California ISO
Your Link to Power

California Independent
System Operator Corporation

June 26, 2009

The Honorable Kimberly D. Bose
Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20426

Re: Participating Load Pilot Agreement between Pacific Gas and Electric Company and the California Independent System Operator Corporation; Request for Approval
Docket No. ER09-_____

Dear Ms. Bose:

The California Independent System Operator Corporation ("ISO") submits for Commission filing an original and five copies of a "Participating Load Pilot Agreement" between Pacific Gas and Electric Company ("PG&E") and the ISO. The basis for filing is Federal Power Act Section 205 and FERC regulations Section 35.13.

The pilot agreement contains the terms governing an arrangement between PG&E and the ISO to conduct a pilot program to investigate the efficacy and technical feasibility of bidding certain demand response resources into the ISO's day-ahead and real-time markets for ancillary services. The information garnered from the pilot will provide critical contributions to the efforts to increase the integration of demand response resources into the ISO's markets.

The ISO is requesting a waiver of the 60-day prior notice requirement in order to allow the pilot agreement to be made effective as of June 29, 2009, the next business day following this filing, in order to allow implementation of PG&E's pilot agreement to proceed immediately, so that valuable data can be gained concerning the deployment and integration of demand response resources in California.

I. BACKGROUND TO THE PARTICIPATING LOAD PILOT AGREEMENT

General background

Participating load pilot projects are being developed by each of the three California's investor owned utilities ("IOUs") through a process being conducted by the California Public Utilities Commission ("CPUC") as part of an overall effort to consider how to reshape utility demand response programs to best align with the ISO's new markets, and to identify issues and gain experience in running resources from "bid to bill." Specifically, the PG&E pilot project is intended to explore the feasibility of aggregating end use customer loads so that they may provide ancillary services, specifically non spinning reserves, to the ISO in the form of economically bid demand response resources.

The pilot programs are an outgrowth of the ISO's collaborative activities with California stakeholders such as the CPUC, the IOUs, demand response providers, commercial aggregators, and large commercial end use customers (both bundled and direct access) to promote the development of demand response resources and their integration into the ISO's markets. This effort is consistent with the Commission's directive to regional transmission operators and independent system operators to undertake pilot programs promoting wider integration of demand response in its Order 719.[1] In addition, the Commission directed the ISO specifically to undertake such efforts in its September 2006 and July 2007 orders regarding the ISO's new markets, and the pilot program activities are part of the ISO's compliance efforts.[2]

As the ISO has previously reported to the Commission in status reports, the ISO's collaborative efforts with stakeholders on the issue of demand response have included participation in the CPUC's rulemaking on development of demand response methodologies and alignment of IOU programs with the ISO's new markets (CPUC Proceeding R.07-01-041)[3] and, most recently, in the

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[1] *Wholesale Competition in Regions with Organized Electric Markets*, Docket Nos. RM07-19-000, AD07-7-000, 125 FERC ¶ 61,071 (issued October 17, 2008), at Paragraph 97.

[2] *California Independent System Operator Corp.* 116 FERC ¶ 61,274 (issued September 21, 2006) and *California Independent System Operator Corp.* 119 FERC ¶ 61,313 (issued June 25, 2007).

[3] Specifically, in guidance issued on February 27, 2008 to the IOUs by the administrative law judge in Rulemaking (R.) 07-01-041 filed on February 27, 2008, the CPUC provided guidance to the three IOUs to develop programs that would integrate with the ISO's markets. The CPUC expressed strong interest in requiring the IOUs to modify or create products that can operate as participating load under release 1 of the ISO's new markets. Such products would allow Demand

IOUs applications to the CPUC for approval of specific demand response programs and budgets for the IOU current demand response program cycle. (CPUC Proceedings A.08-06-001, A.08-06-002 and A.08-06-003.)

Pilot Agreements. The ISO has entered into a pilot agreement with each IOU, for the purpose of outlining and memorializing the terms under which the IOUs and ISO will implement the pilot programs.

Size of pilots. The PG&E pilot is anticipated to be 3 MW in size. SCE's pilot is intended to be 5 MW, and SDG&E's is anticipated to be sized at 3 to 5 MWs.

Adherence to Reliability and Ancillary Services Standards. The pilot programs do not provide for any departure from applicable reliability standards. Each IOU pilot provides for the demand response resource to provide Ancillary Services in the form of non-spinning reserve services, and each resource will be certified to provide ancillary services pursuant to the ISO Tariff.

Duration. The pilots are intended to be of limited duration, of no more than two years in length. Should the ISO and PG&E desire to extend the duration beyond this time period, the ISO will submit a further filing to the Commission. The pilot is intended to operate during the summer period, which is California's peak demand period. It will begin operation during the summer of 2009. A formal close-out date for the pilot projects was not designated in the agreement, as the parties may choose to extend the pilots beyond the summer of 2009, to cover the period of summer 2010.

Description of PG&E's pilot program

PG&E's pilot program for the summer of 2009 develops an approximate 3 MW size demand resource that will utilize PG&E's existing auto-demand response ("Auto-DR") infrastructure. PG&E will recruit existing customers with auto-demand response capability to participate and install telemetry equipment to enable load reduction from these customers to be bid into the ISO ancillary services market. A copy of PG&E's detailed implementation plan for its participating load pilot, as submitted to the CPUC, is attached to this transmittal letter as Attachment B.

Response to be bid-in and compete with other resources in the wholesale markets: ancillary services, day-ahead and day-of energy markets.

In addition, in the consolidated IOU applications proceedings, (A.08-06-001, A.08-06-002 and A.08-06-003), the administrative law judge issued an August 7, 2008 ruling that required the IOUs to resubmit their demand response plans to include a pilot program to explore integration of demand response programs with ISO markets.

PG&E's participating load pilot will test the following areas:

- The technical feasibility of demand response resources in large commercial and industrial facilities providing energy and ancillary services as participating load.

- Economic analysis of the large commercial and industrial sector's participation in the ISO's ancillary services markets from the customer and societal points of view. These findings will inform the design of future PG&E demand response programs.

The pilot will address several identified barriers to demand response such as:

- Forecasting of load: The pilot will address the accuracy of the forecasts of the magnitude of participant load available to provide non-spinning reserves;

- Bidding of demand response resources: The pilot will explore the development of methods for nominating load in ISO's ancillary services markets;

- Forecasting load reduction, to address the accuracy of forecasting the load drop;

- Settlement with ISO: The pilot will address methods for settling with the ISO (including determining the amount of load dropped in response to a spinning reserve request);

- Exploring how to build demand response ancillary services resources in local areas; and

- Telemetry for demand response resources.

II. DESCRIPTION OF THE PARTICIPATING LOAD PILOT AGREEMENT

As stated above, the purpose of the pilot agreement between PG&E and the ISO is to outline and memorialize the terms under which PG&E and ISO will implement PG&E's participating load pilot program. The pilot agreement is necessary in order to address certain challenges associated with the integration of small industrial and commercial aggregated demand resources into the ISO's

markets, which in some cases require deviations from the current ISO standards for participating load.[4]

First, section 1.1 of the PG&E pilot agreement addresses one goal of the pilot, which is to develop telemetry requirements that are acceptable to PG&E and the ISO per the ISO tariff and the draft participating load user guide. Section 1.1 of the pilot agreement provides that the initial approach will be for PG&E to install equipment to meet ISO and Western Electricity Coordinating Council one minute and four second standards for providing non-spinning reserves, adjust the data for distribution losses, and then send the telemetry data directly to the ISO energy management system or through PG&E's energy management system.

Also, pursuant to section 1.2 of the agreement, PG&E commits to make a reasonable effort to recruit a customer base necessary to meet the ISO's 1 MW minimum load criteria for submitting participating load bids into the ISO's markets. However, because the amount of load available from these customers will vary on a day-to-day basis the ISO has agreed that it will accept bids of less than 1 MW as part of PG&E's pilot program.

With respect to dispatch, section 1.3 provides that PG&E will create a bridge between the ISO's automated dispatch system and PG&E's response automated server in order to dispatch the demand response resources subject to the pilot program, which will be conducted pursuant to the provisions of the ISO's tariff and business practice manual for market instruments.

With respect to metering requirements, in order to provide greater flexibility, section 1.5 of the agreement provides that the meter data from participating loads under the pilot program will be submitted to the ISO pursuant to the requirements for a scheduling coordinator metered entity rather than an ISO metered entity. Section 1.5 also provides that PG&E may need to submit meter data to the ISO on a manual basis depending on whether PG&E can successfully integrate the pilot program resources into its internal systems. Additionally, PG&E will submit the meter data in five-minute intervals at custom load aggregation points. The Participating Load bid under the pilot program will be settled in accordance with the ISO tariff.

