

SmartMeter™ Program

Overview and Current Status

Nov 3, 2010





Agenda

- **SmartMeter™ Q3 highlights**
- **Meter Deployment**
- **Meter Performance**
- **Communicating the SmartMeter™ Value Proposition**
- **Enhancing the Customer Experience**
- **Appendix**

SmartMeter™ Q3 Highlights





Third Quarter Highlights

Installations:

As of October 26th, more than **7 million meters installed!**

- 3.58M Electric Meters
- 3.49M Gas Meters

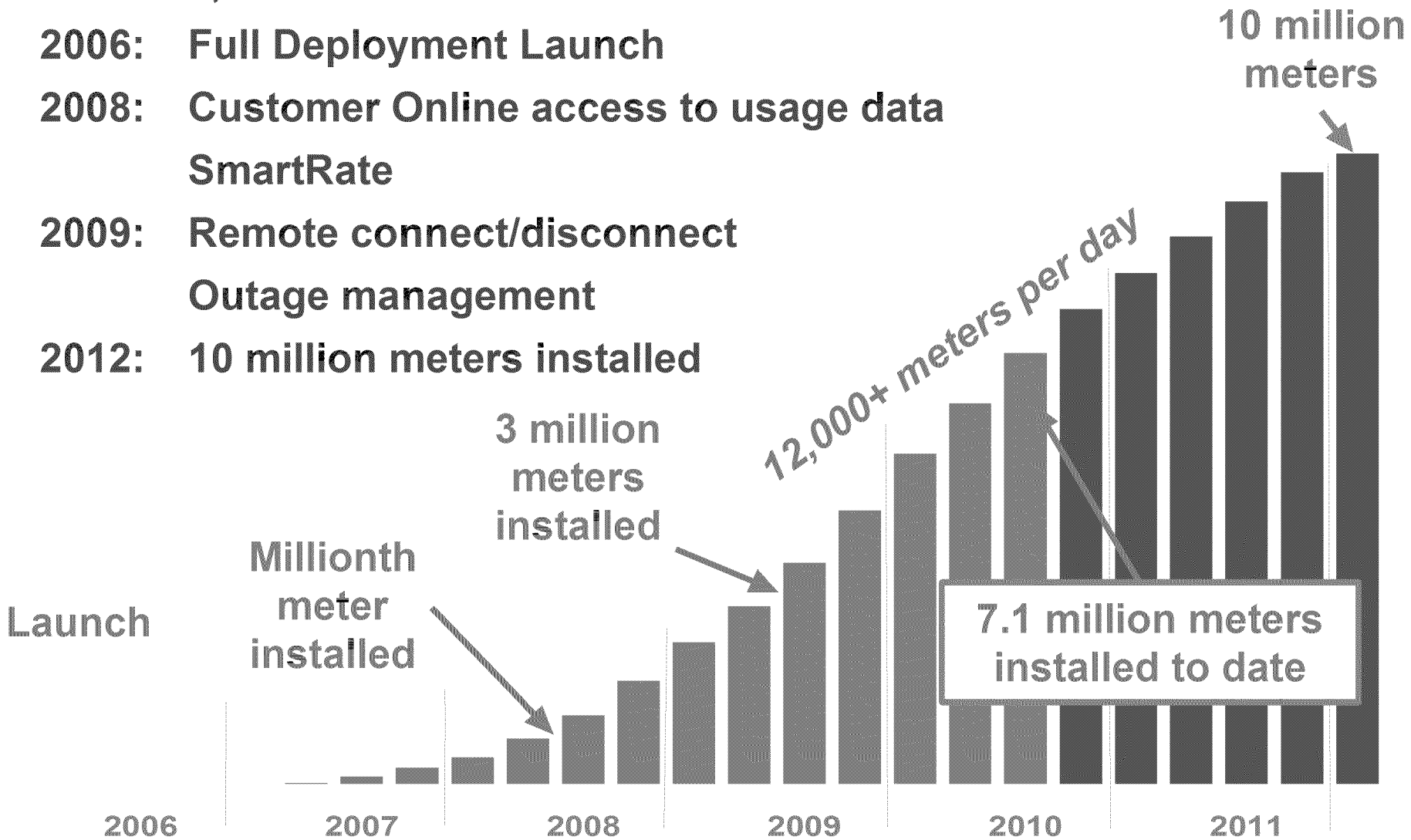
Billing Operations:

- Record low bill estimation %: 0.06% - September 2010
- 6.0M billing using SmartMeter™ systems as of Oct 26, 2010



PG&E's SmartMeter™ deployment

- 2005: 5,000 Meter Pilot
- 2006: Full Deployment Launch
- 2008: Customer Online access to usage data
SmartRate
- 2009: Remote connect/disconnect
Outage management
- 2012: 10 million meters installed

