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**Advice 3XXX-G/4XXX-E**

(Pacific Gas and Electric Company ID U 39 M)

**Advice XXXX-E**

(Southern California Edison Company; ID U 338-E)

**Advice XXXX-G/XXXX-E**

(San Diego Gas & Electric Company; ID U 902-M)

Public Utilities Commission of the State of California

**Subject: California Energy Systems for the 21<sup>st</sup> Century Proposed Year One Research Projects and Cooperative Research and Development Agreement**

Pacific Gas and Electric Company (PG&E), Southern California Edison Company (SCE), and San Diego Gas & Electric Company (SDG&E) (collectively referred to as the Joint Utilities) hereby submit for filing this joint Tier 3 Advice Letter requesting approval for the California Energy Systems for the 21<sup>st</sup> Century (CES-21) proposed research projects for the first program period and the Cooperative Research and Development Agreement (CRADA).

**Purpose**

The purpose of this advice letter is to comply with Ordering Paragraph (OP) 8, 9, 12, and 14 of Decision (D.) 12-12-031, which directs the Joint Utilities to obtain approval of the CES-21 year one research projects, budget and CRADA. On January 24, 2013, the CPUC's Executive Director authorized a 30-day extension of the 90-day time period in Ordering Paragraph 9 of D.12-12-031 regarding this Tier 3 Advice Letter.

**Background**

The CES-21 Program is a public-private collaborative research and development partnership between PG&E, SCE, SDG&E, and Lawrence Livermore National Laboratory (LLNL). The objective of the CES-21 program 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 program will utilize a joint team of technical experts from the Joint Utilities 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 21st century. Program activities will be reviewed and approved by the CES-21 Board of Directors.

On July 18, 2011, the Joint Utilities filed Application (A.) 11-07-008 requesting authority to recover the costs for funding the CES-21 Program up to a maximum of \$150 million in program funding over five years, with the funding shared among the Joint Utilities as follows: PG&E (55%), SCE, (35%), and SDG&E (10%).

In December 2012, the CPUC issued D.12-12-031 which authorized the Joint Utilities to enter into a five-year research and development agreement with LLNL. This decision authorizes the three Joint Utilities to spend up to \$30 million a year for five years on research activities, for a total of \$150 million. The decision also allocated these costs to each of the utilities (PG&E – 55%, SCE – 35%, and SDG&E – 10%) and adopted a ratemaking proposal for each utility to permit recovery of those costs.

Ordering Paragraph 6 of D.12-12-031 requires that the CES-21 Program will be governed by a six member Board of Directors. Three of the Directors will be utility representatives and three Directors, chosen by the utilities, will have experience in research institutes or academic departments relevant to the research proposals. Pursuant to this directive, the Joint Utilities selected the following individuals to serve on the CES-21 Board of Directors:

Jane Yura:	PG&E, Vice President, Gas Operations Standards and Policies
Doug Kim:	SCE, Director of Advanced Technology
Jeff Nichols:	SDG&E, Director, Information Security & information Management
Daniel Kammen:	University of California, Berkeley, Director of Renewable and Appropriate Energy Laboratory and Professor in the Energy and Resources Group
K. Mani Chandu:	California Institute of Technology, Simon Ramo Professor and Professor of Computer Science
T.J. Glauthier:	Former Deputy Secretary of the Department of Energy and Advisory Board member at Stanford, the Lawrence Berkeley National Laboratory, the National Academy of Sciences and various "cleantech" companies

The Director of the CPUC's Energy Division, or the Director's designee, will serve as a non-voting liaison to the Board of Directors.

