIS may provide a more efficient and effective way of calculating the Indexes. Additionally, an effort to evaluate the accuracy of the Transformer Load Mapping data will be carried out.		
Deliverables: • Voltage Analytics for Power Quality Model • Simulated Circuit Condition Model • Customer and Transformer Load Analysis Model • Enhanced Inputs and SAIDI/SAIFI Analysis • Final Project Report		
Metrics: 3a. Maintain / Reduce operations and maintenance costs 5c. Forecast accuracy improvement 5f. Reduced flicker and other power quality differences 6a. Enhance Outage Reporting Accuracy and SAIDI/SAIFI Calculation 8b. Number of reports and fact sheets published online 8f. Technology transfer 9c. EPIC project results referenced in regulatory proceedings and policy reports.		
Schedule: Q1 2014 – Q2 2015		
EPIC Funds Encumbered: $664,436	**EPIC Funds Spent:** $249,490	
Partners: N/A		
Match Funding: N/A	**Match Funding split:** N/A	**Funding Mechanism:** Pay-for-Performance Contracts
Treatment of Intellectual Property SCE has no current patents or licensing agreements signed. Future Intellectual Property is to be determined.		
Status Update On February 19, 2014, the "Outage Management and Customer Voltage Data Analytics Demonstration" project was authorized to proceed according to SCE's Portfolio Management Office (PMO) processes. Since being approved, the project team awarded a purchase order (P.O.) to Cyient to demonstrate a suite of data analytics and visualization tools that utilize customer consumption and voltage data, as well as meter events and exceptions, and integrate with SCE's GIS (geographic information system) network.		

By the end of December, Cyient provided SCE with a customer voltage data analytics application, as well as converted the majority of SCE's smart meter data into a standard database format. SCE expects the data conversion task to be completed in Q1 of 2015. With regards to the Outage Management aspect of the project, the SAIDI/SAIFI pilot was completed in 2014. The results of this pilot indicated that: A) SCE's current process of outage validation is labor intensive; B) opportunities to optimize the validation process exist by leveraging smart meter outage events; and C) calculated SAIDI values are accurate and efficient. Final recommendations included implementation of the Automated Outage Validation, interface modules between databases to allow automated data sharing, and the necessity of a feasibility study to retrieve or generate non-Itron and non-communicating meter customer minutes of interruption (CMI).

12. SA-3 Phase III Demonstration

Investment Plan Period:	**Assignment to value Chain:**
1st Triennial Plan (2012-2014)	Transmission
Objective & Scope: This project is intended to apply the findings from the Substation Automation Three (SA-3) Phase II (Irvine Smart Grid Demonstration) project to demonstrate real solutions to automation problems faced by SCE today. The project will demonstrate two standards-based automation solutions (sub-projects) as follows: Subproject 1 (Bulk Electric System) will address issues unique to transmission substations including the integration of centrally managed critical cyber security (CCS) systems and NERC CIP compliance; Subproject 2 (Hybrid) will address the integration of SA-3 capabilities with SAS and SA-2 legacy systems. Furthermore, as part of the systems engineering the SA-3 technical team will demonstrate two automation tools as follows: Subproject 3 (Intelligent Alarming) will allow substation operators to pin-point root cause issues by analyzing the various scenarios and implement an intelligent alarming system that can identify the source of the problem and give operators only the relevant information needed to make informed decisions; and Subproject 4 (Real Time Digital Simulator (RTDS) Mobile Testing) will explore the benefits of an automated testing using a mobile RTDS unit, and propose test methodologies that can be implemented into the factory acceptance testing (FAT) and site acceptance testing (SAT) testing process.	
Deliverables: • Bulk & Hybrid System Design Drawings & Diagrams • Hybrid System Deployment and Demonstration • BES System Deployment and Demonstration	

• Final Project Report
Metrics: 3a. Maintain / Reduce operations and maintenance costs 3b. Maintain / Reduce capital costs 5a. Outage number, frequency and duration reductions 5i. Increase in the number of nodes in the power system at monitoring points 6a. Increased cybersecurity 7b. Increased use of cost-effective digital information and control technology to improve reliability, security, and efficiency of the electric grid (PU Code § 8360); 7c. Dynamic optimization of grid operations and resources, including appropriate consideration for asset management and utilization of related grid operations and resources, with cost-effective full cyber security (PU Code § 8360); 7k. Develop standards for communication and interoperability of appliances and equipment connected to the electric grid, including the infrastructure serving the grid (PU Code § 8360); 8b. Number of reports and fact sheets published online 8d. Number of information sharing forums held. 8f. Technology transfer 9c. EPIC project results referenced in regulatory proceedings and policy reports. 9d. Successful project outcomes ready for use in California IOU grid (Path to market). 9e. Technologies available for sale in the market place (when known).
Schedule: Q1 2014 – Q4 2016