To the extent that these provisions represent a departure from the standards for participating load set forth in the draft participating load user guide, the ISO believes that they are reasonable accommodations, given the nature and characteristics of the resources participating in this program, the exploratory and interim nature of the program, and the overriding goal of the pilot agreement to advance the knowledge of ISO and market participants concerning the best

[4] The primary repository of these standards is the draft participating load user guide for the ISO's new markets, which is available on the ISO's website at http://www.caiso.com/233c/233cd878397d0.pdf.

strategies and practices for integrating demand response resources into the ISO's markets. Also, such deviations are not inconsistent with the provisions of the ISO tariff regarding the treatment of participating load. Section 4.7 of the ISO Tariff provides for the submission of bids for energy and ancillary Services from participating load pursuant to standards adopted by the ISO and published on the ISO website. Although the baseline set of such standards is provided in the draft participating load user guide for the ISO's new markets, there is no prohibition in the ISO tariff against promulgating alternative standards, or exemptions, through specific agreements, such as the PG&E pilot agreement. Indeed, the draft participating load user guide specifically recognizes that the ISO may grant exemptions to the metering and telemetry requirements for participating load under certain circumstances.[5]

The PG&E pilot agreement also provides for confidentiality protections to augment the protections already provided in section 20 of the ISO tariff. These protections are intended to allow the ISO and PG&E to designate and treat as confidential information, data, analyses, documents and materials furnished by PG&E to the ISO in connection with PG&E's pilot program. These protections are necessary in order for the parties to be able to freely exchange sensitive information (such as customer-specific data) without concerns regarding disclosure, which will allow for a more thorough and complete analysis of the feasibility of demand response participation in the ISO markets. Moreover, given that the pilot will investigate technical challenges, it may not be clear at the outset just what data will become particularly meaningful later on. It is not inconceivable that pilot participants may discover that information that seemed unremarkable at first is later found to have critical relevance. The confidentiality provision of the pilot agreement is intended to encourage the free flow of all data, so that initial screening for confidentiality does not inadvertently exclude information before its full relevance is ascertained.

Finally, the ISO notes that section 4.7 of the ISO tariff requires that in order to participate in the ISO markets, participating load must be covered by a "Participating Load Agreement" with the ISO.[6] In the case of the PG&E participating load pilot, the loads that will participate in the ISO markets subject to the pilot will be governed by the terms of the pilot agreement rather than a Participating Load Agreement. This is the case because of the special characteristics of the loads that will participate in the pilot and the exploratory

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[5] *See* draft participating load user guide for the ISO's new markets, section 2.4 ("The CAISO may allow some exemptions to these [telemetry] standards for Participating Loads with relatively small Loads where the CAISO deems this is acceptable. Such exemptions will be handled on a case-by-case basis.").

[6] Terms used with initial capitalization and not otherwise defined herein have the meanings set forth in the master definitions supplement, appendix A of the ISO tariff.

nature of the program. Because the pilot agreement serves essentially the same function as the Participating Load Agreement -- providing the terms under which PG&E will submit, and the ISO will accept, bids for participating load – the ISO believes that the pilot agreement serves as a reasonable proxy for the Participating Load Agreement for purposes of conducting the pilot program, and therefore, section 4.7 of the ISO tariff is satisfied. However, if the Commission does not agree that this arrangement meets the requirements of section 4.7, then the ISO respectfully requests that the Commission grant the ISO a limited waiver of section 4.7 and other provisions of the ISO tariff, to the extent that such provisions may conflict with the terms of the pilot, in order to allow the parties to carry out the terms of the pilot agreement and, in particular, to permit the ISO to accept bids for participating load under the pilot agreement, rather than a Participating Load Agreement with PG&E. Such waiver meets the Commission's standards[7] because: (1) good cause exists for the waiver due to the need to expeditiously implement PG&E's participating load pilot program, for the reasons discussed above; (2) the waiver will not unfairly disadvantage any market participants, and, in fact, the availability of greater demand response resources will benefit the entire market; and (3) the waiver will be only for the limited duration of the pilot program, which the ISO expects to last, at the longest, until the end of the summer of 2010.

III. COMMUNICATIONS

Communications regarding this filing should be addressed to the following individuals, whose names should be placed on the official service list established by the Secretary with respect to this submittal:

Baldassaro "Bill" Di Capo Counsel California Independent System Operator Corporation 151 Blue Ravine Road Folsom, CA 95630 Telephone: (916) 608-7157 Email: bdicapo@caiso.com	Michael Kunselman ALSTON & BIRD LLP The Atlantic Building 950 F Street, NW Washington, DC 20004 Tel: (202) 756-3300 Fax: (202) 756-3333 E-mail: michael.kunselman@alston.com

[7] *See Cal. Indep. Sys. Operator Corp.*, 118 FERC ¶ 61,226 at P 24 (2007) (granting waiver to generator interconnection procedures to facilitate efficient and cost-effective treatment of 4,350 MW of wind-related interconnection requests), *citing ISO New England*, 117 FERC ¶ 61,171 at P 21 (2006) (allowing a limited and temporary change to tariff to correct an error); *Great Lakes Gas Transmission Ltd. Partnership*, 102 FERC ¶ 61,331 at P 16 (2003) (granting emergency waiver involving force majeure event granted for good cause shown); and *TransColorado Gas Transmission Co.*, 102 FERC ¶ 61,330 at P 5 (2003) (granting waiver for good cause shown to address calculation in variance adjustment).

IV. EFFECTIVE DATE

The ISO respectfully requests waiver of the Commission's 60-day notice period, pursuant to Section 35.11 of the Commission's regulations, 18 C.F.R. § 35.11, to permit the pilot agreement provided in Attachments A to the present filing to become effective on June 29, 2009, the next business day after this filing. Good cause exists for this waiver because it will promote the successful implementation of PG&E's participating load pilot program. Specifically, implementing this program during the summer peak-load months is important because this period is the best period for testing the effectiveness of demand response resources. Finally, no market participants will be adversely impacted by permitting this program to go into effect prior to the expiration of the 60-day notice period. In fact, doing so will benefit the market by making more demand response resources available during peak periods for the California system, which will improve overall grid reliability.

V. SERVICE

The ISO has served copies of this transmittal letter, and all attachments, on the California Public Utilities Commission, the California Energy Commission, and all parties with effective scheduling coordinator agreements under the ISO tariff. In addition, the ISO is posting this transmittal letter and all attachments on the ISO's stakeholder initiative web page for demand response, which can be found at the following internet address: http://www.caiso.com/1893/1893e350393b0.html.

VI. ATTACHMENTS

The following documents, in addition to this transmittal letter, support this filing:

Attachment A	Participating Load Pilot Agreement by and between Pacific Gas and Electric Company and the California Independent System Operator Corporation, designated as ISO Service Agreement No. 1356.[8]
Attachment B	Pacific Gas and Electric Company Detailed Implementation Plan for Participating Load Pilot

[8] The ISO had not yet received a Schedule 1 for this agreement, which will contain a complete list of the resources participating in PG&E's pilot program. The ISO will file that Schedule with the Commission as soon as it receives it from PG&E.

Respectfully Submitted,

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ATTACHMENT A

Participating Load Pilot Agreement by and between Pacific Gas and Electric Company and the California Independent System Operator Corporation.

PARTICIPATING LOAD PILOT AGREEMENT WITH PACIFIC GAS & ELECTRIC COMPANY

Participating Load Pilot Agreement between Pacific Gas and Electric Company and California Independent System Operator

To explore the technical and economic feasibility of Commercial and Industrial (C&I) Demand Response (DR) as a potential participant in the Market Redesign and Technology Upgrade (MRTU) Measurement and Performance (MAP) markets for Participating Load (PL), including Dispatchable Demand Resource (DDR) and Proxy Demand Resource (PDR) products, Pacific Gas and Electric Company (PG&E) and the California Independent System Operator Corporation (CAISO) have reached the following agreement ("Agreement") regarding PG&E's Participating Load Pilot (PLP):

RECITALS

1. **Background of PG&E PLP Proposal.** PG&E included a description of its proposed PLP in Volume II of its Amended Application for Approval of Demand Response Programs, Goals, and Budgets for 2009-2011 (A.08-06-003) filed with the California Public Utilities Commission (CPUC) on September 19, 2008. PG&E's intent with the PLP is to introduce C&I DR load and make it available to bid and curtail demand in MRTU starting on or about June 2009. PG&E and CAISO expect that many lessons will be learned throughout the PLP and that the results of the PLP will help inform whether C&I customer DR load is technically and economically capable of participating in the MRTU MAP PL market for DDR and PDR products. In addition, the PLP may result in recommended changes to CAISO PL requirements or technical specifications to make DR load feasible in MRTU MAP.

   There are significant challenges when considering C&I DR functioning as PL. For the PLP, PG&E will use up to, but not limited to, four customers enrolled in its Auto-Demand Response Critical Peak Pricing or Demand Bidding Program as the test case for this PLP. PG&E will install required equipments, make modifications to internal software systems and short term infrastructure (written from) based on CAISO's Participating Load User Guide document.

   As described below, PG&E's PLP may deviate from some of the current CAISO requirements for PL. Specific deviations for the PLP may be agreed upon and documented by PG&E and CAISO in accordance with the provisions below. PG&E's participation in this PLP will be entirely separate from its operations pursuant to its Participating Load Agreement ("PG&E PLA") with CAISO.

OPERATIVE TERMS OF THE PG&E PLP

1. **Primary Parameters**
   - **1.1. Telemetry.** PG&E will work with an external vendor to develop telemetry requirements mutually acceptable to PG&E and the CAISO per the CAISO Tariff and Participating Load User Guide. PG&E's current plan for the telemetry is as follows:
     - PG&E will install equipment to meet CAISO and WECC one (1) minute and (4) second standards to provide Non-Spinning product
     - PG&E will adjust Pilot participants telemetry data for distribution losses
     - PG&E, with mutual agreement with the CAISO, will send telemetry data directly to the CAISO's EMS system or through PG&E's EMS system.

