



Brian K. Cherry
Vice President
Regulatory Relations

Pacific Gas and Electric Company
77 Beale St., Mail Code B10C
P.O. Box 770000
San Francisco, CA 94177

Fax: 415.973.6520

June 29, 2012

Advice 4077-E

(Pacific Gas and Electric Company ID U 39 E)

Public Utilities Commission of the State of California

Subject: Demand Response 2012 – 2014 Pilot Proposals

Purpose

Pacific Gas and Electric Company (PG&E) hereby seeks approval to commence the three proposed pilots under the Demand Response (DR) Programs, Pilots and Budgets for 2012 – 2014, per Decision (D.) 12-04-045.

Background

As part of the Commission's ruling of D.12-04-045, PG&E must submit a Tier 2 Advice Letter for each one of the proposed pilots, either sixty (60) days after the issuance of D.12-04-045 or six (6) months before the anticipated start date. The Advice Letter will contain PG&E's proposed plan, based on prescribed fundamental questions the Commission staff has outlined as part of Ordering Paragraph (OP) 80.

The Pilots will investigate and examine, in great details, the various needs of Procurement – California Independent System Operator (CAISO), Transmission, Distribution and more importantly, the customer. Each Pilot will contain attributes that will disseminate information which will inform the California Public Utilities Commission, California Energy Commission, Investor Owned Utilities (IOU), CAISO, and other stakeholders the necessary resource needs, technical requirements and structure to sustain reliable, cost-effective DR programs.

Proposed Pilots

Attached, is each individual pilot plan PG&E is proposing to pursue over the course of the 2012 – 2014 DR Programs, Pilots and Budgets. The pilots are as follows:

- Commercial and Industrial Based Intermittent Resource Management Pilot 2 (IRM2)
- Transmission and Distribution (T&D) Pilot

- Plug-in Electric Vehicle (EV) Pilot

The attached plans follow D.12-04-045 and include discussions on the following:

1. A problem statement;
2. How the pilot will address DR goal or strategy;
3. Specific objectives and goals for the pilot;
4. A clear budget and timeframe;
5. Relevant standards or metrics;
6. Methodologies to test the cost-effectiveness of the pilot;
7. An Evaluation, Measurement and Verification plan; and
8. A strategy to identify and disseminate best practices and lessons learned.

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 **July 19, 2012**, 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: 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 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) 973-6520
E-mail: PGETariffs@pge.com

Effective Date

PG&E requests that this Tier 2 advice filing become effective on regular notice, **July 29, 2012**, which is 30 calendar days after the date of filing.

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.11-03-001. Address changes to the General Order 96-B service list and all electronic approvals 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>

Handwritten signature of Brian Cherry in cursive script.

Vice President, Regulatory Relations

cc: Service List A.11-03-001

Attachment 1: Commercial and Industrial Based Intermittent Resource Management
Pilot 2 (IRM2)

Attachment 2: Transmission and Distribution (T&D) Pilot

Attachment 3: Plug-in Electric Vehicle (PEV) Pilot

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 E)**

Utility type:

ELC

GAS

PLC

HEAT

WATER

Contact Person: Shirley Wong

Phone #: (415) 972-5505

E-mail: slwb@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) #: **4077-E**

Tier: 2

Subject of AL: **Demand Response 2012 – 2014 Pilot Proposals**

Keywords (choose from CPUC listing): **Compliance**

AL filing type: Monthly Quarterly Annual One-Time Other _____

If AL filed in compliance with a Commission order, indicate relevant Decision/Resolution #: 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: _____

Resolution Required? Yes No

Requested effective date: **July 29, 2012**

No. of tariff sheets: **0**

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:

Service affected and changes proposed:

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

EDTariffUnit@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 4077-E
June 29, 2012

Attachment 1

Commercial and Industrial Based
Intermittent Resource Management Pilot 2 (IRM2)

Commercial and Industrial Based Intermittent Resource Management Pilot 2 (IRM2)