EPIC Funds Encumbered: $45,074	**EPIC Funds Spent:** $73,855

Partners: N/A

Match Funding: N/A	**Match Funding split:** N/A	**Funding Mechanism:** Pay-for-Performance Contracts

Treatment of Intellectual Property: SCE has no current patents or licensing agreements signed. Future Intellectual Property is to be determined.
Status Update: On February 28, 2014, the “Substation Automation-3 Phase III Demonstration” project was authorized to proceed according to SCE’s Portfolio Management Office (PMO) processes. Since being

approved, the project team purchased programmable logic controller (PLC) materials for the Hybrid solution. In addition, custom carts were procured to hold and help transport substation relay racks for the project. While the project team has been able to procure a few materials, the majority of the planned 2014 work was delayed due to ongoing specifications development work that is being funded outside of EPIC. This specifications development is anticipated to finish in Q1 of 2015, which will enable SCE to issue a Request for Proposal (RFP) for necessary consulting services, as well as procure remaining Hybrid solution materials in 2015.

13. Next-Generation Distribution Automation

Investment Plan Period: 1st Triennial Plan (2012-2014)	**Assignment to value Chain:** Distribution
Objective & Scope: SCE's current distribution automation scheme often relies on human intervention that can take several minutes (or longer during storm conditions) to isolate faults, is only capable of automatically restoring power to half of the customers on the affected circuit, and needs to be replaced due to assets nearing the end of their lifecycle. In addition, the self-healing circuit being demonstrated as part of the Irvine Smart Grid Demonstration is unique to the two participating circuits and may not be easily applied elsewhere. As a result, the Next-Generation Distribution Automation project intends to demonstrate a cost-effective advanced automation solution that can be applied to the majority of SCE's distribution circuits. This solution will utilize automated switching devices combined with the latest protection and wireless communication technologies to enable detection and isolation of faults before the substation circuit breaker is opened, so that at least 2/3 of the circuit load can be restored quickly. This will improve reliability and reduce customer minutes of interruption. The system will also have directional power flow sensing to help SCE better manage distributed energy resources on the distribution system. At the end of the project, SCE will provide reports on the field demonstrations and recommend next steps for new standards for next-generation distribution automation.	
Deliverables: • Remote Intelligent Switch demonstration and report • Overhead and Underground Remote Fault Indicators demonstration and report • Intelligent Fuses demonstration and report • Power Electronic Transformer demonstration and report • Secondary Network Monitoring demonstration and report • Final Project Report	
Metrics:	

<table>
<tr><td colspan="3">3a. Maintain / Reduce operations and maintenance costs
3d. Number of operations of various existing equipment types (such as voltage regulation) before and after adoption of a new smart grid component, as an indicator of possible equipment life extensions from reduced wear and tear
5a. Outage number, frequency and duration reductions
5c. Forecast accuracy improvement
5d. Public safety improvement and hazard exposure reduction
5e. Utility worker safety improvement and hazard exposure reduction
5i. Increase in the number of nodes in the power system at monitoring points
6a. Improve data accuracy for distribution substation planning process
7b. Increased use of cost-effective digital information and control technology to improve reliability, security, and efficiency of the electric grid (PU Code § 8360);
7c. Dynamic optimization of grid operations and resources, including appropriate consideration for asset management and utilization of related grid operations and resources, with cost-effective full cyber security (PU Code § 8360);
7d. Deployment and integration of cost-effective distributed resources and generation, including renewable resources (PU Code § 8360);
7k. Develop standards for communication and interoperability of appliances and equipment connected to the electric grid, including the infrastructure serving the grid (PU Code § 8360);
8b. Number of reports and fact sheets published online
8d. Number of information sharing forums held.
8f. Technology transfer
9c. EPIC project results referenced in regulatory proceedings and policy reports.
9d. Successful project outcomes ready for use in California IOU grid (Path to market).
9e. Technologies available for sale in the market place (when known).</td></tr>
<tr><td colspan="3">Schedule:
Q1 2014 – Q4 2016</td></tr>
<tr><td colspan="2">EPIC Funds Encumbered:
$ 1,075,465</td><td>EPIC Funds Spent:
$1,122,718</td></tr>
<tr><td colspan="3">Partners:
N/A</td></tr>
<tr><td>Match Funding:
N/A</td><td>Match Funding split:
N/A</td><td>Funding Mechanism:</td></tr>
</table>