   - **1.2. Bidding Non-Spinning Reserve**
     - PG&E will place bids for Non-Spinning Reserve Ancillary Service into CAISO's Day-Ahead Market.[1] PG&E's PLP bids shall be subject to the provisions of the CAISO Tariff applicable to bids from Participating Load, including the requirements regarding Energy bids associated

[1] Capitalized terms used in this Agreement shall have the meaning set forth in the CAISO Tariff, Appendix A, Master Definitions Supplement, unless otherwise defined in this Agreement.

with Non-Spinning Reserve bids. PG&E will make reasonable efforts to recruit up to, but not limited to, four (4) customers with the intent to approach the 1 MW minimum load bid criteria. However, the amount of load from the 4 customers will vary from day to day, based on many factors, including temperature and operational activities. Therefore, to facilitate testing as part of the PLP, CAISO agrees to accept bids of less than 1 MW for the PLP. If the PLP results suggest that a 1 MW minimum bid criterion may be a barrier to the success of PL programs, CAISO and stakeholders will analyze whether to undertake modification of this criterion and see if such small loads are economically feasible to provide such products.

1.3. Operational Procedures

- P&GE will inform the CAISO about operational issues and will also reflect operating limits based on bids PG&E will enter into the SIBR scheduling system.

1.4. Dispatch

- In 2009, PG&E will create a bridge between the CAISO's Automated Dispatch System (ADS) and the Demand Response Automated Server (DRAS) in order to dispatch the participating load subject to this PLP. ADS and real-time energy dispatch will be conducted as detailed in the CAISO's Market Instruments Business Process Manual.

1.5. Metering & Settlement

- Meter data for the participating load which is the subject of this PLP shall be submitted pursuant to the CAISO Tariff requirements for a Scheduling Coordinator Metered Entity rather than those requirements for a CAISO Metered Entity.
- PG&E may need to develop a manual process to submit Settlement Quality Meter Data (SQMD) meter data to the CAISO, if PG&E finds it difficult to integrate this PLP resource to internal systems.
- For purposes of this PLP, PG&E shall submit metering Load data in 5 minute intervals at Custom LAPs (CLAP) to CAISO for Settlements under a methodology agreed to by PG&E and CAISO under Participating Load User Guide.
- Subject to the foregoing provisions of this Section 1.5, Settlement for the services provided by PG&E under the PLP shall be conducted in accordance with the provisions of the CAISO Tariff regarding Settlements for Participating Load.

1.6. Information and Technology

- PG&E and CAISO will attempt to integrate the PLP processes into the systems supporting MRTU Release 1, to the extent possible. However, business process and systems development to support all aspects of PL bidding, telemetry, dispatch, metering and settlement will take time to fully implement and will require some manual work around solutions in the near term. Further integration will be pursued and coordinated for MRTU MAP, as mutually agreed upon by PG&E and CAISO.

2. **Funding and Authorization.** PG&E has applied for PLP funding in its Application for Approval of Demand Response Programs, Goals and Budgets for 2009-11 (A.08-06-003), filed with the CPUC on June 1, 2008 and amended on September 19, 2008, and also requested and received funding for the PLP as part of the 2009 "bridge" period authorized by the CPUC in Decision 08-12-038. PG&E's implementation of the PLP is subject to approval from the CPUC, and the scope and budget of the PLP is constrained by any CPUC decisions approving the PLP. PG&E acknowledges and agrees that CAISO will not bear any responsibility for expenses or costs that PG&E incurs in undertaking the PLP.

3. **Effective Date and Term.** This Agreement shall be effective as of the date of MRTU implementation; or (ii) a Federal Energy Regulatory Commission (FERC) order accepting this Agreement, whichever is earlier. If this Agreement is accepted by FERC, it shall remain effective until terminated pursuant to Section 5.

4. **Termination.** Either party may terminate this Agreement upon thirty (30) days advance written notice to the other party. Any notice of termination given pursuant to this section must be filed at FERC and shall become effective when FERC accepts the termination for filing. If this Agreement is terminated, such termination shall not affect rights or obligations for payment of money for services provided or obligations incurred prior to termination.

5. **Dispute Resolution.** The parties shall make reasonable efforts to settle all disputes arising out of or in connection with this Agreement. In the event any dispute is not settled, the parties shall adhere to the CAISO ADR Procedures set forth in Section 13 of CAISO Tariff, which is incorporated herein by this reference, except that any reference in Section 13 of the CAISO Tariff to Market Participants shall be read as a reference to PG&E, and references in Section 13 of the CAISO Tariff to "the CAISO Tariff" shall be read as references to "this Agreement."

6. **Notices.** Any notice, demand or request which may be given to or made upon either party regarding this Agreement shall be made in accordance with Section 22.4 of the CAISO Tariff and be provided to the representative of the other party identified in Schedule 3 of PG&E's PLA.

7. **Confidentiality.** All documents, data, and information provided by the parties to one another pursuant to this Agreement shall be treated in accordance with CAISO Tariff Section 20 governing the confidentially of documents provided to CAISO by Market Participants, subject to the following:

7.1. Confidential Information.

- For purposes of this Agreement, "Pilot Specific Confidential Information" means
  - Certain written, orally conveyed or recorded information, data, analyses, documents, and materials furnished or made available by PG&E or its representatives to CAISO or its representatives which, PG&E has pre-designated as Pilot Specific Confidential Information and transmitted to the CAISO in connection with the PLP; and
  - Certain analyses, compilations, studies, documents, or other material prepared by CAISO which contains or is based upon Pilot Specific Confidential Information provided by PG&E or its representatives.
- Prior to the implementation of the PLP under this Agreement, the parties shall conduct a meeting to identify and discuss what types or categories of Pilot Specific Confidential Information will likely to be transmitted to CAISO and used in connection with the PLP, and how such confidential data (and in particular, customer data) shall be aggregated or otherwise redacted to protect confidentiality while remaining useful as supporting data for reports, filings, or other appropriate disclosure in connection with FERC Order 719, CPUC Proceedings A.08-06-003 (PG&E Application) and R-7-01-041 (Order Instituting Rulemaking for Demand Response), or other writings intended to communicate the results of the PLP.
- Information which may have been designated as Pilot Specific Confidential Information shall nevertheless not be or no longer be considered confidential (i) when it is furnished or becomes available to the public other than as a result of a disclosure by CAISO, or (ii) is already in the possession of or becomes available to CAISO on a non-confidential basis from a source other than PG&E, provided that, to the best knowledge of CAISO, such source is not and was not bound by an obligation of confidentiality to PG&E, or (iii) CAISO can demonstrate has been independently developed without a violation of this Agreement.

7.2. Use of Customer Data. Both parties agree that no PG&E customer-specific confidential data shall be disclosed by either party at any time. All PG&E customer data will be presented in an aggregated resource portfolio.

7.3. Restriction on Disclosure of Confidential Information.

- Neither CAISO nor its Representatives will disclose Pilot Specific Confidential Information obtained or reviewed in the course of participating in the PLP without express prior written authorization by PG&E. CAISO agrees that only authorized Representatives of CAISO who need to know Pilot Specific Confidential Information for the purposes of conducting the PLP ("Authorized Representatives") will have access to Pilot Specific Confidential Information. Prior to receiving any Pilot Specific Confidential Information, CAISO shall advise such

Authorized Representatives of the desire that PG&E maintain confidentiality of Pilot Specific Confidential Information and shall direct such Authorized Representatives to comply with the confidentiality requirements of Section 8 of this Agreement.

- CAISO shall immediately notify counsel for PG&E of the receipt of any discovery requests, orders or other legal process to produce Pilot Specific Confidential Information in connection with any judicial, regulatory or administrative proceeding.

7.4. Marking of Pilot Specific Confidential Information.

- All Pilot Specific Confidential Information shall be marked as "Pilot Specific Confidential; Information", hard copy versions of Pilot Specific Confidential Information retained by CAISO shall be maintained and treated in such manner as CAISO treats confidential information under the CAISO Tariff.

8. **Governing Law**. This Agreement is entered into and to be performed in the State of California and shall be construed and enforced in accordance with the laws of the State of California without regard to conflict of laws principles.

9. **Liability**. The provisions of Section 14 of the CAISO Tariff will apply to liability arising under this Agreement, except that all references in Section 14 of the CAISO Tariff to "Market Participants" shall be read as references to "this Agreement."

10. **Entire Agreement and Amendments**. This Agreement constitutes the entire agreement between the parties and supersedes any and all written or oral agreements previously existing between the parties with respect to the subject matter hereof. Any amendments to this Agreement shall be in writing and duly executed by both parties.

11. **Other Obligations Unaffected.** Nothing contained in this Agreement shall alter PG&E's obligations under the CAISO Tariff, the PG&E PLA, or any other agreement.

12. **Schedule of Load Subject to Agreement.** The participating loads, which will participate in the PLP program, are included in Schedule 1 to this Agreement.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be duly executed on behalf of each by and through their authorized representatives as of the date herein written below.