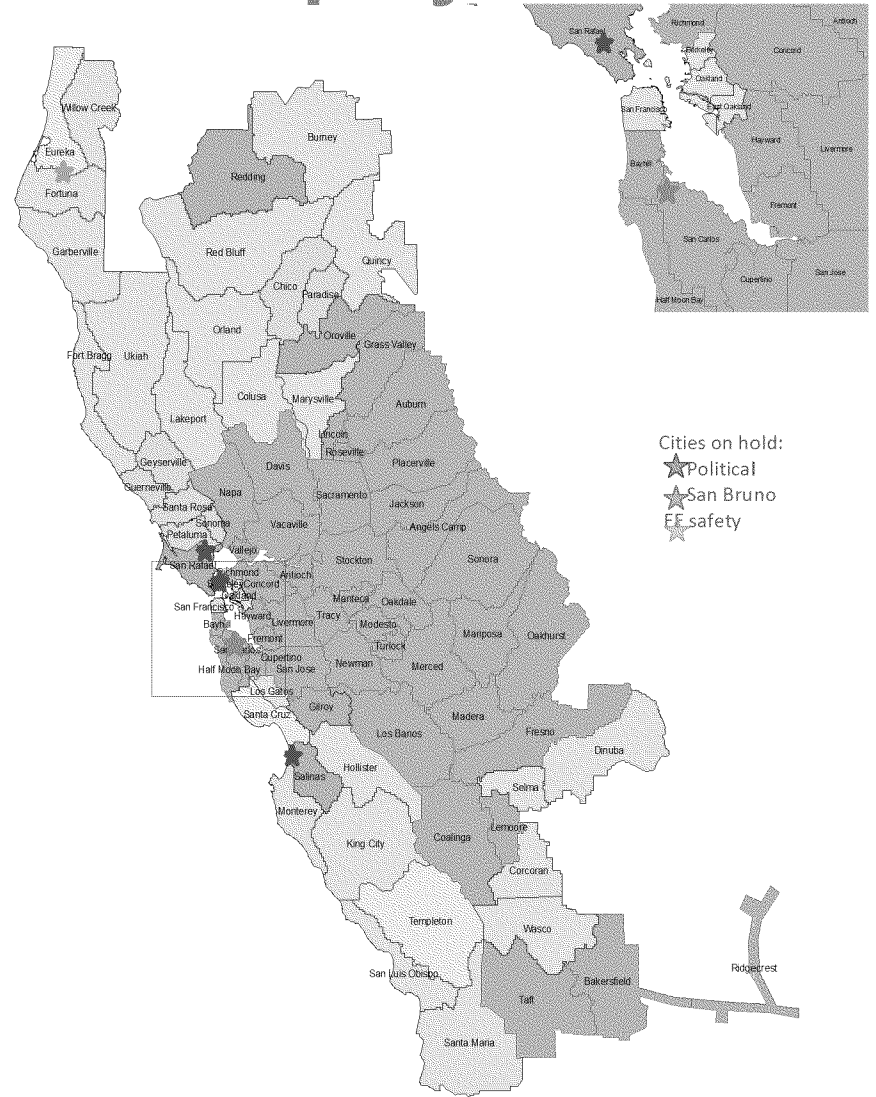




PG&E's SmartMeter™ deployment



Installation Category	Completed	Remaining	Total	% Complete	# of Offices
Pending	67,965	1,216,492	1,284,458	5%	19
0-25%	28,085	238,824	266,909	11%	2
25-50%	163,010	369,116	532,127	31%	5
50-70%	294,027	218,368	512,395	57%	7
70-85%	687,657	161,258	848,914	81%	9
85+%	5,818,101	440,530	6,258,631	93%	42
Total	7,058,845	2,644,589	9,703,434	73%	84



Cities on hold:
 ★ Political
 ★ San Bruno
 ★ EE safety

Offices Currently in Deployment	Offices Starting Deployment in Next 3 Months
Berkeley	Colusa
Chico	Santa Maria
Concord	Hollister
Cupertino	Ukiah
Eureka	San Francisco
Gilroy	
Grass Valley	Kern Re-deployment
Los Gatos	(Bakersfield, Taft, Wasco MROs)
Marysville	
Napa	
Oakland	
East Oakland	
Oroville	
Paradise	
Placerville	
Richmond	
Salinas	
San Jose	
San Rafael	
Santa Rosa	
Templeton	
Vallejo	

Areas On Hold	Installs Remaining
Santa Cruz	162,645
San Rafael	31,059
Santa Rosa	22,018
Peninsula	1,548
Humboldt	12,005
Total	229,275