		Pay-for-Performance Contracts
Treatment of Intellectual Property: SCE has no current patents or licensing agreements signed. Future Intellectual Property is to be determined.		
Status Update: On February 7, 2014, the "Next-Generation Distribution Automation" project was authorized to proceed according to SCE's Portfolio Management Office (PMO) processes. Since being approved, the project team has issued a Request for Information (RFI) for a proposed Remote Intelligent Switch (RIS) solution. Seven (7) potential suppliers responded to the RFI with a proposed RIS solution. The project team plans to follow-up on the RIS RFI with a Request for Proposal (RFP) in early 2015. In 2014, SCE also made significant progress on the Remote Fault Indicator (RFI) aspect of the project. The project team procured and tested the functionality and low-current accuracy of RFI's from Sentient Energy, GridSentry, and Schweitzer Engineering Laboratories (SEL). After conducting lab evaluations, 70% of the procured Sentient Energy and 20% of the SEL RFI's were installed on various SCE distribution circuits for field demonstration. A process was established to monitor the performance of these devices in the field, as well as create a link between the RFI's and SCE's Distribution Management System (DMS). While the early results have been promising, more data in 2015 will help SCE determine if these RFI devices can reliability provide necessary bi-directional features and integrate into SCE's network.		

14. Enhanced Infrastructure Technology Evaluation

Investment Plan Period: 1st Triennial Plan (2012-2014)	**Assignment to value Chain:** Distribution
Objective & Scope: At the request of Distribution Apparatus Engineering (DAE) group's lead Civil Engineer, Advanced Technology (AT) will investigate, pilot, and come up with recommendations for enhanced infrastructure technologies. The project will focus on evaluating advanced: distribution sectional poles (hybrid, coatings, etc.), concealed communications on assets, vault monitoring systems (temperature, water, etc.), and vault ventilation systems. Funding is required to investigate the problem, engineering, pilot alternatives, and come up with recommendations. DAE sees the need for poles that can withstand fires and have a better life cycle cost, and provide installation efficiencies when compared to existing wood pole replacements. Due to increased city restrictions, there is a need	

for more concealed communications on our assets such as streetlights (e.g., on the ISGD project, the City of Irvine wouldn't allow SCE to install repeaters on streetlights due to aesthetics). DAE also sees the need for technologies that may minimize premature vault change-outs (avg. replacement cost is ~$250K). At present, DAE does not have the necessary real-time vault data to sufficiently address the increasing vault deterioration issue nor do we utilize a hardened ventilation system that would help this issue by removing the excess heat out of the vaults (blowers last ~ 2 years, need better bearings for blower motors, etc.).		
Deliverables: • Vault Monitoring Technologies Demonstration Report • Vault Ventilation Field Demonstration Report • Hybrid Pole Demonstration Report • Concealed Communication Assets Demonstration Report • Final Project Report		
Metrics: 3a. Maintain / Reduce operations and maintenance costs 3b. Maintain / Reduce capital costs 4g. Wildlife fatality reductions (electrocutions, collisions) 5a. Outage number, frequency and duration reductions 6a. Operating performance of underground vault monitoring equipment 8b. Number of reports and fact sheets published online 8d. Number of information sharing forums held. 8f. Technology transfer 9c. EPIC project results referenced in regulatory proceedings and policy reports.		
Schedule: Q2 2014 – Q4 2016		
EPIC Funds Encumbered: $17,853	**EPIC Funds Spent:** $30,449	
Partners: N/A		
Match Funding: N/A	**Match Funding split:** N/A	**Funding Mechanism:** Pay-for-Performance Contracts
Treatment of Intellectual Property: SCE has no current patents or licensing agreements signed. Future Intellectual Property is to be determined.		
Status Update: On March 25, 2014, the "Enhanced Infrastructure Technology Evaluation" project was authorized to proceed according to SCE's		

