BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

Application of Pacific Gas and Electric Company for Authority to Increase Revenue Requirements to Recover the Costs to Deploy an Advanced Metering Infrastructure U 39 E	A.05-06-028 (Filed June 16, 2005)

THIRTEENTH SEMI-ANNUAL ASSESSMENT REPORT ON THE DEPLOYMENT OF PACIFIC GAS AND ELECTRIC COMPANY'S ADVANCED METERING INFRASTRUCTURE PROGRAM AND THIRTEENTH QUARTERLY REPORT ON THE IMPLEMENTATION PROGRESS OF THE SMARTMETER™ PROGRAM UPGRADE

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Dated: April 2, 2013

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Pacific Gas and Electric Company (PG&E) submits the attached Thirteenth Semi-Annual Assessment Report on the deployment of its Advanced Metering Infrastructure (AMI) Program and the Thirteenth Quarterly Report on the implementation progress of its SmartMeter™ Program Upgrade. PG&E combines both the semi-annual and quarterly reports from the AMI and SmartMeter™ proceedings into a single filing as a result of consultations with the Energy Division. These reports comply with the requirements of D.06-07-027, Ordering Paragraph (O.P.) 16, D.09-03-026, O.P. 7, and the May 4, 2010 Assigned Commissioner's Ruling in A.05-06-028.

Respectfully submitted,

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By: /s/
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Pacific Gas and Electric Company
Advanced Metering InfrastructureSemi-Annual Assessment Report
SmartMeter™ Program Quarterly Report
July 1 – December 31, 2012

(CPUC Decisions 06-07-027 and 09-03-026)

Date of Filing: April 2, 2013

Pacific Gas and Electric Company
Advanced Metering Infrastructure Semi-Annual Assessment Report
SmartMeter™ Program Quarterly Report
July 1 – December 31, 2012

I. Executive Summary

This is Pacific Gas and Electric Company's (PG&E or the Company) thirteenth semi-annual assessment report (Report) regarding the deployment of PG&E's Advanced Metering Infrastructure (AMI) Program (now the SmartMeter™[1] Program) and serves as the fifteenth quarterly report for the SmartMeter™ Program Upgrade.[2] This Report reflects the period from July 1, 2012 through December 31, 2012.

Consistent with the AMI Decision, this Report provides updates in the following areas: (1) advances in AMI technology; (2) a self-assessment of AMI system operating performance based on performance criteria that PG&E established with input from the Commission's Energy Division and the Division of Ratepayer Advocates (DRA); (3) an updated cost-effectiveness review; and (4) customers' interest in real-time usage data.[3]

A. Introduction

PG&E's SmartMeter™ Program is the largest installation of advanced meters in North America, with 9.5 million electric and gas SmartMeters™ installed as of December 31, 2012. Playing a foundational role in modernizing the electric grid, SmartMeters™ in California are a critical part of statewide policy to better manage

[1] SmartMeter™ is a licensed trademark of SmartSynch, Inc.

[2] PG&E proposed its SmartMeter™ Program in Application (A.) 05-06-028, which the California Public Utilities Commission (CPUC or Commission) approved in Decision (D.) 06-07-027 (the AMI Decision). The AMI Decision requires that PG&E provide the Commission with a semi-annual report assessing the SmartMeter™ deployment. See Ordering Paragraph (O.P.) 16. PG&E issued an updated SmartMeter™-proposal (the SmartMeter Upgrade) in A. 05-06-028, which the Commission approved in D.09-03-026 (the Upgrade Decision). There, the Commission directed PG&E to provide quarterly reports on the Program. See O.P. 7. PG&E conferred with the Commission's Energy Division to establish the information to be provided and has prepared this Report to comply with the requirements of both the AMI Decision (O.P. 16) and the Upgrade Decision (O.P. 7).

[3] D.06-07-027 at pp. 57-58.

energy, and to create the smarter grid that the State needs to incorporate more renewable resources, deliver cleaner energy, and realize the State's ambitious energy efficiency goals.

More recently, PG&E has pioneered an "opt-out" alternative[4] for customers who do not wish to have SmartMeters™ and has launched the Green Button, a means for customers to download their energy-usage data in a standard format.

B. Update on the SmartMeter™ Program

PG&E's SmartMeter™ Program is nearing the completion of the objectives that the Commission outlined in the AMI and Upgrade Decisions. This section of the Report provides an overview of Program developments and PG&E's progress on individual elements of the Program during the last six months of 2012.

1. Progress in PG&E's AMI Deployment

As of December 31, 2012, PG&E had installed 9.5 million gas and electric SmartMeters™ (including retrofits[5]) – far and away the largest AMI-deployment in North America – and the associated network equipment and information technology (IT) necessary to operate PG&E's SmartMeter™ system. Specifically, as of December 31, 2012, approximately 9,525,000 meters (approximately 5,260,000 electric and 4,265,000 gas meters) have been converted to, or replaced with, SmartMeter™ technology, representing approximately 95 percent of the total PG&E meter population. Of this number, PG&E has "activated" approximately 6,134,000 meters and recorded $161.1 million of benefits to the gas and electric SmartMeter™ balancing accounts.

PG&E continues to deploy solid-state electric meters communicating over a radio frequency (RF) mesh network, and gas modules communicating over an RF network.

[4] See A.11-03-014 and D.12-02-014. As of the time of this filing, roughly 35,300 customers are enrolled in the SmartMeter™ Opt-Out Program.

[5] PG&E installed 370,500 first-generation SmartMeters™ between March 2006 and December 2008.

The deployment of the RF Mesh network was planned to consist of an initial phase to deploy Access Points (APs) at defined locations throughout PG&E's service territory, followed by subsequent phases to deploy additional APs to strengthen the network where required. As of December 31, 2011, PG&E had installed all of the 11,379 electric network devices (APs and Relays) and 4,815 gas network data collection units (DCUs) anticipated for the SmartMeter™ Program.[6]

Further details of the SmartMeter™ Program's deployment status are provided in Section II of the Report. Further details of the SmartMeter™ Program's cost and benefit status are detailed in Section III of this Report.

2. Program Costs and Benefits

In late 2010 and early 2011, the SmartMeter™ Program Management Office (PMO) performed a detailed review of all workstream forecasts. The Program sought and received approval in February 2011 from PG&E's Board of Directors to exceed the cost-cap that the CPUC authorized and to spend up to $2,335 million to complete the Program, with $39 million to be borne by Company shareholders. As reported in its financial disclosures, PG&E recorded an earnings reserve of $36 million, representing the current forecast of capital-related costs by which the Company expects to exceed the CPUC-authorized cost cap. PG&E will continue to update its forecasts as the Program continues and may incur additional costs.

As of June 30, 2012, PG&E had allocated the entire $2,335 million Board-authorized program amount to Program workstreams, and the PMO continues to monitor actual spending against the Board-approved forecast, as well as monitor issues and risks that

[6] Note that although PG&E has deployed all of the network equipment that it anticipated, there may be unique, individual locations requiring modifications to optimize performance. In addition, the CPUC has authorized PG&E to install additional network equipment under its SmartMeter™ Opt-Out Program to maintain communications system integrity.

could contribute to potential cost overruns. SmartMeter™ Program expenditures through December 31, 2012 totaled approximately $2,293 million.

3. System Performance Criteria

System performance metrics are provided in Table IV-2.

4. Customer Interest in Accessing Real-Time Usage and Pricing Information

PG&E launched its SmartRate™ Program in May 2008. As of December 31, 2012, the SmartRate™ Program had 79,633 active and pending residential customers. Details of the SmartRate™ Program are provided in Section V of this Report.

5. Advances in AMI Technology

PG&E continues to monitor metering and network collector technologies as the AMI-industry advances. PG&E also continues to participate in industry activities related to advanced metering and communication networks, as well as monitor announcements and activities that are significant in the industry, as reported in Section VII of this Report. These activities allow PG&E to stay actively involved in and aware of industry developments.

II. Progress in PG&E's AMI Deployment

A. Overview

In 2011, PG&E substantially completed its deployment of necessary network-infrastructure and its development of necessary IT to support the SmartMeter™ Program. In 2012, PG&E continued to deploy SmartMeter™-endpoints, installing approximately 116,000 gas and 165,000 electric SmartMeters™, as well as upgrade 178 first-generation electric meters.

Subject to various outstanding issues, including customers' elections to opt-out of the SmartMeter™ Program, the Program's 2012-13 activities will focus on substantially completing the remaining meter deployment. The deployment schedule is dependent upon the availability of trained resources, an effective supply chain, and access to customer premises to make the necessary changes at each service location, variations in which could affect the scheduling of meter endpoint installations. These undertakings are further complicated by the competing urgency to remove the SmartMeters™ of customers who opt-out of the SmartMeter™ Program, which PG&E has prioritized since the SmartMeter™ Opt-Out Program's inception.