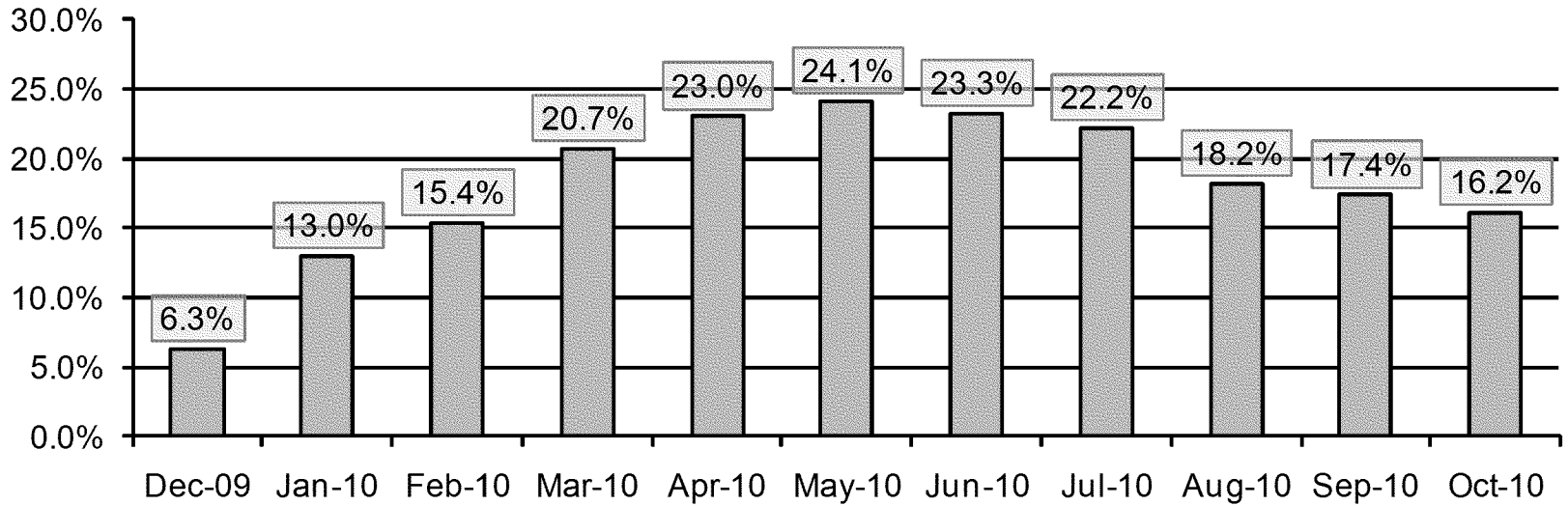


Transition to SmartMeter™ Billing

Number of cumulative transitioned meters: 5.81M

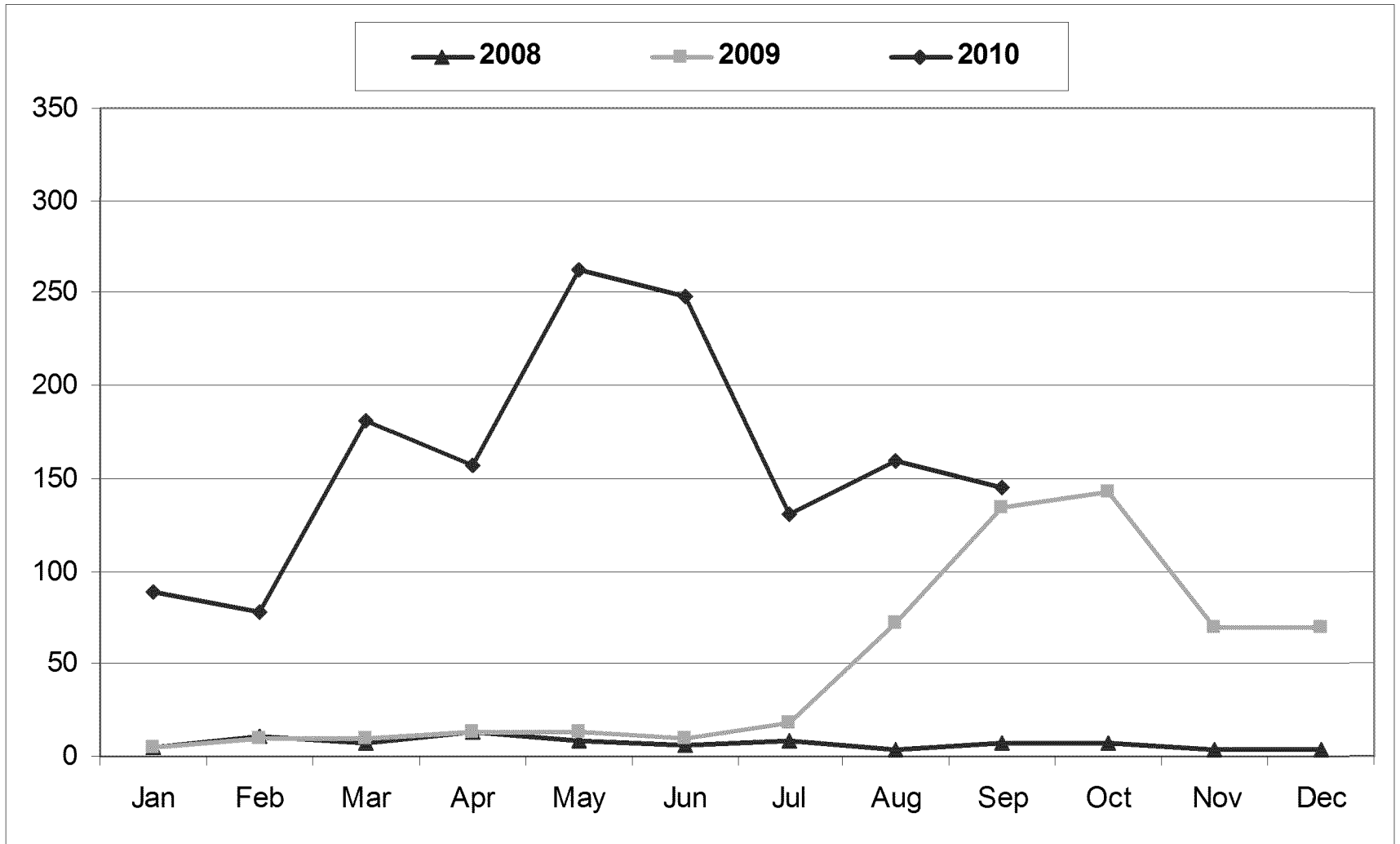
Number of meters transitioned since Jan. 2010: 2.06M