Portfolio Management Office (PMO) processes. Since being approved, the project team has collected information (e.g., ID#, # of transformers, vault dimensions, etc.) on SCE's underground vaults and completed a vault heat characteristic study with the company (American Restore) that repairs SCE's vaults. The results of this study will be utilized to determine the appropriate vault cooling system that will be demonstrated in 2015. In addition, temperature monitors (Rivcomm) underwent lab evaluation and had to be modified by the manufacturer due to failures identified during testing. After receiving the modified devices, the temperature monitors were installed in SCE's underground vaults in Palm Springs in November. Results will be reviewed and reported out in 2015.

15. Dynamic Line Rating Demonstration

Investment Plan Period: 1st Triennial Plan (2012-2014)	**Assignment to value Chain:** Transmission
Objective & Scope: Transmission line owners apply fixed thermal rating limits for power transmission lines. These limits are based on conservative assumptions of wind speed, ambient temperature and solar radiation. They are established to ensure compliance with safety codes, maintain the integrity of line materials, and ensure network reliability. Monitored transmission lines can be more fully utilized to improve network efficiency. Line tension is directly related to average conductor temperature. The tension of a power line is directly related to the current rating of the line. This project will demonstrate the CAT-1 dynamic line rating solution. The CAT-1 system will monitor the tension of transmission lines in real-time to calculate a dynamic daily rating. If successful, this solution will allow SCE to perform real-time calculations in order to determine dynamic daily rating of transmission lines, thus increasing transmission line capacity.	
Deliverables: • Installed Dynamic Line Rating System Prototypes • Final Project Report	
Metrics: 3b. Maintain / Reduce capital costs 5b. Electric system power flow congestion reduction 6a. Increased power flow throughput 7b. Increased use of cost-effective digital information and control technology to improve reliability, security, and efficiency of the electric grid (PU Code § 8360); 7c. Dynamic optimization of grid operations and resources, including appropriate consideration for asset management and	

utilization of related grid operations and resources, with cost-effective full cyber security (PU Code § 8360); 8b. Number of reports and fact sheets published online 8d. Number of information sharing forums held. 8f. Technology transfer 9c. EPIC project results referenced in regulatory proceedings and policy reports. 9d. Successful project outcomes ready for use in California IOU grid (Path to market). 9e. Technologies available for sale in the market place (when known).		
Schedule: Q2 2014 – Q4 2016		
EPIC Funds Encumbered: $240,483	**EPIC Funds Spent:** $22,830	
Partners: N/A		
Match Funding: N/A	**Match Funding split:** N/A	**Funding Mechanism:** Pay-for-Performance Contracts
Treatment of Intellectual Property: SCE has no current patents or licensing agreements signed. Future Intellectual Property is to be determined.		
Status Update: On March 31, 2014, the "Dynamic Line Rating Demonstration" project was authorized to proceed according to SCE's Portfolio Management Office (PMO) processes. Since being approved, the project team initiated the procurement process for the CAT-1 System that will be demonstrated. (Note: The original scope of the project was that a second system, the SMARTLINE system, would also be procured, tested, and demonstrated. During the detailed planning stage however, it was determined that the communication requirements of this system could not be support by SCE's IT infrastructure at this time. Thus, the SMARTLINE system was removed from the scope of this demonstration project). In 2014, the project team focused on gathering all of the requirements that will be needed for the demonstration phase of the project. Moreover, the following SCE Processes were initiated: • Emergent Project Evaluation Form (EPEF) Process, which is required when a project involves equipment installation in a substation or on a transmission line. Additionally, this process is		

essential for placement in the Integrated Work Plan (IWP), which is a requirement in order to have Substation Construction and Maintenance (SC&M) schedule field resources to support the demonstration work. • CEII / NERC CIP Evaluation Processes, which are required when a project requires communication equipment or sharing specific information about a substation or transmission line that may be classified as critical electric infrastructure information (CEII) or require critical infrastructure protection (NERC CIP). These processes are prerequisites that need to be fulfilled before the project's demonstration phase can commence.