Signature 4/9/09 Date	Signature Date
Roy Kuga, Vice President Energy Supply Pacific Gas and Electric 245 Market Street San Francisco, CA 94105 415-973-3806	Laura Manz, Vice President, Market & Infrastructure Development California Independent System Operator 151 Blue Ravine Road Folsom, CA 95630 916-351-4400

SCHEDULE 1
IDENTIFICATION OF LOAD SUBJECT TO PLP AGREEMENT

SCHEDULE 1

Technical Characteristics of Individual or Aggregated Loads per Participating Load Pilot Agreement

Name of Participating Load Resource	ISO Assigned Resource ID (List Pseudo Gen Resource ID & CLAP Load ID)	Custom LAP CNodes (List CNode(s) that define the CLAP)	Custom LAP Max. Load (MW)	Pseudo-Generator Scheduling Point (List CNode for the Pseudo Generator)	Pseudo-Generator Max. Capacity[1] (MW)	Pseudo-Generator Ramp Rate[1,2] (MW/min)	Ancillary Service Provider (Yes or No)	Limitations[2] (Yes or No)
							Yes	

[1] Current effective values for purposes of scheduling Energy and bidding to provide Energy and/or Ancillary Services in ISO markets may differ from those set forth in this Schedule 1, depending on the results of ISO performance testing pursuant to Sections 8.9 and 8.10 of the ISO Tariff.
[2] If "Yes," limitations should be specified in the Participating Load's implementation plan.

ATTACHMENT B

PACIFIC GAS AND ELECTRIC COMPANY
DETAILED IMPLEMENTATION PLAN
For
PARTICIPATING LOAD PILOT

Detailed Implementation Plan

Table of Contents

1. EXECUTIVE SUMMARY

In Rulemaking (R.) 07-01-041 filed on February 27, 2008, the California Public Utilities Commission (Commission) provided guidance to the three (3) Investor Owned Utilities (IOUs) to develop programs that would integrate with the California Independent System Operator's (CAISO) Market Redesign and Technology Upgrade (MRTU). The Commission expressed strong interest in requiring the IOUs to modify or create products that can operate as Participating Load (PL) under MRTU Release 1 and Market and Performance (MAP). Such products would allow Demand Response (DR) to be bid-in and compete with other resources in the wholesale markets: Ancillary Services (AS), and day-ahead and day-of energy markets.

In order to meet the guidance set forth by the Commission, Pacific Gas and Electric Company (PG&E) proposed a pilot for summer 2009 deployment utilizing the existing Auto-Demand Response (Auto-DR) infrastructure. PG&E will recruit up to four (4) Auto DR customers to participate and install the proper set of telemetry equipments to enable these customer DR load reduction to be bid-in into the CAISO AS market. With the support from the CAISO and numerous outside parties, PG&E will assemble and implement a pilot that will identify means to use retail DR resources in the wholesale markets.

2. PROJECT OBJECTIVES & PERFORMANCE MEASUREMENTS

2.1 Project Objectives

The Participating Load Pilot's (PLP) main objective is to learn about the processes needed to be developed for integrating DR load to MRTU markets as PL and Proxy Demand Resource (PDR). PG&E recognizes that integration must happen both internally and externally for the success of this pilot and future programs and products that will participate in the MRTU markets. The success criterion for this pilot do include not only just being able to bid DR resources into CAISO's MRTU market, but also identifying PG&E's business requirements needed for moving forward after the pilot ends and CAISO MRTU Release MAP is deployed. Due to the time constraints and rigorous CAISO PL User Guide specifications, bidding-in DR resources into AS non-spinning market is not a trivial task. PG&E can and will only develop short term solutions for some of the internal hardware and software application for 2009. A thorough analysis will be performed after the pilot is concluded to allow PG&E to fully understand the resource required to possibly expand for those customers that are capable of providing products into the CAISO. Once PG&E analyzes the results of the pilot, PG&E will share with the other IOUs the findings to possibly create a business case to launch a much larger scale program to utilize large commercial and industrial customers' load as a DR resource that can be bid-in the MRTU market.

PG&E's PLP will test the following areas:

- The technical feasibility of DR resources in large Commercial & Industrial (C&I) facilities providing energy and AS as PL.
- Development of specifications for internal and external process development for the utility for providing energy and AS as PL.
- Economic analysis of the large C&I sector's participation in CAISO AS markets from the customer and societal points of view. The findings will inform future program design.

- Identify potential barrier(s) to integrate DR as a supply resource into CAISO's MRTU market.
- The pilot will address several of the barriers to DR that were identifies in PG&E's testimony in A.08-06-003 (Chapter 3 Section F). Listed below are those barriers and how they will be addressed
    - Forecasting of load: The accuracy of the forecasts of the magnitude of participant load available to provide spinning reserves
    - Bidding of DR: Methods for nominating load in CAISO's AS markets
    - Forecasting load reduction: The accuracy of forecasting the load drop
    - Settlement with CAISO: Methods for settling with the CAISO (including determining the amount of load dropped in response to and spinning reserve request)
    - Locational calling of DR: Building DR AS resources in local areas
    - Telemetry for AS: Testing of technology for telemetry

2.2 Project Deliverables

PG&E will submit quarterly budget reports to the Energy Division during 2009. A sample report is shown below in Appendix 3.

At the conclusion of this pilot, PG&E will re-asses the underlying lessons that would be relevant for integration of DR resource into CAISO's MRTU market; from implementation to actual operation. PG&E's final report will include but not limited to the following:

Lessons learned in the implementation of the Pilot

- Long Term integration with MRTU MAP release and internal PG&E systems

Lessons learned in the operation of the pilot

- Procurement Activities (Bidding, Scheduling, Forecasting) and associated IT requirements

- Settlements: Wholesale CAISO settlements and retail settlements with pilot participants
- Interaction of participant with Auto-DR Technology and when CAISO dispatch resource

Cost/Economic analysis

- Equipment needed to provide the CAISO with the visibility needed: Telemetry costs
- Process development: IT improvements needed to facilitate DR participation in CAISO markets as PL
- Program design: Incentive mechanism to retail participants and the revenues that can be extracted from the markets for participation

Process evaluation

- Customer acceptance after event(s) and/or pilot

Experience with telemetry equipment and technical feasibility

2.3 Project Milestones

Months	Milestones	Estimated Completion Date
January 2009	- Build core teams to create foundation for the Pilot - Establish standing meetings with all the necessary internal/external parties	- Early January 2009 - Mid January 2009
February 2009	- Finalize Project Implementation Plan to Energy Division - Start Customer Recruitment and marketing awareness	- February 2, 2009 - Early February 2009
March 2009	- Sign bi-lateral agreement with customers - Installation of telemetry equipment - Build end to end system infrastructure	- Early March 2009 - Early March 2009 - Early March 2009

	- Sign off on Participating Load Agreement and Pilot Exception Agreement - Request Resource Id from CAISO	- Mid/Late March 2009 - Mid/Late March 2009
April 2009	- CAISO MRTU goes live - Start MRTU Market Simulation	- April 1, 2009 - April – May 2009
May 2009	- Conduct End to End testing; CAISO to the End User	- Early/Mid May 2009
June 2009	- Start Participating Load Pilot	- June 1, 2009
October 2009	- Conclusion of the Pilot	- October 31, 2009
November 2009	- Start Market Evaluation of the Pilot	- Early November 2009

3. PILOT SCOPE, ASSUMPTIONS, DEPENDENCIES AND CONSTRAINTS

3.1 Pilot Scope

The PLP will use end user load as a resource to bid-in the CAISO MRTU AS Market. PG&E will recruit up to four commercial or industrial facilities that are already equipped with Auto DR capability. PG&E will select sites where there are end-uses that can respond with short notification times, (such as lighting or certain kind of manufacture process, etc.) within 10 minutes of dispatch. PG&E will draw on its current experience with Auto DR program to identify suitable candidates for the PLP. PG&E will try to select facilities that represent different market segments within the large C&I sector. PG&E will investigate if Auto DR technology will be suitable for helping communication between CAISO and the customer facility through the Demand Response Automated Server (DRAS). Tests will be performed to confirm that communication between CAISO Automated Dispatch System (ADS) and DRAS is possible with the current state of technology. PG&E is proposing to develop the technical specification for the telemetry equipment required to create the real-time visibility to CAISO and facilitate provision of AS. Third-parties will be identified for the design and installation of such equipment in the test facilities. Lawrence Berkeley National laboratory (LBNL) Demand Response Research Center (DRRC) has been providing technical support to PG&E's Auto DR program, and will continue to support all Auto DR related activities, such as this pilot. DRRC will assist PG&E in the PLP with the following type of assistance: -

- Assist in recruiting Auto DR customer to participate in this pilot
- Assist in evaluating load variability of existing and potential new sites and evaluate electric load forecasting
- Evaluate potential DR shed opportunities for PLP sites and determine potential speed of electric load reduction
- Assist in designing information flow and overall project evaluation criteria
- Evaluate Auto-DR technology for feasibility in PLP

3.2 Pilot Assumptions and Dependencies

PG&E has reviewed the draft version of the CAISO Participating Load User Guide and will comply with all the necessary structure needed to provide ancillary service non-spinning capacity and energy products to the CAISO market. However, PG&E's ability to launch the program and study how DR resource affects the wholesale market revolves around the deployment of CAISO MRTU market. Without the release of MRTU, the PLP's main objective will be impossible to accomplish, and the implementation of the pilot will need to wait until MRTU goes live.