% Untransitioned Meter Volume against Total Installed Meters





SmartMeter™ Customer Complaints



Compounding factors and response

Compounding Factors

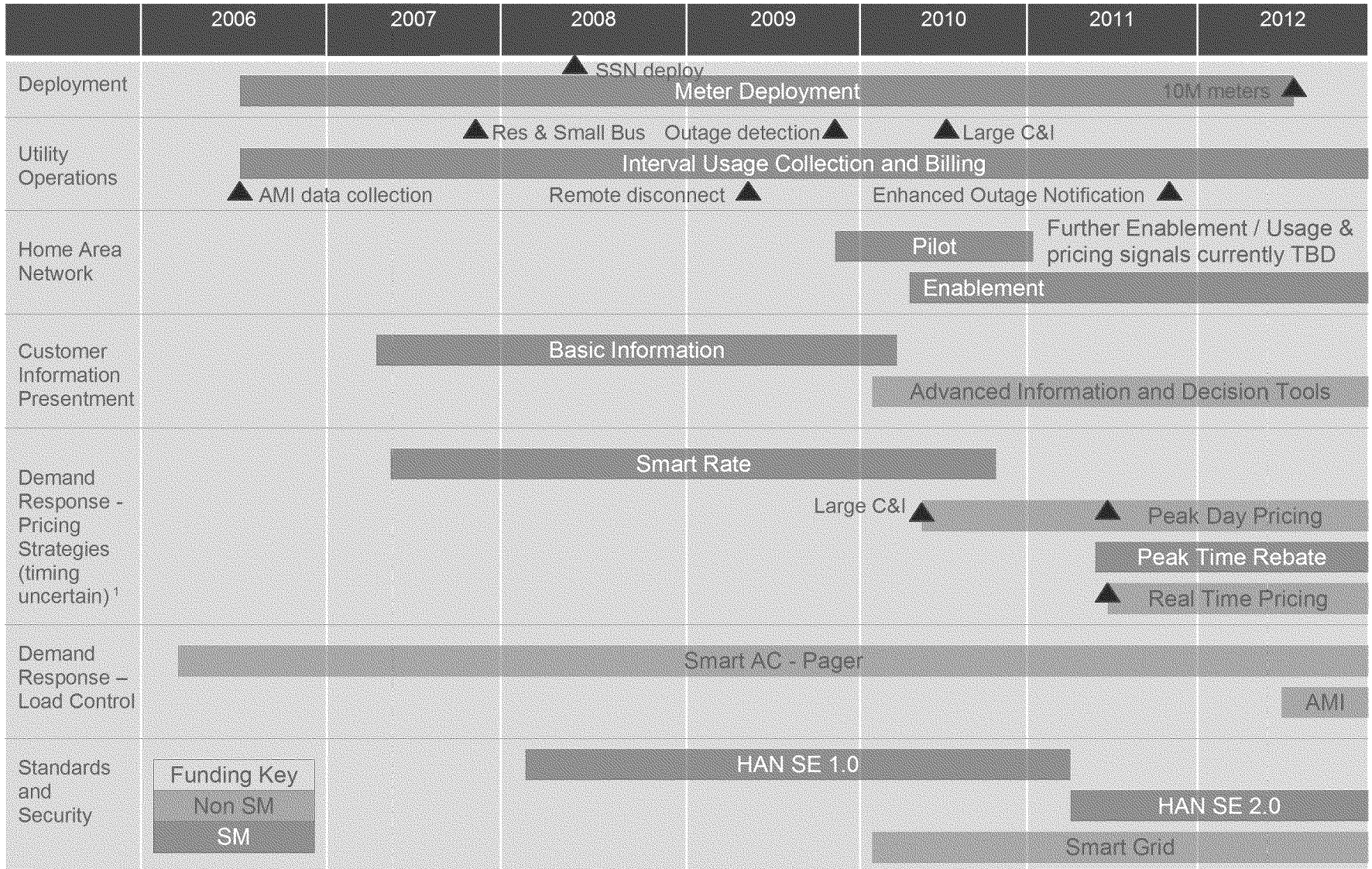
- Heat wave and rate increases coincide with early SmartMeter™ installations
- Media focusing on interesting, rather than balanced, stories
- Political backlash
- Low-key, low-touch approach to customer outreach
- Gaps in customer service