Problem Statement

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

The California electricity grid is changing rapidly due to the 33% Renewable Portfolio Standard mandate, which is resulting in a dramatic influx of intermittent renewable resources. The intermittency of these renewable resources increases the difficulty of balancing supply and demand. It is expected that there will be increased need for flexible resources by the California Independent System Operator (CAISO) to manage the increased intermittency. Based on current studies by the CAISO, California may need roughly 4,600 MW¹ of additional flexible resources to manage the grid by 2020. Demand Response (DR) resources can potentially provide flexible resources to the CAISO, but a complete end-to-end demonstration of the use of DR resources must be conducted to validate processes, procedures, and systems of all parties.

PG&E believes that there is insufficient information to estimate the likelihood that utility programs will cost-effectively be able to provide the flexibility services that the CAISO requires. The purpose of the IRM2 pilot is to validate the requirements needed to provide these services and PG&E plans to examine the capabilities of third parties to provide these flexibility services.

How the pilot will address DR goal or strategy

Whether and how the pilot will address a DR goal or strategy

The 2009-2011 IRM pilot demonstrated some of the capabilities, processes, procedures, and systems needed to provide flexible DR resources to the CAISO. However, the 2009-2011 IRM pilot did not demonstrate all of the capabilities required by the CAISO of flexible DR resources, which will be assessed in the current IRM2 pilot. The IRM2 pilot is planned to address the remaining technical issues that were not addressed in the IRM pilot.

Objectives and goals for the pilot

Specific objectives and goals for the pilot

The key objective of the pilot is to help develop the processes, procedures, and systems required to have demand side resources provide flexibility services to the CAISO. This includes:

- *CAISO Model Development* – Development of the fundamentals for the models used by the CAISO to characterize demand-side resources, such as DR and batteries, for use in the CAISO's market and energy management systems;

¹ CAISO 2013 Flexible Capacity Procurement Requirement – March 2, 2012

<http://www.caiso.com/Documents/2013FlexibleCapacityProcurementRequirementProposalSupplement.pdf>

- *Visibility Development* – Development of the standard and methodologies used to provide visibility to the CAISO of the operation of demand-side resources;
- *Technology Evaluation and Validation* – Evaluation and validation of the technology types that must be deployed to enable demand-side resources to be a flexible resource for the CAISO; and
- *Extremely Short Term Demand Response Forecasts* – Development of accurate customer load control strategies and forecast of available load consumption or curtailment.

It is PG&E’s intent to have the IRM2 pilot assist in the design of any current or future DR program that PG&E decides to offer. The IRM2 pilot will also form the basis to allow third parties the ability to provide flexibility services that the CAISO requires.

Budget and timeframe

A clear budget and timeframe to complete the pilot and obtain results within a portfolio cycle. Pilots that are continuations of pilots from previous portfolios should clearly state how the continuation differs from the previous phase

Pilot is requesting \$2,458,336 million over the course of the cycle.

(in millions)	2012	2013	2014
IRM2 Pilot	\$.458	\$1.250	\$.750

Budget	\$ 2,458,336.00
Program Administrator	\$ 300,000.00
Customer Care Services (Metering, billing, EDS, etc..)	\$ 150,000.00
Procurement (end to end - scheduling, bidding, etc...)	
Front (Scheduling - Bidding)	\$ 300,000.00
Back (Settlements)	\$ 300,000.00
Policy and Integrated Planning	\$ 108,336.00
Marketing	
Internal	\$ 75,000.00
Vendor	
Consultant + Research	\$ 225,000.00
System (Hosted Solution)	
Platform	\$ 150,000.00
Telemetry	\$ 150,000.00
Forecasting	\$ 100,000.00
Enabling Technologies (Equipment)	\$ 100,000.00
Incentives	\$ 500,000.00