PG&E also assumes that CAISO will agree to all the exceptions PG&E may have on the operation of the PLP such as the waiver of a seasonal fixed distribution loss factor.

4. RISK FACTORS AND MITIGATION STRATEGY

PG&E has identified the following risks that may hinder the launch and success of implementing the PLP. Below PG&E describes risks and mitigation strategies.

No	Risk Description	Probability of Occurrence	Impact	Risk Exposure	Mitigation Strategy – Comments
1	CAISO MRTU being delayed	1	3	3	CAISO has filed the necessary 60-day compliance filing in order to deploy the much awaited MRTU market on March 1, 2009. However, FERC has yet to approve go-live of MRTU.
2	PG&E's risk of missing project deliverable date of June 1, 2009	2	3	6	PG&E has created communication channels with all affected internal and external parties to ensure gaps aren't being created, but are resolved instead.
3	PG&E's ability to gross telemetry data back to the ISO operation team on a daily and hourly basis that accounts for distribution loss factors (DLF)	3	2	6	PG&E will ask the CAISO for a waiver to create a prefix seasonal distribution loss factor to ensure CAISO operations can see some form of gross data.
4	PG&E's connectivity of Auto-DR's Demand Response Automated Server (DRAS) to CAISO's Automated Dispatch System (ADS)	2	3	6	PG&E will work with CAISO, LBNL and Akuacom on connecting the pieces together. If such connection does not occur, it would force a manual acceptance of dispatch which may hinder participants load reduction.
5	Telemetry equipments fail to capture customer one minute polling data	2	3	6	Develop back up plan to replace malfunction telemetry equipments. Create a communication protocol with the CAISO to translate telemetered output

6	No Auto DR customer is willing to participate in the Pilot	1	3	3	Increase incentive level and/or expand this Pilot to non Auto DR customers.

Legend:

Probability: 0 (No chance of the Risk occurring) to 3 (Risk has already occurred)

Impact: 1-LOW, 2-MEDIUM, 3-HIGH

Risk Exposure: Probability X Impact

5. PILOT PROJECT PLAN FOR PHASE I

5.1 High Level Plan Timeline

1. Participating Load Pilot
    a. Customer Recruitment
        i. Sign bi-lateral agreement
        ii. Equipment Installation
            1. Installation of 5 Minute Interval Meter Equipment
            2. Installation of Telemetry Equipment
    b. PG&E Internal Systems; Procurement, Settlements
        i. Create IT connectivity from end to end (Customers Premise to the CAISO EMS system)
        ii. Market Simulation with Customer Load
        iii. Forecasting, Scheduling, Bidding
        iv. Software solutions for Distribution Loss Factors
        v. Ability to acquire dispatch signal from CAISO to Demand Response Automation Server (DRAS)
    c. Integration and agreements with California ISO
        i. Sign Pilot exemption agreement
        ii. Sign Participating Load Agreement (PLA)
        iii. Creation of Resource Ids / Define Custom Load Aggregation
        iv. Market Simulation under MRTU

v. Testing of connectivity with ADS and DRAS

5.2 Pilot Budget

Budget shown below is a rough quarterly breakdown of forecasted expenditures for PG&E's PLP. Appendix 3, shown below, outlines a sample of a quarterly report that will track forecast budgets and actual expenditures surrounding PLP activities.

	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Internal PG&E				
Program Management	$ 35,000.00	$ 35,000.00	$ 35,000.00	$ 35,000.00
Forecasting Activities		$ 93,750.00	$ 93,750.00	$ 62,500.00
Customer Recruitment	$ 37,500.00	$ 12,500.00		
Integration with Energy Procurement		$ 13,333.33	$ 20,000.00	$ 6,666.67
Energy Procurement Operational Activities (HASP)		$ 4,000.00	$ 12,000.00	$ 4,000.00
IT Changes to Scheduling/Bidding	$ 50,000.00	$ 50,000.00		
Settlements		$ 25,000.00	$ 37,500.00	$ 37,500.00
IT Changes to Settlements	$ 50,000.00	$ 50,000.00		
Customer Incentive and Readiness				
Customer Incentives		$ 30,000.00	$ 90,000.00	$ 30,000.00
Equipment and Communication Cost (i.e. Telemetry, network provider)	$ 450,000.00	$ 337,500.00	$ 56,250.00	$ 56,250.00
Vendor Activities				
Auto-DR related Activities	$ 27,272.73	$ 40,909.09	$ 40,909.09	$ 40,909.09

5.3 Detailed Plan

PG&E has broken down and identified major components that need to be addressed to successfully implement the PLP.

5.3.1 Customer Recruitment

PG&E will recruit up to four (4) customers that are enabled with Auto-DR technology. Customer selection before proceeding into an agreement with the end use customer will be based on a set of criterion. These criterions are:

- The ability to curtail within 10 minutes if a real time dispatch occurs[1] - Load shed strategies
- The proper demand size
- The willingness of the customer to participate
- Geographic location of the customer

Once the customers are recruited and become PLP participants, PG&E will present the location and size to the CAISO in order to get the agreements and Master Files completed.

5.3.2 Assignment of Resource

After the enrollment of participants, PG&E will coordinate with the CAISO to create a Custom Load Aggregation Points in order to have the ability to start bidding in to the market. CAISO's PL Users Guide states the following:

[1] MRTU – Participating Load Users Guide – 3.5.1 Non-Spinning Reserve Requirements ver. 12/09/2008 1.4

Under the MRTU design, Participating Loads must be scheduled and settled at Custom Load Aggregation Points (CLAP). A CLAP consists of a set of one or more load nodes designated by the Load Aggregator and approved by CAISO. A CLAP must, at minimum, be entirely within a Local Capacity Area.[2]

PG&E will maintain ongoing communication with the CAISO to ensure that the CAISO takes account the PLP's resource in its Full Network Model.

5.3.3 Forecasting

Forecasting is a major operational activity that needs to be done daily for each participant's hourly load 24 hours a day, 7 days a week, and 365 days of the year. PG&E formerly presented the *"net DR reduction"* of the retail DR resource, but will now be required to separate the load and the net DR into two separate resource ids. As the PL Users Guide indicates, *the Load Aggregator will receive a unique Resource ID for the load or "demand" resource and a unique Resource ID for the associated pseudo-generator.*[3] PG&E will devote sufficient time to analyze participants' hourly load curve and open up a communication channel with the customer in order to come up with day to day hourly schedules. This information will flow into a forecasting tool that will develop the schedule to be presented to CAISO. After which, the *"net DR reduction"* would be bid into the assigned pseudo-generator. This operational practice will take place even if PG&E and the participant decide not to bid-n the *"net DR reduction."*

[2] MRTU – Participating Load Users Guide – 1.1 Background and Overview ver. 12/09/2008 1.4

[3] MRTU – Participating Load Users Guide – 3.4 Resource Registration ver. 12/09/2008 1.4

5.3.4 Telemetry Equipment

Telemetry is a vital part to PLP. PG&E currently has an active connectivity to CAISO EMS system. However, participants end use load needs to meet the one (1) minute polling the CAISO has incorporated in its PL Users Guide which states, *CAISO EMS Telemetry must be available on a four-second scan rate. If an aggregation function is utilized, each meter behind the server must be polled no less frequently than once per minute*[4]. This piece of the puzzle requires extensive work to implement due to cost of installation of this physical infrastructure, gateway from participants' premise to PG&E's SCADA to CAISO's EMS system, and secured connectivity to harvest these telemetry data. PG&E is looking at a couple of avenues both internally and externally (vendor) to install the required telemetry.

5.3.5 Application of Distribution Loss Factors (DLF)

A component that needs to be implemented as well is the dynamic changes to the distribution loss factors at the participants' site. PG&E would need to gross the end use meter data to the transmission level to accurately account for the net DR resource PG&E is bidding in to the CAISO in hourly basis. These ever so changing factors are to be applied with the telemetry data and be presented to the CAISO in that fashion. PG&E is looking at alternative solutions to incorporate loss factor changes with the telemetry data by possibly outsourcing it to a third-party hosted solution that can account for these changes or build a system that takes these factors into account. PG&E has already brought up the DLF concern with CAISO and may ask for an exception to not apply DLF in this PLP if this requirement is overly burdensome.

[4] MRTU – Participating Load Users Guide – 4.2 Telemetry Requirements ver. 12/09/2008 1.4

5.3.6 Dispatch in Real Time

PG&E will utilize its current Auto-DR infrastructure to assure that load shed strategies are done in a fast, efficient and automated manner. One new attribute that will be incorporated is the connectivity from Auto-DR's DRAS and CAISO's ADS. PG&E, with the assistance of LBNL and Akuacom, will work with the CAISO's technical staff to ensure that connection occurs between these two critical systems. The purpose of connecting DRAS to ADS is to allow the DRAS to make appropriate load shed choices when CAISO calls an event. By knowing exactly how much energy the customer is using at a specific moment, the DRAS can adjust the level of curtailment by sending different signals to the customer's EMCS. That way, PG&E can adjust the customer load reduction to match the bid to the CAISO AS market the day before. If the DRAS identifies that the customer energy usage is unusually low, it will flag the team that an error may have occurred somewhere in the system and immediate action is required. PG&E may decide to submit a "Slick Card" to CAISO for this specific resource ID since it is unlikely that the customer will be able to drop load to the expected level.

