

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

Application of Pacific Gas and Electric Company (U 39 M), San Diego Gas & Electric Company (U 902 E), and Southern California Edison Company (U 338 E) for Authority to Increase Electric Rates and Charges to Recover Costs of Research and Development Agreement with Lawrence Livermore National Laboratory for 21<sup>st</sup> Century Energy Systems

A.11-07-\_\_\_

**JOINT APPLICATION OF PACIFIC GAS AND ELECTRIC  
COMPANY (PG&E) SAN DIEGO GAS & ELECTRIC  
COMPANY (SDG&E) AND SOUTHERN CALIFORNIA  
EDISON COMPANY (SCE) TO RECOVER COSTS OF AN  
AGREEMENT WITH LAWRENCE LIVERMORE NATIONAL  
LABORATORY FOR 21<sup>ST</sup> CENTURY ENERGY SYSTEMS**

CHRISTOPHER J. WARNER  
Pacific Gas and Electric Company  
77 Beale Street  
San Francisco, CA 94105  
Telephone: (415) 973-6695  
Facsimile: (415) 973-0516  
E-Mail: [CJW5@pge.com](mailto:CJW5@pge.com)

Attorney for  
PACIFIC GAS AND ELECTRIC COMPANY

ALLEN K. TRIAL  
San Diego Gas & Electric Company,  
101 Ash Street  
San Diego, California 92101-3017  
Telephone: (619) 699-5162  
Facsimile: (619) 699-5027  
E-Mail: [ATrial@semprautilities.com](mailto:ATrial@semprautilities.com)

Attorney for  
SAN DIEGO GAS & ELECTRIC COMPANY

GLORIA M. ING  
WALKER A. MATTHEWS, III  
Southern California Edison Company  
2244 Walnut Grove Avenue  
Post Office Box 800  
Rosemead, California 91770  
Telephone: (626) 302-6879  
Facsimile: (626) 302-3990  
E-Mail: [walker.matthews@sce.com](mailto:walker.matthews@sce.com)

Attorneys for  
SOUTHERN CALIFORNIA EDISON  
COMPANY

Dated: July 18, 2011

## TABLE OF CONTENTS

	Page
I. SUMMARY OF REQUEST.....	1
II. CALIFORNIA ENERGY SYSTEMS FOR THE 21ST CENTURY PROJECT.....	2
III. PROJECT ACTIVITIES.....	4
A. Summary of CES-21 Project Benefits.....	5
B. Cyber Security .....	6
C. Electric Resource Planning.....	6
1. Improved Electric Resource Planning Tools.....	6
2. Flexibility Metrics and Standards.....	7
D. Electric and Gas System Operations.....	8
1. Electric System Monitoring and Control.....	8
2. Natural Gas System Modeling.....	9
E. Workforce Preparedness.....	10
IV. GOVERNANCE.....	10
V. PROJECT COSTS.....	12
VI. IOU REVENUE REQUIREMENT ESTIMATES.....	13
A. PG&E.....	13
B. SDG&E.....	14
C. SCE.....	14
D. Total Revenue Requirements.....	14
VII. PROPOSED COST RECOVERY MECHANISMS.....	14
A. PG&E Proposal.....	14
B. SDG&E Proposal.....	15
C. SCE Proposal.....	15
VIII. STATEMENT OF RELIEF AND AUTHORITY SOUGHT.....	15
A. Estimated Revenue Requirements.....	15
B. Cost Recovery.....	16
IX. SUMMARY OF REASONS FOR IOUS' REQUEST AND SPECIFIC AREAS OF INCREASE.....	16
A. Reasons for Requested Relief.....	16

**TABLE OF CONTENTS**  
**(continued)**

	<b>Page</b>
B. Summary Supporting Increase.....	16
X. COST OF CAPITAL/AUTHORIZED RATE OF RETURN.....	17
XI. REVENUES AT PRESENT RATES IN THE RESULTS OF OPERATIONS REPORT.....	17
XII. COMPLIANCE WITH THE COMMISSION’S RULES OF PRACTICE AND PROCEDURE.....	17
A. Statutory Authority.....	17
B. Categorization - Rule 2.1.(c).....	17
C. Need for Hearing - Rule 2.1(c).....	17
D. Issues to be Considered - Rule 2.1(c).....	17
E. Proposed Schedule – Rule 2.1(c).....	18
F. Legal Name and Principal Place of Business – Rule 2.1(a) .....	18
G. Correspondence and Communication Regarding This Application - Rule 2.1.(b).....	19
H. Articles of Incorporation – Rule 2.2.....	20
I. Balance Sheet and Income Statement - Rule 3.2(a) (1).....	21
J. Statement of Presently Effective Rates - Rule 3.2(a) (2).....	21
K. Statement of Proposed Changes and Results of Operations at Proposed Rates - Rule 3.2(a) (3).....	21
L. General Description of IOUs’ Electric and Gas Department Plant - Rule 3.2(a) (4) .....	21
M. Summary of Earnings - Rules 3.2(a) (5) and 3.2(a) (6).....	21
N. Statement of Election of Method of Computing Depreciation Deduction for Federal Income Tax - Rule 3.2(a) (7).....	21
O. Most Recent Proxy Statement - Rule 3.2(a) (8).....	21
P. Type of Rate Change Requested - Rule 3.2(a) (10).....	22
Q. Notice and Service of Application – Rule 3.2(b)-(d).....	22
R. Exhibit List and Statement of Readiness.....	22
XIII. REQUEST FOR COMMISSION ORDERS .....	22