Since the issuance of D.12-12-031, there have been three meetings of the CES-21 Board of Directors. The first meeting was held on February 20, 2013. It was a workshop scheduled pursuant to Ordering Paragraph 14 to discuss the proposed

research projects. Attachment 1 includes the workshop presentation material that describes the proposed research projects that were contemplated at that time and the potential benefits and collaborators for those projects.<sup>1</sup> On March 19, 2013, the first Board of Directors meeting was held. At this meeting, the CES-21 Board of Directors selected Steve Larson as Executive Director to manage the CES-21 program activities. The CES-21 Board of Directors also adopted by-laws which shall govern how the Board shall administer and implement the policies adopted by the CPUC in D.12-12-031.

Finally, on April 11, 2013, the CES-21 Board of Directors approved the proposed 18 month research portfolio, administrative budget, business cases, and CRADA included in this Advice filing.

## **Discussion**

### **1. Request to extend CES-21 Year One funding authorization to 18 months and for flexibility on CES-21 program costs**

The CES-21 Program is an entirely new type of public-private partnership for the Joint Utilities that requires careful coordination and execution. The regulatory timeline adopted in D.12-12-031 effectively requires that the Joint Utilities begin planning to seek funding authorization for program year two within the first six months of the year one cycle. Given its start-up nature, the first six to twelve months will be a critical period for putting new systems and processes in place. To provide adequate time for the staging and start-up of research projects, the Joint Utilities are requesting via a Petition for Modification the ability to extend the CES-21 Year One funding authorization from one year to 18 months. This will allow for an orderly ramp-up of the CES-21 proposed projects and provide a more realistic opportunity for achieving project deliverables prior to submitting the second program year Advice filing. The CES-21 proposed research projects presented in this advice letter reflect this initial 18 month funding proposal.

In order to most efficiently and effectively manage the research projects under the CES-21 Program, the Joint Utilities seek flexibility on the timing of authorized expenditures. To accomplish this, the Joint Utilities are requesting via a Petition for Modification of D.12-12-031 the authority to roll-over any unspent funds from one program year to the next, so long as the total CES-21 program costs do not exceed the authorized funding limit of \$150 million. The Petition for Modification also requests authorization to extend the duration of the total program from 5 to 6 years to allow adequate time to complete the research projects and accommodate the extended first year transition period.

In addition to year-over-year expenditure flexibility, the Joint Utilities require some discretion to move funds between research projects to effectively manage the

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<sup>1</sup> Not all the projects identified at the workshop are included in the research portfolio proposed in this Advice filing. Since the workshop, the Hydro Modeling and Simulation project has been eliminated from the portfolio and other projects have been significantly modified.

program and address unforeseen circumstances as the program is executed. The consequence of not allowing any flexibility to shift funds will be either unspent/idle funding or regulatory delay while a Commission review is completed, even for relatively small funding changes. The Joint Utilities therefore request the flexibility to move funds between the five cost categories (i.e., Cyber Security, Electric Resource Planning, Electric System Operations, Gas System Operations and Common Costs), subject to approval of the CES-21 Board of Directors and a cap of 5% of the CES-21 first year budget or \$1.5 million. Furthermore, the Joint Utilities propose that the Executive Director have discretion to shift funds between projects or activities within the five expenditure categories as long as the budget for that category is maintained as proposed herein.

**2. CES-21 Program Budget and Benefits**

As authorized in D.12-12-031 and in the CRADA, the research shall be limited to \$30 million in a program year and limited to \$150 million during the five years of the CES-21 Program, unless otherwise authorized by the CPUC.

The Joint Utilities request the Commission approve the following 18 month program budget for the eleven research projects listed below. These research projects range in length from 21 to 66 months. Attachment 2 includes the business cases that describe each proposed research project in more detail, pursuant to Ordering Paragraph 12.c of D.12-12-031.