Public Response

- Class action lawsuit
- Legislative action
- CPUC independent assessment
- Requests for moratoriums
- Customer satisfaction impact



Capability Timeline



¹ NOTE: Significant Regulatory uncertainty currently exists around previously depicted timelines in this area

Meter deployment





Meter deployment

Description

Modify meter deployment schedule and approach to increase employee awareness, customer satisfaction and address local communities' concerns prior to deployment. Develop deployment strategies to address unique deployment situations.

Past Activities

- Gathered installation information on a meter-by-meter basis to understand the range of installation challenges and developed strategies to address each circumstance

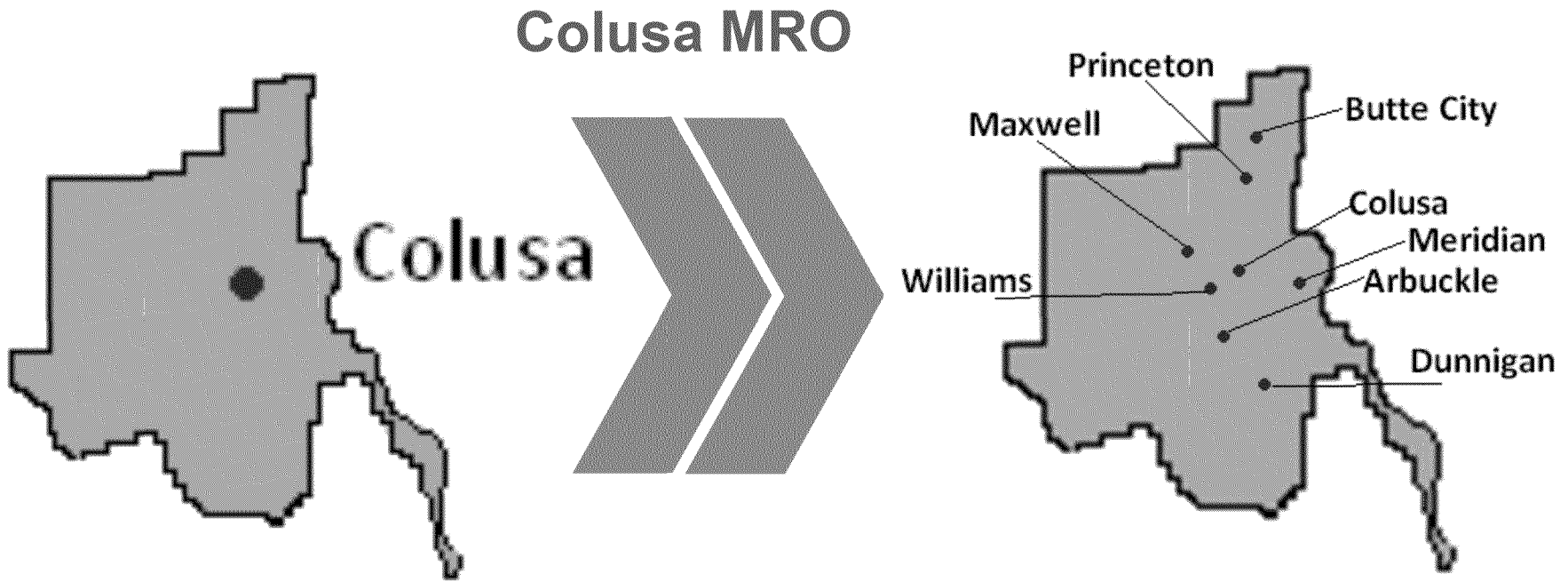
Current and Future Activities

Timing

- | Current and Future Activities | Timing |
|---|-----------|
| • Implemented City by City Deployment Approach | Completed |
| • Plan deployments to avoid coinciding with peaks in seasonal energy use | Completed |
| • Educate employees on the benefits of SmartMeter™ prior to deployment in their communities | Ongoing |
| • Meet with local elected officials and opinion leaders prior to deployment | Ongoing |

Meter deployment – ‘City by City’