Field Pilot

Id #	Task Name	Start	Finish
1	Develop Project Implementation Plan	August 2012	August 2012
2	Finalize technical scope, test approach, and processes; define the CAISO technical requirements and capabilities to support use cases.	August 2012	September 2012
3	Project kick off –specific services (regulation and flexible ramping services) and enabling technologies	October 2012	February 2013
4	Set up resources with proper equipment (telemetry and enabling technology)	February 2013	May 2013
5	Model resources in CAISO EMS	April 2013	July 2013
6	Set up CAISO agreement and file pilot exemption to FERC	January 2013	August 2013
7	Run and certify resources	July 2013	August 2013
8	Conduct and evaluate field testing – bid-settle	September 2013	September 2014
9	Gather customer feedback and customer behavior assessment.	October 2014	November 2014
10	Finalize data collection and post-evaluation assessment process. Develop report.	October 2014	December 2014
11	Publish findings	December 2014	December 2014

Standards and metrics

Information on relevant standards or metrics or a plan to develop a standard against which the pilot outcomes can be measured

PG&E will benchmark relevant programs by other utilities and program administrators on their efforts on flexible ramping and regulation services. PG&E will keep track of the following as it relates to this initiative:

- Customer satisfaction with the different types of DR used for different flexibility services
- Performance of DR resources versus expected response
- forecasted versus actual budgets
- enabling technologies evaluated and deployed
- load reduction, by interval-by hour
- number and duration of events

As the IRM2 pilot proceeds, new standards and metrics may be developed and the ones proposed herein may no longer be relevant. Any changes to the standards and metrics will be communicated with Energy Division as part of the quarterly meeting.

Methodologies to test the cost-effectiveness of the pilot

Where appropriate, propose methodologies to test the cost- effectiveness of the pilot

PG&E believes that evaluating the pilot’s cost-effectiveness is not appropriate at this time. One of the main goals of the IRM2 pilot is to determine the costs and benefits of having DR resources provide flexibility services to the CAISO. The IRM2 pilot will be developing the needed integration with the

CAISO processes, procedures, and systems and will be performing field tests with new equipment, much of this work will be new and PG&E expects that the results will not be indicative of a full program.

A cost-effectiveness analysis, after the pilot is completed, on the expected costs and benefits of a full program that offers these flexibility services would be meaningful to explore the necessary program attributes needed for future DR programs. PG&E intends to work with Energy Division and the DR Measurement and Evaluation Committee (DRMEC) on this potential program cost-effectiveness at the conclusion of the pilot.

Evaluation, Measurement and Verification plan

A proposed EM&V plan

PG&E will work with DRMEC to properly prepare and conduct a plan to evaluate the performance of some aspects of the IRM2 pilot. PG&E expects that the evaluation will include, but not be limited to, the following:

- An evaluation of any forecasting and baseline tools developed or used in the IRM2 pilot
- An evaluation of the impact and satisfaction of customers participating in the field test
- An evaluation of what type of loads that can meet flexible products/services
 - Study and further evaluation of the type of enabling technologies needed to facilitate load as a flexible resource
- An evaluation of an end to end communication and latency

Strategy to identify and disseminate best practices and lessons learned

A concrete strategy to identify and disseminate best practices and lessons learned from the pilot to all California 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. Pilot results shall be reported at the public DRMEC spring or fall meeting on load impact or process evaluation results

PG&E will conduct quarterly meetings with the Energy Division throughout the pilot period. The meetings will include current work, budgets and foreseeable next steps to ensure parties are well informed.

At the conclusion of the field demonstration, PG&E will provide the Energy Division a report highlighting the lessons learned from this pilot. Any key lessons that can be extracted from this pilot will be used to enhance existing or new DR programs in the 2015 – 2017 DR Program & Budget Cycle.

This report will be published and be made publicly available on a designated public internet site by PG&E.