**Table 1**  
**CES-21 Proposed Research Budget**

<b>CES-21 Proposed Projects – First Program Period</b>	<b>Estimated 18 Month Costs</b>	<b>Total Potential Cost / Duration</b>
<b>Cyber Security</b>		
• Advanced Threat Analysis Capability	\$5.4 M	\$24.5 M / 66 months
• Modeling and Simulation	\$1.7 M	\$8.8 M / 66 months
<b>Electric Resource Planning</b>		
• Ensemble Weather Forecasting	\$2.0 M	\$2.4 M / 21 months
• Flexibility Metrics and Standards	\$1.4 M	\$5.2 M / 42 months
• Planning Engine	\$2.0 M	\$2.4 M / 21 months
<b>Electric System Operations</b>		
• Distribution Modeling and Optimization	\$2.3 M	\$4.3 M / 30 months
• Real Time Hybrid Digital Simulation	\$1.9 M	\$10.4 M / 66 months
• Integrated Transmission and Distribution Model	\$1.5 M	\$6.3 M / 54 months
• Electric System Monitoring and Control	\$1.2 M	\$1.5 M / 21 months
<b>Gas System Operations</b>		
• Geographic Data Integration for Risk Management	\$1.2 M	\$2.0 M / 30 months
• Advanced Modeling and Simulation Environment	\$1.6 M	\$5.1 M / 42 months
<b>Common Costs</b>		
• Advanced Computing Services <sup>1</sup>	\$5 M	\$25 M / 66 months
• Workforce Preparedness	\$0.25 M	\$2.25 M / 66 months
• Program Management	\$2.6 M	\$13 M / 66 months
<b>Total</b>	<b>\$30 M</b>	<b>\$113 M</b>

<sup>1</sup> Scaled to Project Needs

The potential research benefits of the CES-21 program are expected to exceed the \$150 million in project costs over the five to six year program life. The potential customer benefits associated with each proposed research project are described in the business case for that research. Where possible, benefits are quantified to illustrate the potential value to customers from the proposed research. Most of these potential benefits were also described at the February 20, 2013 workshop and were summarized in the workshop presentation.

Potential benefits such as improvements to safety, reliability or cyber security are not strictly economic benefits. There is no Commission-established methodology for monetizing these benefits. For example, it is difficult, if not impossible, to quantify the public safety and reliability benefits for cyber security projects such as the Advanced Threat Analysis Capability project. This project will reduce the probability of disrupting critical infrastructure services by protecting the California electric grid from cyber security attacks. While it is well documented that blackouts have significant impacts on the economy and the health and well being of its citizens, it is not feasible to estimate the reduced risk of blackouts from this type of cyber security research project. As a result, benefit descriptions included in the business cases in this Advice filing are more qualitative than quantitative.

While quantifying project benefits is extremely difficult and not generally possible in the business cases included in Attachment 2, CES-21 is expected to deliver advanced tools and modeling capabilities that benefit customers. The CES-21 Board of Directors along with the Executive Director, and the CPUC's Energy Division liaison will actively review each research project's progress against the milestones and deliverables identified in these business cases.

The project plans, milestones, and deliverables described in the business cases are adaptive and may evolve as the research progresses and learnings from each phase or task are identified. Revisions to any project plans, milestones and deliverables will be documented and designed to help achieve the project's objectives. Each business case also includes specific stage gates through which the project must pass in order to continue. If a research project does not successfully pass a stage gate, the research team, with oversight from the CES-21 Board of Directors, will assess whether to re-scope the research project or terminate that work. This will ensure that the CES-21 Program is focused only on projects with the highest potential benefits and customer value. In addition, a stage-gate approach will ensure flexibility to address emerging needs in later years of the Program.

#### Program Management Budget

The Joint Utilities have included in the 18 month program a CES-21 program management budget of \$2.6 million that will support the effective and efficient management of the research program. The CES-21 program management budget will cover the cost of effectively managing the current year's research program and planning the next year's program. It will also provide for appropriate compensation for the three non-utility Directors on the Board and the Executive Director functions.