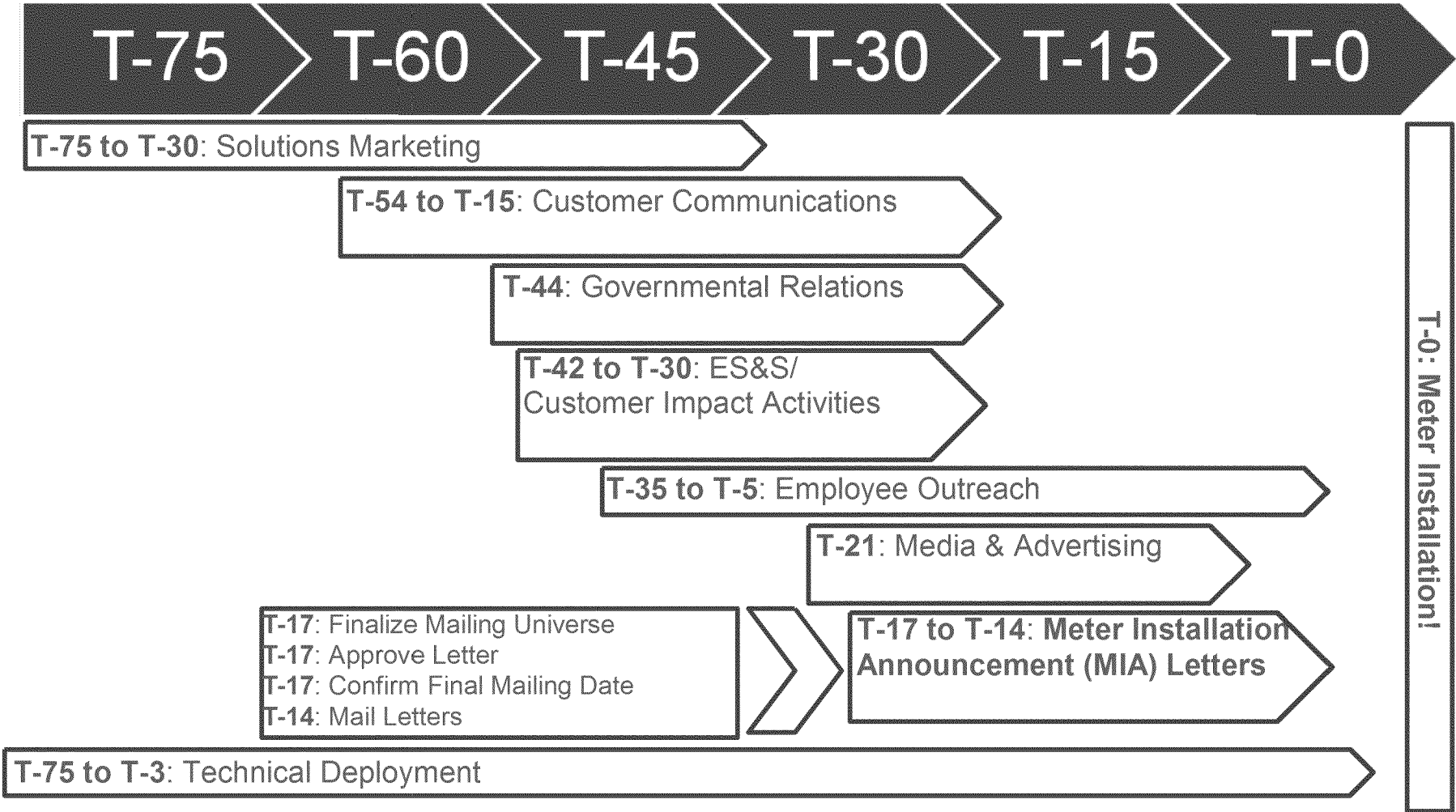
- Deployment is evolving from a Meter Reading Office (MRO)-based approach to a City by City approach





Meter deployment – T-75 schedule

- Prior to deployment, key stakeholders have a list of tasks that must be completed





Meter deployment – success story

- *Colusa Sun Herald*, October 15, 2010, “Smart Meters Coming”
- This positive news article highlighted PG&E’s proactive approach to educating customers prior to deployment

“The new system will allow PG&E customers to see how and when they are using energy without having to wait for a monthly bill”

“In the long run, the utility expects the program to benefit the environment by decreasing demand on the power grid”





Meter deployment – unique deployments

Kern Deployment

•Major Objectives:

- Help Kern customers, PG&E employees and other stakeholders *understand* and *embrace* the value of SmartMeter™ technology and why we're returning to Kern to upgrade meters
- Rebuild *trust* in the SmartMeter™ program and enhance PG&E's *reputation* with Kern customers, communities, employees, and other stakeholders
- Redeployment of approximately 130,000 upgraded SmartMeter™ devices in Kern County

•Strategies:

- Partnering with internal PG&E teams
- Proactively communicate SmartMeter™ issues and benefits
- Utilize the Structure Group results, PG&E research, and internal and external experts
- Work with local officials and other community leaders



Meter deployment – unique deployments

Kern Deployment Schedule (Tentative)