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

Application of Pacific Gas and Electric Company (U 39 M), San Diego Gas & Electric Company (U 902 E), and Southern California Edison Company (U 338 E) for Authority to Increase Electric Rates and Charges to Recover Costs of Research and Development Agreement with Lawrence Livermore National Laboratory for 21<sup>st</sup> Century Energy Systems

A.11-07-\_\_\_

**JOINT APPLICATION OF PACIFIC GAS AND ELECTRIC  
COMPANY (PG&E) SAN DIEGO GAS & ELECTRIC  
COMPANY (SDG&E) AND SOUTHERN CALIFORNIA  
EDISON COMPANY (SCE) TO RECOVER COSTS OF AN  
AGREEMENT WITH LAWRENCE LIVERMORE NATIONAL  
LABORATORY FOR 21<sup>ST</sup> CENTURY ENERGY SYSTEMS**

Pursuant to Rule 2.1, et seq. of the California Public Utilities Commission's (CPUC's or Commission's) Rules of Practice and Procedure, Pacific Gas and Electric Company (PG&E), Southern California Edison Company (SCE), and San Diego Gas & Electric Company (SDG&E) (collectively, referred to in the Application as the investor-owned utilities (IOUs)) submit this Application to recover the costs associated with a five-year cooperative research and development agreement with the Lawrence Livermore National Laboratory (LLNL). This public-private collaborative agreement is known as the "California Energy Systems for the 21<sup>st</sup> Century Project" (CES-21 Project).

**I. SUMMARY OF REQUEST**

By this Application, the IOUs specifically request the Commission to:

- (1) Authorize the IOUs to recover the costs for funding the CES-21 Project up to a maximum of \$150 million in program funding over five years, with the funding shared among the IOUs as follows: PG&E (55%), SCE (35%), and SDG&E (10%); and
- (2) Grant such additional relief as the Commission may deem proper.

## II. CALIFORNIA ENERGY SYSTEMS FOR THE 21ST CENTURY PROJECT

California has adopted several environmental and energy policy goals and has put in place a Clean Energy Plan<sup>1/</sup> consisting of:

- Reduction in greenhouse gas (GHG) emissions to 1990 levels by 2020 and to 20% of 1990 levels by 2050.
- Increased energy efficiency programs, targeting additional reductions of 5,000 to 8,000 MW of peak electricity demand.
- A goal of meeting 33% of electricity sales with renewable electricity supplies, which will require about 20,000 additional MW of intermittent wind and solar resources.
- Distributed generation technologies, including the California Solar Initiative and Small Generator Incentive Program, targeting an additional 5,000 MW of solar photovoltaic supplies and combined heat and power (CHP) plants.
- Retirement, replacement, and/or mitigation of once-through cooling power plants, which could affect over 16,000 MW of thermal resources by 2020.

The California Clean Energy Plan, while providing environmental benefits and introducing new sources of energy, presents new challenges to planners and operators of the electricity grid. Further, the need for increased understanding of California's energy delivery systems is by no means limited to the electric grid. The IOUs and LLNL propose the CES-21 Project with the objective of providing advanced tools, analyses, and training to guide and manage both California's power and natural gas systems.

As discussed in detail below, the project activities and associated costs primarily will center around four main areas:

---

<sup>1/</sup> See California Clean Energy Future Overview prepared by California Air Resources Board, California Public Utilities Commission, California Energy Commission and California Environmental Protection Agency and the CAISO at <http://www.cacleanenergyfuture.org>.

- Cyber Security
- Electric Resource Planning
- Electric and Gas System Operations
- Workforce Preparedness

The objective of the CES-21 project is to apply computationally-based problem solving resources to the emerging challenges of the 21st century energy system (electric and natural gas) for California. The project will utilize a joint team of technical experts from the IOUs and LLNL who will combine data integration with the nation's most advanced modeling, simulation, and analytical tools provided by LLNL to provide unprecedented problem-solving and planning necessary to achieve California's ambitious energy and environmental goals for the 21<sup>st</sup> century. Project activities will be reviewed and approved by a Board of Directors for the CES-21 Project. The Board of Directors will include as voting directors, a representative from each of the IOUs, and potentially directors appointed to represent public institutions such as the CPUC and CAISO, members of the public and/or energy and environmental policymakers.

This Application provides the following information in support of the IOUs' request:

1. Section III summarizes illustrative examples of the type of research activities the IOUs and LLNL may undertake in the CES-21 Project, and associated benefits.
2. Section IV describes the proposed governance structure for the CES-21 Project.
3. Section V provides the estimated CES-21 Project costs.
4. Sections VI-XI provide the IOUs' respective ratemaking and cost recovery proposals.
5. Section XII provides information regarding the IOUs' compliance with the Commission's rules of practice and procedure.

The attachments in this Application consist of the Application exhibits and Attachment 1.

The IOUs are not including prepared testimony in support of their Application because they are

requesting that the Application be reviewed and approved based on the pleadings, exhibits, and written record, without the need for evidentiary hearings.