The following type of activities are included in the program management function:

- Program oversight and coordination
- Budget management, forecasting, monitoring and controls
- New research project identification and development
- Compliance with contracting requirements and goals (e.g. supplier diversity)
- Contracting and competitive solicitations
- Soliciting and managing third party partnerships
- CES-21 Board of Director meetings, workshops, and stakeholder meetings (year-in-review and upcoming year)
- Compliance with regulatory requirements (e.g., advice filings; reporting)
- External CES-21 Program communications and outreach
- Soliciting and managing co-funding opportunities (i.e., U.S. Department of Energy (DOE))

The following table shows the Joint Utilities' cost estimate for program management activities for the first, 18-month program year:

**Table 2**  
**Estimated CES-21 Program Management Expenditures over 18 months**

Program Management Activities	Cost Estimate
Joint Utilities and LLNL Program Oversight and Coordination	\$995,000
Office of Executive Director <sup>1</sup>	\$500,000
Board of Directors Compensation and Reimbursement	\$95,000
Preparation of Second Program Year Research Portfolio and Budget	\$800,000
Third Party Partnership Management	\$100,000
External Communications and Outreach	\$110,000
<b>Total</b>	<b>\$2,600,000</b>

<sup>1</sup> The Joint Utilities engaged the services of Steve Larson as Executive Director of CES-21 on March 20, 2013. Approximately \$55,000 of this cost estimate is for services provided by the Executive Director from March through July 2013, while the advice letter was being developed and pending at the Commission.

- a. Joint Utilities and LLNL Program Oversight and Coordination  
Each Utility and LLNL will be responsible for maintaining program oversight and coordination in order to support CES-21. This program management function includes budget management with each of the Joint Utilities and at LLNL, forecasting of resources needs to support the program, and monitoring and control of the research projects to ensure deliverables are being met. In addition, the Joint Utilities and LLN will ensure compliance with all contracting requirements and goals, including supplier diversity.
  
- b. Office of the Executive Director  
The primary role of the CES-21 Executive Director will be to design, develop, and implement strategic plans for CES-21 as well as manage the day-to-day CES-21 operations in collaboration with the Board of Directors and program management staff from LLNL. In addition to organizing the Board of CES-21 with the CPUC, CEC and CAISO, including advice letters, workshops, briefings, seminars, regulatory proceedings and inquires. An important element of the Executive Director's responsibilities will be to promote close working relationships between the LLNL research team members and the Joint Utility team members, to ensure the Joint Utilities' research needs are being addressed and that other stakeholders needs are taken into consideration, and to ensure CES-21 research initiatives are consistent with D.12-12-031 and directives of the CPUC. Furthermore, the Executive Director will conduct outreach to encourage collaborative opportunities with state and federal government institutions as well as academic departments, research institutes, industrial entities, and other state officials. It will be critical for the Executive Director to make every effort to ensure research initiatives are not duplicative of research in other areas. In particular, the Executive Director will maintain a close relationship with CEC and Joint Utility EPIC

managers, EPRI, and DOE funded research (e.g. ARRA, ARPA-E) to integrate work plans in order to be supportive and not duplicative. Lastly, the Executive Director will represent CES-21 in industry and public forums, making presentations as appropriate regarding CES-21 accomplishments, operations, and strategies.

The \$500,000 cost estimate includes compensation for the Executive Director, the cost of support services necessary to carry out the Executive Director's responsibilities, and reimbursement for reasonable expenses.

c. Board of Directors Compensation and Reimbursement

The Board of Directors are responsible to administer and implement the CES-21 Program, as approved and authorized by the CPUC. In accordance with the CES-21 by-laws, 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 the Joint Utilities. The Board of Directors will also approve all funding of projects to support the work orders, including procurement of equipment, facilities, tools, computer software and hardware. In addition, the Board of Directors will provide an annual report to the Commission's Executive Director. In this capacity, the Board of Directors will hold quarterly meetings (unless otherwise required) and advisory meetings to conduct the official business of the CES-21 Program.

