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January 21, 2010

**Advice 3078-G/3594-E**

(Pacific Gas and Electric Company ID U 39 M)

Public Utilities Commission of the State of California

**Subject: Zero Net Energy Pilot Program Advice Letter Pursuant to D.09-09-047**

Pacific Gas and Electric Company (PG&E) hereby submits its Zero Net Energy (ZNE) Pilot Program Advice Letter for its 2010-2012 Energy Efficiency (EE) Portfolio in compliance with Decision 09-09-047 (Decision), Ordering Paragraph (OP) 20 and other directives.

**Purpose**

Ordering Paragraph 20 of the Decision directed the investor-owned utilities (IOUs) to file an advice letter for all approved pilot programs within 120 days after the decision's effective date. This advice letter submits for approval details for the Zero Net Energy Pilot Program.

**Background**

On July 21, 2008, PG&E and the other IOUs filed their 2009-2011 EE portfolio applications (A.08-07-031). On September 18, 2008, the California Public Utilities Commission (Commission) adopted the California Long Term Energy Efficiency Strategic Plan (Strategic Plan) in Decision (D.) 08-09-040. Following Energy Division (ED) review of their portfolio applications, PG&E and the other IOUs amended their applications on March 2, 2009, including statewide and local program implementation plans, in compliance with the Strategic Plan and as directed through a series of Commission rulings. Per D.09-05-037 issued May 21, 2009, PG&E and the other IOUs also supplemented their portfolio requests on July 2, 2009. On September 24, 2009, the Commission issued D.09-09-047, which adopted the three-year 2009-2012 portfolio budgets for each IOU. The adopted PG&E budget was \$295 million less than the requested budget in its July 2, 2009 filing.

In accordance with OP 15 of the EE Decision, PG&E filed its Compliance Advice Letter (AL) 3065-G/3562-E on November 23, 2009, which proposed, in part, detailed program budgets for the 2010-2012 EE portfolio. The total proposed budget for ZNE Pilots in the Compliance AL was \$7.6 million, a \$23.1 million reduction from PG&E's requested budget in its July 2, 2009 filing. On December 18, 2009, the ED suspended the advice letter stating, however, that the suspension should not delay the program implementation effective January 1, 2010. In its July 2009 filing, PG&E proposed two additional ZNE

program initiatives: a ZNE Lab and the Demonstration Home, which required capital funds. The Decision declined this capital funding request stating that these capital funding requests are appropriate within the scope of the GRC (Decision, OP 41). In accordance with the Decision, PG&E is pursuing the capital funds for this initiative through its General Rate Case (A.09-12-020).

OP 20 of the EE Decision directed the IOUs to file Pilot Program ALs for each approved pilot program specifying the content required for these ALs. The table below outlines the compliance items for this ZNE Pilot Program AL and indicates the section covering each compliance item.

Cite	Compliance Item	AL Section
OP 19	The following energy efficiency pilot program of [PG&E] are approved, subject to the requirements listed in ordering Paragraph 20: PG&E's ZNE Pilot Program, PG&E's Innovator Pilots, PG&E's Green Communities program...and WE&T Pilot Programs (Building Commissioning Workshop Series, Residential HVAC Seminars, Comprehensive Evaluation of Food Svc. Center, Green Pathways...)	
OP 20, Section 4.3	The utilities shall file an Advice Letter for each approved "Pilot Program" containing the following elements:	
	1. a specific statement of the concern, gap, or problem that the pilot seeks to address and the likelihood that the issue can be addressed cost-effectively through utility programs;	Program Description
	2. whether and how the pilot will address a Strategic Plan goal or strategy and market transformation;	<ul style="list-style-type: none"> <li>▪ Program Description</li> <li>▪ Addressing the Strategic Plan and Market Transformation</li> </ul>
	3. specific goals, objectives and end points for the project;	Goals and Objectives
	4. new and innovative design, partnerships, concepts or measure mixes that have not yet been tested or employed;	<ul style="list-style-type: none"> <li>▪ Program Description</li> <li>▪ Program Innovations</li> </ul>
	5. a clear budget and timeframe to complete the project and obtain results within a portfolio cycle-pilot projects should not be continuations of programs from previous portfolios;	<ul style="list-style-type: none"> <li>▪ Budget</li> <li>▪ Timeframe</li> <li>▪ Endpoints</li> </ul>
	6. information on relevant baselines metrics or a plan to develop baseline information against which the project outcomes be measured;	Attachment A
	7. program performance metrics following the methodology outlines in OP11.	Attachment A Attachment B

Cite	Compliance Item	AL Section
	8. methodologies to test the cost-effectiveness of the project;	<ul style="list-style-type: none"> <li>▪ Program Description</li> <li>▪ Methodologies to Test Cost-Effectiveness</li> </ul>
	9. a proposed EM&V plan;	EM&V Plan
	10. a concrete strategy to identify and disseminate best practices and lessons learned from the pilot to all CA utilities and to transfer those practices to resource programs, as well as a schedule and plan to expand the pilot to utility and hopefully statewide usage.	<ul style="list-style-type: none"> <li>▪ Development and Dissemination of Best Practices</li> <li>▪ Strategy to Identify and Disseminate Best Practice</li> </ul>
OP 11,	<p>“[IOUs] shall jointly file a “Program Performance Metrics” Advice Letter requesting approval for their proposed logic models and metrics, with sections for each statewide program (and associated sub-programs) within 120 days of the effective date of this decision. In their filing, [IOUs] shall include a completed Program Performance Indicator Worksheet for each energy efficiency statewide program and associated sub-program (see Appendix 2). In addition, the Advice Letter filing shall include for each statewide program (and associated subprograms):</p> <ol style="list-style-type: none"> <li>a. completed Program Performance Indicator Table as depicted in Appendix 2;</li> <li>b. An updated program logic model as indicated in the Program Performance Indicator Worksheet;</li> <li>c. A discussion to specifically address the extent to which each program and sub-program plan included an end game for each technology or practice that transforms building, purchasing, and use decisions to become either standard practice, or incorporated into minimum codes and standards;</li> </ol>	Attachment A Attachment B
p. 178	Any ZNE program should consider how the best practices and technologies will be translated to benefit the existing building markets.	<ul style="list-style-type: none"> <li>▪ Development and Dissemination of Best Practices</li> <li>▪ Strategy to Identify and Disseminate Best Practice</li> </ul>
p. 179	We also decline to approve the ZNE Demonstration Home capital costs, and therefore an operation budget for such a home is not needed. Therefore, we conditionally approve PG&E’s ZNE Pilot Project at a level of \$25 million on a pilot program basis only, a \$6 million decrease from the requested budget.	Budget