5.3.7 Step by Step Implementation Plan

The table shown below gives a more detailed sequence of events that PG&E expects to undertake prior to the bidding DR resources and also depicts the day to day activities that will be needed to ensure the success of this pilot. The Reference Block numbers refer to a specific box on the Overview Process map for PLP in MRTU Release 1 and can be found under the Appendix section; Appendix 1.

Contingencies:

1. CAISO will publish Final User Guide for Participating Load in MRTU Release 1.
2. MRTU Release 1 to be in production before the PLP goes live.

Ref block	Group/Dept.	When	What
A	CAISO	Implementation	Publish User Guide for Participating Load in MRTU 1. (Extended Non Participating Load)
B	CAISO	Implementation	Develop method for forecasting baseline load for the Custom LAP, to be used to validate the DR. (see Dependency 1 above)
1	Demand Response	Implementation	Define Business Requirements for PLP. This will include but not be limited to: • Define the goals of the PLP. • Define Telemetry Requirements for the program. • Work with Procurement, Settlements and CAISO to define how the PLP is going to participate in the CAISO markets. • Define terms and conditions for enrollment of participating customers. • Verify how compliance will be measured. This will help customers understand the process.
2	Demand Response	Implementation	Identify customers to participate in PLP. Define contractual terms for customers who participate in the Pilot. Get commitment from 3 or 4 customers to enroll in the PLP.
3	Customer	Implementation	Informed of goals, terms and conditions of PLP. Verbal Commitment to enroll in the PLP.
3a	Demand Response	Implementation	Share operating characteristics of customers with CAISO. If CAISO requests customer specific information must get written approval from customer. Purpose of this step is to make sure CAISO will agree to the PLP locations when the request for Resource ID is submitted later on. This should mitigate potential for spending time and money on telemetry etc. for a customer and then not be able to realize the value.
4	Demand Response	Implementation	Define custom-LAPs for PLP based on locations of participating customers.

			Work with Electric Procurement and CAISO to define the Custom LAPs. The Custom LAP must be contained within one Sub LAP. After this step parallel tasks are started: • Demand Response begins creating the request(s) for Resource IDs. • Telemetry begins set up effort. • Meter Data group begins set up effort. • Settlements begin set up effort. • Demand Response begins effort to train a forecasting model. These tasks are described in more detail below.
5	Demand Response	Implementation	Assign customers to appropriate Custom-LAPs. May need to aggregate some customers into Custom LAPs and/or a single Custom LAP may contain only one customer. One customer cannot be assigned to multiple Custom LAPs.
6	Demand Response	Implementation	Enroll customers in PLP by executing a contract. Un-enroll customer from existing program. This can occur concurrently with creating the details to request Resource IDs. Must be completed before PLP goes live. (Before Demand Response declares the PLP ready for user, block 33) Issue: Need to decide timing for un-enrolling customers. Simplest method is to un-enroll them before the DR season begins. More complex method is to switch them when the PLP goes live.
7	Customer	Implementation	Enrolled (contract signed) in the PLP Program, Un-enrolled from existing program. The PG&E billing systems (CC&B and ABS) will not be involved in the PLP contracts. Customer must be enrolled before PLP goes live. (Before Demand Response declares PLP is ready for use, block 33)
8	Demand Response	Implementation	Prepare detailed information on PLP program for submission to CAISO to request PL Resource IDs. This will include a Resource Id for the DR Resource (Load, Demand) and another Resource ID for the load reduction (pseudo-

			generator). This includes all the actions necessary to create a request for Resource IDs with the expectation that it is complete and ready for CAISO approval. This will be done concurrently with Telemetry setup, Interval Meter Data setup, and Settlement setup. Can include activities: • Define the information required for the CAISO Master File such as ramp times, minimum reduction, load distribution factors etc. • Determine how loss factors are to be applied. • Testing to ensure resource can achieve specified load drop. • Meter information defined • Initial telemetry setup • Amend the Participating Load Agreement if applicable. (should only be amended after the customers are firmly committed to the program) Submit to Electric Procurement. 4-6 weeks lead time required.
9	Telemetry	Implementation	Set Up Telemetry for participating customers. This step can be done while Demand Response is preparing the Request for Resource IDs. The step must be completed before the Request for Resource IDs is received by CAISO. The setup is complete when telemetry data is available to CAISO, Electric Procurement, Demand Response and Settlements.
10	Interval Meter Data	Implementation	Set up interval meter data flow to support the PLP. This can include: • Make interval meter data available to a forecasting tool. • Make interval meter data available to Settlements. • Set up to provide interval meter data in 5 minute increments (ok to use 15 minute intervals and divide by 3)
11	PG&E Settlements	Implementation	Use the provided customer and meter information to set up the ability to review settlements for the Custom LAP(s). This can include the following: • Ability to separate the Load for the Custom LAP(s) from the load for the Default LAP. • Ensure that Loss factors are properly applied. • Ability to make interval meter data available to CAISO for settlements (SQMD)

12	Demand Response	Implementation	Set up and "train" a forecasting model for the PLP. • Ability to forecast the load • Ability to forecast expected demand reduction • Provide to Electric Procurement to support scheduling and bidding.
13, 14	Electric Procurement	Implementation	Review requests for PLP Resource IDs. Work with Demand Response to resolve comments, if any.
15	Demand Response	Implementation	Work with Electric Procurement to resolve comments from either Electric Procurement or CAISO and resubmit.
15, 18, 19	Electric Procurement	Implementation	Submit requests for PLP Resource IDs to CAISO. Work with CAISO and Demand Response to resolve any comments from CAISO and resubmit.
16, 17	CAISO	Implementation	Review PLP Resource ID requests. If comments work with Electric Procurement to resolve.
20	CAISO	Implementation	Certify the resources. Test the resource(s) to ensure telemetry and metering meets requirements for Ancillary Service (AS). Requirements for certification may include: • Automated Dispatch System (ADS) working. • Access to Settlement Quality Interval Meter Data (SQMD) (desire to meet requirements for spinning load although we'll be bidding as non-spinning)
21	CAISO	Implementation	If Certification is successful proceed with assigning Resource IDs. If not successful work with PG&E Electric Procurement /Telemetry to resolve issues and resume certification effort.
22	Electric Procurement	Implementation	Review Certification comments from CAISO. Work with Telemetry, metering, Demand Response as appropriate to resolve

			questions and request CAISO to resume certification process.
23a	Telemetry	Implementation	If telemetry tests are not successful work with Electric Procurement/ CAISO to resolve issues.
23b	Interval Meter Data	Implementation	Meter data group to help resolve certification issues if applicable.
24	Demand Response	Implementation	Work with Electric Procurement to work through any issues with Certification process.
25, 26	CAISO	Implementation	Assign PLP Resource IDs and add to the CAISO Master File with all information required for resources to participate in the CAISO markets. This makes the PLP information public to the market participants.
27	CAISO	Implementation	PLP Program(s) ready for use in CAISO markets.
28	Electric Procurement	Implementation	Receive PLP Resource IDs from CAISO and notification of when the PLP Resources are to be ready for use. Forward the information to Demand Response.
29	Electric Procurement	Implementation	Adjust Scheduling process for the Default LAP to account for the PLP Load that will be scheduled via the Participating Load agreement. In other words, the PLP Load needs to be subtracted from the Default LAP load and bid at the Custom LAP.
30	Telemetry	Implementation	All Telemetry requirements have been completed. Telemetry is available for PLP to go live.
31	Interval Meter Data	Implementation	Complete the efforts to set up interval meter data flow to support the PLP. This includes but is not limited to: • Make interval meter data available to a forecasting tool. • Make interval meter data available to Settlements. • Provide interval meter data in 5 minute increments (ok to use 15 minute intervals and divide by 3) • Make interval meter data available to CAISO for settlements (SQMD?)
32	PG&E Settlements	Implementation	Use the provided customer and meter information to set up the ability to review settlements for the Custom LAP(s). • Separate the Load for the Custom LAP(s) out of the load for the

			Default LAP.
33	Demand Response	Implementation	Receive PLP Resource IDs. Verify Participating Load Pilot is ready for production. Update programs information accordingly and acknowledge that the program is ready for use. Agree on a date to go into production with all involved parties. Customers must be contractually enrolled before program goes live. Customers notified when the Pilot program is ready for use and they might be called upon to perform.
33a	Customer	Implementation	Customer notified when the Pilot program is ready for use so they will be aware they might be called upon to reduce load beginning on a certain date.
Maintenance			
34	Demand Response	Maintenance	Maintain information on participating customers. Notify Settlements if applicable such as for meter number changes, SA IDs changing, customers leaving or being added to the program, etc.
34a	PG&E Settlements	Maintenance	Settlements kept apprised of any changes that affect the settlement process for the Custom LAP such as for meter number changes, SA ID changes, customers leaving or being added to the program, etc.
35	Demand Response	Maintenance	Revise PL Agreement definition if necessary due to enrollment changes or other changes that affect the total MW load or reduction. Work with Electric Procurement to get consensus on changes. Notify Settlements if applicable such as for meters number changes, SA IDs changing, customer leaves program or is added to program, etc.
36	Electric Procurement	Maintenance	Review PL Agreement definition changes. Work with Demand Response and CAISO to get consensus/approval for changes.
37	CAISO	Maintenance	Review PL Agreement definition changes. Work with Electric Procurement to get consensus/approval for changes.
38	CAISO	Maintenance	When changes are approved update the CAISO Master File accordingly.
39	CAISO	Maintenance	Changes to the PLP Resource definitions ready for use in the CAISO Markets.