PG&E launched its SmartMeter™ Opt-Out Program on February 1, 2012, immediately following the CPUC's issuance of Decision 12-02-014. The SmartMeter™ Opt-Out Program provides residential customers with the option to choose electromechanical meters instead of SmartMeters™. The Commission has established interim charges for customers electing to opt-out of the SmartMeter™ Program, specifically an initial charge of $75 and an ongoing monthly charge of $10 (the CPUC set the opt-out charges for CARE/FERA customers at $10 upfront and $5 monthly).

The CPUC's decision also ordered a second phase of the proceeding to consider (1) a community-based opt-out alternative and (2) cost recovery, including setting final customer charges. At the Administrative Law Judge's request, PG&E filed legal briefs on community opt-out in July 2012. PG&E filed testimony regarding its cost-recovery in August 2012. Hearings were held on cost-recovery issues in November 2012, with briefs filed in January 2012. The CPUC has stated that it expects to issue its Phase 2 decision in 2013.

B. <u>Infrastructure Installations</u>

As of December 31, 2012, PG&E had installed approximately 9.5 million meters (including retrofits) with SmartMeter™ technology. PG&E has deployed approximately

364,300 retrofit endpoints to replace the Company's first-generation meters, which relied on PowerLine Carrier (PLC) technology. Tables II-1 through II-4 summarize the progress of PG&E's SmartMeter™ Program implementation through December 31, 2012.

Table II – 1

Cumulative Meters (In Thousands)	2007	2008	2009	2010	2011	2012
Electric Meters Installed	136	376	2,306	4,067	5,095	5,260
Gas Meters Installed	142	1,294	2,310	3,645	4,149	4,265
Total	278	1,670	4,616	7,712	9,244	9,525
Electric Meters Activated	54	183	1,150	2,000	2,504	3,171
Gas Meters Activated	24	601	1,538	2,192	2,539	2,963
Total	78	784	2,688	4,192	5,043	6,134

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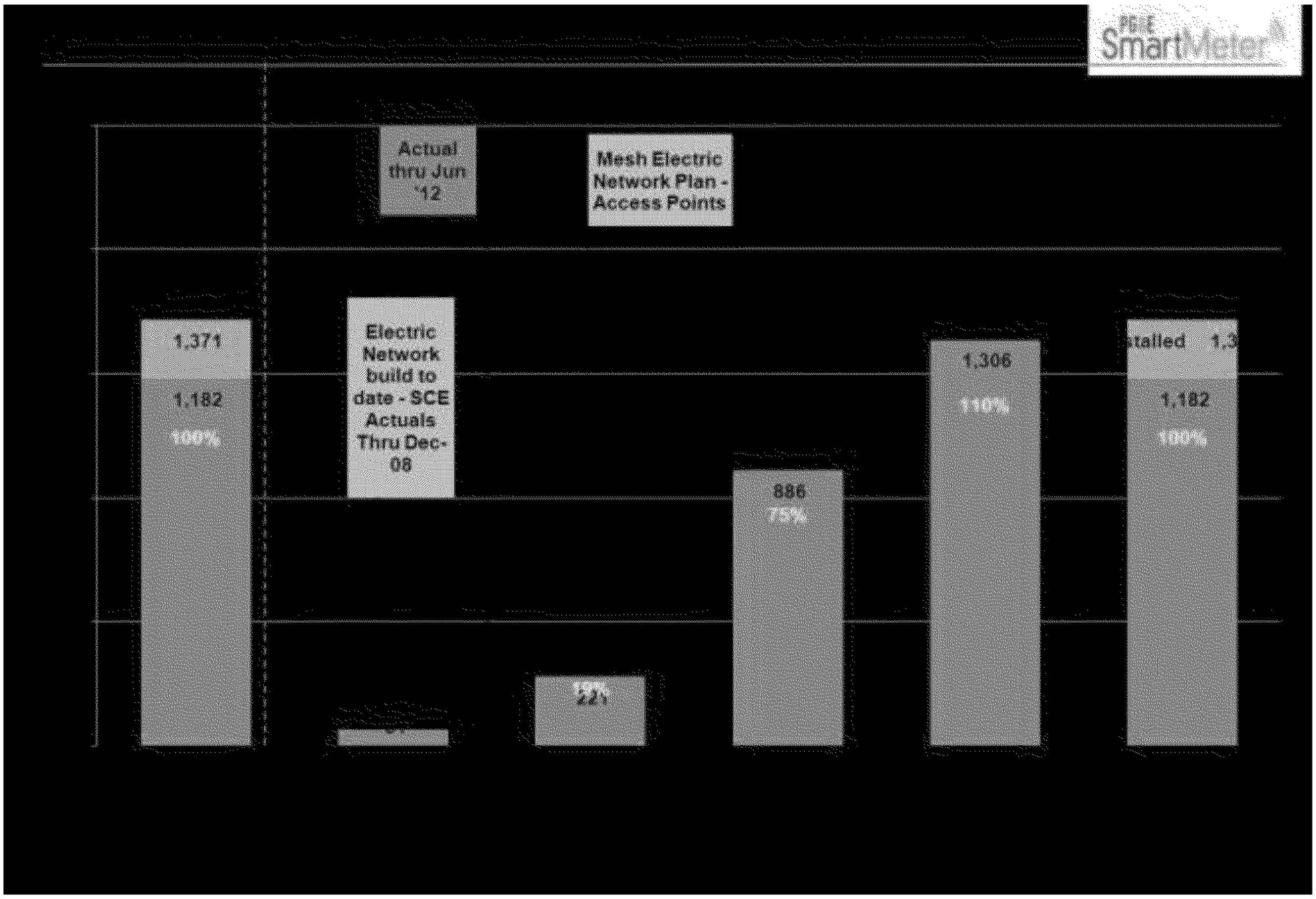
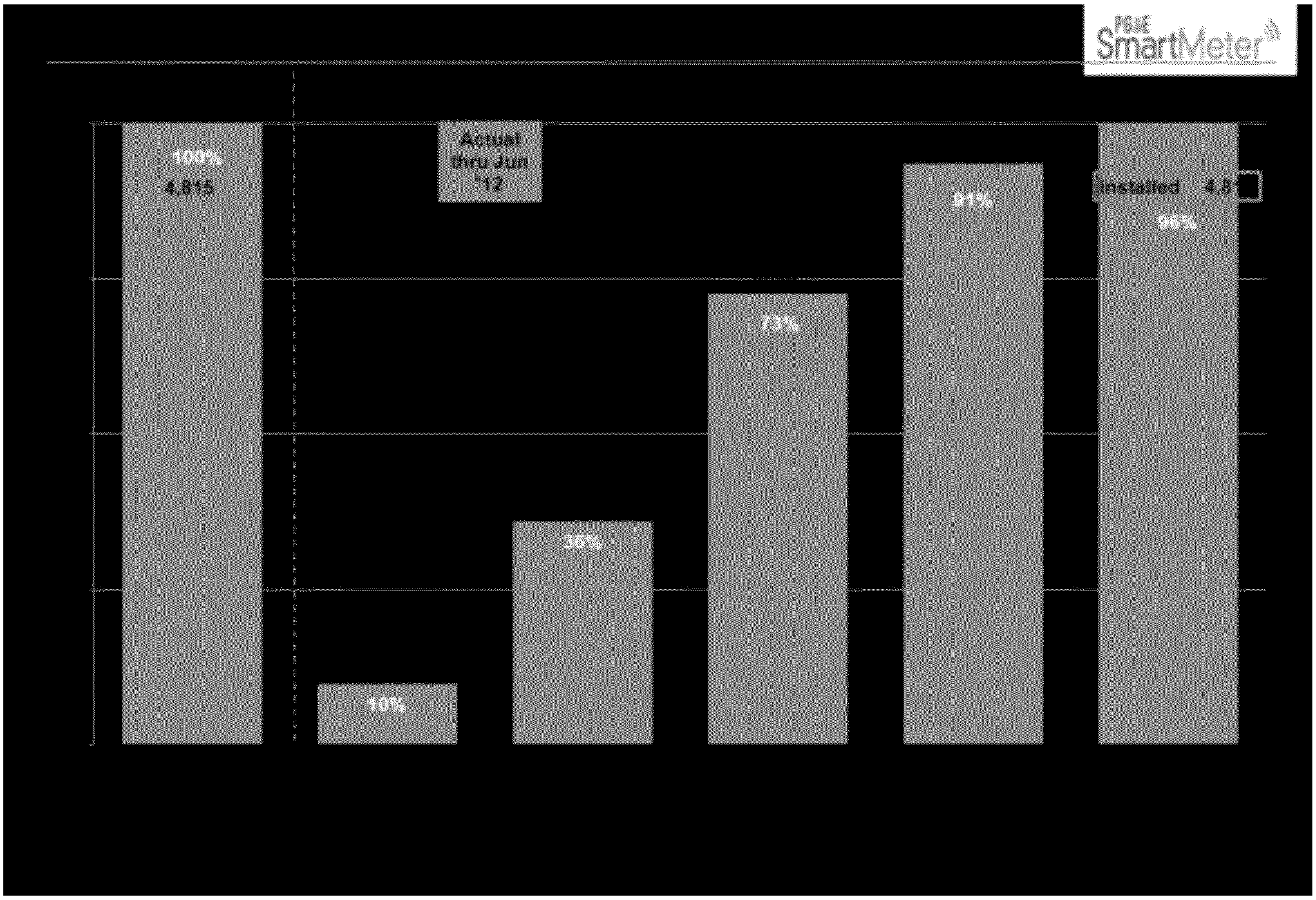
Table II – 2