### **III. PROJECT ACTIVITIES**

As stated above, the project activities will center around four main areas:

- Cyber Security
- Electric Resource Planning
- Electric and Gas System Operations
- Workforce Preparedness

The following section discusses the potential benefits of the CES-21 Project, and provides illustrative examples of the types of research and development activities that the IOUs may consider to undertake in these areas (subject to the final approval of the Board of Directors for the CES-21 Project, as discussed in Section IV regarding the governance structure for the CES-21 Project). The examples define high-level, utility issues that have not been and cannot be fully solved with conventional computing resources. In addition to these examples, the IOUs and LLNL may identify and approve other project activities consistent with the scope of these areas.

The project will involve collaborative working relationships between the utilities and LLNL that will foster technology transfer to assist the utilities in preparing to meet the challenging issues facing the energy utility industry in the 21<sup>st</sup> century. In addition, a central plank of the work scope for the CES-21 Project will be to transfer technology know-how to new and existing utility personnel for the benefit of utility customers in the effective use of new modeling tools in planning, operations, and infrastructure protection.

Attachment 1 to this Application provides further detail regarding the potential research and development activities that the IOUs will undertake under the Project, and the associated benefits. It is important to emphasize that the IOUs and LLNL have not finalized or determined

to undertake any project activities. The project activities and scope of work for those activities will be subject to separate work orders, as approved in accordance with the governance structure for the CES-21 Project outlined in Section IV.

**A. Summary of CES-21 Project Benefits**

The complexity of today's energy industry challenges requires new tools and techniques. While traditional desktop simulations work well for a variety of analyses and applications, the high power computing capabilities of LLNL could provide a quantum leap in the IOUs' ability to analyze more data faster. This capability is important for three reasons. First, the sheer volume of data the IOUs are confronting is dramatically increasing. Second, the complexity of the issues confronted by the industry today is also increasing. Third, high power computing may significantly reduce the time to run simulations and thus help the IOUs be more responsive to the demands of today's business and regulators. Access to the high power computing capabilities of LLNL may help the IOUs and policy makers analyze and understand the complex issues presented by California's Clean Energy Plan.

Further, the time savings may allow for more granular analysis of the data and could lead to different conclusions and better policy choices. LLNL's high performance computing may provide an additional tool to deal with this increasing complexity and the need for real-time data analysis. Current desk-top computer simulations are often inadequate to provide timely solutions to operational questions.

LLNL is an excellent partner for computing know-how as one of the preeminent centers in the world for solving complex problems with modeling and simulation, science-based decision support, and broad technology development and engineering. The CES-21 Project may enable the IOUs and policymakers to have the best and widest range of tools and computational resources available to meet the needs of the future. This may translate into better operational

performance, emergency preparedness, and cyber and physical system security. Better decision making and resource allocation would result in lower cost and higher resource utilization.

## **B. Cyber Security**

The world today hosts a variety of cyber security threat actors that are more sophisticated, well-funded, and persistent than ever before. It is well known that IOUs and the critical infrastructure they support are significant targets. The grid's growing interconnection and complexity is introducing new cyber vulnerabilities that need to be managed.

The CES-21 Project may have the potential to enable the IOUs to meet these challenges and build a more resilient, reliable grid and protect customer information privacy. It may help the IOUs, regulators and other stakeholders to anticipate cyber security risks, drive research, influence standards, and develop the next generation tools and methodologies needed to continue to protect the grid from evolving and increasingly complex threats. The CES-21 Project may enable the IOUs to enhance their cyber security posture as new applications and technologies evolve and the grid becomes smarter, more interconnected, and more complex.

## **C. Electric Resource Planning**

### **1. Improved Electric Resource Planning Tools**

Utilities currently use commercial off-the-shelf or in-house developed modeling tools (e.g., Plexos) for planning electric and gas systems. For many pressing planning and policy questions, these models already are computationally intensive yet limited in their ability to represent the complexity of the electric grid, the time-scale of key generation and transmission, or the responsiveness of electrical storage. It is very time-consuming to run multiple scenarios of some of these existing planning models. Additionally, existing modeling methods do not fully capture the dynamic, real-time operational characteristics that can be run.

These computational bottlenecks require improvements to optimization algorithms and the appropriate application of high performance computing. New (or augmented) computational

tools need to be created to meet California's system planning needs. The tools need to balance reliability, costs, and regulatory limitations (e.g., GHG emissions), as well as transmission capabilities, economic use of supply, demand-side resources, distributed generation, and storage under uncertain system and market conditions.

The CES-21 Project may augment existing tools and develop new analytical tools for planning necessary to develop the electric system envisioned by California's Clean Energy Plan. Through the CES-21 Project, stakeholders may have a forum to collaborate on the development of new tools. The CES-21 Project may augment the functionality of existing models to better represent the complexity and responsiveness of the grid, as well as the range and volume of possible scenarios. The project may enhance the incorporation of advanced tools into the planning process of the IOUs.

## **2. Flexibility Metrics and Standards**

New flexibility metrics are needed to operate the state's future electricity grid in a secure and flexible way to ensure that California's Clean Energy Plan is operationally feasible, and to help design energy and ancillary service markets. Given the planned increase in intermittent renewables, the grid needs to be more responsive and flexible than it is today. However, current planning and operating guidelines do not consider the grid's operating flexibility needs, especially in the context of increased intermittency.