Day Ahead			
40	Interval Meter Data (Depts. include: EDS, RDA)	Day Ahead	Various organizations are involved in collecting, storing and providing interval meter data to support the PLP Programs. Interval meter data is used to: ➢ Determine Baseline Usage ➢ Forecast and Schedule Load ➢ Forecast load reduction ➢ Provide input for calculation of actual load reduction values
41	Telemetry	Day Ahead	Telemetry Data will be provided to Demand Response and Electric Procurement as input to creating load schedules and reduction forecasts.
41a	Electric Procurement	Day Ahead	Use telemetry data to adjust forecasts for the custom LAP(s).
42	Demand Response	Day Ahead < 5:00 AM	**New Tool to be developed to support automation of schedules/forecast for PLP. Daily: Prepare PLP Load Schedule and DR Forecast and send to Electric Procurement in time to support scheduling and bidding. Include Pricing Trigger Points.
43	Electric Procurement	Day Ahead < 10:00 AM	Submit PLP bids to CAISO. Two separate bids can be submitted: Submit PLP load schedule to CAISO. (Demand Bid for the Custom LAP) Submit PLP bids to CAISO. (non-spinning reserve bid for the pseudo generator) NOTE: The Day-ahead market closes at 10:00 AM so all activity supporting the placing of bids needs to be completed in time to make this deadline. From CAISO Guidance document: "The LSE SC can, thus bid or schedule all or part of its DR Resource in the Custom LAP for Energy in DAM using the unique load Resource ID. This Demand Bid in DAM for the Custom LAP is presumed to represent actual price-responsive demand. The LSE SC can also use the pseudo-generator Resource ID to submit Non-spinning Reserve bid into CAISO's DAM."

44	CAISO	Day Ahead < 10:00 AM	PLP Bids received in the day-ahead market.
45, 46	CAISO	Day Ahead <1300 hours	Reserve Bid not accepted in the day-ahead market. Then PLP does not participate in DAM.
45, 47, 48	CAISO	Day Ahead <1300 hours	PLP reserve bid accepted. PLP bid information available to Schedule Coordinator (Electric Procurement) via CAISO Market Results Interface (CMRI). Day Ahead schedules published at 1300 hours the day prior to the trading day.
49	CAISO	Day Ahead	CAISO Market Impacts: (from the CAISO Guidance document) • The CAISO will not reduce the RUC procurement target based on the PL's day-ahead schedule. However, the expected demand of PL resources is not included in the CAISO's RUC procurement. In other words, in the RUC process, the day-ahead PL schedule is used as the forecast for PL's consumption. • There will be no RUC payment to the DR resource. However, when PL performs (curtails consumption in real-time according to its day-ahead schedule), assuming there is no day-ahead under-scheduling of PL DR demand,, the PL resources are exempt from Tier 1 RUC charges. • In the real-time market, the CAISO Forecast of CAISO Demand (CFCD) considers PL resources separately. In other words, the Participating Load's schedule becomes the CAISO's forecast for the amount of the Participating Load. Stated differently, the PL schedule and forecast are the same. To the extent the PL actually reduces in demand the RT forecast will automatically adjust based on the feedback of the actual System Load into the RT Demand Forecast. • There is no PL DR performance requirement in CAISO's Energy markets9. To the extent the PL consumes more or less than its day-ahead schedule (based on its metered demand), the difference from its day-ahead schedule is settled at the real-time price for its Custom LAP. • PL resources are eligible to participate in AS markets for non-spinning reserve, subject to the CAISO's established technical and compliance

			standards. In MRTU Release 1, non-spinning reserve bids must be for contingency-only reserves. • The LSE SC must self schedule (as price taker) sufficient load in the Custom LAP under its load Resource ID to cover all of the Non-spinning Reserve MW it bid in the day-ahead market. However, this requirement is not checked and enforced in MRTU Release, i.e., there is no SIBR rules that ensure sufficient demand is scheduled to support the Non-Spin on Pseudo-Generator. In case the amount of Custom LAP load that clears the IFM is not enough to cover the awarded day ahead Non-spinning Reserve, then, the LSE SC will be subject to Ancillary Service "No Pay" charges. • Real-time dispatch instructions may be given (for the pseudo generator to produce Energy from any Non-spinning Reserve capacity awarded to the pseudo-generator) under contingency conditions. However, for settlement purposes, the response of the pseudo-generator is tracked by comparing the change in the Custom LAP load before and after the dispatch instruction.
50	Electric Procurement	Day Ahead	Monitor CMRI for accepted bids. Call PLP event(s) based on bids accepted in the day-ahead market. (Note: Day Of events can also be called day ahead) Confirm with Demand Response. Include locations, quantities and time periods.
51, 52	PG&E Settlements	Day Ahead	Monitor CMRI for accepted bids. When bids are accepted get the original bid information from SIBR/SCUI and the accepted bid information from CMRI. This information is to be used later as reference during review of Settlements.
53, 54	Demand Response	Day Ahead	Monitor CMRI for accepted bids. Confirm accepted bids with Electric Procurement. Initiate and Monitor Notification Processes: • Courtesy notice to inform customer that bids have been accepted and it could be called on to reduce demand on the following day. • This customer should be able to choose whether or not it wants to receive notice.

			• The PLP pilot includes an as an objective a determination regarding whether customers will want this notification.
55	Customer	Day Ahead	Receive notification that bids have been accepted and they may be called upon to reduce demand the next day. This will allow the customer to do some planning before it is called to perform.
Day Of			
56	CAISO	Day Of	Dispatch the PLP per the accepted bids.
57	Electric Procurement	Day Of	Dispatch signal goes through Automated Dispatch System (ADS) to procurement.
58	Demand Response	Day Of	Demand Response DRAS system receives Dispatch Order from ADS.
59, 60	Customer	Day Of	Receive Dispatch Order. Curtail Load per load shed strategies.
61	Telemetry	Day Of	Usage Data is available via Telemetry to Demand Response and Electric Procurement.
62	Demand Response	Day Of	Monitor Demand Reduction achieved by PLP.
63	Electric Procurement	Day Of	Monitor Demand Reduction achieved by PLP.
63a	Electric Procurement	< Day After	From telemetry data, derive the value of the reduction achieved and adjust the forecast model appropriately.
64	Interval Meter Data	Monthly	Provide actual Settlement Quality Interval Meter Data (SQMD) for the event day(s) to Demand Response per program requirements. 1 hour interval data required to settle Load. 5 minute interval data required to settle AS.
65	Demand Response	Monthly	Perform Demand Response Validations and prepare interval meter data for submission to the settlements group.
66	Demand Response	Monthly	Calculate and Pay Incentives based on actual performance of participating customers.
67	Customer	Monthly	Receive Incentives

68	PG&E Settlements	Monthly/ Daily	PG&E settlements group reviews interval meter data and forwards to CAISO for settlements. Need to include the following: • Settle the LOAD for the custom LAP daily, regardless of events dispatched or not. o 1 hour interval data is sufficient to settle load. o Due to "Payment Acceleration" will need interval meter data within 3 days of the "Day Of". (TD+3days) • Settle the reduction at what frequency? o 5 minute interval data required to settle AS. • Daily submissions will be made to CAISO for dates in the past.
69	CAISO	Monthly	CAISO performs monthly settlements. • Ensure the application of loss factors has been coordinated to avoid under or over counting.
70	CAISO	Monthly	CAISO Generates Invoice for the monthly settlement.
71	PG&E Settlements	Monthly	CAISO Invoice validated. If problems work with CAISO to reconcile.
72	PG&E Settlements	Monthly	Report on benefit of PLP demand response in dollars. Provide report to Demand Response and Energy Procurement.
73	Electric Procurement	Monthly	Receive report of PLP benefits.
74	Demand Response	Monthly	Receive report of PLP benefits.

6. PROJECT MANAGEMENT AND ISSUE RESOLUTION

In light of timeframe and possible communication breakdowns, PG&E has set up a standing meeting with the following groups:

- Internal PG&E: Demand Response, IT Department, Comprise of Energy Procurement (Merchants), CAISO Settlements, Metering Group, and Supervisory Control And Data Acquisition (SCADA) Group.
- CAISO: This bi-weekly meeting is to address project readiness, possible issues and alert the team of any changes that can occur during this process. The items that are discussed revolve around technical issues.
- Automation – Auto Demand Response team: This bi-weekly meeting with Lawrence Berkeley National Laboratory and Akuacom is to address customer side recruitments, load shed strategies and other agendas that may cover the retail portion of the PLP.
- Energy Division: PG&E will periodically inform the Energy Division with status reports.