Electric Network - Substation SCE	Total	Yr 1 (to Dec-07)
Cumulative Installed thru 12/12	51	51
Plan	51	51

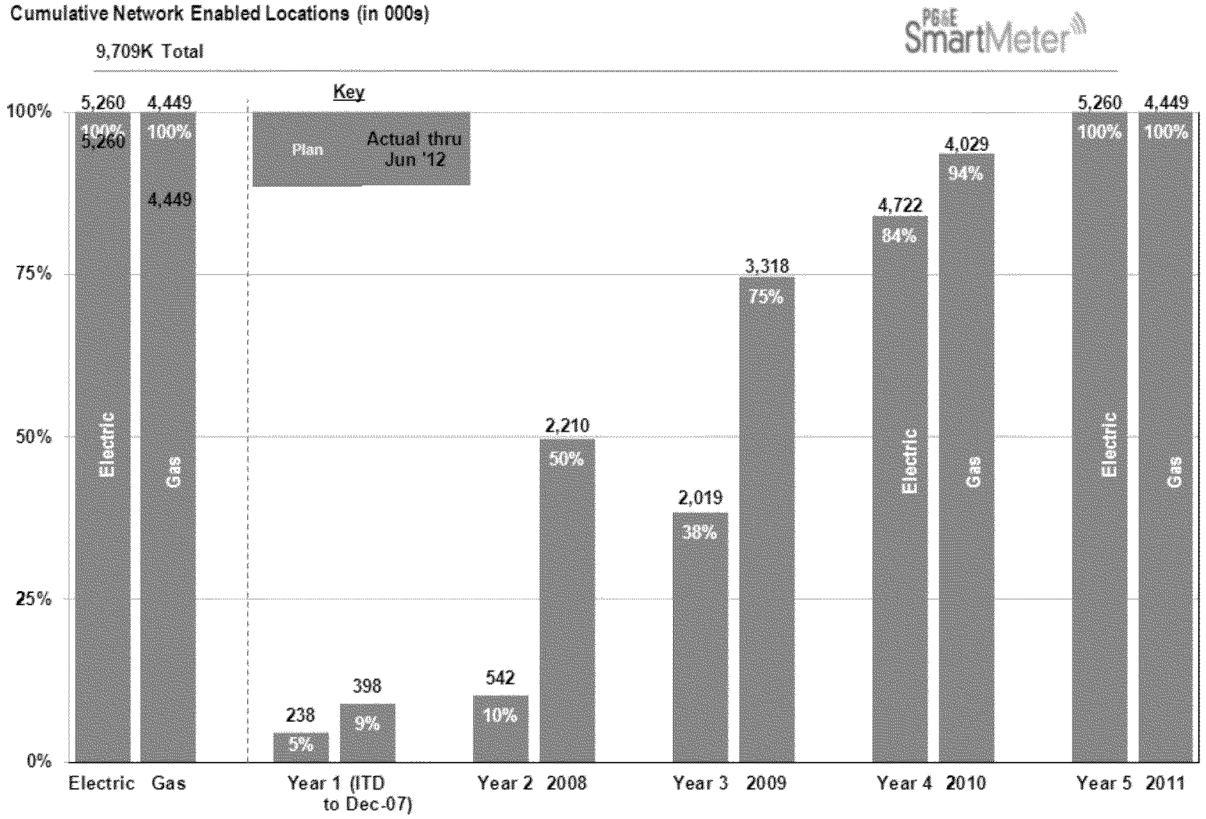
Electric Network - RF Mesh Access Points	Total	Yr 1 (to Dec-07)	2008	2009	2010	2011
Cumulative Installed thru 12/12	1,371	-	221	886	1,306	1,371
Plan	1,182	-	221	886	1,306	1,182

Table II – 3



Cumulative Data Collection Unit (DCU) Installations	Total	Yr 1 (to Dec-07)	2008	2009	2010	2011
Installed thru 12/12	4,815	487	1,800	3,632	4,677	4,815
Plan	5,000	487	1,800	3,632	4,553	5,000

Table II - 4



Cumulative Network Enabled Locations	Total	2007		2008		2009		2010		2011	
(000)		Electric	Gas	Electric	Gas	Electric	Gas	Electric	Gas	Electric	Gas
Enabled thru 12/12	9,709K	238K	398K	542K	2,210K	2,019K	3,318K	4,424K	4,162K	5,260K	4,449K
Plan*	9,709K	238K	398K	542K	2,210K	2,019K	3,318K	4,722K	4,029K	5,260K	4,449K

C. Information Technology

The SmartMeter™ Program established the SmartMeter™ Technology Completion Project (SMTCP) in the spring of 2011 to consolidate its remaining individual SmartMeter™ IT projects, including performance enhancement efforts, into a single effort. Centralized project management of the remaining IT efforts resulted in a focused, streamlined and financially-efficient solution delivery. The SMTCP Project was successfully completed and all functionality was transitioned to Operational Support in December 2011. The SmartMeter™ IT work is now substantially complete.[7]

III. Program Costs and Benefits

A. SmartMeter™ Program Costs

The SmartMeter™ PMO maintains governance over the allocation of both the Program's annual budget and the budget-to-completion for each of the Program's respective workstreams. For purposes of this Report, the workstreams are summarized into four major categories: Field Delivery, Information Technology, Customer & SM (SmartMeter™) Operations, and PMO/Business Operations.

The Program budget includes a risk-based allowance directed by the officer-led Steering Committee, which the CPUC authorized to address unanticipated costs necessary to complete the defined Program work scope. In addition, the PMO recommends reallocations, both increases and decreases, within and among workstream budgets, as circumstances require.

As shown in Table III-1, through December 31, 2012, the SmartMeter™ Program incurred costs of approximately $2,293 million ($1,862 million in capital and $431 million in expense). Of this total dollar amount, Field Delivery activities have cost

[7] Work on the IT project related to the Peak Time Rebate (PTR) program has begun but is currently on hold until the CPUC approves the scope and timeline for the program. A decision on the PTR Program is pending in the 2010 Rate Design Window proceeding (Application 10-02-028).

approximately $1,514 million (66 percent) and IT-related activities have cost approximately $510 million (22 percent). The remaining 12 percent is attributed to the (a) Customer & SM Operations and (b) PMO/Business Operations categories.

Table III – 1

($ Millions)	TOTAL	Field Delivery & Solutions	Information Technology & Business Process	Customer & SM Operations	PMO & Technology Monitoring	Risk-Based Allowance
Plan as of June 30, 2012	2,335	1,540	493	198	105	
Cost Adjustments	(3)	-	(3)	-	-	
Plan as of December 31, 2012	2,332	1,540	490	198	105	
Risk-Based Allowance Drawdown to Date	178					178
Future Potential Use	-					-
Total Risk-Based Allowance	(178)					-
Additional Board-approved Cost	129					
Actuals Thru December 31, 2012	2,293	1,514	484	184	104	
% of Plan	98%	98%	99%	96%	99%	

