Operational Energy Efficiency Program (OEEP)
PG&E/CPUC Meeting Notes from December 12, 2008
Updated to Reflect SCE/PG&E/CWA/CPUC Meeting on January 27,2009

December 12, 2008 Meeting Attendees:
PG&E: Redacted
Redacted
CPUC: Raj Naidu

Objectives and Steps:
Objective of program: Test for OEEP by water utilities for continuous efficient operation of the system by utilizing computer software to vary the pump and motor performance in response to required head, pressure, flow, etc and at the same time operate the system at an efficiency above 70%. Document the data so that the results can be submitted in a report by the CPUC\CEC to Sacramento. Ultimately the CPUC can determine whether new regulations will be adopted for water utilities or whether Energy utilities should offer a new energy efficiency program based on the results of the OEEP program.

General Process:
1. Step 1: Select pump/motor combinations that are operating at relatively low efficiency and measure the existing Wire-to-Water (WTW)efficiency to establish the baseline efficiency of the system
2. Step 2: Add a variable speed drive (VSD) and measure the WTW efficiency at full speed
3. Step 2a: Add a computer program to track the WTW efficiency power demand reduction and energy loss by operating the system as close to the highest efficient point possible on the pump efficiency curve
4. Based on the kW reduction and kWh savings with the VSD and computer program in place, determine if a new high efficiency pump and/or motor can reduce additional demand and save additional kWhs
   NOTE: Before pump or motor is replaced, the results should be reviewed with CPUC (Raj Naidu) to determine whether additional investment is warranted
5. Step 3: If a new pump is added, disable the VSD & computer software and measure the WTW efficiency
6. Step 3a: Re-engage the VSD & computer software and measure the WTW efficiency of the system with the optimized pump in place
7. Step 4: If a new motor is added, disable the VSD & computer software and measure the WTW efficiency
8. Step 4a: Re-engage the VSD & computer software and measure the WTW efficiency of the system with the optimized pump and motor in place

Roles:
CPUC: Raj Naidu (Water Division) will lead the program on behalf of the CPUC. Raj will coordinate with the CPUC Management. Raj will manage the steps of the program and decide when the next steps are warranted. Raj will review invoices from water IOUs and provide authorization to PG&E to make payments. The CPUC will also collect the

data of the program for review. EM&V consultants will put the data together in a package that will be evaluated by a Third Party evaluator.

Water IOUs: Each water IOU will manage its own project. They will provide the detailed design and cost estimate to PG&E before starting the project. They will invoice PG&E for work completed, PG&E will provide invoices to Raj for CPUC approval before PG&E can make payment. Each water IOU will provide computer generated data results to Raj and the EM&V team at an interval requested by the EM&V team. PG&E will be provided copies of the reports for information purposes.

Third Party Evaluator: Professor Bob Wilkinson (UCSB) will evaluate the program and write the final report.

PG&E: Pay invoices from water IOUs for work performed on the Operational Energy Efficiency Program per CPUC Decision 08-11-057, November 21, 2008. Payment of invoices will require authorization from the CPUC-Water Division that the invoice is acceptable.

Coordination with Water Pilot Emerging Technology (ET) Program:
The Water Pilot includes an ET program that is similar to, but not the same as, the newly approved OEEP. PG&E is currently working with San Jose Water Company which is also included in the OEEP. Since the two programs are similar, it is critical that coordination between the two programs be maintained so that activities from one project should not undermine the other project. Redacted is the main point of contact for PG&E for the ET pilot program. The EM&V for the ET pilot is being conducted by the CPUC's consultants ECONorthwest and SBW Consulting. Mikhail Haramati is managing the CPUC's ET EM&V contract. Raj Naidu will be managing the OEEP-EM&V

EM&V:
Both PG&E and Raj agree that, if the OEEP is successful, the ultimate goal is to establish a new OEEP program to be operated by the energy IOUs.

Raj stated that the EM&V team is involved in the program and that the E3 Calc team will enter the data in the calculator and evaluates the data according to CPUC standards to be developed by the Water Division. PG&E is concerned that the CPUC standards vary from one division to another and requests that the Energy Division (ED) audit group get involved with the OEEP immediately. PG&E is concerned that delaying involvement of the CPUC EM&V team might result in failure of the CPUC to accept the program results and will ultimately require that the projects be repeated. PG&E requests that the ED work with the water utilities to design the program, collect data, and put things in place to allow the well before any equipment is installed. Redacted cautioned that the CPUC, and not the CEC, perform the final audit to help demonstrate viability.

Jim recommended a formal agreement or understanding since ED has a formal process that is required. Redacted asked Raj to put the people that he is working with at the

CPUC in touch with Jim so that PG&E can understand how the process will work. Raj suggested that Jim call Mikhail Haramati or Judith Ikle.

Raj will circulate the EM&V plan to the participants and to the Energy Division. PG&E believes that EM&V is critical to the success of the program and will be willing to pay additional funds (based on verbal estimate of $100,000) in order to implement Energy Division – sanctioned EM&V program.

January Meeting Clarifications Regarding Pilot Timeframe

1. Pilot commencement date: Raj defined the commencement of the pilot as the completion of Step 2a by the water utilities. The water utilities stated that they would not be able to achieve this action by March 1, 2009. SCE agreed to draft a letter requesting an extension of the commencement date. All parties agreed to file the letter jointly.

2. Pilot completion date: Raj stated that data must be collected at Step 4a for a minimum of one year. This will require that the pilot last longer than one year. Some water utilities may not progress to Step 4a. For those who do, pump replacements may be delayed until the fall in order to avoid detrimental impacts to utility performance during the peak demand season this summer. All parties agreed to file a joint request for an extension to the pilot once a reasonable end date is identified.

Next Steps

1. Water utilities will begin implementation of Steps 1, 2, and 2a.

2. Water utilities will provide estimates of equipment costs to PG&E for verification of reasonableness of estimate.

3. Once PG&E verifies reasonableness of estimates, the CPUC will determine whether or not the water utilities are authorized to buy the equipment.

4. A progress meeting will be held with all parties on the second Wednesday of each month, beginning in March 2009.