16. Cyber-Intrusion Auto-Response and Policy Management System (CAPMS)

Investment Plan Period: 1st Triennial Plan (2012-2014)	**Assignment to value Chain:** Grid Operation/Market Design
Objective & Scope: Viasat in partnership with SCE and Duke Energy has been awarded a DOE contract (DE-0E0000675) to deploy a Cyber-intrusion Auto-response and Policy Management System (CAPMS) to provide real-time analysis of root cause, extent and consequence of an ongoing cyber intrusion using proactive security measures. CAPMS will be demonstrated in the SCE Advanced Technology labs at Westminster, CA. The DOE contract value is $6M with SCE & Duke Energy offering a cost share of $1.6M and $1.2M respectively.	
Deliverables: • System Requirements Artifact • Measurement and Validation Data • System Test Results • Final Project Report	
Metrics: 5a. Outage number, frequency and duration reductions 7b. Increased use of cost-effective digital information and control technology to improve reliability, security, and efficiency of the electric grid (PU Code § 8360); 7l. Identification and lowering of unreasonable or unnecessary barriers to adoption of smart grid technologies, practices, and services (PU Code § 8360) 8b. Number of reports and fact sheets published online 8d. Number of information sharing forums held. 8f. Technology transfer 10a. Description or documentation of funding or contributions committed by others	

10c. Dollar value of funding or contributions committed by others.		
Schedule: Q3 2014 – Q3 2015		
EPIC Funds Encumbered: $920,344	**EPIC Funds Spent:** $310,672	
Partners: Viasat; Duke Energy		
Match Funding: N/A	**Match Funding split:** N/A	**Funding Mechanism:** Pay-for-Performance Contracts
Treatment of Intellectual Property: SCE has no current patents or licensing agreements signed. Future Intellectual Property is to be determined.		
Status Update: On August 5, 2014, the "Cyber-Intrusion Auto-Response and Policy Management System" project was authorized to proceed according to SCE's Portfolio Management Office (PMO) processes. Since being approved, the project team issued a purchase order for Saker Systems to provide engineering support to assemble the requirements and architecture for ViaSat's CAPMS testbed in SCE's Advanced Technology Lab. The CAPMS System Requirements Document was completed in December along with a draft version of synchrophasor threat scenarios that will be utilized during the demonstration phase. Initial procurements for computing, networking, and phasor hardware were completed in December, and equipment staging began in the AT Lab.		

5. Conclusion

a) Key Results for the Year for SCE's EPIC Program

For the period between January 1 and December 31, 2014, SCE expended a total of $3,893,446 toward project costs and $578,224 toward administrative costs for a grand total of $4,471,670. SCE's cumulative expenses over the lifespan of its 2012 – 2014 EPIC program

amount to $4,586,147[34]. Furthermore, SCE is pleased to share that approximately $2,301,639 was spent toward California-based businesses and labor resources, amounting to 59% of all 2014 project expenditures. Lastly, SCE committed $37,016,526 toward projects and encumbered $9,087,067 through executed purchase orders during this period; SCE has $0 in uncommitted EPIC funding.

SCE launched 16 projects and subsequently cancelled 1 project during the calendar year 2014. All 15 projects received funding commitments through SCE's Advanced Technology portfolio management process. Another accomplishment for SCE in 2014 was the completion of formal EPIC governance policies in the areas of accounting, project staffing, procurement, program operations, and regulatory compliance. SCE elected to revise one previously approved project's name from "Regional Grid Optimization" to "Integrated Grid Project" in order to better reflect the project's revised scope to include elements of the DRP and PRP.

In Q3 2014, SCE identified an opportunity to leverage EPIC funding with the U.S. Department of Energy and approved the "Cyber-Intrusion Auto-Response and Policy Management System (CAPMS)" project. CAPMS was not originally included as a potential project activity in SCE's 2012 – 2014 Investment Plan Application, although it was included in its 2015 – 2017 Investment Plan Application and discussed publicly during the 2014 stakeholder workshops. Due to federal cost-share opportunities being unpredictable and often requiring short timelines for generating proposals, SCE elected to exercise its flexibility as a Program Administrator and provided its support to Viasat's DOE proposal as a partner and cost-share contributor. In the future, SCE will conform to the off-cycle project approval process as required by the Commission.

[34] In 2013, SCE expended a total of $114,477 in administrative costs to support business readiness and metrics development activities.