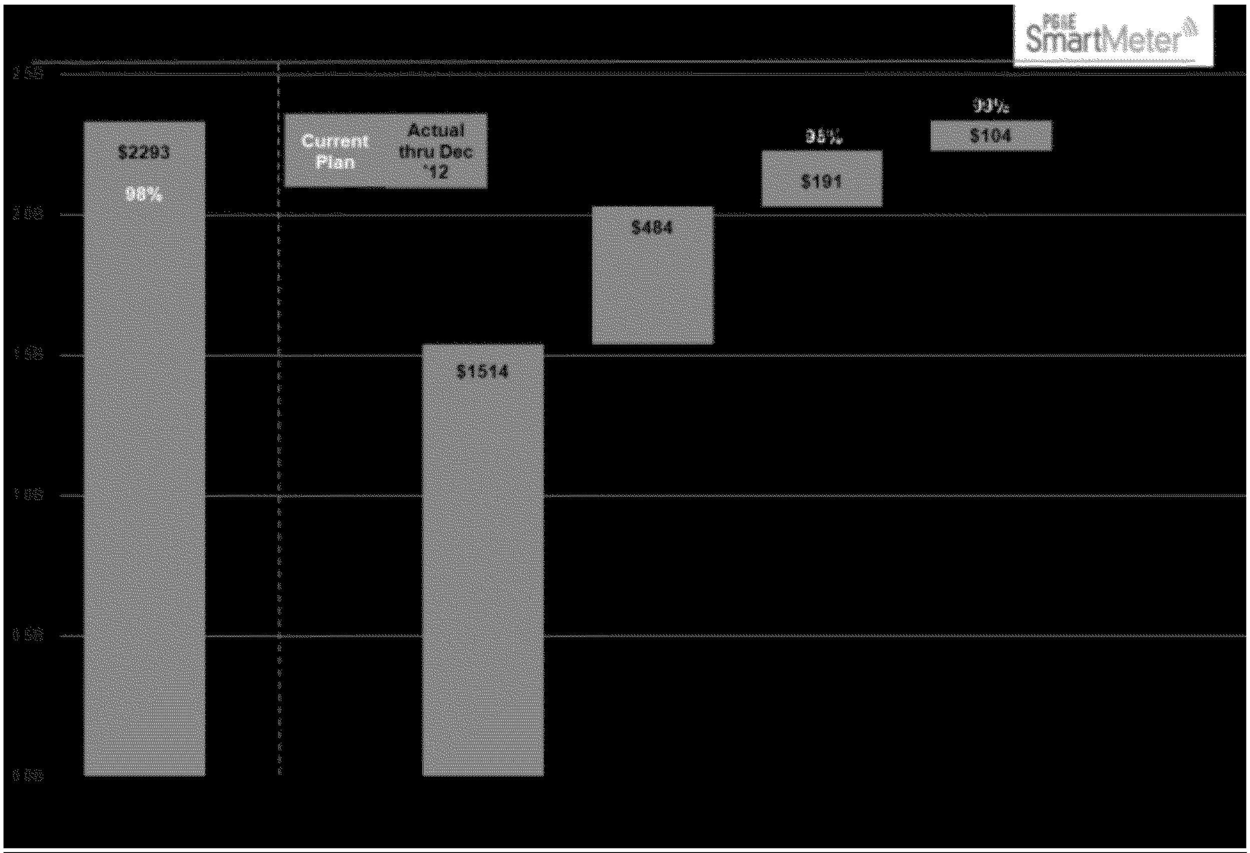
Note: Totals subject to rounding

The Customer & SM Operations category includes $54.8 million specifically authorized in the AMI Decision for the purpose of marketing Critical Peak Pricing programs. As of December 31, 2012, PG&E utilized approximately $47.7 million of this $54.8 million in support of SmartRate™ marketing.

(Thousands of Dollars)	2006 Actual	2007 Actual	2008 Actual	2009 Actual	2010 Actual	2011 Actual	2012 Actual	Total
SmartRate™ Marketing & Education and Customer Web Presentment	349	1,166	6,811	6,828	2,500	19,385	10,641	47,679

Tables III-2 through III-7 show the SmartMeter™ Program costs PG&E has incurred from inception through December 31, 2012, in each major budget category. The percent-of-expenditures refers to the total incurred expenditure through December 31, 2012 as a percentage of the adjusted workstream budgets at Program completion.

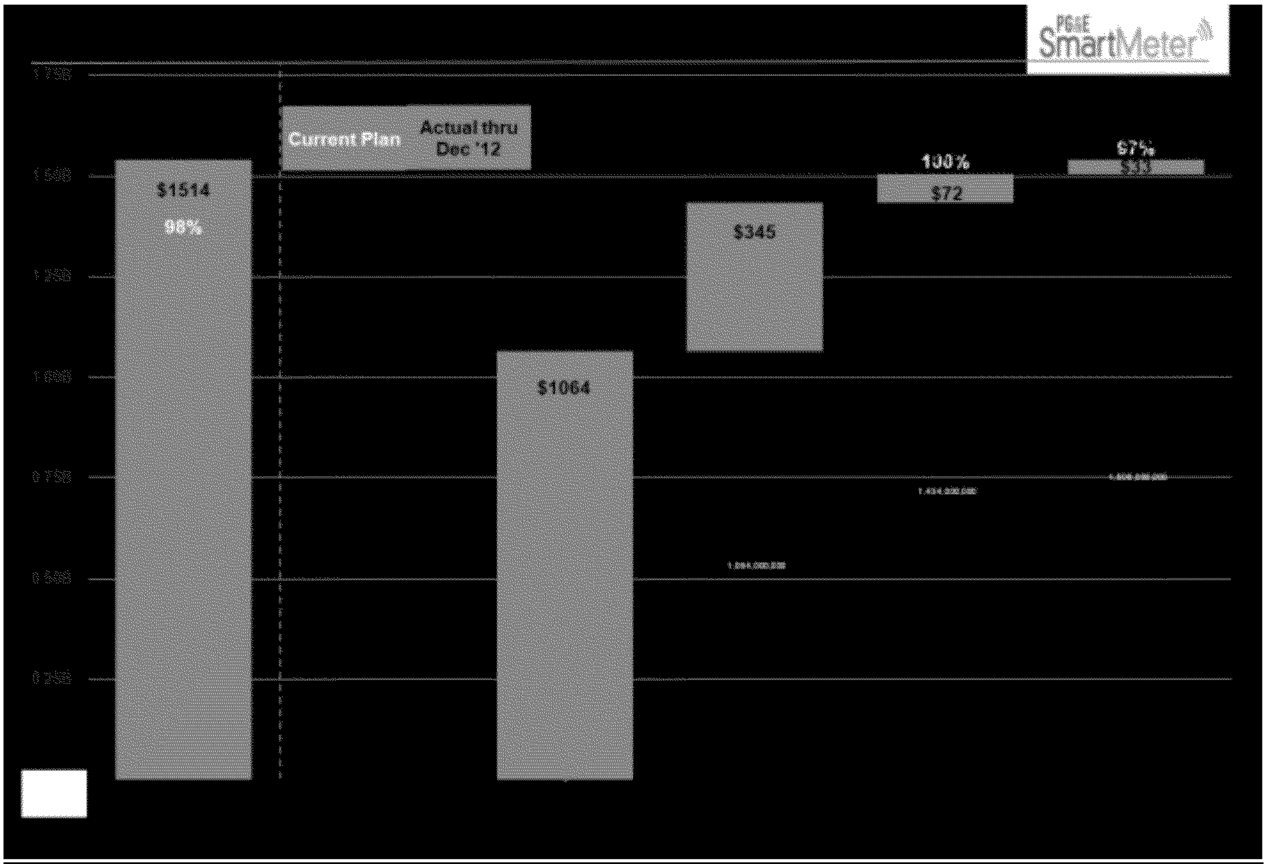
Table III-2



$ Millions	Total SmartMeter Program Costs		Field Delivery	IT	Customer & SM Operations	PMO	Risk-Based Allowance
Actual thru December 31, 2012	$	2,293	1,514	484	191	104	N/A
Plan as of June 30, 2012	$	2,335	1,540	493	198	105	-
Cost Changes/Reallocation	$	(3)	-	(3)	-	-	-
Plan as of December 31, 2012	$	2,332	1,540	490	198	105	-
% of Plan completed		98%	98%	99%	96%	99%	-