- 11/1/2010:** Employee Outreach and Internal Communications Begin
- 11/1/2010:** External Communications and Government Relations Begin
- 11/8/2010:** Customer Media Outreach Begins
- 12/15/2010:** MIA letters mailed to Customers
- 1/3/2011:** Meter Deployment Begins
- 4/30/2011:** Meter Deployment Complete





Meter deployment – unique deployments San Francisco Deployment

•Major Objectives:

- San Francisco introduces new operational and engineering challenges, as well as non-technical challenges for Field Deployment and requires a well thought-out strategic plan encompassing Communication, Field and Network Deployment
- Alignment of the meter characteristics to the right resource and solution to complete installations on the first visit while realizing CPI targets will be critical to deployment
- Help SF customers, PG&E employees and other stakeholders *understand* and *embrace* the value of SmartMeter™ technology and lessons learned from other Meter Reading Offices
- Deployment of approximately 625,000 SmartMeter™ devices in difficult meter locations (peepholes, basements, curbside, metal/wood cabinets, vaults, etc.)

•Strategies:

- Develop 11 new processes to reduce anticipated CGI and UTC's (i.e. Customer Response Team, Appt. Scheduling, etc.)
- Partnering with internal PG&E teams and Wellington to field test processes
- Proactively communicate SmartMeter™ issues and benefits
- Work with internal stakeholders, local officials and other community leaders



Meter deployment – unique deployments

San Francisco Deployment Schedule (Tentative)

- 12/1/2010:** Employee Outreach and Internal Communications Begin
- 1/3/2011:** External Communications and Government Relations Begin
- 1/3/2011:** Customer Media Outreach Begins
- 1/15/2011:** MIA letters mailed to Customers
- 2/1/2011:** Meter Deployment Begins
- 3/31/2012:** Meter Deployment Complete





Meter deployment – unique deployments

San Francisco: 5 Deployment Priorities



Meter performance





Meter performance

Description

Maintain quality control over deployed meters, continue to proactively validate and publicize the accuracy of SmartMeter™ devices, become the expert in SmartMeter™ technology

Past activities

- Conducted an exhaustive systemic data analysis to confirm there is no fundamental technology problem with meter accuracy or billing
- Testified before a Senate committee on meter accuracy and sources of program error

Current and future activities

Timing

- | | |
|--|-----------|
| • Complete all vendor product deliverables for meter & network deployment | Dec 2010 |
| • Create a Red Team and conduct further stress testing to surface potential risks from meter manipulation or malfunction | May 2011 |
| • Drive solutions to any identified hardware & software potential risks | June 2011 |
| • Keep customer-facing teams updated so they can address customer concerns with knowledge and facts | ongoing |



Meter performance

http://www.pge.com/myhome/customerservice/meter/smartmeter/programdata/

SmartMeter™ Program Data

PG&E distributes SmartMeter™ program data weekly. See below for the highlights or download the most recent SmartMeter™ Program Data.

SmartMeter™ Deployment Statistics

Total Meters/Modules Installed

Category	SmartMeter™	Non-SmartMeter™
Electric	1,830,465	3,419,454
Gas	1,056,249	3,387,033

SmartMeter™ Billing Statistics

% of Bills Estimated

Category	% of Bills Estimated
Electric	2%
Gas	2%

Weekly Program Updates

PG&E releases data snapshots of the progress of its SmartMeter™ programs. These snapshots are updated each week for the period ending approximately two weeks prior.

Download Current Updates

- 10/09 Updates (PZ) Data
- 9/21/09 Updates (PZ) Data
- 9/14/09 Updates (PZ) Data

View results archive

SmartMeter™ Testing

Results of side-by-side meters
PG&E is conducting side-by-side testing of old and new meters so our customers can see for themselves how this technology performs.
View results

Click on "Current Updates"



Meter performance



SmartMeter™ Program Data

Page 1: Deployment, Billing and System Performance

SM Deployment	Updated ⁽¹⁾	Combined			Electric			Gas		
		Non-SM	SM	Total	Non-SM	SM	Total	Non-SM	SM	Total
Total Meters/Modules In Service	Weekly	2,886,714	6,805,487	9,692,201	1,830,465	3,418,454	5,248,919	1,056,249	3,387,033	4,443,282
Meters/Modules Installed ⁽²⁾			64,088			37,315			26,773	

Notes:

⁽¹⁾ Data for week ending 9/17/2010.

⁽²⁾ "Meters/Modules Installed" includes the installation of second generation SM devices and the removal and replacement of first generation SM devices.

⁽³⁾ "SM" includes meters and modules that utilize SM technology.