The \$95,000 cost estimate includes compensation for the three non-utility Directors and reimbursement for reasonable expenses.

d. Preparation of Second Program Year Research Portfolio and Budget

The Joint Utilities and LLNL will be responsible for preparing the second CES-21 program year research portfolio and budget. This work will begin approximately 9 months prior to the start of the second program year due to the regulatory timeline adopted by the CPUC. In order to accomplish this, the Joint Utilities and LLNL will evaluate the 18 month research progress as well as developments in energy policy and advances in energy technologies.

The \$800,000 cost estimate for this activity is based on an assessment of the LLNL, Joint Utility, and other resources that will be required to develop new research concepts, the research portfolio, workplans, and cost estimates for the second program year.

e. Third Party Partnership Management

The CES-21 program will actively explore collaborative partnerships with third party vendors and research institutions in order to achieve the research project objectives as approved by the Board of Directors. The CES-21



program intends to sponsor workshops with third parties and hold solicitations to further evaluate these partnership opportunities.

The \$100,000 cost estimate for third party partnership management will cover the cost of outreach and development of the commercial partnership arrangements.

f. External Communications and Outreach

The Joint Utilities recognize the constant need for external communications and outreach to support the CES-21 Program. The Executive Director, the Joint Utilities, and LLNL will develop and execute an integrated communications program that effectively presents the CES-21 to regulators, legislators, research institutions, and the media.

The cost estimate for this activity is \$110,000.

While the Joint Utilities will strive to operate within this proposed budget, there is more uncertainty than usual over this cost estimate given the start-up nature of the program and the Utilities' lack of experience in executing cooperative research programs such as CES-21. The Joint Utilities propose to subject the CES-21 Program to a not-to-exceed 10% administrative cost cap, which would result in a PM budget of \$3 million. Any PM costs in excess of \$3 million for the first program year will not be recoverable in rates from customers.

Workforce Preparedness

The CES-21 Workforce Preparedness program will ensure the tools and technologies developed in the CES-21 research area's are effectively integrated with current and future Utility and other Stakeholder staff. A budget of \$250,000 is proposed for each program year. Activities will include workshops, tutorials, hands-on practice, and testing with various simulated real world planning and operations scenarios. Students of the program will be guided through steps that will transition them from the current work tools environment to use of the new tools, interpretation of results from those tools, and understanding of the capabilities and limitations of the tools. Elements of workforce preparedness will also focus on establishing a workforce that is prepared to create even better tools for the future so the program may endure after each research project is completed.

Key delivery elements of the program include:

- Physical, in person, group training both at the utility offices and at LLNL.
- Video and web training, both real time and taped for use later.
- Written course material for study.
- Case studies and simulation examples.

- Partnerships with key teaching faculty at colleges and universities throughout California to incorporate elements of this program into college curricula

The first 18 months will be a start-up period since many of the new tools will have yet to be developed. Deliverables in the first year include:

- Create partnerships between workforce development staff at LLNL, Joint Utilities', and stakeholder organizations and college and university teaching staff.
- Create the basic infrastructure of the training program including selection of web tools, video resources, and network of instruction locations.
- Create effective documentation and examples of research by working hand-in-hand with research area team members so results can be effectively converted to course material.

#### Advanced Computing Services

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 will provide a quantum leap in the Joint Utilities' ability to analyze more data faster.

LLNL will leverage its advanced computing capabilities as it is one of the preeminent centers in the world for solving complex problems with modeling development and engineering. The cost for these services is estimated to be approximately \$5 million for the first 18 months.

LLNL's advanced computing capabilities center around three technological foci: computational advancement, data science and informatics, and collaboration and outreach.