Cite	Compliance Item	AL Section
p. 179	As a pilot program we require PG&E to submit via advice letter additional information on the ZNE Pilot Program as outlined in Section 4.3 above. The advice letter should be filed within 90 days of the adoption of this Decision.	

### **Program Description**

The EE Decision conditionally approved PG&E's ZNE Pilot Program. This AL provides additional details required by the EE Decision, which includes a timeline for implementing the ZNE Pilot program using the proposed reduced budget in the compliance AL. With the necessary reductions, the proposed ZNE Pilot Program represents a significant and substantial commitment to program initiation for zero net energy. Per the Decision and described in the compliance AL, PG&E will consider mid-cycle funding augmentation for successful programs, including the ZNE Pilot Program.<sup>1</sup>

### **ZNE Program Supports Strategic Plan Goals**

The ZNE Pilot Program is a PG&E-specific local program that supports the Strategic Plan by developing design guidelines, identifying and initiating research and demonstration projects around ZNE buildings and developments. The ZNE Pilot Program aligns with the of the Strategic Plan's implementation plan and timeline aiming to "push" the development of long-term (2016-2030) cost-effective technologies in the market while "pulling" customers towards the adoption of long-term advanced energy efficiency technologies and practices.<sup>2</sup>

The ZNE Pilot Program is also a direct response to the Commission ruling that "the utilities jointly and individually should design and implement several ZNE building pilot projects during the 2009-2011 period in order to advance rapidly towards the ZNE commercial and residential building programmatic initiatives adopted by the CPUC in D.07-10-032 and by the California Energy Commission (CEC) in its 2007 Integrated Energy Policy Report (IEPR).<sup>3</sup>

In D.07-10-032, zero net energy is defined as ". . . the implementation of a combination of building energy efficiency design features and on-site clean distributed generation that result in no net purchases from the electricity or gas grid, at the level of a single "project" seeking development entitlements and building code permits."<sup>4</sup> This broad definition enables the ZNE Pilot Program to mirror the energy resource loading order as outlined in

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<sup>1</sup> Advice 3065-G/3562-E.

<sup>2</sup> California Long Term Energy Efficiency Strategic Plan, July 14, 2008, page 5.

<sup>3</sup> Joint Assigned Commissioners' Ruling Providing Guidance on Integrated Demand-Side Management In 2009-2011 Portfolio Application, Rulemaking 06-04-010, April 11, 2008, page 8.

<sup>4</sup> Interim Opinion On Issues Relating To Future Savings Goals And Program Planning For 2009-2011 Energy Efficiency And Beyond, Decision 07-10-032, October 18, 2007, page 38.

the Energy Action Plan<sup>5</sup> and to analyze and implement a wide range of EE and renewable energy (RE) measures.

### Barriers to ZNE

Described in the ZNE Program Implementation Plan, the ZNE Pilot Program was designed to address four priority barriers to the development of zero net energy projects:

- **Gaps in Utility Programs:** The ZNE Pilot Program addresses a gap in current utility programs by filling an early involvement need in the planning process for master-planned communities and advanced commercial projects, thereby influencing the decision-making around energy savings related to location, infrastructure choices, and community-scale choices. This approach follows the recommendation of the Commission that a comprehensive, integrated long-term strategy to achieve maximum energy savings in residential new construction is both promising and critically needed.
- **Low Professional and Public Awareness:** There is a general lack of knowledge regarding ZNE projects and issues among building professionals and in the general public. Through demonstration projects, case studies, and building professionals, future building owners and the general public will be able to view ZNE buildings and “kick the tires” on new technologies. This will begin to create market demand for better demand side management and for buildings on the path to ZNE.
- **Perceived Risk:** The scarcity of proven ZNE projects creates a perception of risk that may increase the reluctance of design teams and building owners to pursue ZNE design. In addition, building designers, owners, and operators may be concerned about liability, performance, and contracting issues related to using new or different materials, technologies, design approaches, and performance expectations.
- **Cost-Effectiveness Concerns:** Today’s ZNE buildings and developments are not cost-effective according to models. Developments are needed on both the cost and benefits side of that equation. For example, to enable widespread adoption of EE, the upfront cost of many ZNE technologies will need to be reduced. Project cost reduction may also be accomplished through better design integration, real-time construction cost estimations during the design process, or utilizing new software tools such as Building Information Modeling (BIM). Further, many of the approaches expected to produce real savings reductions (such as better site planning) lack agreed-upon measurement methods for calculating those savings.

### ZNE Program Designed to Overcome Barriers

To address these barriers, the ZNE Energy Pilot Program will focus its activities in four program areas, described in greater detail below:

- Community design guidelines
- Demonstration projects
- Collaborative research
- Development and dissemination of best practices

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<sup>5</sup> See [http://www.energy.ca.gov/energy\\_action\\_plan/index.html](http://www.energy.ca.gov/energy_action_plan/index.html) for the 2005 Energy Action Plan II and the 2008 Update to the State of California Energy Action Plan.