The CES-21 Project may seek to develop flexibility metrics and standards to guide the planning and operation of California's electric grid in a future where a large portion of the state's electric supply is provided by resources that offer little or no operating flexibility. Specifically, the CES-21 Project may be able to build on efforts by the North American Electric Reliability Corporation (NERC),<sup>2/</sup> the Western Electricity Coordinating Council (WECC),<sup>3/</sup> the Lawrence

---

<sup>2/</sup> See NERC's *Special Report on Flexibility Requirements and Metrics for Variable Generation: Implications for Planning Studies*, August 2010 Draft. The report can be found at [http://www.nerc.com/docs/pc/ivgtf/IVGTF\\_Task\\_1\\_4\\_Final.pdf](http://www.nerc.com/docs/pc/ivgtf/IVGTF_Task_1_4_Final.pdf).

Berkeley National Laboratory (LBNL), the California Independent System Operator (CAISO), and other stakeholders to consider the needs of the entire system in the face of changing policy, climate, and technology. In addition to developing new flexibility metrics, the CES-21 Project may also utilize standard reliability, efficiency, and environmental impact metrics when using simulation, optimization, and other analysis models to evaluate the performance of the electric system under different scenarios. The new tools developed may help determine which metrics can best communicate system needs and requirements, and the metrics can then be adjusted or changed as necessary. Results from these project activities could help inform California about what initiatives may be needed to reliably operate the State's electric system under California's Clean Energy Plan, which may include new flexible generation, new market products, and regulatory policy changes.

#### **D. Electric and Gas System Operations**

##### **1. Electric System Monitoring and Control**

One of the key operational issues faced by California utilities is the ability to manage intermittent resources effectively while utilizing grid assets efficiently. This has historically been done through centralized collection of field data monitored by various operational entities (e.g., regional coordinators, balancing authorities, and transmission providers) with support from operational engineering personnel. It has also been accomplished using generation resources with fairly predictable and controllable output. Even with today's very mature generation mix, instability and system wide outages occur on a periodic basis. With the increasing amounts of intermittent resources, stability analysis becomes more critical than ever to understand the possible impacts on reliability and to develop mitigation plans.

---

<sup>3/</sup> In October 2008 WECC established the Variable Generation Subcommittee (VGS) reporting to the Joint Guidance Committee (JGC) to identify issues and opportunities related to the presence of variable generation sources in the Western Interconnection and to facilitate the development and implementation of solutions that add distinct value to WECC members. The VGS focuses on the regional reliability and market challenges of renewable energy integration and other emerging issues as requested by the JGC.

In addition, system operators, including the IOUs, study and monitor the health of the system for: 1) future events such as line maintenance and generator outages; 2) real-time monitoring; and 3) post-analysis to discover root causes of significant system events. This leads to a tremendous amount of system data that is created, processed, and analyzed. While there are useful tools and computing analysis software that exist today, much of the data is recorded but not collected in any single system that could analyze the data holistically for trends or indicators of system stress.

The CES-21 Project may be able to develop methods to increase the analytical capabilities of the IOUs to monitor and control the bulk power system, including managing intermittent resources effectively. The potential benefits from these activities could include:

- Improved monitoring capability and system dynamics understanding that reduces overall system outages through early warning and mitigation plans
- Reduced generation and load dropping on special protection schemes
- Increased wide area system awareness and understanding to increase transmission capacity
- More detailed modeling capabilities and longer dynamic analysis to increase overall understanding of interplay between transmission and distribution systems with both having substantial amounts of intermittent generation

## **2. Natural Gas System Modeling**

PG&E currently models the gas backbone, transmissions and distribution systems with software platforms such as the SynerGEE hydraulics code developed by G. L. Noble Corporation. The code solves the nonlinear equations governing pressure drop over lines, compressor efficiency, pressure drops through valves, mass flow, and other phenomena to find the steady-state flows through all pipes in the system. For a given configuration of pressure set-points and compressor outputs for components in the system, this model serves as a function

evaluator that returns all of the steady state flows in the network. These models are computationally intensive and take a significant amount of time and resources to run. The immediate business value therefore may be to be able to run thousands of hydraulic scenarios without user intervention required for each scenario. In addition, these models have known limitations which affect their flexibility and speed with which they can be manipulated, even by the most skilled and experience gas planning engineers.

By improving the functionality, speed, and abilities of the natural gas modeling platforms and the existing hydraulics code, the utilities may gain greater modeling speed, resolution, and fidelity.

#### **E. Workforce Preparedness**

The workforce preparedness element of CES-21 will ensure that the advanced concepts and tools in the project's three core areas—planning, operations, and cyber security—become an integral part of the skills, knowledge, and ability of both the existing and future California energy workforce. A multi-pronged approach will be employed: integrating the Joint Utilities' and CPUC's present and future (via students) staff with LLNL's tool development process, providing seminars, training, and hands-on opportunities—including working shoulder-to-shoulder with Lawrence Livermore scientists. Partnerships will be developed with other academic and applied energy research institutions throughout northern and southern California, including universities and community colleges diverse in both geography and socioeconomics. LLNL's summer institutes for high school and college students and teaching staff will be leveraged and the development of appropriate curricula that draw from talent at the Joint Utilities, CPUC, and Lawrence Livermore will be an essential part of this program effort.

#### **IV. GOVERNANCE**

The CES-21 Project will be governed by a Board of Directors consisting of at least three voting directors with one director from each of the IOUs. In addition, consideration will be

given to including directors representing public institutions such as the CPUC and CAISO, members of the public, and/or energy and environmental policymakers. The meetings of the Board of Directors will be open to the public and subject to public access in the same way as meetings of other California public agencies.