Advice 4077-E
June 29, 2012

Attachment 2

Transmission and Distribution (T&D) Pilot

Transmission and Distribution (T&D) Pilot

Problem Statement

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

The Transmission & Distribution (T&D) Pilot is a study and demonstration that will provide significant new information for integrating demand response (DR) resources into the electric T&D organizations planning and operation systems and processes.

Currently, a limited amount of DR resources, such as the Base Interruptible Program (BIP) and the SmartAC program, are able to provide electric load relief when called upon during events to address a local or system wide emergency. However, these DR programs are called through manual procedures. Any responses from these resources are not transparent in real time operations and the ability to dispatch relies on manual processes instead of automation. While limited operational integration between DR and Transmission Operations has occurred, current and future T&D operational needs and processes must be understood to be able to construct DR resources that can be useful to these organizations and increase the value of existing and future DR resources.

How the pilot will address DR goal or strategy

Whether and how the pilot will address a DR goal or strategy

Increasing the value that new and existing DR resources can provide, and be compensated, for is critical to improving their cost-effectiveness, size, and usefulness. To unlock the value streams inherent in potential transmission and distribution improvement deferral, the developers of DR resources must understand the needs of T&D operators and planners and work to have DR resources incorporated into the transmission and distribution operations and plans.

This pilot will undertake a study and demonstration to explicitly develop a resource that can meet the needs of the T&D operators and planners under different scenarios and assist in unlocking potential value stream of DR resources.

Objectives and goals for the pilot

Specific objectives and goals for the pilot

The key objectives of the pilot would be to explore and demonstrate the feasibility and the viability of applying current and future DR resource capabilities to provide services to help the T&D organizations with ongoing planning and operations.

The study will identify the characteristics of the resources needed for the T&D organizations' operations and attempt to create and/or modify DR resources to fulfill these needs. Possible DR resources that may be able to meet these needs include SmartAC program and Large Commercial and Industrial Auto-DR enabled customers. Other possibilities include Home Area Network (HAN) customers and Plug-in Electric Vehicles (PEV) customers, which PG&E will investigate if those technology spaces become mature enough to be incorporated into this pilot.

PG&E is proposing to use a two-step method to execute the T&D Pilot. The first step will be to conduct a paper study in order to document the operational and planning needs of the T&D operations and planning organizations. Specifically, a focus will be on documenting the services these organizations provide and their associated values. This requires an examination of several key questions and tasks, including, but not limited to:

- Timing and duration of the need for services by T&D planning and operations for different types of equipment
- Analyze the T&D organizations' planning and operational processes to identify opportunities, challenges, and potential solutions for integrating DR resources

- Develop test plans for DR resource integration into the T&D organizations' planning and operations processes
- Model the impact on T&D assets if large amounts of DR resources are utilized by T&D operations
- Develop forecasting methodology for extremely locational DR to deliver an accurate forecast of the quantity and speed of the DR resources to T&D operations
- Determine if DR resources can be a reliable resource to possibly defer or postpone T&D upgrades
- Document the aspects of an area that cause them to be categorized as constrained

The second step of the T&D Pilot would be based on the first step's study findings and include field demonstrations. The following DR enabling technologies and resources may be investigated:

- Examination of PG&E's existing enabling and retail programs, such as the SmartAC and AutoDR enabled customers
- Examination of electric vehicles and new residential mass market DR technologies. The T&D Pilot may also consider what, if any, integrated demand side resources beyond DR could provide the services required by T&D operations and planning

Budget and timeframe

A clear budget and timeframe to complete the pilot and obtain results within a portfolio cycle. Pilots that are continuations of pilots from previous portfolios should clearly state how the continuation differs from the previous phase

Pilot is requesting \$2,458,336 million over the course of the cycle.