### **Community Design Guidelines**

The ZNE Pilot Program intends to engage nationally recognized design and planning firms to develop energy-focused community planning guidelines or principles to enable ultra-low energy buildings. This program area fills a gap in current utility programs: the need for design and technical guidance early in the planning process for master-planned communities and advanced commercial projects. The guidelines or principles to be developed under this program area will provide a platform for influencing multiple building developments. Further, they can provide design and technical guidance to developers, design teams, communities and local governments considering commercial or residential projects, with an emphasis on mixed-use complexes, multi-family complexes, advanced residential and commercial new constructions, compact development, and transit oriented development. Specifically, the guidelines and principles to be developed are intended to guide the decision-making of these groups around energy savings in areas that typically fall outside the scope of IOU programs:

- Location
- Infrastructure choices: e.g., land use, transportation, water, waste
- Community-scale choices: e.g., street orientation to optimize solar

The guidelines or principles will focus on the early stages of the entitlement and design process. Where applicable, the ZNE Pilot Program intends to disseminate the design guidelines or principles to interested local governments in PG&E's service territory through the Green Communities and Innovator Pilot programs. The ZNE Pilot Program will also share lessons learned and coordinate as applicable with the Southern California Edison (SCE) Sustainable Communities Program (SCP), the San Diego Gas & Electric (SDG&E) Advanced Homes and Sustainable Community Case Studies Programs, and the Sacramento Municipal Utility District (SMUD) SolarSmart and Advantage Homes Program.

### **Demonstration Projects**

The ZNE Pilot Program intends to collaborate with third parties to initiate a number of demonstration and commercial projects in order to give design teams the opportunity to design and build a ZNE project at a lower direct cost and in a lower risk environment than otherwise possible. Designing and building a ZNE project is generally considered risky and expensive. As part of these demonstration projects, the ZNE Pilot Program will support or provide technical assistance, design assistance, and potentially cost-sharing of advanced EE measures to participating developers, owners, and design teams. The ZNE Pilot Program will also support the monitoring and performance assessment of the demonstration projects once completed and will develop case studies documenting the design decisions and process as well as the actual performance of the completed demonstration projects. Demonstration projects would be open to building professionals and the public for tours for a period of time after completion to increase public awareness of ZNE projects.

PG&E will compose an advisory team of seven to nine people nationally recognized for their leadership in ZNE development to review PG&E's process and selection of ZNE projects. These team members will come from such organizations as the New Buildings Institute (NBI), the U.S. Green Building Council (USGBC), and the National Renewable

Energy Laboratory (NREL) or Lawrence Berkeley National Laboratory (LBNL), as well as from the design community. Eligible projects must be in the early schematic design phase or earlier and the project owner and design team must be committed to achieving a minimum of Tier II efficiency and including clean distributed generation in the project. The owner and design team must also be willing to collaborate with the ZNE Pilot Program throughout the project including sharing post-occupancy energy data and participating in case studies.

### **Collaborative Research**

To leverage funding, the ZNE Pilot Program intends to collaborate with recognized research institutions to influence their research agendas, collaborate and/or provide matching funds for applicants responding to solicitations with proposals aligned with PG&E's and its advisory team's vision for ZNE, and collaborate with other EE programs within PG&E and the other IOUs where applicable and appropriate.

Little information is available in regards: how ZNE buildings and building systems perform, how ZNE design decisions are framed and made, how ZNE projects are reviewed to conduct code reviews for ZNE projects, and how institutional, market, and policy barriers might prevent widespread development of ZNE projects. This lack of information prevents development of specific ZNE roadmaps, handicaps the development of new technologies, and prevents the determination of specific programmatic measures. Accordingly, the ZNE Pilot Program intends to engage in research projects in the areas of performance data, tools, and perceived barriers, as described in the sub-sections below.

#### *Performance Data*

As noted above, one of the perceived risks associated with designing, building, and owning a ZNE project is the possibility that the completed project will not meet the predicted energy performance and any discrepancies may result in legal entanglement and/or increased costs. Little measurement and monitoring has occurred on ZNE buildings to determine whether design strategies have worked as intended and to separate successful strategies from unsuccessful ones.

To address this critical issue, ZNE Pilot Program intends to collect actual performance data from a number of existing ZNE, passive, and/or ultra-low energy projects within PG&E's service territory and gather existing data from projects elsewhere, which includes case studies information. These measurement and monitoring projects may include district heating and cooling systems. The ZNE Pilot Program intends to work with the national labs and other entities with resources focused on ZNE issues to leverage funds for these projects.

To accelerate and expand the initiation and development of innovative technologies leading to their commercialization, the ZNE Pilot Program intends to coordinate with the existing Emerging Technologies Program (ETP). In the new technology space, ETP works to commercialize existing new technologies while the ZNE Pilot seeks to identify the needs or gaps where applied research can develop important new technologies. As part of this effort, the ZNE Pilot intends to provide technology integration opportunities to help the ETP screen and assess potential technologies. The ZNE Pilot Program may also support field testing, technology assessments, and performance testing of technologies and/or building systems that have the potential to advance the design and/or operation of

ZNE projects.

### *Tools*

Sophisticated modeling software underlie building and development design. Without advances in these tools, ZNE will remain an abstract or theoretical exercise. The ZNE Pilot Program intends to support the development of software tools, some of which are being developed by research institutions (e.g. NREL) or other third parties that relate to community-scale planning and design, design process decision-making, and/or tools that facilitate the code review process of ZNE and very low-energy projects.