Note: Totals subject to rounding

Table III-3

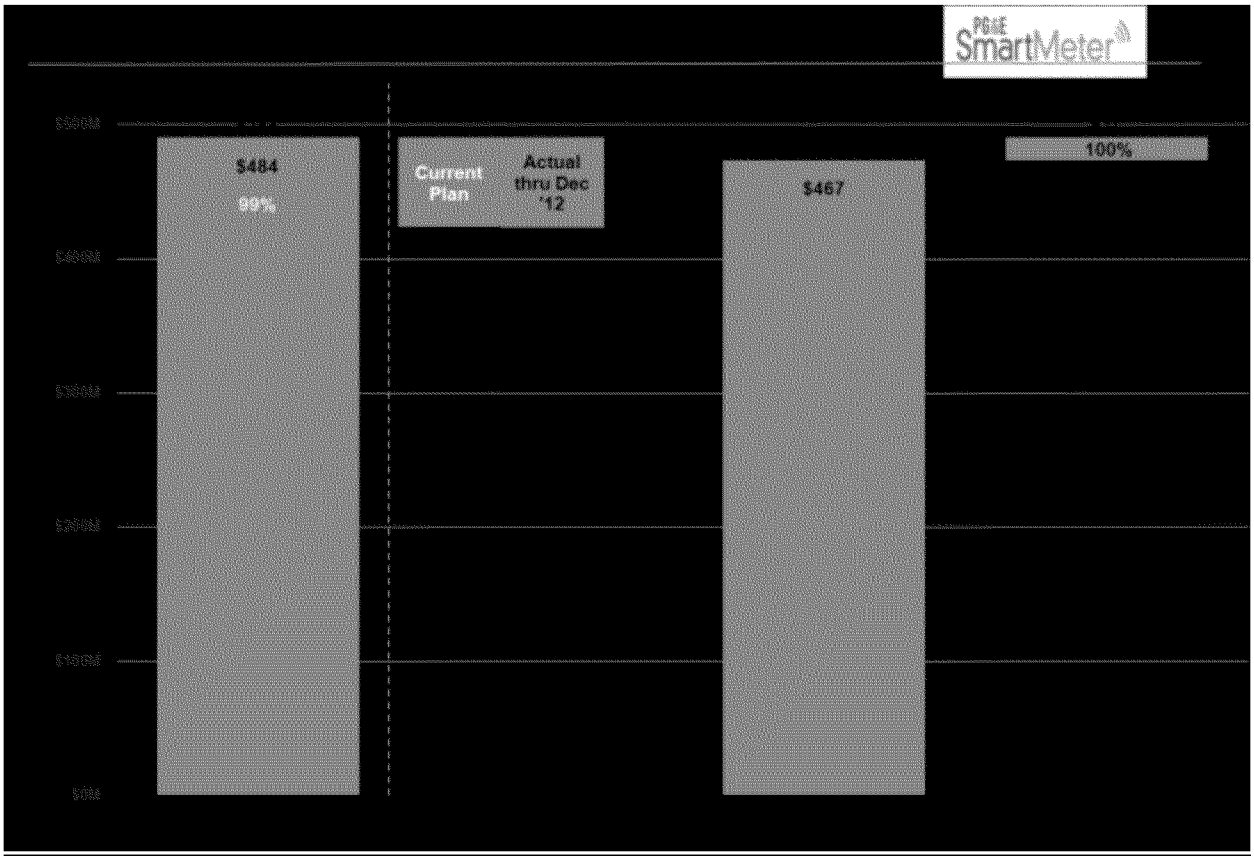


$ Millions	Total Field Delivery	Strategic Relationships	Endpoint Installation	Field Delivery Office	Network Installation
Actuals thru December 31, 2012	1,514	1,064	345	72	33
Plan as of June 30, 2012	1,540	1,064	370	72	34
Cost Changes/Reallocation	-	-	-	-	-
Plan as of December 31, 2012	1,540	1,064	370	72	34
% of Plan Expended	98%	100%	93%	100%	97%

$ Millions	Network Installation	Electric Network	Gas Network
Actuals thru December 31, 2012	$ 33	21	12
Plan as of June 30, 2012	$ 34	23	12
Cost Changes/Reallocation	$ -	-	-
Plan as of December 31, 2012	$ 34	23	12
% of Plan Expended	97%	91%	99%

Note: Totals subject to rounding. Some Field Delivery (FD) costs have been reallocated among the FD subcategories to align with the project's management of the FD activities.

Table III-4



$ Millions	Total Information and Technology		IT / CC&B	Business Process
Actuals thru December 31, 2012	$	484	467	17
Plan as of June 30, 2012	$	493	476	17
Cost Changes/Reallocation	$	(3)	(3)	-
Plan as of December 31, 2012	$	490	473	17
% of Plan Expended	99%		99%	100%

Note: Totals subject to rounding

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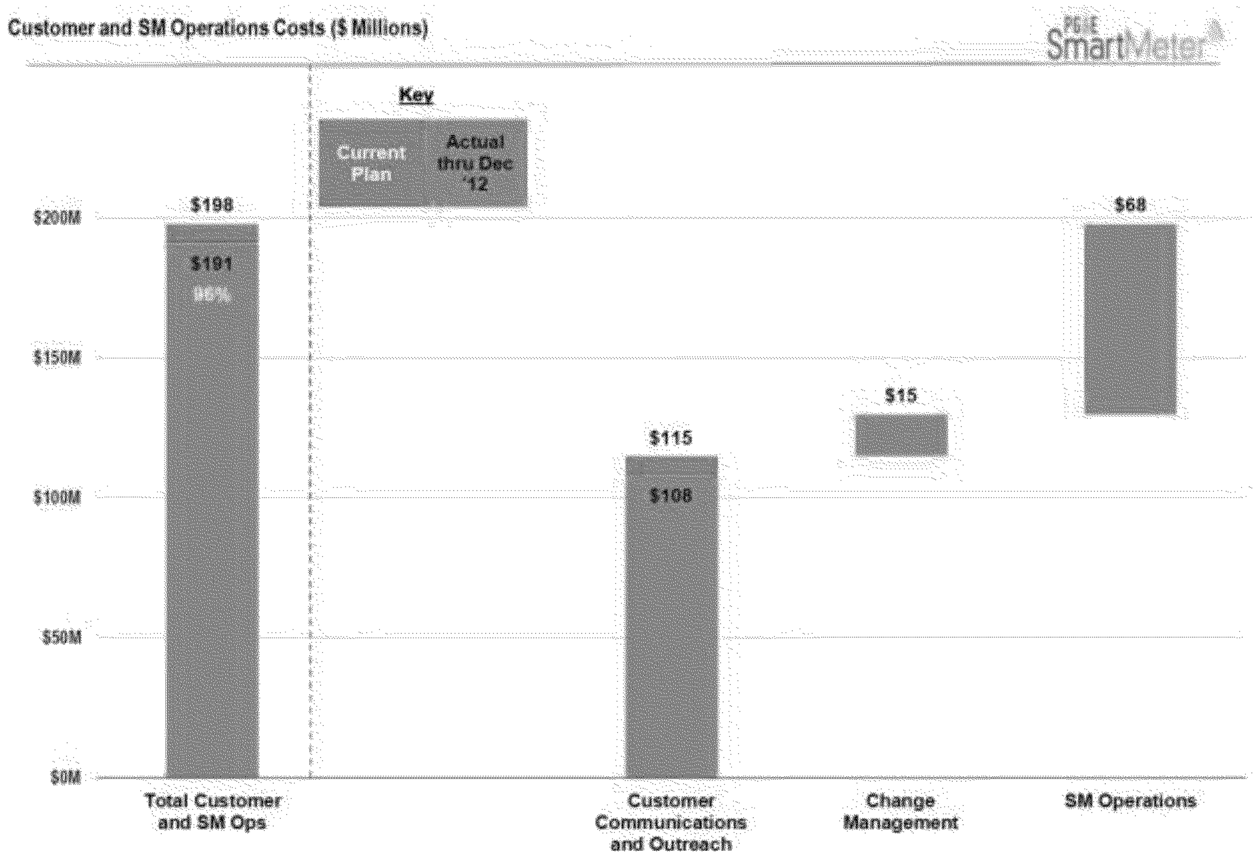
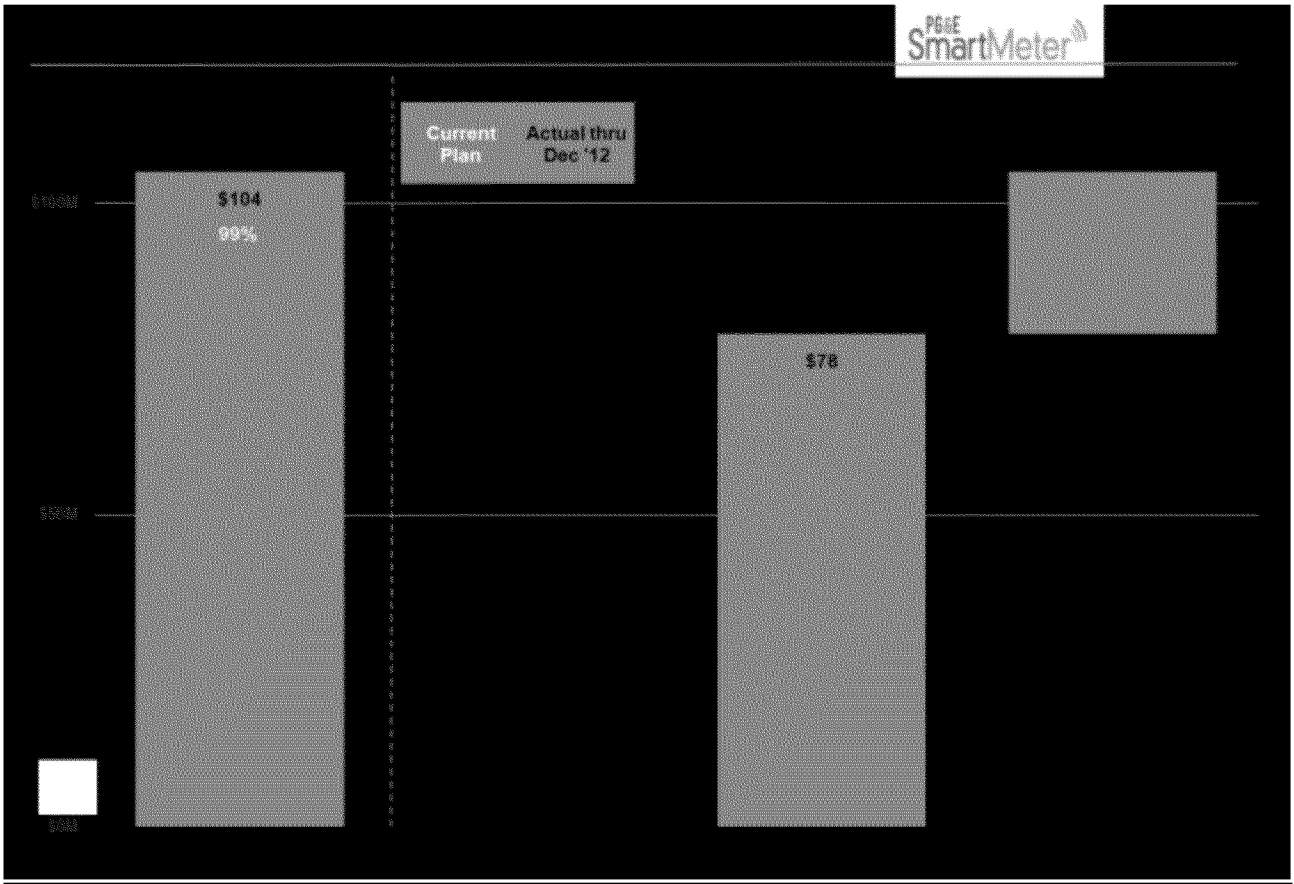
Table III-5