(in millions)	2012	2013	2014
T&D Pilot	\$.500	\$.980	\$.979

Budget	\$ 2,458,336.00
Program Administrator	\$ 300,000.00
Metering, billing, data pulling (SCADA+AMI), etc..	\$ 150,000.00
Transmission/Distribution Planning and Operators	\$ 300,000.00
Policy and Integrated Planning	\$ 133,336.00
Marketing	
Internal	\$ 75,000.00
External - Vendor	\$ 400,000.00
Technical Vendors	
Consultant + Research	\$ 400,000.00
System (Hosted Solution)	
Platform	\$ 100,000.00
Telemetry	\$ 75,000.00
Forecasting	\$ 50,000.00
Enabling Technologies (Equipment)	\$ 75,000.00
Incentives	\$ 400,000.00

Phase 1: Needs Assessment

Id #	Task Name	Start	Finish
------	-----------	-------	--------

Id #	Task Name	Start	Finish
1	Develop phase 1 business and technical definition, project scope, timeline, test requirements prior to going into field; develop dependencies.	August 2012	August 2012
2	Develop and procure consultant to conduct phase 1 paper assessment	August 2012	September 2012
3	Interview various levels of Transmission and Distribution planners and operations.	September 2012	November 2012
4	Lay out all the findings and talk to Transmission and Distribution planners and operators to validate study & assessments	November 2012	December 2012
5	Finalize report	December 2012	January 2013

Phase 2: Field Demonstration

Id #	Task Name	Start	Finish
1	Based on the Phase 1 needs assessment study, work with both Transmission and Distribution to agree on a particular course of action to demonstrate the use of DR for operations – creation of use cases	December 2013	February 2013
2	Along with Transmission and Distribution, finalize technical scope, test approach and processes; define technical requirements to support use cases.	February 2013	March 2013
3	Conduct customer recruitment based on selected and targeted areas for the demonstration – could use a third party model to demonstrate customer acquisition	September 2012	September 2013
4	Development of platforms and Field Demonstration	September 2013	October 2014
5	Develop report	October 2014	December 2014
6	Publish findings	December 2014	December 2014

Standards and metrics

Information on relevant standards or metrics or a plan to develop a standard against which the pilot outcomes can be measured

PG&E will benchmark relevant programs by other utilities and program administrators on their efforts to integrate DR resources and T&D planning and operations. PG&E will keep track of the following as it relates to this initiative:

- forecasted versus actual budgets
- enabling technologies evaluated and deployed
- program design iterations & triggers
- load reduction, by hour
- number and duration of test events

As the pilot progresses, new standards and metrics may be developed and the proposed metrics may not be relevant. Changes will be communicated with Energy Division as part of the quarterly meeting.

Methodologies to test the cost-effectiveness of the pilot

Where appropriate, propose methodologies to test the cost- effectiveness of the pilot

A methodology to test the cost-effectiveness of this pilot is premature at this point. PG&E fully intends to engage and work with the Energy Division, Demand Response Measurement Evaluation Council (DRMEC), Lawrence Berkeley National Laboratory (LBNL) and any other relevant parties to develop the proper criteria to assess the benefits and costs associated with this pilot.

Evaluation, Measurement and Verification plan

A proposed EM&V plan

PG&E will work with DRMEC to properly prepare and implement a plan to evaluate the T&D Pilot. The base evaluation will identify and include, but not limited to, the following:

- Evaluate SmartMeter data from each of the customers that participates in the field demonstration and assess the load reduction. Data will also be compared against any available SCADA data and/or other data sets to quantify the load reduction
- Evaluation of the accuracy of any forecasting tools developed and used

Strategy to identify and disseminate best practices and lessons learned

A concrete strategy to identify and disseminate best practices and lessons learned from the pilot to all California 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. Pilot results shall be reported at the public DRMEC spring or fall meeting on load impact or process evaluation results

PG&E will conduct quarterly meetings with the Energy Division throughout the pilot period. The meetings will include current work, budgets, and foreseeable next steps to ensure parties are well informed.

At the conclusion of Phase 2, PG&E will provide the Energy Division a report highlighting the lessons learned from this pilot. Any key lessons that can be extracted from this pilot will be used to enhance existing or new DR programs in the 2015 – 2017 DR Program & Budget Cycle.