### *Unidentified Perceived Barriers*

The movement toward ZNE buildings and developments is likely to encounter barriers beyond those already identified. Examples include: customer esthetic issues, fire, safety and health codes that may prevent adoption of advanced community planning practices, or legal or liability issues for architects and engineers raised by ZNE warranties. PG&E would develop a cooperative research project working with key stakeholders (e.g., national laboratories, professional organizations) to conduct an initial scoping survey of possible barriers that might have to be addressed as ZNE moves forward. This would serve as a foundation for further work in later funding cycles.

### **Development and Dissemination of Best Practices**

The ZNE Pilot Program intends to share results and best practices obtained through activities in other program areas and other research to support the efforts of PG&E's Codes and Standard Program relating to incorporating ZNE objectives into California's Title 24 Building Code. The Program also intends to disseminate these results and best practices through workshops and events at the educational centers, the Pacific Energy Center (PEC) and Energy Training Center (ETC), which will provide outreach to building design firms, local governments, and advocacy and professional organizations.

As noted earlier, the ZNE Pilot Program intends to disseminate the completed community design guidelines or principles to interested local governments through the Green Communities and Innovator Pilot programs. The ZNE Pilot Program will also share lessons learned and coordinate as applicable with the Southern California Edison (SCE) Sustainable Communities Program (SCP), the San Diego Gas & Electric (SDG&E) Advanced Homes and Sustainable Community Case Studies Programs, and the Sacramento Municipal Utility District (SMUD) SolarSmart and Advantage Homes Program.

### **Addressing Barriers Cost-Effectively**

PG&E will leverage its extensive experience in energy efficiency and renewable generation to cost-effectively deliver the products from the ZNE Pilot Program. PG&E will further reduce the costs to California rate-payers gaining these ZNE-related products by seeking collaborations with other organizations pursuing ZNE. By serving as a coordination force with efforts throughout the state and elsewhere, PG&E's ZNE Pilot Program will help ensure the delivery of more robust, cost-effective, and rapid results than otherwise possible.

### **Addressing the Strategic Plan and Market Transformation**

As noted in the EE Decision, the proposed ZNE Pilot Program would “directly address needs identified within the Strategic Plan for accelerating California’s progress towards the 2020/2030 ZNE goals.”<sup>6</sup> Specifically, the program elements, as described above, will jointly help overcome specific barriers to ZNE homes and communities. Further, the ZNE Pilot Program incorporates the five policy tools for market transformation listed in the Strategic Plan: non-financial incentives to change standard practice, codes and standards, education and information, technical assistance, and emerging technologies.

### **Program Innovations**

In addition to engaging whole building design and IDSM, the ZNE Pilot Program plans to push the envelope on land-use planning issues, such as building orientation, compact planning, transit-oriented development, advanced and efficient district heating and cooling systems, and renewable energy systems that have the capacity to serve multiple homes and/or businesses. This objective will require the ZNE Pilot Program to engage market actors in the planning and early schematic design phases, before projects are able to participate in traditional IOU incentive programs.

Achieving the Strategic Plan’s ambitious goals will require integration, cooperation, and collaboration with a wide range of market actors. Playing a coordinating role, the ZNE Pilot Program intends to engage the publicly owned utilities and IOUs, developers, architects, builders, municipalities, and redevelopment agencies, the CEC PIER program, the U.S. Department of Energy (DOE) National Laboratories (National Renewable Energy Laboratory, Lawrence Berkeley National Laboratory, etc.), professional building and trade associations; research institutions; state, federal, regional and local agencies and the Commission.

### **Methodologies to Test Cost-Effectiveness**

The ZNE Pilot Program is modeled as a non-resource program and does not have quantified savings. It is subject to the same cost-effectiveness challenges as most activities focused primarily on market transformation.

### **Strategy to Identify and Disseminate Best Practices**

As described above, the identification and dissemination of best practices relating to the planning, design, and building of zero net energy projects from several perspectives are the core program activity of the ZNE Pilot Program. When complete, community design best-practices will be disseminated to developers and government entities, case studies through the architecture/design community, and etc. All results will be shared with other utilities. At the end of the 2010–2012 EE program cycle, PG&E will meet with the other IOUs to explore and make recommendations about expanding and continuing this program or ushering program elements into the Core IOU offering.

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<sup>6</sup> Decision 09-09-047, page 178.

### **Goals and Objectives**

ZNE Pilot Program's overall goal is to accelerate ZNE building capability in PG&E's service territory by:

- Identifying and disseminating development scale best practices;
- Demonstrating select approaches to the building and building using community;
- Accelerating determination of workable versus non-workable approaches and dissemination those results; and
- Enabling better planning and project entitlement and approval through more sophisticated tools.

### **Budget**

The PG&E compliance AL filed November 23, 2009, details PG&E's proposed EE Portfolio budget, identifies changes from PG&E's July 2009 proposed budget, and discusses the rationale for the changes.<sup>7</sup>

Table 1 shows the ZNE Pilot Program's proposed 2010–2012 program budget of \$7.6 million.

**Table 1**  
2010-2012 ZNE Pilot Program Adopted Budget  
Compared to July 2 Proposed Budget  
(\$Millions)

<b>Line No.</b>	<b>Program/Cost Element</b>	<b>Jul-09 Requested 2009-2011 Budget</b>	<b>Compliance AL Proposed 2010-2012 Budget</b>	<b>Change</b>
1	Zero Net Energy Pilot Program	\$30.7	\$7.6	(\$23.1)
2	Zero Net Energy Lab/Demo Home/Other Capital RRQ	\$1.8	\$0.0	(\$1.8)

Though different from the budget proposed in PG&E's July 2009 filing, the proposed ZNE Pilot Program represents a significant and substantial commitment to initiating a program focused on zero net energy. As authorized by the Decision, and as described in the compliance advice letter filed November 23, 2009, PG&E will consider mid-cycle augmentation of funding for successful programs, including the ZNE Pilot Program<sup>8</sup>.