$ Millions	Total Customer and SM Ops	Customer Communications and Outreach	Change Management	SM Operations
Actuals thru December 31, 2012	$ 191	108	15	68
Plan as of June 30, 2012	$ 198	115	15	68
Cost Changes/Reallocation	$ -	-	-	-
Plan as of Decebmer 31, 2012	$ 198	115	15	68
% of Plan Expended	96%	94%	100%	100%

Note: Totals subject to rounding

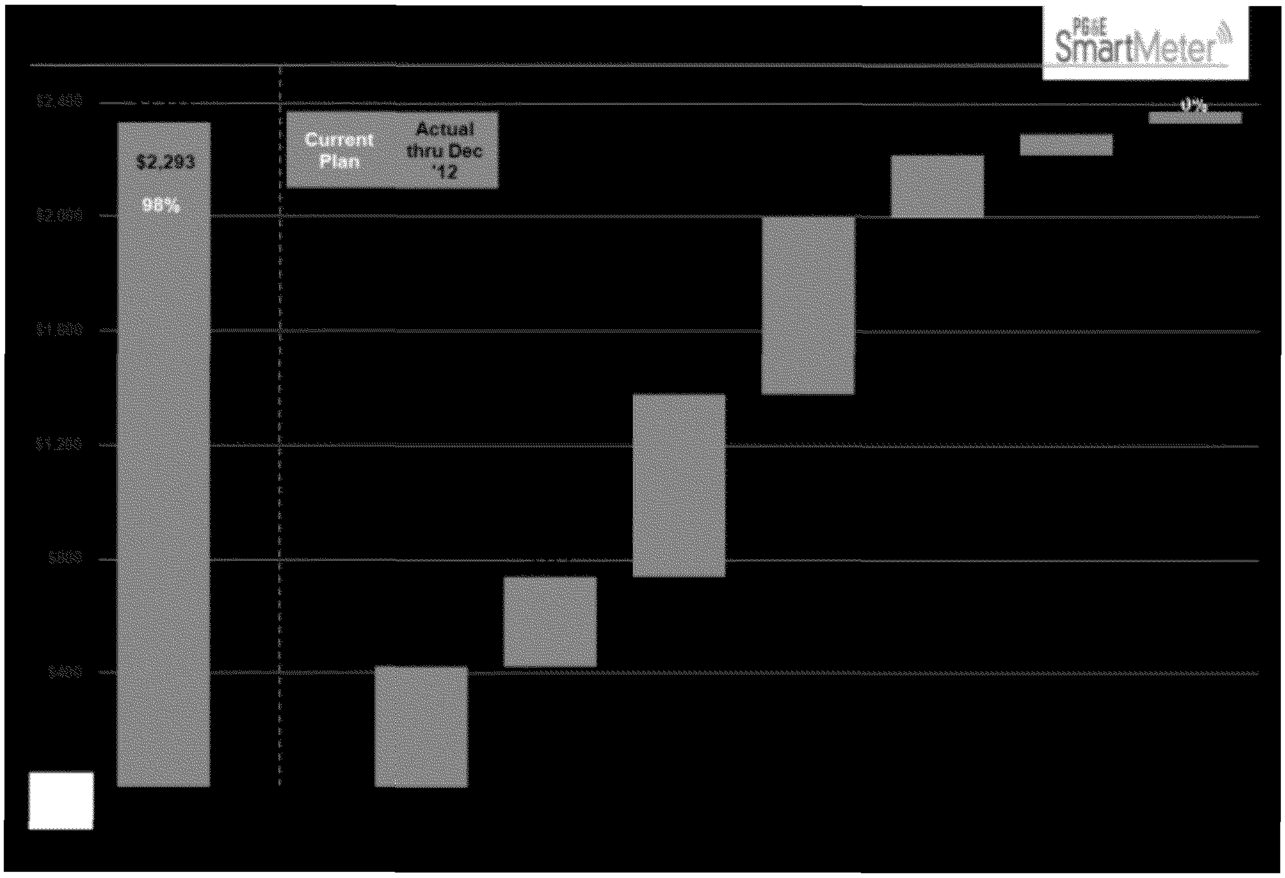
Table III-6



$ Millions	Total PMO and Technology Monitoring	PMO	Technology Monitoring
Actuals thru December 31, 2012	$ 104	78	26
Plan as of June 30, 2012	$ 105	79	26
Cost Changes/Reallocation	$ -	-	-
Plan as of December 31, 2012	$ 105	79	26
% of Plan Expended	99%	99%	100%

Note: Totals subject to rounding

Table III-7



$ Millions	Project Costs	Year 1 (to Dec-07)	Year 2 (CY 2008)	Year 3 (CY 2009)	Year 4 (CY 2010)	Year 5 (CY 2011)	Year 6 (CY 2012)	Year 7 (CY 2013)
Actuals thru December 31, 2012	$ 2,293	426	315	640	623	215	74	-
Plan as of December 31, 2012	$ 2,332	426	315	640	623	215	74	39
% of Plan Expended	98%	100%	100%	100%	100%	100%	100%	0%

Note: Totals subject to rounding

B. Operational Benefits Realization

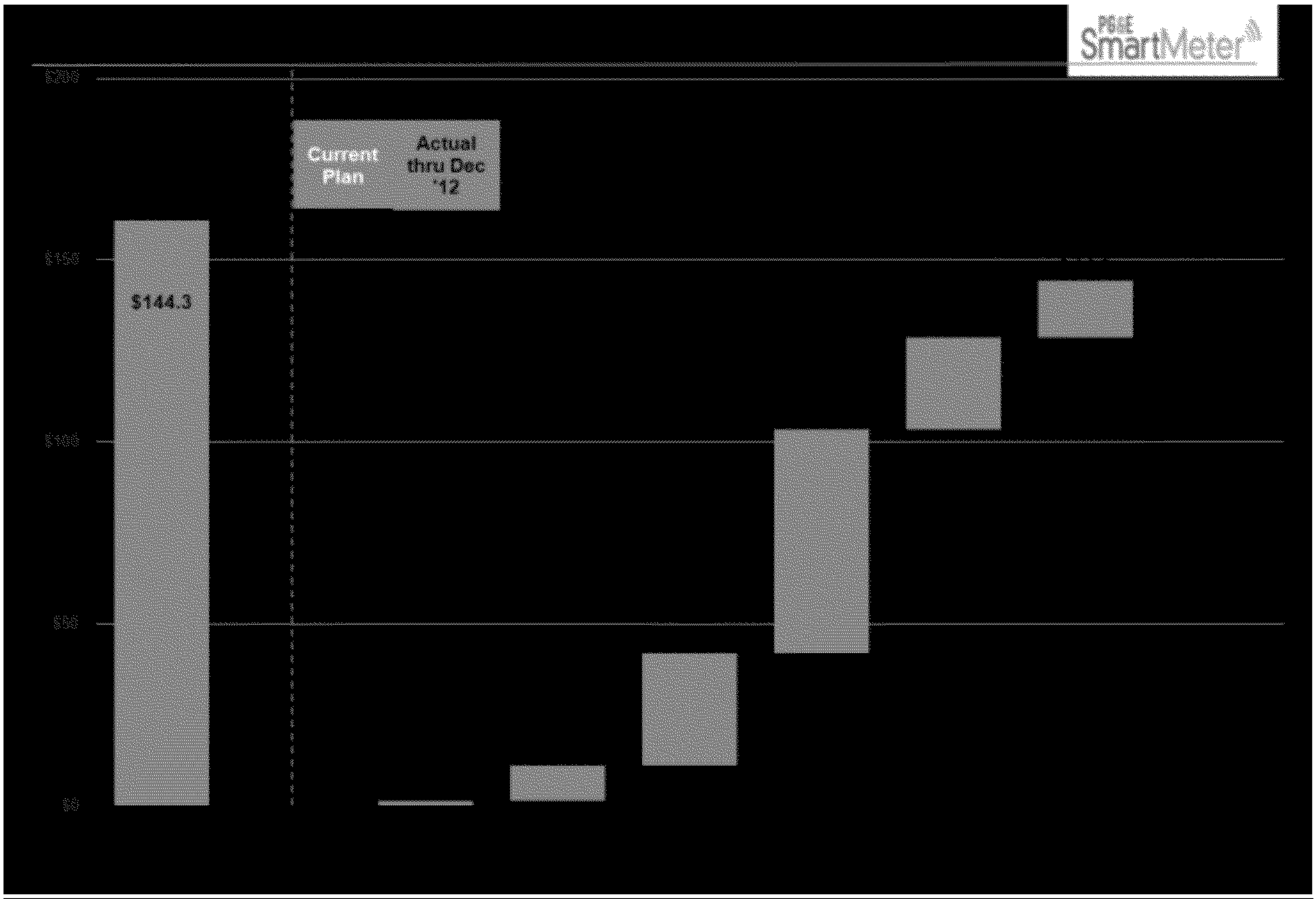
The Program realizes operational benefits when meters fitted with SmartMeter™ technology are activated, which occurs following installation of the meters and transition to SmartMeter™-based wireless billing.