This report will be published and be made publicly available on a designated public internet site by PG&E.

Advice 4077-E
June 29, 2012

Attachment 3
Plug-in Electric Vehicle (PEV) Pilot

Plug-in Electric Vehicle (PEV) Pilot

Problem Statement

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

PEVs can theoretically provide significant amounts of high quality DR to the electricity grid, both at an extremely local (distribution) level and at the California Independent System Operator (CAISO) level. However, at this time, PG&E and the other Investor Owned Utilities (IOUs) do not have a plug-in electric vehicle (PEV) demand response (DR) program. This is due to the unique nature of PEVs, as they are local significant sources of load and potential demand response, but also mobile in nature.

It is currently unknown whether utility programs will be able to offer a cost-effective DR program for PEVs. However, to fully harness the value of PEVs for customers and ratepayers, PG&E will be central in the value creation, as the DR resources that any PEV DR provider would offer must be integrated in the planning and operations of PG&E.

How the pilot will address DR goal or strategy

Whether and how the pilot will address a DR goal or strategy

PG&E intends for the 2012-2014 PEV pilot work to concentrate on evaluating the specific requirements for PEVs and how their unique attributes can be incorporated in both CAISO and distribution level operations and planning. This would pave the way to allow any PEV DR provider to offer valuable services to PG&E's planning and operations groups.

Objectives and goals for the pilot

Specific objectives and goals for the pilot

The 2012-2014 PEV pilot will concentrate on determining:

- *Requirements Needed To Obtain Utility Benefits:* Determine the requirements needed for PG&E to incorporate DR from PEVs into its operational and planning groups and the associated benefits that would accrue to DR PEV providers.
- *Communication Capabilities:* Evaluate the technical capability to provide timely two way communication, such as price and Direct Load Control messages, to the Electric Vehicle Supply Equipment (EVSE) and PEVs over the advanced metering infrastructure (AMI) network and/or broadband network using national standards
- *DR Response Characteristics:* Evaluate how quickly and in what manner EVSEs and PEVs respond to signals to alter charging patterns based on the PEV battery's state of charge and user profiles, both on an individual basis and in aggregate.
- *Customer Response:* Evaluate customers' charging patterns, preferences, behavior, and reactions to utility interaction with PEV charging.

Budget and timeframe

A clear budget and timeframe to complete the pilot and obtain results within a portfolio cycle. Pilots that are continuations of pilots from previous portfolios should clearly state how the continuation differs from the previous phase

The 2009-2011 PG&E PEV pilot authorized by the California Public Utilities Commission (Commission) in D.09-08-027 allowed PG&E to perform early stage proof of concept testing for: (1) Smart Charging over the existing advanced meter infrastructure (AMI) network, (2) basic communication signals to Electric Vehicle Supply Equipment (EVSE); and (3) identification of the factors that will hinder the implementation of a charging program for residential customers.

In contrast, the 2012-2014 PG&E PEV pilot is concentrated on proving the value streams that can be gained through the incorporation of DR from PEVs in PG&E's planning and operations and the requirements the DR PEV providers need to be able to meet to realize these benefits.

Pilot is requesting \$3 million over the course of the cycle.

	Cumulative	2012	2013	2014
Total	\$ 3,000,000	\$ 190,000	\$ 1,330,000	\$ 1,480,000
PG&E				
Project Management	\$ 300,000	\$ 100,000	\$ 100,000	\$ 100,000
Transmission & Distribution Planning and Operations	\$ 180,000	\$ 30,000	\$ 75,000	\$ 75,000
Energy Procurement	\$ 90,000	\$ 30,000	\$ 30,000	\$ 30,000
Policy and Integrated Planning	\$ 90,000	\$ 30,000	\$ 30,000	\$ 30,000
Marketing & Incentives	\$ 100,000	\$ -	\$ 25,000	\$ 75,000
Customer Care Services	\$ 500,000	\$ -	\$ 250,000	\$ 250,000
Vendor or PG&E				
Telemetry and Forecasting Service	\$ 150,000	\$ -	\$ 75,000	\$ 75,000
Enabling Technologies	\$ 200,000	\$ -	\$ 50,000	\$ 150,000
IT Development	\$ 1,200,000	\$ -	\$ 600,000	\$ 600,000
Customer Research	\$ 190,000	\$ -	\$ 95,000	\$ 95,000