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<sup>7</sup> Advice 3065-G/3562-E

<sup>8</sup> Advice 3065-G/3562-E

Table 2 shows the proposed annual budgets for the Zero Net Energy Pilot Program.

**Table 2**  
ZNE Pilot Program Proposed Annual Budget  
(\$Millions)

Line No.	Year	Budget
1	2010	\$1.8
2	2011	\$2.9
3	2012	\$2.9
4	Total ZNE Pilot Program Budget	\$7.6

Table 3 shows the ZNE Pilot Program budget by cost category. The values shown are consistent with the budget workbook filed with the compliance advice letter filed November 23, 2009.

**Table 3**  
ZNE Pilot Program Budget by Cost Category  
(\$Millions)

Line No.	Program/Cost Element	Total Administrative Cost	Total Marketing & Outreach	Estimated Total Direct Implementation	Total ZNE Pilot Program Budget
1	ZNE Pilot Program	\$1.09	\$0.23	\$6.23	\$7.6

### Timeframe

The timeline below outlines at a high level the activities currently planned to be pursued in each year of the EE program cycle.

Activities	2010	2011	2012
Community Design Guidelines	<ul style="list-style-type: none"> <li>Engage nationally recognized design and planning firms to develop zero net energy community planning guidelines</li> </ul>	<ul style="list-style-type: none"> <li>Continue developing and reviewing zero net energy community planning guidelines</li> </ul>	<ul style="list-style-type: none"> <li>Complete zero net energy community planning guidelines.</li> <li>Disseminate the community planning guidelines.</li> </ul>
Demonstration Projects	<ul style="list-style-type: none"> <li>Form the advisory committee of ZNE stakeholders for project review and selection.</li> <li>Select and engage at least one residential and one commercial new construction demonstration project.</li> </ul>	<ul style="list-style-type: none"> <li>Monitor the progress and performance of ZNE demonstration projects.</li> <li>Compile information of case studies of completed projects.</li> <li>Select and engage at least one residential and one commercial new construction</li> </ul>	<ul style="list-style-type: none"> <li>Monitor the progress and performance of ZNE demonstration projects.</li> <li>Finalize case studies of completed projects and compile information for the case studies of ongoing demonstration projects.</li> <li>Select and engage at least one residential and</li> </ul>

		demonstration project.	once commercial new construction demonstration project.
Research	<ul style="list-style-type: none"> <li>Explore opportunities to collaborate with research institutions, third parties, and other IOUs; collaborate to submit research proposals for relevant solicitations.</li> <li>Initiate selected research projects to gather performance data and develop tools.</li> </ul>	<ul style="list-style-type: none"> <li>Continue to collaborate to submit research proposals for relevant solicitations.</li> <li>Continue research projects to gather performance data and develop tools.</li> <li>Scope and initiate study to characterize select barriers to zero net energy project development.</li> </ul>	<ul style="list-style-type: none"> <li>Continue and complete, where possible, research projects to gather performance data and develop tools.</li> <li>Complete study to characterize select barriers to zero net energy project development.</li> </ul>
Best Practices	<ul style="list-style-type: none"> <li>Explore methods for the dissemination of best practices, and establish relationships with collaborating organizations.</li> </ul>	<ul style="list-style-type: none"> <li>Compile best practices based on program activities to date; begin outreach and dissemination activities.</li> </ul>	<ul style="list-style-type: none"> <li>Compile best practices from completed projects and research activities; continue outreach and dissemination activities.</li> </ul>

### **Endpoints**

In 2011–2012, perhaps as part of a CPUC-managed update to its Strategic Plan, the ZNE program will be reassessed and continued if further developments along the four program dimensions are warranted.

### **Metrics**

Program performance metrics are show in Attachment A.

### **Logic Model**

The program logic model is shown in Attachment B.

### **EM&V Plan**

PG&E proposes to develop specific research scopes of work and priorities, in accordance with the directives set forth in the upcoming CPUC decision on EM&V issues and/or through collaboration between the IOUs and Energy Division. In the Decision, the Commission deferred resolution of various EM&V issues to a subsequent decision on EM&V. (D. 09-09-047, pp. 301-04 and OP 60). Among other things, the Decision deferred issues included a clarification of the respective EM&V roles and responsibilities for Energy Division and the IOUs, as well as the actual allocation of the EM&V budget. PG&E proposes further development of its EM&V plan upon Commission resolution of these pending issues in the upcoming EM&V decision.

**Effective Date**

PG&E is filing this advice letter as Tier 2 to be approved by **February 22, 2010**, which is 32 days from the filing date.

**Protests**

Anyone wishing to protest this filing may do so by letter sent via U.S. mail, by facsimile or electronically, any of which must be received no later than **February 10, 2010** which is 20 days after the date of this filing. Protests should be mailed to:

CPUC Energy Division  
Tariff Files, Room 4005  
DMS Branch  
505 Van Ness Avenue  
San Francisco, California 94102  
Facsimile: (415) 703-2200  
E-mail: [jnj@cpuc.ca.gov](mailto:jnj@cpuc.ca.gov) and [mas@cpuc.ca.gov](mailto:mas@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 also should be sent via U.S. mail (and by facsimile and electronically, if possible) to PG&E 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](mailto:PGETariffs@pge.com)

**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. Address changes to the General Order 96-B service list and all electronic approvals should be directed to email [PGETariffs@pge.com](mailto:PGETariffs@pge.com). Advice letter filings can also be accessed electronically at: <http://www.pge.com/tariffs>.

Handwritten signature of Brian Cherry in cursive script, with the initials "03" written at the end.