PG&E transitions gas and electric meters to wireless reads and billing when: (1) the meters are installed and capable of wireless reads and billing; (2) the communications network infrastructure is in place to remotely read the meters; and (3) the remote meter reads become stable and reliable for billing purposes. Once enough customers on a particular "route string" transition to SmartMeter™ billing, manual reading of the meters on that "route string" ceases, at which point those meters are considered "activated."

PG&E's first meter activations occurred in December 2007. Through December 31, 2012, approximately 9,075,000 meters have been transitioned, and approximately 6,134,000 meters have been activated, with $161.1 million corresponding cumulative benefits recorded as credits to the balancing accounts. Such amounts are consistent with the calculation methodologies and savings rates adopted in the AMI and Upgrade Decisions, as adjusted by the 2011 General Rate Case (GRC) Decision 11-05-018.

Table III-8 shows activated meters and the corresponding benefits based on the savings rates adopted in the AMI and Upgrade Decisions. These benefits totaled $1.9543 per meter per month for electric and $1.0366 per meter per month for gas. Commission-approval of the 2011 GRC Settlement set activated meter benefits at $0.9225 per meter per month for electric and $0.0189 per meter per month for gas. In compliance with the 2011 GRC Settlement, the activated meter benefits were adjusted effective January 1, 2011, the largest adjustment of which was the removal of meter-reading savings that are now reflected in a new Meter Reading Cost Balancing Account.

Table III – 8



Activated Meter Benefit - Current Forecast (As of December 31, 2012)		Year 1*	Year 2*	Year 3*	Year 4	Year 5	Year 6
(in thousands)		(To Dec-07)	(CY 2008)	(CY 2009)	(CY 2010)	(CY 2011)	(CY 2012)
Meters							
Activated Electric meter months		50	1,436	6,669	17,495	26,812	34,430
Activated Gas meter months		21	2,086	12,666	21,341	28,314	33,345
Total Activated meter months		71	3,521	19,335	38,836	55,127	67,775
SmartMeter Balancing Account							
Electric at $1.77 per meter month	$1.77	$89	$2,544				
Electric at $1.95 per meter month	$1.95			$12,925	$34,191	-	-
Gas at $1.04 per meter month	$1.04	$22	$2,162	$13,129	$22,122	-	-
Electric at $0.92 per meter month		-	-	-	-	$24,734	$31,762
Gas at $0.02 per meter month		-	-	-	-	$535	$630
Reduced Software Licensing		$1,251	$5,000	$5,000	$5,000	-	-
Automate Interval Billing		-	-	-	-	-	-
		$1,362	$9,706	$31,054	$61,313	$25,269	$32,392

Note: Totals subject to rounding

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IV. System Performance Criteria Metrics

System performance criteria and metrics are measured and reported on an ongoing basis. As stated in previous reports, PG&E may modify these criteria and metrics in order to better characterize system performance.

In Table IV-1, PG&E has summarized SmartMeter™ Program Data metrics for timely and estimated bills for the third and fourth quarters of 2012.

Table IV – 1

Timely Bills		
Month	**Overall**	**SmartMeter**
July 12	99.93%	99.97%
August 12	99.93%	99.97%
September 12	99.92%	99.95%
October 12	99.93%	99.96%
November 12	99.90%	99.95%
December 12	99.89%	99.95%
Total % of Service Agreements (SAs) Billed ≤ 35 Days as compared to all active SAs.		

Estimated Bills		
Month	**Overall**	**SmartMeter**
July 12	0.27%	0.08%
August 12	0.26%	0.07%
September 12	0.23%	0.07%
October 12	0.25%	0.07%
November 12	0.23%	0.07%
December 12	0.33%	0.08%
Number of bill segment calculations based on estimated usage as a % of all completed bill segments.		

The performance criteria presented in Table IV-2 are based on the number of actual reads retrieved by the head-end system versus the expected number of reads provided by the head-end system. Deployment in areas with poor communications coverage degrades performance, while firmware upgrades and supplemental network designs for existing and new installations improve performance. PG&E considers that the system performs as designed within the specified system requirements. Additionally, PG&E's monitoring of SmartMeter™ billing continues to indicate performance that meets and/or exceeds established criteria.

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Table IV – 2

Performance Criteria	Jul'12 thru Dec'12	Jan'12 thru Jun'12	Jul'11 thru Dec'11	Jan'11 thru Jun'11	Jul'10 thru Dec'10	Jan'10 thru Jun'10
1. Electric module failure rate	0.43%	0.25%	0.27%	0.42%	0.45%	0.09%
2. Gas module failure rate	0.13%	0.02%	0.11%	0.27%	0.09%	0.14%
3. Electric network failure rate	0.31%	0.57%	0.19%	0.52%	0.35%	0.23%
4. Gas network failure rate	0.25%	0.45%	0.95%	0.65%	0.13%	0.14%
5. Electric billing data collection failure rate	0.18%	0.11%	0.15%	0.23%	0.27%	0.39%
6. Gas billing data collection failure rate	0.25%	0.39%	0.36%	0.29%	0.23%	0.16%

The definitions of the system performance criteria presented in Table IV-2 are as follows:

Electric module failure rate: This rate represents the incidence of meters removed specifically for suspected meter hardware failures (such as blank displays, meter/module hardware errors, and non-communicating meters). This rate does not count external causes (e.g., broken covers, customer-damaged meters, or tampering/theft). Meters removed for suspected meter hardware failures are investigated through the Return Material Authorization (RMA) process.

Gas module failure rate: This rate represents the incidence of modules removed specifically for suspected hardware failures (such as bad battery/poor charging patterns, bad module circuits, and non-communicating modules). This rate does not count external causes (e.g., customer-damaged meters, scheduled meter changes, or dog-caused damage). Modules removed for suspected hardware failures are investigated through the RMA process.

Electric network failure rate: This rate represents the incidence of network components removed and submitted for RMA (such as APs and relays failing to communicate or failing to maintain charging capacity). This rate also includes component failure in substation communication equipment.

Gas network failure rate: This rate represents the incidence of gas network components removed and submitted for RMA (such as components failing to maintain charging capacity, drifting off frequency, experiencing cellular failures, and experiencing failed electronic boxes).

Electric billing data collection failure rate: This rate represents the number of electric SmartMeters™ from which complete data (complete backhaul data, daily anchor, and complete set of intervals) were not retrieved, divided by the total number of electric SmartMeters™. This measure consists of the percentage of complete daily data sets, one good anchor read and complete good interval reads, averaged over the defined period. Any service point with an estimated anchor and/or estimated interval read(s) fails this measure and is excluded. Failure of this read metric does not lead to an estimated bill; an accurate bill can be generated in most cases.

Gas billing data collection failure rate: This rate represents the number of gas SmartMeters™ from which a daily cumulative read was not retrieved, divided by the total number of gas SmartMeter™ devices. Failure of this read metric does not lead to an estimated bill; an accurate bill can be generated in most cases.

V. Customer Interest in Accessing Real-Time Usage and Pricing Information

PG&E launched its residential critical peak pricing program, SmartRate™, in May 2008. This program encourages customers to manage energy usage during particularly hot summer days, when SmartDay™ events are triggered. PG&E's more aggressive acquisition efforts in 2012 have resulted in 62,489 new customer enrollments in 2012; as of December 31, 2012, PG&E's SmartRate™ program had a total of 79,633 active and pending participants. And as of March 24, 2013, PG&E's SmartRate™ program had a total of 82,264 active and pending participants.