Prior to expending any funds authorized by this Application, the IOUs and LLNL will negotiate and enter into a Cooperative Research and Development Agreement (CRADA), which will be consistent with the provisions in this Application and subject to final approval by the Board of Directors for the CES-21 Project. The services provided by LLNL under the CRADA, which will be a five-year agreement, will be subject to the standards under the CRADA statute and U.S. Department of Energy regulations for CRADA, including the right of the IOUs to perform audits of LLNL's performance and to withhold payments for non-performance or default on a specific work order, as provided under CRADA regulations. The Board of Directors will approve the scope of work and administration of the specific research projects funded by the CRADA. The Board of Directors also will have the authority to select an executive director and staff recommended by LLNL to manage the project activities, and may appoint such technical and advisory committees as it deems appropriate to assist in the project activities.

In addition, the Board of Directors will approve a strategic plan, annual budgets, and allocation of staff and other resources to provide services under individual work orders requested by each utility (or jointly) and the proportional share of funding set forth in Section V of this Application. The Board of Directors will not have the authority to approve any new commitments or expenditures extending beyond the five-year term of the CRADA, or beyond the authority granted in this Application. All funding of projects to support the work orders, including procurement of equipment, facilities, tools, computer software and hardware, will be subject to approval by the Board of Directors.

Further, the services performed by LLNL under the CRADA will be subject to CRADA-related and other mutually acceptable terms and conditions to be negotiated by the parties. All equipment, tools, facilities, computer software and hardware, and other tangible and intangible assets, including patents, trademarks, copyrights and other intellectual property, that are procured or developed using the funding for the applied research and development element of the CRADA will be owned by the IOUs for the benefit of their customers in accordance with a joint ownership arrangement among the IOUs.

To the extent feasible, information generated by the CES-21 Project may be shared publicly, given the nature and objectives of the individual projects. The Board of Directors will determine the scope of information to be made available to the public on a project by project basis. The IOUs and LLNL will retain the intellectual property developed by the CES-21 Project. Any access to this intellectual property will be subject to separate agreements reviewed and approved by the Board of Directors.

The CRADA will contain a dispute resolution clause that allows for the arbitration of disputes. The IOUs and LLNL, respectively, will have the right to terminate the CRADA upon 30 days written notice, in which case the obligation for performance will be terminated for all services that have not already been performed or paid for.

## **V. PROJECT COSTS**

The total costs for the CES-21 Project will include a maximum of \$150 million in funding for both internal utility administrative costs and CRADA costs, including a maximum of \$52 million to be potentially allocated to the LLNL High Performance Computing Innovation Center (HPC-IC). The HPC-IC is separate from the CES-21 Project, consisting of advanced computing systems and network, storage, and application capabilities, along with experts to help partners utilize these resources that will be available to the CES-21 Project for its strategic research and development program.

Each IOU's liability for joint project funding and common costs will be individual, not joint, with the liability shared 55%, 35% and 10% by PG&E, SCE and SDG&E, respectively, for projects that the three IOUs unanimously approve. The Board of Directors will approve project activities; provided, however, that each IOU will retain the right to not provide funding for a joint project according to the percentages set forth above if the three IOUs do not unanimously approve that project, after the IOUs have met and conferred in good faith concerning the project.

In the event that there is not unanimous agreement among the three IOUs for a joint project, the project may go forward as a non-joint project, subject to approval by the Board of Directors. Each IOU's liability for non-joint project funding and individual work orders approved by the Board of Directors is subject to approval by the IOUs participating in the non-joint project. The participating IOUs that want to go forward with the non-joint project without funding from the non-participating IOU will negotiate their respective funding percentages for that non-joint project, subject to approval of the Board of Directors. The funding authority is expressly conditioned on CPUC approval for full recovery of all verified costs in rates without further reasonableness review or restriction.

As discussed above, all funding is discretionary and subject to project-specific work orders and annual budgets approved by the Board of Directors for the CES-21 Project. In no event will the funding provided by each IOU for projects exceed each utilities' respective proportionate share of the total funding requested in this Application.

## **VI. IOU REVENUE REQUIREMENT ESTIMATES**

### **A. PG&E**

PG&E forecasts that its five year revenue requirements for the CES-21 Project will be approximately \$82.5 million (plus \$0.94 million for Franchise Fees & Uncollectibles), and allocated 75 percent to electric revenue requirements and 25 percent to gas revenue

requirements). The actual amounts charged to electric and gas customers will reflect projects approved by the Board of Directors.

**B. SDG&E**

SDG&E forecasts that its five year revenue requirements for the CES-21 Project will be approximately \$15 million (plus \$0.65 million for Franchise Fees & Uncollectibles), of which a maximum of \$5.2 million will be allocated to HPC-IC.

**C. SCE**

SCE forecasts that its five year revenue requirements for the CES-21 Project will be approximately \$52.5 million (plus \$0.61M for Franchise Fees & Uncollectibles).

**D. Total Revenue Requirements**

The total five year combined revenue requirements requested in this Application are \$152.15 million, including Franchise Fees & Uncollectibles. All costs will be expense, and no capital expenditures are planned.