7. Next Steps

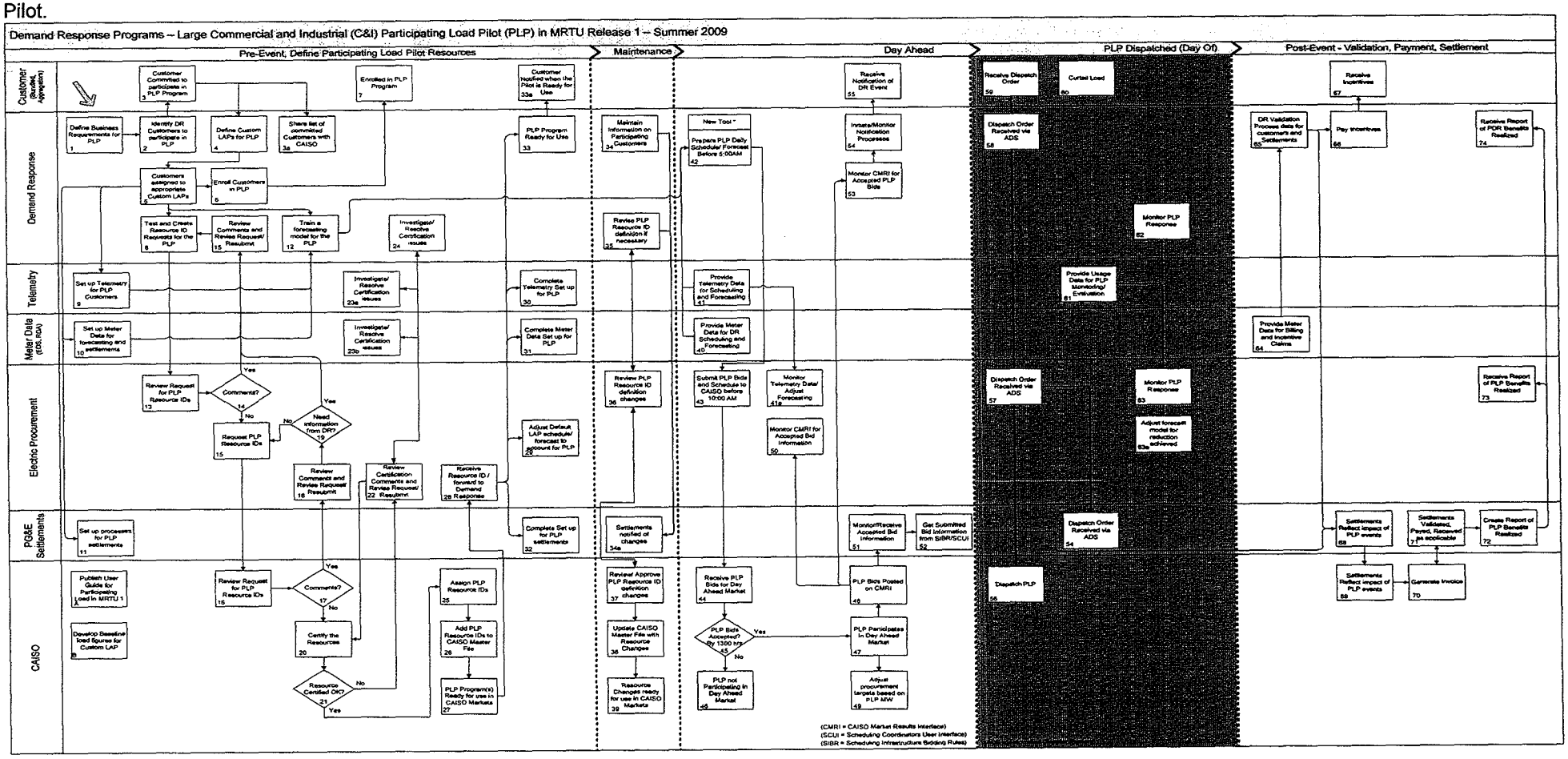
The success criterion for this pilot is in line with the stated objectives. At the end of the pilot PG&E will have developed a clear view on:

- The technologies available that will provide the required visibility to the CAISO for providing energy and ancillary services including telemetry and notification equipment. The costs of such technology.
- The process changes required to facilitate participation of DR as PL and PDR. The costs of developing the IT infrastructure to facilitate such participation.
- The revenues PL will be able to extract from the CAISO markets. The level of incentives customers will need to participate as PL or PDR.

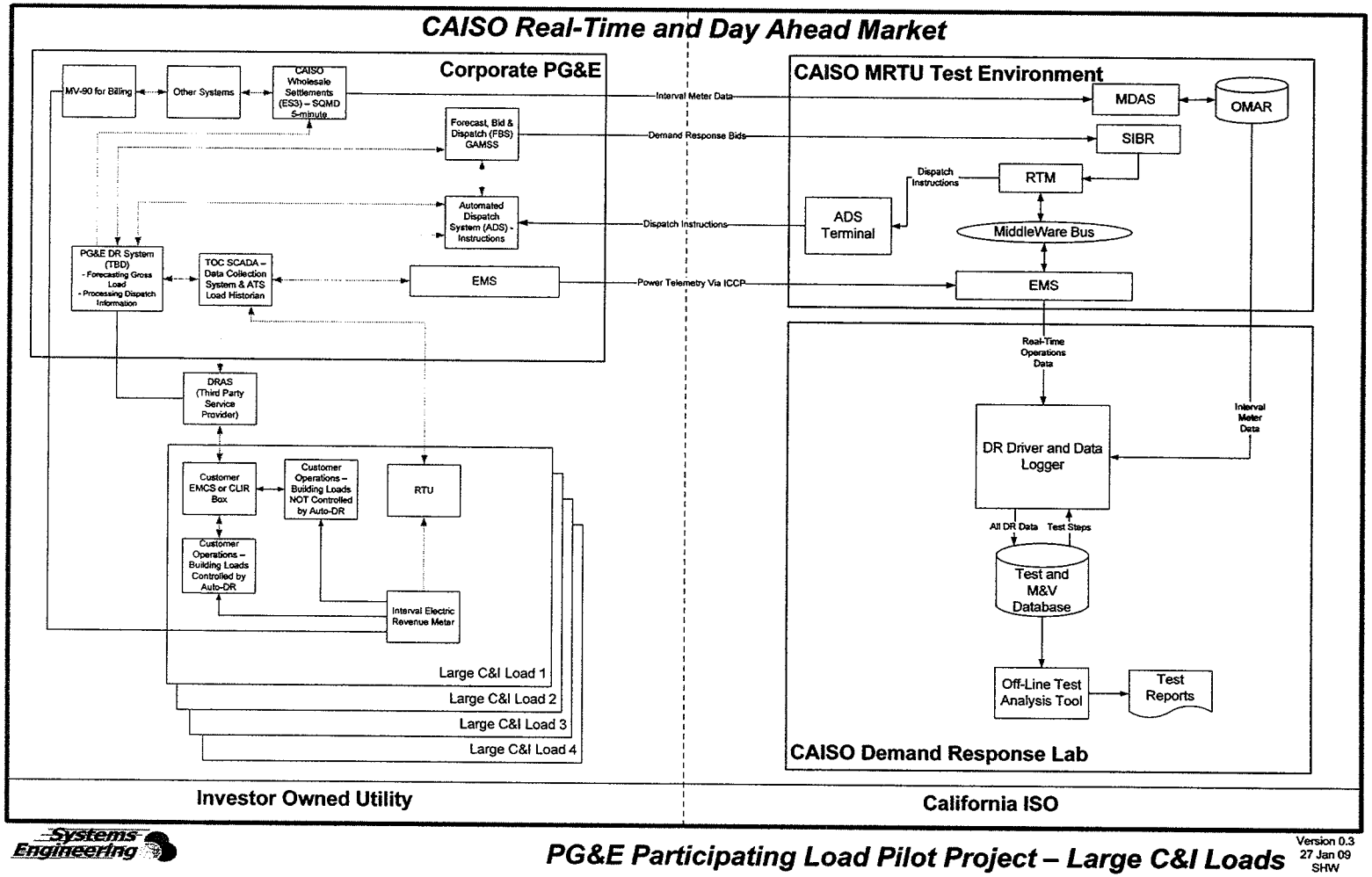
PG&E will report its findings in these areas at the conclusion of the PLP. The findings are expected to inform not only program design but also future design of mechanisms that CAISO is developing including PDR and DDR under MAP. PG&E is hoping to provide DR from large commercial and industrial customers to CAISO markets under MAP, as soon as MAP is available, if it determined that such participation is feasible and cost effective at the end of this pilot.

8. Appendix

Appendix 1: Process Map exhibits the implementation plan for PG&E's Commercial and Industrial Participating Load Pilot Pilot.



Appendix 2: Diagram, shown below, captures the end to end process connectivity to relay one (1) minute telemetry data from participants premise all the way back to the CAISO Operations.



Appendix 3: Sample of quarterly progress reports shows actual expenditures spent up to date with forecast budget till the end of the pilot period.

	1st Quarter Actual Expenditures	2nd Quarter Budget Forecast	3rd Quarter Budget Forecast	4th Quarter Budget Forecast
Internal PG&E				
Program Management				
Forecasting Activities				
Customer Recruitment				
Integration with Energy Procurement				
Energy Procurement Operational Activities (HASP)				
IT Changes to Scheduling/Bidding				
Settlements				
IT Changes to Settlements				
Customer Incentive and Readiness				
Customer Incentives				
Equipment and Communication Cost (i.e. Telemetry, network provider)				
Vendor Activities				
Auto-DR related Activities				