Phase 1: Evaluation

Id #	Task Name	Start	Finish
1	Develop phase 1 business and technical definition, project scope, timeline, test requirements prior to going into field; develop dependencies. Develop general phase 2 scope and requirements based on OpenADR and HAN.	August 2012	October 2012
2	Develop vendor selection criteria, including scope for phase 2	October 2012	November 2013
3	Select vendors for pilot.	November 2012	December 2012
4	Procure equipment and set up for testing in lab.	December 2012	January 2013
5	Conduct lab-based evaluation and testing.	January 2013	February 2013

Phase 2: Field Pilot

Id #	Task Name	Start	Finish
1	Analyze phase 1 technology and communication testing results; feedback into phase 2 (pilot) business scope, test criteria, and finalize user cases.	March 2013	March 2013

Id #	Task Name	Start	Finish
2	Finalize technical scope, test approach and processes; define technical requirements to support use cases.	March 2013	March 2013
3	Finalize types of data to harvest, formats and post-evaluation assessment process.	March 2013	March 2013
4	Develop participant selection criteria including any relevant concentration of PEV cars and networks, other possible deployment and demonstrations.	March 2013	April 2013
5	Identify and train pilot support staff.	April 2013	June 2013
6	Recruit, qualify, and set-up customers.	May 2013	June 2013
7	Conduct pilot and test use cases.	July 2013	August 2014
8	Assess early pilot results and analyze data, write up post-pilot technical assessment and lessons learned.	March 2014	May 2014
9	Gather customer feedback and customer behavior assessment.	March 2014	May 2014
10	Assess charging capabilities and IT requirements to scale up to a mass-market program using both retail and commercial process.	June 2014	August 2014
11	Evaluate concept and future viability of program.	June 2014	August 2014
12	Develop report.	September 2014	December 2014
13	Publish findings.	December 2014	December 2014

Standards and metrics

Information on relevant standards or metrics or a plan to develop a standard against which the pilot outcomes can be measured

PG&E will benchmark relevant programs by other utilities and program administrators on their efforts to integrate and value PEVs into their planning and operations planning. PG&E will keep track of the following as it relates to this initiative:

- Customer satisfaction with the different types of PEV DR strategies used
- Performance of PEV DR resources versus expected response
- Forecasted versus actual budgets
- Enabling technologies evaluated and deployed
- Load response and speed of response, by interval-by hour

As the pilot progresses, new standards and metrics may be developed and the proposed metrics may not be relevant. Changes will be communicated with Energy Division as part of the quarterly meeting.

Methodologies to test the cost-effectiveness of the pilot

Where appropriate, propose methodologies to test the cost- effectiveness of the pilot

A methodology to test the cost-effectiveness of this pilot is premature at this point. PG&E fully intends to engage and work with the Energy Division, Demand Response Measurement Evaluation Council (DRMEC), Lawrence Berkeley National Laboratory (LBNL) and any other relevant parties to develop the proper criteria to assess the benefits and costs associated with this pilot.