**VII. PROPOSED COST RECOVERY MECHANISMS**

**A. PG&E Proposal**

PG&E proposes to recover its annual revenue requirements through its existing electricity and gas rate structures, subject to annual true-up. The actual amounts charged to electric and gas customers will reflect projects approved by the Board of Directors. PG&E forecasts that 75% of its project cost share will be electric-related project costs and 25% will be gas-related project costs. The electric revenue requirements will be collected from electric distribution customers through PG&E's electric distribution rate and recovered in the Distribution Revenue Adjustment Mechanism (DRAM). Electric rates to collect these amounts will be set in the same manner as rates for other electric distribution revenue. Gas revenue requirements will be recovered in the Core Fixed Cost Account (CFCA) for core gas customers and the Noncore Customer Class

Charge Account (NCA) for noncore gas customers. Gas rates to collect these amounts will be set in the same manner as rates for other gas transportation and distribution revenue.

**B. SDG&E Proposal**

SDG&E proposes to recover its annual revenue requirements through its existing electricity rate structures, subject to annual true-up. Electric rates to collect these amounts will be set in the same manner as rates for other electric distribution revenue. Through this application, SDG&E requests the authority to open a Balancing Account to record the difference between its share of the program expenses as described in Section VI, up to the maximum, and its annual revenue requirement. The disposition of this account would be addressed at SDG&E's annual Electric Regulatory Account Balance Update filing, or other applicable proceeding as directed by the Commission, to be collected from electric distribution customers through SDG&E's electric distribution rates.

**C. SCE Proposal**

SCE proposes to recover its annual revenue requirements through its existing electricity rate structures, subject to annual true-up. The revenue requirements will be collected from all customers who receive delivery services through SCE's distribution rates and recovered through the Base Revenue Requirement Balancing Account. Electric rates to collect these amounts will be set in the same manner as rates for other distribution revenue requirements.

**VIII. STATEMENT OF RELIEF AND AUTHORITY SOUGHT**

**A. Estimated Revenue Requirements.**

Table 1 sets forth each of the IOUs' estimated revenue requirements each year associated with this request (in millions of dollars):

<b>Table 1</b>	2012	2013	2014	2015	2016
(\$ millions)					
PG&E Annual Revenue Requirement	\$16.7M	\$16.7M	\$16.7M	\$16.7M	\$16.7M
Annual Electric Revenue Requirement	\$12.5M	\$12.5M	\$12.5M	\$12.5M	\$12.5M
Annual Gas Revenue Requirement	\$4.2M	\$4.2M	\$4.2M	\$4.2M	\$4.2M
SDG&E Annual Revenue Requirement	\$3.13M	\$3.13M	\$3.13M	\$3.13M	\$3.13M
SCE Annual Revenue Requirement	\$10.6M	\$10.6M	\$10.6M	\$10.6M	\$10.6M

**B. Cost Recovery**

In separate compliance advice letters, the IOUs will revise their existing electric or gas cost recovery rates and tariffs to recover the authorized revenue requirements booked to the appropriate accounts.

**IX. SUMMARY OF REASONS FOR IOUS' REQUEST AND SPECIFIC AREAS OF INCREASE**

**A. Reasons for Requested Relief**

The IOUs have provided detailed support for the Application in the discussion above and in the Attachments. The key reasons for the requested increase in revenue requirements are:

- To fully recover the costs of the CES-21 Project; and
- To implement a broad-based program of applied energy research and development to support the expedited and cost-effective achievement of California's energy and environmental policy goals for 2020 and beyond.

**B. Summary Supporting Increase**

The discussion above provides a summary of the support for the increase in electric rates requested in this Application.

## **X. COST OF CAPITAL/AUTHORIZED RATE OF RETURN**

The Commission's Rate Case Plan decision requires a utility to "use the most recently authorized rate of return in its calculations" supporting its results of operations presentation.<sup>4/</sup> Because this Application includes no capital recovery, but only recovery of CES-21 Project expenses, this requirement is inapplicable.

## **XI. REVENUES AT PRESENT RATES IN THE RESULTS OF OPERATIONS REPORT**

The IOUs' rates and charges for electric and gas service are set forth in their respective electric and gas tariffs on file with this Commission. The Commission has approved these tariffs in decisions, orders, and resolutions. Exhibits A-1, A-2 and A-3 set forth the IOUs' respective present electric and gas rates.

## **XII. COMPLIANCE WITH THE COMMISSION'S RULES OF PRACTICE AND PROCEDURE**

### **A. Statutory Authority**

The IOUs file this Application pursuant to Commission Resolution G-3447, Rule 5.2 of General Order 96-B, Sections 451 and 454 of the Public Utilities Code, the Commission's Rules of Practice and Procedure, and prior decisions, orders, and resolutions of this Commission.

### **B. Categorization - Rule 2.1(c)**

The IOUs propose that this Application be categorized as a "ratesetting" proceeding.

### **C. Need for Hearing - Rule 2.1(c)**

The IOUs anticipate that evidentiary hearings will not be needed. The IOUs' proposed schedule is set forth in subsection E, below.

### **D. Issues to be Considered - Rule 2.1(c)**

The principal issues are whether:

1. The proposed revenue requirements to support the requested ratepayer funding of

---

<sup>4/</sup> D.89-01-040; 30 CPUC 2d 576, 606.

the costs of the CES-21 Project are just and reasonable and the Commission should authorize the IOUs to reflect the adopted revenue requirements in their respective rates.

2. The IOUs have demonstrated that their requested ratepayer funding for recovery of the costs of the CES-21 Project is justified because it supports the State's implementation of energy and environmental policy goals for 2020 and beyond.