#### a. Computational Advancement

- High Performance Computing (HPC) for Simulation  
LLNL's HPC platform is focused on addressing highly complex problems and research needs of all CES-21 projects. This will involve the use of world class computing power using some of the most capable computing available in the world today. Services include the operation and maintenance of the platform, user support, system-administration, necessary base high performance computing operating and solving software (including some system software licensing costs), help lines, and consulting services on use of the machine.
- Virtualization Test-bed  
LLNL provides the resources for enabling non-HPC-enabled software to run on LLNL HPC platforms (initially, before they are ported and scaled). Any required software will be integrated into the Advanced Computing workflow, allowing input and output directly to shared disks, common

databases, or possibly directly via client-server interactions with an HPC-enabled back-end solutions. This all enables streamlined mixed platform computation.

- Porting and Software Tuning

LLNL will adapt codes to run more efficiently on HPC platforms, making the research projects themselves more efficient. This work includes porting, coupling of codes, optimization, and prototyping of methods using existing tools to identify the most cost-effective solution.

- b. Data Science and Informatics

- Data Science Services

LLNL will provide both platforms for doing advanced data analytics (e.g. Hadoop-like services), as well as provision of analytics research services that leverage existing lab programs and research activities in big data to serve the needs of CES-21 projects. This includes analytics, machine learning, and informatics techniques.

- Storage and Security

LLNL offers large scale dedicated storage of raw data, using data management processes and workflow to ensure data provenance is known. Data will also be made anonymous or summarized as needed to ensure no customer specific information is shared. Secure web-based data sharing portals will make data available to stakeholders according to established data sharing policies.

- Visualization

LLNL will develop tools for visualizing and interpreting the results of high fidelity simulations, including any necessary data post processing. These may range from existing in-house tools, open source tools, or other third party tools. LLNL will also perform customizations that are needed to serve the data visualization needs of CES-21 projects.

- c. Collaboration and Outreach

- Commercial Software License Management

LLNL will be responsible for the management of software licenses necessary to accomplish project objectives, in particular as it relates to using software on multi-processor machines.

- Collaboration Tools

LLNL will also be responsible for the maintenance and development of a common software tool suite for CES-21 projects. This will be a web-based suite providing valuable collaboration tools, most of which are integrated, including Confluence (wiki), Jira (issue tracking), and Stash (version control).

- Technology Transfer

LLNL will support the transition of the software tools developed in CES-21 to the Joint Utilities and their approved vendors and collaborators. This could include supporting commercialization pathways with software

vendors, developing an open source community with software service providers, and transitioning software to Joint Utility-supported platforms (e.g. cloud solutions or reduced order models).

### 3. **Cooperative Research and Development Agreement (CRADA)**

Under the CES-21 Program, PG&E, SCE, SDG&E, and LLNL have negotiated a CRADA, consistent with Ordering Paragraph 10 of D.12-12-031, which will be executed upon approval by the Commission and the U.S. Department of Energy. The CRADA establishes the terms and conditions of the partnership between LLNL, PG&E, SCE, and SDG&E for the CES-21 Program. The CRADA is included in **Attachment 3** to this Advice filing.

In accordance with D.12-12-031, the CRADA conforms to the guidelines established by the CPUC:

- The CRADA Should Restrict Research Projects to Four Promising Areas (D.12-12-031, p. 50-55, OP 10)
- The CRADA Shall Limit Yearly and Total Expenditures (D.12-12-031, p. 55-56, OP 10)
- Implementing Advice Letters Shall Allocate and Recover Costs Consistent with the Cost Allocation and Recovery Proposals (D.12-12-031, p. 56-57, OP 10)
- Research Projects Conducted Under the CRADA Must Meet Specific Criteria (D.12-12-031, p. 57-58)
- The Board of Directors Shall Number Six with Three Members Chosen from Academia or Research Institutes (D.12-12-031, p. 64-65, OP 10)

#### Intellectual Property Issues

As specified in Ordering Paragraph 18 of Decision 12-12-031, the utilities have the option to jointly retain title and authority to license any intellectual property produced or derived from the CRADA, and upon request the utilities will license such intellectual property on fair, reasonable and non-discriminatory grounds to Lawrence Livermore National Security, LLC (LLNS) and third parties for a fair and reasonable licensing fee, subject to Commission approval as appropriate and also subject to rights retained by the U.S. Federal Government under the CRADA. (D.12-12-031, OP 18)