Vice President - Regulatory Relations

Attachments:

Attachment A: Program Performance Metrics

Attachment B: Logic Diagram

cc: Service List A.08-07-021

# CALIFORNIA PUBLIC UTILITIES COMMISSION

## ADVICE LETTER FILING SUMMARY ENERGY UTILITY

MUST BE COMPLETED BY UTILITY (Attach additional pages as needed)

Company name/CPUC Utility No. **Pacific Gas and Electric Company (ID U39 M)**

Utility type:

ELC       GAS

PLC       HEAT       WATER

Contact Person: Olivia Brown

Phone #: 415.973.9312

E-mail: oxb4@pge.com

EXPLANATION OF UTILITY TYPE

ELC = Electric      GAS = Gas        
PLC = Pipeline      HEAT = Heat      WATER = Water

(Date Filed/ Received Stamp by CPUC)

Advice Letter (AL) #: 3078-G/3594-E

**Tier:** 2

Subject of AL: Zero Net Energy Pilot Program Advice Letter Pursuant to D.09-09-047

Keywords (choose from CPUC listing): Compliance, Energy Efficiency

AL filing type:  Monthly  Quarterly  Annual  One-Time  Other \_\_\_\_\_

If AL filed in compliance with a Commission order, indicate relevant Decision/Resolution #: D.09-09-047

Does AL replace a withdrawn or rejected AL? If so, identify the prior AL: No

Summarize differences between the AL and the prior withdrawn or rejected AL:

Is AL requesting confidential treatment? If so, what information is the utility seeking confidential treatment for: No

Confidential information will be made available to those who have executed a nondisclosure agreement: N/A

Name(s) and contact information of the person(s) who will provide the nondisclosure agreement and access to the confidential information: N/A

Resolution Required?  Yes  No

Requested effective date: February 22, 2010

No. of tariff sheets: N/A

Estimated system annual revenue effect (%): N/A

Estimated system average rate effect (%): N/A

When rates are affected by AL, include attachment in AL showing average rate effects on customer classes (residential, small commercial, large C/I, agricultural, lighting).

Tariff schedules affected: N/A

Service affected and changes proposed: N/A

Protests, dispositions, and all other correspondence regarding this AL are due no later than 20 days after the date of this filing, unless otherwise authorized by the Commission, and shall be sent to:

**CPUC, Energy Division  
Tariff Files, Room 4005  
DMS Branch**

**505 Van Ness Ave., San Francisco, CA 94102**

**jnj@cpuc.ca.gov and mas@cpuc.ca.gov**

**Pacific Gas and Electric Company**

**Attn: Brian K. Cherry, Vice President, Regulatory Relations**

**77 Beale Street, Mail Code B10C**

**P.O. Box 770000**

**San Francisco, CA 94177**

**E-mail: PGETariffs@pge.com**

# **ADVICE 3078-G/3594-E**

**Attachment A:**

**Metrics and Performance Indicator Model**

Attachment A  
Zero Net Energy Pilot Program Performance Metrics Zero Net Energy Pilot  
Program

**1. Include a list of the utility and program administrator staff directly involved in deriving the program performance indicator metric. Include their title and contact information.**

Anna LaRue, Senior Regulatory Analyst

- Telephone: (415) 972-5146
- E-mail: amle@pge.com

**2. Describe each program performance indicator being proposed for this program. Indicate in a description for each, what type of performance indicator it is (see attached above). If the program indicator is being changed from an already approved program indicator indicate why the change is necessary. Provide additional analysis that adequately justifies the need to revise the metric as an attachment to this worksheet.**

Proposed metric #1: By 2012, complete Community Design Guidelines.

**Baseline:** Community Design Guidelines are 0% developed at program inception.

Proposed metric #2: Disseminate Community Design Guidelines best practices through multiple channels.

**Baseline:** Zero contacts made at program inception.

**3. For each program performance metric being proposed, indicate why you have selected them including how the metric meets the SMART convention (Specific, Measurable, Actionable, Relevant, Timely)**

- Specific: Provides a defined level of program progress
- Measurable: Results can be tracked by program staff
- Actionable: Action can be taken based on reported progress
- Relevant: It is direct measurement of program activities and results
- Timely: Results can be reported on a quarterly basis

**4. State the program mission. The program mission is the basic purpose of a program, its reason for existing, and the general means through which it will accomplish its purpose in view of overarching goals and objectives (CEESP, BBEES, CPUC EE Goals).**

The Zero Net Energy (ZNE) Pilot Program is a Pacific Gas and Electric Company (PG&E) specific local non-resource program that supports the Strategic Plan by initiating research, developing design guidelines, and identifying and initiating demonstration (RD&D) projects around ZNE buildings and developments. The ZNE Pilot Program aligns with the implementation plan and timeline of the Strategic Plan, aiming to “push” the development of long-term (2016-2030) cost-effective technologies to the market while “pulling” customers towards the adoption of long-term advanced energy efficiency (EE) technologies and practices.

The ZNE Pilot Program will focus its activities in four program areas: community design guidelines, demonstration projects, research, and the development and dissemination of best practices.

**5. Describe the program performance goals (both internal and external), standards, and/or benchmarks. Program goals should support the programs' overall mission and are general statements about the results to be produced by the program. If program goals are being revised from previous program goals indicate why the change is necessary providing additional analysis to justify the change.**

As noted in the ZNE Pilot Program Advice Letter, the overall goal of the Program is to accelerate ZNE building capability in PG&E's service territory by:

- Identifying and disseminating development scale best practices;
- Demonstrating select approaches to the building and building using community;
- Accelerating determination of workable versus non-workable approaches and dissemination those results; and
- Enabling better planning and project entitlement and approval through more sophisticated tools.