**E. Proposed Schedule – Rule 2.1(c)**

The IOUs recommend the following schedule for expedited decision-making, with an emphasis on written pleadings and comments in lieu of evidentiary hearings, and an expedited proposed decision.

File Application	July 18, 2011
Protests and Intervenor Comments Due	August 17, 2011
Reply to Protests and Comments	August 29, 2011
Prehearing Conference	September 1, 2011
Scoping Memo	September 15, 2011
Opening Comments	October 3, 2011
Reply Comments	October 18, 2011
Proposed Decision	November 14, 2011
Opening Comments on Proposed Decision	December 1, 2011
Reply Comments on Proposed Decision	December 8, 2011
Decision	December 19, 2011

**F. Legal Name and Principal Place of Business – Rule 2.1(a)**

The legal name of the Applicant PG&E is Pacific Gas and Electric Company. PG&E's principal place of business is San Francisco, California. Its post office address is Post Office Box 7442, San Francisco, California 94120.

The legal name of Applicant SDG&E is San Diego Gas & Electric Company. SDG&E is a public utility organized and existing under the laws of the State of California.

SDG&E's principal place of business and mailing address is 8306 Century Park Court, San Diego, California, 92123.

The legal name of Applicant SCE is Southern California Edison Company. SCE is a public utility organized and existing under the laws of the State of California. The location of SCE's principal place of business is: 2244 Walnut Grove Avenue, Rosemead, California.

**G. Correspondence and Communication Regarding This Application - Rule 2.1.(b)**

All correspondence and communications regarding this Application should be addressed to the following individuals at the addresses listed below:

Christopher J. Warner  
Law Department  
Pacific Gas and Electric Company  
Post Office Box 7442  
San Francisco, California 94120  
Telephone: (415) 973-6695  
Fax: (415) 973-5220  
E-mail: [cjw5@pge.com](mailto:cjw5@pge.com)

David Bayless  
Operations Proceedings Department  
Pacific Gas and Electric Company  
77 Beale Street, B9A  
San Francisco, California, 94105  
Telephone: (415) 973-4391  
Fax: (415) 973-3574  
E-Mail: [dpb5@pge.com](mailto:dpb5@pge.com)

Allen K. Trial  
Law Department  
San Diego Gas & Electric Company  
Southern California Gas Company  
101 Ash Street, HQ12  
San Diego, CA 92101  
Telephone: 619-699-5162  
Facsimile: 619-699-5027  
E-mail: [ATrial@semprautilities.com](mailto:ATrial@semprautilities.com)

Hannon Rasool - Regulatory Case  
Administrator - SDG&E  
California Regulatory Affairs  
8330 Century Park Ct. CP32D  
San Diego, CA 92123  
Phone: (858) 654-1590  
Fax: (858) 654-1788  
Email: [hRASool@semprautilities.com](mailto:hRASool@semprautilities.com)

Overnight hardcopy delivery:

Christopher J. Warner  
Law Department  
Pacific Gas and Electric Company  
77 Beale Street, B30A  
San Francisco, California 94105

Gloria M. Ing  
Walker A. Matthews, III  
Southern California Edison Company  
2244 Walnut Grove Avenue  
Post Office Box 800  
Rosemead, California 91770  
Telephone: (626) 302-6879  
Facsimile: (626) 302-3990  
E-Mail: [walker.matthews@sce.com](mailto:walker.matthews@sce.com)

Attorney for  
Southern California Edison Company

Case Administration  
Law Department  
Southern California Edison Company  
2244 Walnut Grove Avenue  
Post Office Box 800  
Rosemead, CA 91770  
Telephone: (626) 302-3003  
Facsimile: (626) 302-6352  
E-Mail: [case.admin.@sce.com](mailto:case.admin.@sce.com)

## **H. Articles of Incorporation – Rule 2.2**

PG&E is, and since October 10, 1905, has been, an operating public utility corporation organized under California law. It is engaged principally in the business of furnishing electric and gas services in California. A certified copy of PG&E's Restated Articles of Incorporation, effective April 12, 2004, is on record before the Commission in connection with PG&E's Application 04-05-005, filed with the Commission on May 3, 2004. These articles are incorporated herein by reference pursuant to Rule 2.2 of the Commission's Rules.

A copy of SDG&E's Restated Articles of Incorporation as last amended, presently in effect and certified by the California Secretary of State, was filed with the Commission on August 31, 2009 in connection with SDG&E's Application No. 09-08-019, and is incorporated herein by reference.

A copy of SCE's Certificate of Restated Articles of Incorporation, effective on March 2, 2006, and presently in effect, certified by the California Secretary of State, was filed with the Commission on March 14, 2006, in connection with Application No. 06-03-020, and is incorporated by reference pursuant to CPUC Rule 2.2. A copy of SCE's Certificate of Determination of Preferences of the Series D Preference Stock filed with the California Secretary of State on March 7, 2011, and as presently in effect, certified by the California Secretary of State, was filed with the Commission in connection with SCE's Application No. 11-04-001 and is incorporated herein by reference. Certain classes and series of SCE's capital stock are listed on a "national securities exchange" as defined in the Securities Exchange Act of 1934 and copies of SCE's latest Annual Report to Shareholders and its latest proxy statement sent to its stockholders has been filed with the CPUC with a letter of transmittal dated March 21, 2011, pursuant to General Order Nos. 65-A and 104-A of the CPUC.

