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PRESS RELEASE

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Structure Announces Findings of PG&E Smart Meter Assessment

Customer Usage, Rates, Customer Service, and Process Issues are Largest Complaint Factors

HOUSTON (September 2, 2010) - Structure™, an industry leader in business advisory and consulting services to the energy and utilities industries, today provided to the California Public Utilities Commission (CPUC) an Assessment Report of a five month evaluation of Pacific Gas and Electric Company's (PG&E) Advanced Metering Infrastructure (AMI) system focused on electric residential customers. Structure concluded that the residential electric Smart Meters deployed by PG&E are consistent with industry standards and are performing accurately. However, Structure identified gaps in customer service and processes related to the handling of high bill complaints related to Smart Meter deployment, and determined certain PG&E practices to be partially non-compliant relative to industry best practices.

In the presentation to the CPUC, Structure addressed the following questions:

1. Does PG&E's SmartMeter™ system measure and bill electric usage accurately, both now and since PG&E's Smart Meter deployment began?

Structure confirmed that Smart Meters are accurately recording electric usage at present, and the systems are correctly processing data and billing usage. Structure also confirmed there were no systemic issues found since Smart Meter deployment, beyond exceptions already reported by PG&E. The exceptions that were identified are limited and are not prevalent in the general population of deployed meters.

2. What factors contributed to Smart Meter high bill complaints?

Structure's Assessment identified multiple factors that appeared to contribute to the escalation of Smart Meter high bill complaints during late 2009 and early 2010, including findings in the following areas:

- Customer Usage:
 - Meter deployment schedules coincided with increased energy usage caused by a heat wave.
 - Some customers experienced load changes that were reflective of changes in personal circumstances.
 - Electromechanical meter degradation.
- Rates:
 - Rate increases compounded the financial impact of the additional weather-related usage, resulting in higher bills that occurred as Smart Meters were being installed.

- Incorrectly applied rates that were based upon historical premise assumptions that affected customer baselines and rates.
 - Rate-related inquiries increased as customer bills escalated. Requests for new enrollment or failure to manually renew enrollment in financial assistance through California Alternate Rates for Energy (CARE).
 - Customer Service:
 - PG&E processes did not address the customer concerns associated with the new equipment and usage changes.
 - Customer skepticism regarding the new Advanced Metering technology was not addressed early or effectively by PG&E.
 - PG&E's customer complaint resolution process did not utilize detailed interval read information available from Smart Meters, which may have assisted customers' understanding of their individual hourly usage patterns.
 - Some customers interviewed during this assessment did not consider their complaint resolved, despite indications from PG&E and CPUC that the customer agreed with the resolution.
 - Process Issues:
 - PG&E utilized field meter readers for an average of 131 days after Smart Meters were installed, resulting in similar meter reading errors as electromechanical meters. The transition to automate the Smart Meter data for use in billing was not clearly addressed with customers.
 - PG&E's system tolerances related to billing quality control were not stringent enough, resulting in multiple bill cancellations and re-billings, which were confusing to customers.
 - Customers indicated that communications surrounding physical meter installation were lacking, or that the customer had issues with the installation personnel.
3. How does PG&E's SmartMeter™ program's past and current operational and deployment practices compare against the framework of industry best practices?

Structure performed a review of PG&E's documentation of past and current operational and deployment policies, processes, and procedures against a framework of industry best practices. Structure found PG&E to have been historically in compliance (since the beginning of Smart Meter deployment), or have recently come into compliance, with many best practices associated with Smart Meters. However, Structure identified several items of partial or non-compliance related to industry best practices, particularly in the areas of complaint troubleshooting and account billing.

To arrive at these answers, Structure divided the assessment into six components:

- Laboratory meter testing
- Field meter testing
- End-to-end systems testing
- Analysis of Smart Meter-related high bill complaints
- Review of best practices associated with Smart Meters

- Assessment of AMI security framework.

As part of the assessment, Structure independently tested over 750 Smart Meters and 147 electromechanical meters.

The laboratory meter testing included verifying 156 meters for accuracy and factory programming on a representative sample of new meters shipped from the manufacturer and obtained from multiple geographically-dispersed PG&E warehouse facilities. A portion of these meters were utilized to perform environmental stress testing in a controlled temperature chamber at reference, high, and low temperatures. All of the tested Smart Meters passed the applicable accuracy testing standard established by the industry.

Field meter testing was performed on 611 Smart Meters and 147 electromechanical meters, and included site verification, meter type and form factor verification, proper installation, and meter program and accuracy verification across six scenarios. The pass/fail criteria were based upon the CPUC accuracy standard of $\pm 2.0\%$ for electromechanical and Smart Meters. 100% of the 611 tested Smart Meters successfully passed the CPUC accuracy standard. Of the electromechanical meter field tests, 141 meters passed and 6 failed the CPUC accuracy standard.

End-to-end system testing included both lab and field analysis on a small sample size to confirm meter to bill system accuracy. Structure verified the meter usage and event data from the customer premise, through the AMI and billing systems, to the customer's receipt of the printed bill. For both of these tests, Structure did not identify deviations during the testing that indicated a systemic problem in the meter billing system's accuracy.

For the high bill complaint analysis, Structure reviewed and analyzed 1,378 electric Smart Meter high bill complaints and identified factors around customer usage, rates, customer service, and process issues. Results from 20 high bill complaint customer interviews identified specific service issues around complaint management by PG&E and the CPUC.

Structure performed a review of PG&E's documentation of past and current operational and deployment policies, processes, and procedures against a framework of industry best practices. As summarized above, Structure found PG&E to have been historically in compliance, or have recently come into compliance, with many industry best practices associated with Smart Meters, though certain PG&E practices were evaluated to be partially non-compliant.

The security assessment was performed to provide a confirmation that controls were established and documented on the Smart Meter system. Structure concluded that PG&E has developed a cyber security framework that is compliant with industry best practices.

Structure Principal Stacey Wood summarized Structure's perspective on this project as follows, "While Structure was able to verify the accuracy of the meters and flow of meter data to downstream billing systems, Structure did uncover issues that negatively impacted the customer experience, further complicating an already complex undertaking. Ultimately, the success of advanced metering programs like PG&E's – where improved energy efficiency and demand response are major drivers – will depend on an active dialogue and engagement with customers. We hope that our findings in this effort can be utilized to help PG&E, the CPUC, and other industry stakeholders develop improved practices around advanced metering deployments with an increased focus on appropriately engaging customers."



The full report is available on the CPUC website on the page, Independent PG&E Smart Meter Testing, <http://www.cpuc.ca.gov/PUC/energy/Demand+Response/solicit.htm>. To provide an objective evaluation, Structure developed the findings of this study independently from the CPUC and PG&E, utilizing reasonable efforts to perform the assessment. Structure cannot provide assurances that all issues were identified or that future issues may not develop following completion of this assessment.

About Structure™

Structure is a global consulting firm focused exclusively on the energy and utility industry, providing services and technology solutions. Structure focuses in providing a spectrum of services across business advisory, program management, solution delivery and implementation, and performance improvements and was recognized as the Advisory Firm of the Year 2010 by Energy Risk Magazine. Structure relies on deep industry expertise and proven methodologies to deliver projects across Smart Grid/Distribution Operations/Distribution Automation, SCADA & Energy Management Systems, Energy Trading & Risk Management, and Competitive Energy Market Solutions. For more information, visit www.thestructuregroup.com.