**6. Describe the critical work processes, program requirements, and critical results desired (both internal and external) linked to promotion of the program mission and goals above.**

As shown in the ZNE Pilot Program Logic Model Diagram, the activities of the four program areas are all designed to effect changes in standard practice. In particular, the Community Design Guidelines are a crucial piece of this effort. The identification and dissemination of best practices relating to the planning, design, and building of zero net energy projects from several perspectives is also a core program activity.. The community design guidelines, completed case studies, and best practices will be disseminated to developers, local governments (with a focus on code officials and the project approval process), design firms, and advocacy/professional organizations. All results will be shared with other utilities.

**7. Describe how the proposed program performance metrics are a measure of the critical work processes or critical results identified above.**

Completing the Community Design Guidelines, determining the appropriate channels through which they should be disseminated, and disseminating the best practices are necessary activities to achieve the mid-term outcome of changes in standard design practice; using the proposed program metrics will measure the progress and success of the critical work processes above.

**8. Describe what the program objectives are. Program objectives are the specific milestones and targets to be achieved to which the proposed program performance metrics seek to measure. Program objectives should be chosen that promote accomplishment of the program goals and should meet the SMART convention described above. If the program objectives are being revised from previous program objectives indicate why the change is necessary. Provide**

**additional analysis to justify this change.**

The timeline below outlines at a high level the activities currently planned to be pursued in each year of the EE program cycle.

Percent progress on developing Community Design Guidelines:

- 2010: Engage nationally recognized design and planning firms to develop zero net energy community planning guidelines.
- 2011: Continue developing and reviewing zero net energy community planning guidelines.
- 2012: Complete zero net energy community planning guidelines.

Dissemination of Community Design Guidelines' Best Practices:

- By 12 months after ZNE Pilot Program approval, identify appropriate channels for dissemination.
- 2012: Disseminate through designated channels.

**9. Describe how the metrics will be collected, what data source they will come from, and how they will be tracked and reported.**

Data will come directly from utility program tracking database.

**10. Attach a program logic model that graphically represents what has been described in this worksheet. Logic models should depict the flow between program activities, their outputs, and subsequent short term, intermediate, and long term outcomes as well as how program elements are linked and the influence of external influences. Proposed program performance indicators should be incorporated at the appropriate locations within the logic model indicating what program activities and outcomes within the model will be measured both internal and external to the program (see example above).**

See Attachment B for program logic model.

**11. Include a completed Program Performance Indicator Table as an attachment to this worksheet (see example below).**

See Table below

## Zero Net Energy Pilots Program Performance Indicator Table

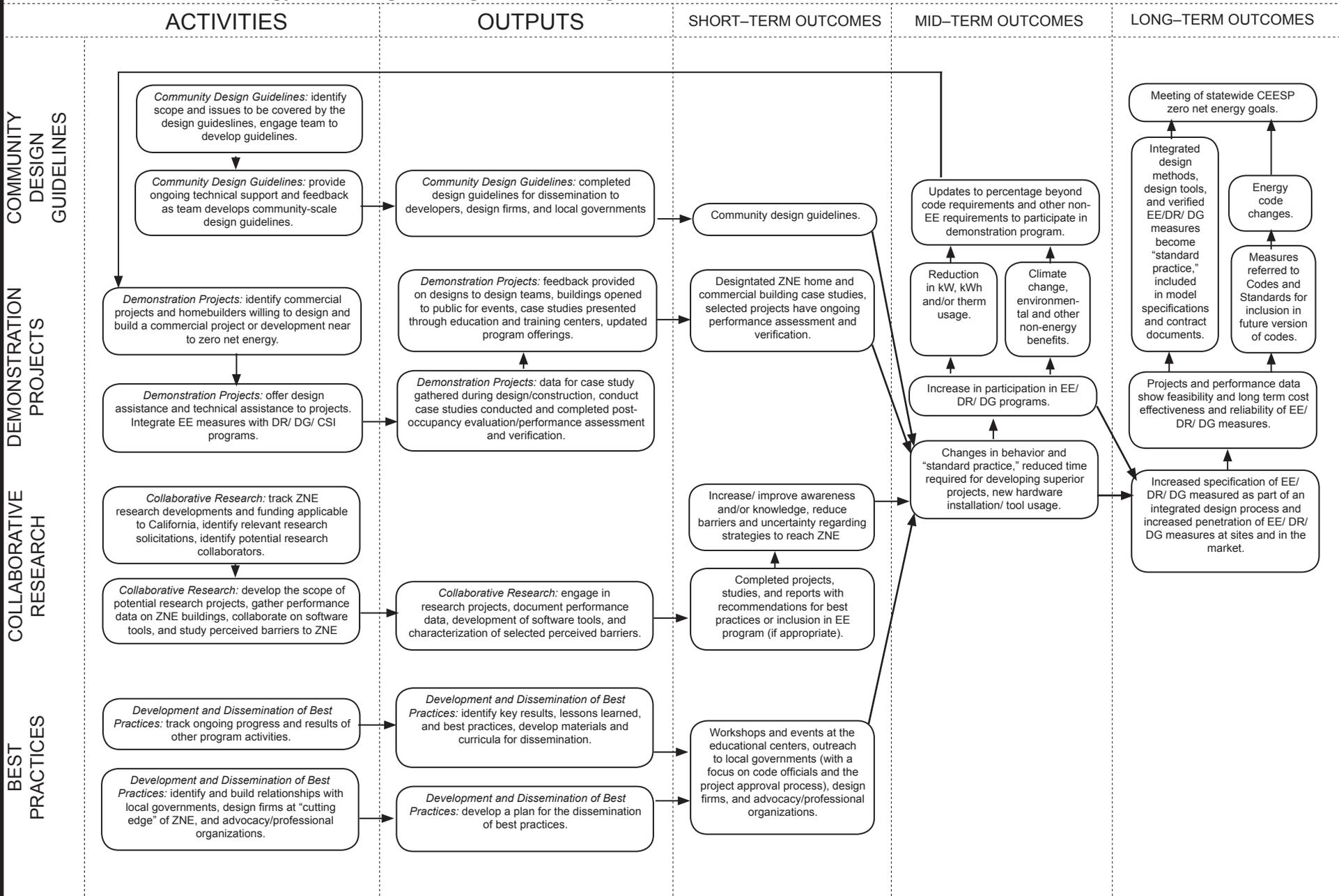
Program Sector	Program Name	Program #	IOU Program Goals	Strategic Planning Strategy	2010-2012 Strategic Milestones	IOU Proposed Metrics
Emerging Technologies Programs	Zero Net Energy Pilots	PGE2112	<p>As noted in the ZNE Pilot Program Advice Letter, the overall goal of the Program is to accelerate ZNE building capability in PG&amp;E's service territory by</p> <ul style="list-style-type: none"> <li>• Identifying and disseminating development scale best practices,</li> <li>• Demonstrating select approaches to the building and building using community,</li> <li>• Accelerating determination of workable versus non-workable approaches and dissemination those results, and</li> <li>• Enabling better planning and project entitlement and approval through more sophisticated tools.</li> </ul>	<p>As shown in the ZNE Pilot Program Logic Model Diagram, the activities of the four program areas are all designed to effect changes in standard practice. In particular, the Community Design Guidelines are a crucial piece of this effort. The identification and dissemination of best practices relating to the planning, design, and building of zero net energy projects from several perspectives is also a core program activity.. The community design guidelines, completed case studies, and best practices will be disseminated to developers, local governments (with a focus on code officials and the project approval process), design firms, and advocacy/professional organizations. All results will be shared with other utilities.</p>	<ul style="list-style-type: none"> <li>• 2010: Engage nationally recognized design and planning firms to develop zero net energy community planning guidelines</li> <li>• 2011: Continue developing and reviewing zero net energy community planning guidelines.</li> <li>• 2012: Complete zero net energy community planning guidelines.</li> <li>• By 12 months after ZNE Pilot Program approval, identify appropriate channels for dissemination.</li> <li>• 2012: Disseminate through designated channels.</li> </ul>	<ul style="list-style-type: none"> <li>▪ By 2012, complete Community Design Guidelines.</li> <li>▪ Disseminate Community Design Guidelines' best practices through multiple channels.</li> </ul>