#### Third Party Partnerships

The Joint Utilities envision that third parties will be engaged to assist with the proposed research projects. The research projects may form partnerships with other research institutions and experts to ensure the best possible research teams are assembled and that each project leverages existing tools and capabilities. Although potential partners have been identified in the business cases who may contribute to the projects, no commitments have been made at this time to partner with any particular entity or outside expert. After approval of

the business cases by the CPUC, workshops will be convened in each of the research areas for purposes of gaining further input on the projects and soliciting interest in participating in the research. After these workshops, the Joint Utilities, in collaboration with LLNL, the Board of Directors and the Executive Director, will decide how to collaborate with third parties. The CRADA provides flexibility for either LLNL or the Joint Utilities to contract with third parties on the research.

#### **4. Request for Commission Approval**

The Joint Utilities request that the Commission issue a resolution that:

- a. Approves the research projects presented in this Advice Letter and included in Attachment 2;
- b. Approves a budget of \$30 million for the first program period as presented in Table 1;
- c. Authorizes that the first program period will be 18 months beginning on the effective date of the resolution approving this Advice Letter, contingent upon approval of the Joint Utilities' Petition for Modification;
- d. Authorizes the CES-21 Board of Directors to shift funds between expenditure categories equal to no more than 5% of the adopted annual budget or \$1.5 million and the Executive Director to shift funds as needed between projects or activities within the expenditure categories; and
- e. Approves the CRADA provided in Attachment 3 to this Advice Letter.

#### **Protests**

Anyone wishing to protest this filing may do so by letter sent via U.S. mail, facsimile or E-mail, no later than **May 9, 2013** which is 20 days after the date of this filing. Protests must be submitted to:

CPUC Energy Division  
ED Tariff Unit  
505 Van Ness Avenue, 4<sup>th</sup> Floor  
San Francisco, California 94102

Facsimile: (415) 703-2200  
E-mail: EDTariffUnit@cpuc.ca.gov

Copies of protests also should be mailed to the attention of the Director, Energy Division, Room 4004, at the address shown above.

The protest shall also be sent to PG&E either via E-mail or U.S. mail (and by facsimile, if possible) at the address shown below on the same date it is mailed or delivered to the Commission:

Brian K. Cherry  
Vice President, Regulatory Relations  
Pacific Gas and Electric Company  
77 Beale Street, Mail Code B10C  
P.O. Box 770000  
San Francisco, California 94177

Facsimile: (415) 973-7226  
E-mail: PGETariffs@pge.com

Any person (including individuals, groups, or organizations) may protest or respond to an advice letter (General Order 96-B, Section 7.4). The protest shall contain the following information: specification of the advice letter protested; grounds for the protest; supporting factual information or legal argument; name, telephone number, postal address, and (where appropriate) e-mail address of the protestant; and statement that the protest was sent to the utility no later than the day on which the protest was submitted to the reviewing Industry Division (General Order 96-B, Section 3.11).

### **Effective Date**

PG&E requests that this Tier 3 advice filing become effective *upon approval by the CPUC*.

### **Notice**

In accordance with General Order 96-B, Section IV, a copy of this advice letter is being sent electronically and via U.S. mail to parties shown on the attached list and the service list for A. 11-07-008 & A. 12-11-003. Address changes to the General Order 96-B service list should be directed to PG&E at email address PGETariffs@pge.com. For changes to any other service list, please contact the Commission's Process Office at (415) 703-2021 or at Process\_Office@cpuc.ca.gov. Send all electronic approvals to PGETariffs@pge.com. Advice letter filings can also be accessed electronically at: <http://www.pge.com/tariffs>

Vice President, Regulatory Relations

Attachments

cc: Service List for A. 11-07-008 & A. 12-11-003