PACIFIC GAS AND ELECTRIC COMPANY
SmartMeter™ CPUC Staff Inquiry
Data Response

PG&E Data Request No.:	DRA_002		
PG&E File Name:	SM CSI_DR_DRA_002-Q07		
Request Date:	December 21, 2010	Requester DR No.:	DRA_2
Date Sent:	March 14, 2011	Requesting Party:	DRA
PG&E Witness:	N/A	Requester:	Tom Roberts

QUESTION 7

Describe the steps or processes which ensure that the output of a gas meter is correctly measured by the SmartMeter module. For example, is a given meter model designed such that each revolution of the output shaft accurately corresponds to a fixed number of cubic feet (CF) of gas, within PG&E's accuracy standard, or does the CF per revolution vary meter to meter? If the later, how is the calibration factor (CF/rev) for each meter entered into the SmartMeter system?

ANSWER 7

All PG&E gas meters that are converted with a SmartMeter™ Module operate with a rotating shaft that drives the gears and dials of a mechanical index. The SmartMeter™ Module simply counts revolutions of this shaft, as described in the response to Data Request DRA_002-01:

> Gas meters have a rotating shaft with a "drive dog" that, in legacy meters, turned a gear in the mechanical register. In the SmartMeter™ design, this drive dog turns a mechanical shaft that is part of the Module. That shaft extends through the Module and engages the mechanical register in the same manner as in the legacy meter. In addition, the shaft has magnets. The rotation of the magnets is sensed by the Module with magnetic reed switches in a redundant fashion to increase reliability.

The amount of cubic feet represented by a revolution of the shaft varies between different meters. Thus, each SmartMeter™ Module type is programmed with a multiplier that normalizes this output such that the Module transmits data as cubic feet, not as revolutions. This conversion multiplier within the SmartMeter™ Module eliminates the need for conversions in back office systems. Please note that the multiplier is not a calibration factor; it does not adjust for meter accuracy characteristics.

Accuracy is fully dependent on the gas meter itself. PG&E's standard practice for assessing gas meter accuracy have not changed with the SmartMeter™ Program. Meters are tested for accuracy when manufactured, when received by PG&E, and when removed from service. The meter vendors test and approve the Module design to ensure installation of the Module does not affect accuracy. Similarly, PG&E tests each

Module type to verify accuracy for that design before accepting the module for use. In addition, PG&E augmented its accuracy tests for new and removed meters to read and verify that the value transmitted by the module is correct.

Finally, note that although PG&E has some very large gas customers with electronic meter registers, those customers' meters are out of scope for the SmartMeter™ project.