**ADVICE 3078-G/3594-E**

**Attachment B:**

**Logic Table**

# 2010-2012 Zero Net Energy Pilot Program Logic Model Diagram



*External influences for demonstration projects and community design guidelines:* broad economic conditions, regulatory agency review processes, market events, costs of energy, costs of building materials, state legislation, federal legislation, acts of terrorism or acts of God. *External influences for research and outreach activities:* broad economic conditions, regulatory agency review processes, market events, costs of energy, costs of building materials, state legislation, federal legislation.

**PG&E Gas and Electric  
Advice Filing List  
General Order 96-B, Section IV**

Alcantar & Kahl	Defense Energy Support Center	North Coast SolarResources
Ameresco	Department of Water Resources	Northern California Power Association
Anderson & Poole	Department of the Army	Occidental Energy Marketing, Inc.
Arizona Public Service Company	Dept of General Services	OnGrid Solar
BART	Division of Business Advisory Services	Praxair
BP Energy Company	Douglas & Liddell	R. W. Beck & Associates
Barkovich & Yap, Inc.	Douglass & Liddell	RCS, Inc.
Bartle Wells Associates	Downey & Brand	Recon Research
C & H Sugar Co.	Duke Energy	SCD Energy Solutions
CA Bldg Industry Association	Dutcher, John	SCE
CAISO	Ellison Schneider & Harris LLP	SMUD
CLECA Law Office	FPL Energy Project Management, Inc.	SPURR
CSC Energy Services	Foster Farms	Santa Fe Jets
California Cotton Ginners & Growers Assn	G. A. Krause & Assoc.	Seattle City Light
California Energy Commission	GLJ Publications	Sempra Utilities
California League of Food Processors	Goodin, MacBride, Squeri, Schlotz & Ritchie	Sierra Pacific Power Company
California Public Utilities Commission	Green Power Institute	Silicon Valley Power
Calpine	Hanna & Morton	Silo Energy LLC
Cameron McKenna	Hitachi	Southern California Edison Company
Cardinal Cogen	International Power Technology	Sunshine Design
Casner, Steve	Intestate Gas Services, Inc.	Sutherland, Asbill & Brennan
Chamberlain, Eric	Los Angeles Dept of Water & Power	Tabors Caramanis & Associates
Chevron Company	Luce, Forward, Hamilton & Scripps LLP	Tecogen, Inc.
Chris, King	MBMC, Inc.	Tiger Natural Gas, Inc.
City of Glendale	MRW & Associates	Tioga Energy
City of Palo Alto	Manatt Phelps Phillips	TransCanada
Clean Energy Fuels	Matthew V. Brady & Associates	Turlock Irrigation District
Coast Economic Consulting	McKenzie & Associates	U S Borax, Inc.
Commerce Energy	Merced Irrigation District	United Cogen
Commercial Energy	Mirant	Utility Cost Management
Consumer Federation of California	Modesto Irrigation District	Utility Specialists
Crossborder Energy	Morgan Stanley	Verizon
Davis Wright Tremaine LLP	Morrison & Foerster	Wellhead Electric Company
Day Carter Murphy	New United Motor Mfg., Inc.	Western Manufactured Housing Communities Association (WMA)
	Norris & Wong Associates	eMeter Corporation