On March 2, 2010, the Commission issued Decision 10-02-032 in PG&E's 2009 Rate Design Window proceeding. In that decision, the CPUC took a major step forward in its policy to make dynamic pricing available for all electric customers. Specifically, the CPUC's decision adopted default and optional critical peak pricing (CPP) and time-of-use rates – known as Peak Day Pricing (PDP) rates – to be implemented for certain PG&E customers beginning May 1, 2010. The decision also adopted appropriate customer outreach and education activities and measures to ensure customer awareness and understanding of the new rates and options. Given the differences between SmartRate™ and PDP rates, as well as uncertainty in the ultimate characteristics of the pending PDP program, PG&E adjusted the focus of its SmartRate™ outreach to maintain its then-existing population of program participants. SmartRate™ customers received both a welcome-back letter and retention mailer. The welcome-back letter reminded customers about the start of the season and provided information to allow customers to update their notification sources. The retention mailer included customer-centric tips for event days. PG&E also communicated with customers when notifications were unsuccessful to obtain updates to notification contact information.

In June 2012, PG&E published its Final 2011 Ex Post and Ex Ante Load Impact Evaluation report for the Residential SmartRate™, Time-Of-Use rates schedules and SmartAC™ Program, which provided details on the 2011 season performance of the

SmartRate™ population[8]. These annual evaluations are conducted using the industry's best practices and methods and are compliant with California's Demand Response Protocols (CPUC Decision 08-04-050). The 2011 report's findings include:

- There were 15 SmartDays™ during PG&E's 2011 season (conducted from May 1 through October 31).
- On average, participants reduced peak electricity use by 13 percent across the 15 event days.
- June's two event days offered the season's highest average reduction of about 15 percent.
- In general, participants with central air conditioning reduced peak electricity use more (approximately 23 percent) than those without it.
- 86 percent of SmartRate™ respondents report being very satisfied with SmartRate™.
- A higher portion of low-income customers indicated high levels of satisfaction compared to non-low-income respondents (90 percent versus 83 percent).
- 83 percent of respondents perceived they were saving energy during their SmartRate™ participation and 82 percent of those thought they experienced a lower bill.
- 90 percent of respondents plan to continue on SmartRate™.
- 88 percent of respondents would recommend SmartRate™ to a friend, and 60 percent have done so.

Although PG&E focused on retaining existing SmartRate™ customers in the 2010-2011 period, it also attempted to recruit new customers in connection with the

8 The evaluation of 2012 performance will be filed with the Commission on April 1, 2013.

deployment of SmartMeters™ to improve demand response and customer satisfaction. This new campaign solicited tips from participants concerning how to reduce peak demand (and associated electric bills) by offering a chance to win a prize with their submission. PG&E communicated these tips to customers through SmartDay™ event notifications to timely encourage customers to respond to the price signals.

In November 2011, the CPUC granted PG&E's request to retain SmartRate™ as an option for residential customers until the Commission completed its pending review of default residential dynamic pricing rates in Application 10-08-005. In 2012, given the greater certainty that the SmartRate™ program would continue, PG&E broadened its customer acquisition efforts, designed to meet an aggressive target of increasing SmartRate™ enrollment from about 22,000 to 77,000 total customers by the end of 2012. PG&E exceeded its 2012 target, having enrolled 79,633 customers in SmartRate™ by the end of 2012.

During 2012, PG&E's SmartRate™ marketing plan leveraged the following lessons learned from prior SmartRate™ marketing efforts:

- Targeted direct mail was selected as the primary marketing tactic due to its proven effectiveness in driving program enrollment.
- Messaging used in the 2012 campaign utilized insights from customer responses in 2009 and prior research on messaging to determine which approaches resulted in the highest levels of customer responses.
- Cross-marketing was conducted with PG&E's SmartAC customers because previous marketing efforts to these customers in 2009 had resulted in among the highest levels of SmartRate™ enrollments

PG&E also expanded the reach of the campaign to include more eligible customers. The larger audience of eligible residential customers was segmented and targeted based on customer data including: higher levels of energy usage, geographic targeting to warm climate zones, propensity to respond, and other factors. Additionally, the 2012 campaign included follow-up email marketing to customers who requested additional information about SmartRate™ as a result of the 2011 lead generation efforts.

To support currently enrolled customers, the SmartRate™ customer strategy provides ongoing communications to maximize their benefits from the program. These customers receive a series of communications to inform and engage them on ways to succeed on SmartDays. The intent of these efforts is to maintain the historically low level of less than two percent attrition.

The combination of marketing efforts to both acquire and retain customers has, as of March 24, 2013, resulted in a total of 82,264 active and pending SmartRate™ customers, surpassing PG&E's goal of 77,000 total customer enrollments by the end of 2012, while maintaining low attrition rates. PG&E plans to continue its SmartRate™ marketing efforts in 2013 by further leveraging lessons learned and best practices from 2012. PG&E's 2013 SmartRate™ marketing efforts will focus on three key areas: lead generation, direct acquisition, and on-going customer communications enforcing the program benefits. Through its 2013 marketing efforts, PG&E aims to achieve SmartRate™ enrollments of at least 100,000 customers by the end of 2013.

VI. Advances in AMI Technology

A. <u>Distribution Automation Update</u>

On June 30, 2011, in compliance with Senate Bill 17, PG&E submitted its Smart Grid Deployment Plan (Application 11-06-029) to the CPUC, sharing PG&E's vision for the

Smart Grid and a broad plan for modernizing its electric grid infrastructure to deliver a host of energy and cost savings to customers. The plan included proposals by which PG&E's AMI communications network would support Distribution Automation applications, including line sensor applications.

On November 21, 2011, PG&E filed its Smart Grid Pilot Deployment Project, Application 11-11-017, seeking approval for six pilot projects that will test, evaluate, and pilot selected technologies and initiatives, which when fully deployed could provide significant customer benefits, modernize PG&E's electric grid, and support the Smart Grid policy goals outlined in Senate Bill 17. CPUC Decision 13-03-032 adopted four of the six proposed projects.

In Decision 12-04-025, the Commission adopted metrics to measure the Smart Grid deployments of PG&E, Southern California Edison Company, and San Diego Gas and Electric Company. PG&E will report these metrics in its Smart Grid Deployment Plan Annual Report, to be submitted to the Commission on October 1, 2012. As the SmartMeter™ program draws to a close, PG&E expects that the Commission will monitor PG&E's participation in and reporting on Distribution Automation activities in the Smart Grid proceeding.

B. <u>HAN Update</u>

In March 2012, PG&E began its Home Area Network (HAN) Initial Rollout Phase, providing in-home display devices to approximately 430 residential customers. PG&E issued an initial survey and conducted focus groups with these pilot participants in 2012 and will conduct a final survey and focus group in April 2013.

In the latter half of 2012, PG&E completed planning and design for its Early Adopter Phase, whereby customers will be able to buy and self-register a HAN device with

PG&E to obtain near-real-time energy usage data from their SmartMeter™. PG&E launched the Early Adopter Phase on January 15, 2013, and plans to automate the registration process through its MyEnergy portal in the second half of 2013.

On September 27, 2012, the Commission issued Resolution E-4527, addressing the utilities' HAN Implementation Plans. These new requirements included:

- Accepting customers' HAN activation requests beginning on January 15, 2013; and
- Supporting an infrastructure that can accommodate the following number of HAN activation requests:
  - 5,000 before June 30, 2013;
  - 25,000 before December 31, 2013; and
  - 200,000 before December 31, 2014.

PG&E submitted its revised HAN Implementation Plan on October 29, 2012, incorporating the new requirements provided in Resolution E-4527. In addition, PG&E collaborated with the other California investor-owned electric utilities to develop a proposed common set of HAN-related requirements. These included: 1) a common set of reasonable requirements and a testing process for validating interoperability between the utilities' electric smart meters and commercially-available HAN devices offered by third parties, and 2) a common set of reasonable requirements to be satisfied by a HAN device supplier for its device to be eligible for interoperability validation testing by the utility. On behalf of the collaborating utilities, SCE filed these proposed requirements with the Commission on December 3, 2012 in Advice Letter 2818-E, with a supplement filed on March 25, 2013. The Advice Letter has not yet been approved.

C. Technology Industry Updates

PG&E continues to lead and participate in industry activities related to advanced metering and communication networks, including through memberships in professional organizations and attendance at conventions and trade shows. In the third quarter of 2012, PG&E representatives delivered presentations at the Autovation conference (September 2012).

PG&E is committed to an open and interoperable Smart Grid and now reports on its progress on the status of Smart Grid investments in its Smart Grid Annual Report, filed in compliance with Ordering Paragraph 15 of CPUC Decision 10-06-047.