Evaluation, Measurement and Verification plan

A proposed EM&V plan

PG&E will work with DRMEC to properly prepare and implement a plan to evaluate the PEV Pilot. The base evaluation will identify and include, but not limited to, the following:

- A thorough evaluation of customer impact and satisfaction must be undertaken to evaluate future programs
- Evaluate SmartMeter data from each of the customers that participates in the field demonstration and assess the load reduction. Data will also be compared against any available SCADA data and/or other data sets to quantify the load reduction provided by the PEV
- Evaluation of the accuracy of any forecasting tools developed and used to assist on the Distribution Operation side
- Test and analyze various communications and their latencies
- Any emerging technologies (ET) used for this PEV Pilot will be coordinated alongside PG&E DR's ET group

Strategy to identify and disseminate best practices and lessons learned

A concrete strategy to identify and disseminate best practices and lessons learned from the pilot to all California 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. Pilot results shall be reported at the public DRMEC spring or fall meeting on load impact or process evaluation results

PG&E will conduct quarterly meetings with the Energy Division throughout the pilot period. The meetings will include current work, budgets, and foreseeable next steps to ensure parties are well informed.

At the conclusion of Phase 2, PG&E will provide the Energy Division a report highlighting the lessons learned from this pilot. Any key lessons that can be extracted from this pilot will be used to enhance existing or new DR programs in the 2015 – 2017 DR Program and Budget Application.

This report will be published and be made publicly available on a designated public internet site by PG&E.

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

AT&T	Defense Energy Support Center	North America Power Partners
Alcantar & Kahl LLP	Department of Water Resources	North Coast SolarResources
Ameresco	Dept of General Services	Northern California Power Association
Anderson & Poole	Douglass & Liddell	Occidental Energy Marketing, Inc.
BART	Downey & Brand	OnGrid Solar
Barkovich & Yap, Inc.	Duke Energy	Praxair
Bartle Wells Associates	Economic Sciences Corporation	R. W. Beck & Associates
Bloomberg	Ellison Schneider & Harris LLP	RCS, Inc.
Bloomberg New Energy Finance	Foster Farms	Recurrent Energy
Boston Properties	G. A. Krause & Assoc.	SCD Energy Solutions
Braun Blaising McLaughlin, P.C.	GLJ Publications	SCE
Brookfield Renewable Power	GenOn Energy, Inc.	SMUD
CA Bldg Industry Association	Goodin, MacBride, Squeri, Schlotz & Ritchie	SPURR
CENERGY POWER	Green Power Institute	San Francisco Public Utilities Commission
CLECA Law Office	Hanna & Morton	Seattle City Light
CSC Energy Services	Hitachi	Sempra Utilities
California Cotton Ginners & Growers Assn	In House Energy	Sierra Pacific Power Company
California Energy Commission	International Power Technology	Silicon Valley Power
California League of Food Processors	Intestate Gas Services, Inc.	Silo Energy LLC
California Public Utilities Commission	Lawrence Berkeley National Lab	Southern California Edison Company
Calpine	Los Angeles Dept of Water & Power	Spark Energy, L.P.
Cardinal Cogen	Luce, Forward, Hamilton & Scripps LLP	Sun Light & Power
Casner, Steve	MAC Lighting Consulting	Sunrun Inc.
Center for Biological Diversity	MBMC, Inc.	Sunshine Design
Chris, King	MRW & Associates	Sutherland, Asbill & Brennan
City of Palo Alto	Manatt Phelps Phillips	Tecogen, Inc.
City of Palo Alto Utilities	Marin Energy Authority	Tiger Natural Gas, Inc.
City of San Jose	McKenzie & Associates	TransCanada
City of Santa Rosa	Merced Irrigation District	Turlock Irrigation District
Clean Energy Fuels	Modesto Irrigation District	United Cogen
Clean Power	Morgan Stanley	Utility Cost Management
Coast Economic Consulting	Morrison & Foerster	Utility Specialists
Commercial Energy	Morrison & Foerster LLP	Verizon
Consumer Federation of California	NLine Energy, Inc.	Wellhead Electric Company
Crossborder Energy	NRG West	Western Manufactured Housing Communities Association (WMA)
Davis Wright Tremaine LLP	NaturEner	eMeter Corporation
Day Carter Murphy	Norris & Wong Associates	