SCE continued an open dialogue with stakeholders by participating in three engagements during calendar year 2014. The EPIC IOU Administrators held a joint-webinar on February 21, 2014 to solicit initial stakeholder and public input on the initiatives and scope for each IOU's proposed 2015 – 2017 EPIC Triennial Investment Plan. The CEC held a Northern California public workshop on March 17, 2014 and SCE, at its Advanced Technology facility, hosted a Southern California public workshop on March 21, 2014. SCE appreciated stakeholders' comments and directly incorporated the comments into the EPIC Investment Plan's process.

Lastly, SCE developed and submitted its 2015 – 2017 Investment Plan Application on May 1, 2014. Prior to submitting its application, and to prevent duplication of existing work, SCE and the other IOU's engaged the Electric Power Research Institute (EPRI) – and hosted an in-depth discussion on gaps in the California utility industry's technology demonstrations and deployments. EPRI ultimately concluded that gaps do exist in utility technology demonstrations and deployments, and that these gaps could be filled with the EPIC Program proposed by the IOUs.

b) <u>Next Steps for EPIC Investment Plan (stakeholder workshops etc.)</u>

During the calendar year 2015, SCE will continue to focus on successfully executing its 15 approved projects as part of its 2012 – 2014 Investment Plan. Key program implementation activities will include finalizing demonstration plans and requirement specifications, initiating new procurements, continuing technology deployments in SCE's field and lab environments, and executing rigorous testing, measurement, and verification processes. SCE anticipates that it will complete 2 projects in 2015, and looks forward to sharing the results with the Commission in its next annual report.

SCE did not initiate a Request for Proposals (RFP) process for specialty engineering and technical services (SETS) in 2014 as originally planned. Instead, SCE utilized its existing procurement processes for selecting contract labor resources to support the EPIC Program. The SETS competitive procurement is intended to establish contract vehicles, with teams composed of diverse business entities and large vendors, to facilitate the efficient solicitation and competitive award of task orders. SCE may opt to revisit the SETS opportunity at a later date, and will keep the Commission updated in subsequent annual reports.

Furthermore, SCE will continue its open dialogue with stakeholders through two planned workshops in 2015. In these workshops, SCE and the other EPIC Administrators will provide stakeholders with an update on key accomplishments and learnings obtained from their respective EPIC programs. In addition, SCE will discuss the initiatives and proposed project activities that are planned for execution under its 2015 – 2017 Investment Plan. Lastly, SCE will inform stakeholders of its plans surrounding potential contracting opportunities and direct them to the EPIC webpage for the latest information on the EPIC program.

c) Issues That May Have Major Impact on Progress in Projects

SCE manages its EPIC program through a structured and highly disciplined portfolio management governance framework. As part of this portfolio management process, SCE performs a critical assessment of all projects on a quarterly basis to A) review the financial and schedule status of EPIC projects vis-à-vis baselined project management plans; and, B) review the technical viability, value proposition and deployment readiness for each EPIC project in light of changing market and industry dynamics. Given the volatility that characterizes new smart grid technologies, particularly for those in the pre-commercial stage, SCE works to ensure that its portfolio management process incorporates a real-time feedback loop to address late breaking

market developments and learnings. Furthermore, the launching of new corporate or regulatory initiatives[35] after an investment plan has been approved by the Commission may warrant updates to certain EPIC projects as well. As a result of this process, SCE may find it prudent to enhance, revise, or cancel projects in order to accommodate and adapt to emergent regulatory directives or new industry intelligence on specific technologies.

Finally, SCE does not anticipate any major hurdles related to procurement or intellectual property treatment that may preclude the execution of its EPIC program at this time.

[35] The CPUC's Distribution Resources Plan is one prime example.

CERTIFICATE OF SERVICE

I hereby certify that, pursuant to the Commission's Rules of Practice and Procedure, I have this day served a true copy of SOUTHERN CALIFORNIA EDISON COMPANY'S (U 338-E) ANNUAL REPORT ON THE STATUS OF THE ELECTRIC PROGRAM INVESTMENT CHARGE PROGRAM on all parties identified on the attached service list(s). Service was effected by one or more means indicated below:

Transmitting the copies via e-mail to all parties who have provided an e-mail address. First class mail will be used if electronic service cannot be effectuated.

Executed this **28th day of February, 2015**, at Rosemead, California.

_____

XXX
Project Analyst
SOUTHERN CALIFORNIA EDISON COMPANY

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