**I. Balance Sheet and Income Statement - Rule 3.2(a) (1)**

PG&E's current balance sheet and income statement was filed with the Commission in A.11-06-004, and is provided as Exhibit B-1 hereto.

The most recently updated balance sheet and income statement of SDG&E, as of March 31, 2011 was filed with the Commission in A.11-06-031 and is provided in Exhibit B-2 hereto.

The most recently updated balance sheet and income statement of SCE as of March 31, 2011, the most recent period available, was filed with the Commission in A.11-06-027, and is provided as Exhibit B-3 hereto.

**J. Statement of Presently Effective Rates - Rule 3.2(a) (2)**

The presently effective gas and electric rates the IOUs propose to modify are set forth in Exhibits A-1, A-2 and A-3 of this Application, respectively.

**K. Statement of Proposed Changes and Results of Operations at Proposed Rates - Rule 3.2(a) (3)**

The proposed changes in revenues are not in excess of one percent.

**L. General Description of IOUs' Electric and Gas Department Plant - Rule 3.2(a) (4)**

Because this submittal is not a general rate application, this requirement is not applicable.

**M. Summary of Earnings - Rules 3.2(a) (5) and 3.2(a) (6)**

Exhibits C-1, C-2 and C-3 show for their most recent recorded periods, the revenues, expenses, rate bases and rate of return for each of the respective IOUs' Electric and Gas Departments.

**N. Statement of Election of Method of Computing Depreciation Deduction for Federal Income Tax - Rule 3.2(a) (7)**

Because this submittal is not a general rate application, this requirement is not applicable.

**O. Most Recent Proxy Statement - Rule 3.2(a) (8)**

Because this submittal is not a general rate application, this requirement is not applicable.

**P. Type of Rate Change Requested - Rule 3.2(a) (10)**

This proposed change reflects changes in the IOUs' base revenues to reflect the costs the IOUs incur to own, operate and maintain their respective electric and gas plant and to enable the IOUs to provide service to their respective customers.

**Q. Notice and Service of Application – Rule 3.2(b)-(d)**

Within ten (10) days after filing this Application, each of the IOUs will mail a notice stating in general terms the proposed revenues, rate changes, and ratemaking mechanisms requested in this Application to the parties listed in Exhibits D-1, D-2 and D-3, including the State of California and cities and counties served by the IOUs. The IOUs will each publish in newspapers of general circulation in each county in their service territories a notice of filing of this Application. The IOUs will also include notices with the regular bills mailed to all customers affected by the proposed changes.

**R. Exhibit List and Statement of Readiness**

The IOUs are ready to proceed with this case based on the Application and the facts and data contained in the accompanying exhibits in support of the revenue request set forth in this Application.

**XIII. REQUEST FOR COMMISSION ORDERS**

WHEREFORE, the IOUs request that the Commission issue appropriate orders:<sup>5/</sup>

1. Finding that the proposed revenue requirements for the costs requested in this Application are just and reasonable and that the IOUs may reflect the adopted electric and gas revenue requirements in their respective rates;
2. Authorizing full recovery of all verified costs in rates without further reasonableness review or restriction for funding activities approved by the Board of Directors.

---

<sup>5/</sup> Counsel for SCE and SDG&E have authorized counsel for PG&E to execute this Application on their behalf.

3. Authorizing the IOUs to seek any necessary tariff revisions to implement this proposal within 30 days of the decision date; and
4. Granting such additional relief as the Commission may deem proper.

Respectfully Submitted this 18<sup>th</sup> day of July, 2011,  
CHRISTOPHER J. WARNER

By: \_\_\_\_\_ /s/  
CHRISTOPHER J. WARNER

Pacific Gas and Electric Company  
77 Beale Street  
San Francisco, CA 94105  
Telephone: (415) 973-6695  
Facsimile: (415) 973-0516  
E-Mail: CJW5@pge.com

Attorney for  
PACIFIC GAS AND ELECTRIC COMPANY

San Diego Gas & Electric Company,  
Southern California Gas Company  
101 Ash Street  
San Diego, California 92101-3017  
Telephone: (619) 699-5162  
Facsimile: (619) 699-5027  
E-Mail: [ATrial@semprautilities.com](mailto:ATrial@semprautilities.com)

Attorney for  
San Diego Gas & Electric Company

By \_\_\_\_\_ /s/  
ALLEN K. TRIAL

Southern California Edison Company  
2244 Walnut Grove Avenue  
Post Office Box 800  
Rosemead, California 91770  
Telephone: (626) 302-6879  
Facsimile: (626) 302-3990  
E-Mail: walker.matthews@sce.com

Attorney for  
SOUTHERN CALIFORNIA EDISON COMPANY

By \_\_\_\_\_ /s/  
WALKER A. MATTHEWS, III

Dated: July 18, 2011





## SDG&E VERIFICATION

I, Lee Schavrien declare the following:

I am an officer of San Diego Gas & Electric Company and am authorized to make this verification on its behalf. I am informed and believe that the matters stated in the foregoing Application are true to my own knowledge, except as to matters which are therein stated on information and belief, and as to those matters I believe them to be true.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Executed this 18<sup>th</sup> day of July, 2011, at San Diego, California.

\_\_\_\_\_  
/s/

Lee Schavrien  
Senior Vice President – Financial, Regulatory and  
Legislative Affairs,  
San Diego Gas & Electric Company