Billing	Updated ⁽¹⁾	Combined			Electric			Gas		
		Non-SM	SM	Total	Non-SM	SM	Total	Non-SM	SM	Total
Bill Segments Produced ⁽²⁾		4,291,169	5,166,797	9,457,966	2,619,949	2,509,905	5,129,854	1,671,220	2,656,892	4,328,112
% Estimated ⁽³⁾	Monthly	1.22%	0.10%	0.61%	1.50%	0.16%	0.85%	0.78%	0.05%	0.33%
% Timely ⁽⁴⁾		99.60%	99.81%	99.71%						

Notes:

⁽¹⁾ Data for month ending 08/31/2010.

⁽²⁾ A "Bill Segment" reflects either gas or electric service. A PG&E customer receiving gas and electric service receives one bill containing two bill segments.

⁽³⁾ "% Estimated" expresses total bill segment calculations based upon estimated usage (gas and /or electric segments) as a percentage of all completed bill segments.

⁽⁴⁾ "% Timely" expresses meters (service agreements) billed within 35 days of last billing date as a percentage of all active meters (service agreements).

SM System Performance	Updated ⁽¹⁾	Combined	Electric	Gas
% Total Intervals Received ⁽²⁾		99.78%	99.76%	99.81%
Non-Communicating Meters Outstanding ⁽³⁾	Weekly	6,596	3,276	3,320
% Non-Communicating Meters Outstanding ⁽⁴⁾		0.10%	0.10%	0.10%
Data Storage Issues Outstanding ⁽⁵⁾		6,012		

Notes:

⁽¹⁾ Data for week ending 09/17/2010.

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Meter performance



SmartMeter™ Program Data

Page 2: Accuracy Testing and Customer Data Usage

Accuracy Testing	Updated ⁽¹⁾	Combined		
		Non-SM	SM	Total
Meter Tests Completed ⁽²⁾	Weekly	122	868	990
Meter Tests Passed ⁽³⁾		118	868	986
Meter Tests Failed ⁽⁴⁾		4	0	4
Total Meter Tests Completed, Cumulative ⁽⁵⁾	Weekly	30,824	29,546	
Total Failed Meters Confirmed, Cumulative ⁽⁶⁾		377	10	
% Total Failed Meters Confirmed, Cumulative ⁽⁷⁾		0.0131%	0.0001%	

Notes:

- (1) Data for week ending 09/17/2010.
- (2) "Meter Tests Completed" includes meter tests performed at customer locations, vendor facilities and PG&E's meter warehouse and testing facility. This excludes initial testing by manufacturer (100% testing).
- (3) "Meter Tests Passed" includes meter test results within CPUC-authorized limits (+/- 2%).
- (4) "Meter Tests Failed" includes meter test results outside CPUC-authorized limits (+/- 2%).
- (5) Meters that have had meter accuracy tests performed since January 2007. This includes meter tests performed at customer locations, vendor facilities and PG&E's meter warehouse and testing facility. This excludes initial testing by manufacturer (100% testing).
- (6) Meters having confirmed meter accuracy failures since January 2007.
- (7) "% Total Failed Meters Confirmed, Cumulative" expresses "Total Failed Meters, Confirmed, Cumulative" as a percentage of the installed meter population.

Customer Data Usage	Updated	Combined
		Total
pge.com "My Account" Customers ⁽²⁾	Monthly ⁽¹⁾	1,554,040
SmartMeter™ Online Usage Inquiries ⁽³⁾		296,075
SmartRate participants ⁽⁴⁾		24,885
"Energy Alert" participants ⁽⁵⁾		19,365
EBill Customers ⁽⁶⁾		1,544,083
SmartRate SmartDays, Cumulative ⁽⁷⁾	Weekly ⁽⁸⁾	10

Notes:

- (1) Data for month ending 08/31/2010.
- (2) Customers who have accessed their accounts via pge.com "My Account" in the last 12 months.
- (3) Monthly web views of Total Load and Rate Analysis Chart pages by pge.com account users with SmartMeter™ devices.
- (4) SmartMeter™ customers enrolled in the SmartRate™ program receive a discounted rate during the program period May 1 and October 31 in exchange for managing their energy usage during 2 p.m. to 7 p.m. on up to 15 SmartDays when a surcharge applies. SmartDays are called on especially hot days between May 1 and October 31, when demand for electricity can reach an extreme level.
- (5) SmartMeter™ customers enrolled in the "Energy Alert" program receive a text message, e-mail or automated phone call when their electric use is moving toward a higher-priced tier. The program began on June 10, 2010.

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Meter performance

- Financial District/Urban Canyon demographic poses unique challenges in RF communication
 - Electric Meters are located in deep basements, and below grade meter rooms
 - Electric utilities are underground no distribution poles above grade (i.e. Rule 20A)
 - SSN did not have an available solution for covering these areas

The In-vault relay (and AP) project was named **Subterranean Urban Network Deployment System (SUNDS)**.

- A joint hardware design project was started with SSN with PG&E taking the lead with product and network design guidelines.
- Solution solved multiple issues
 - Provided RF communication path between meter rooms and street level
 - Provided RF backbone path at neighborhood level
 - Eliminated need for third party attachment agreements

PG&E Meter performance

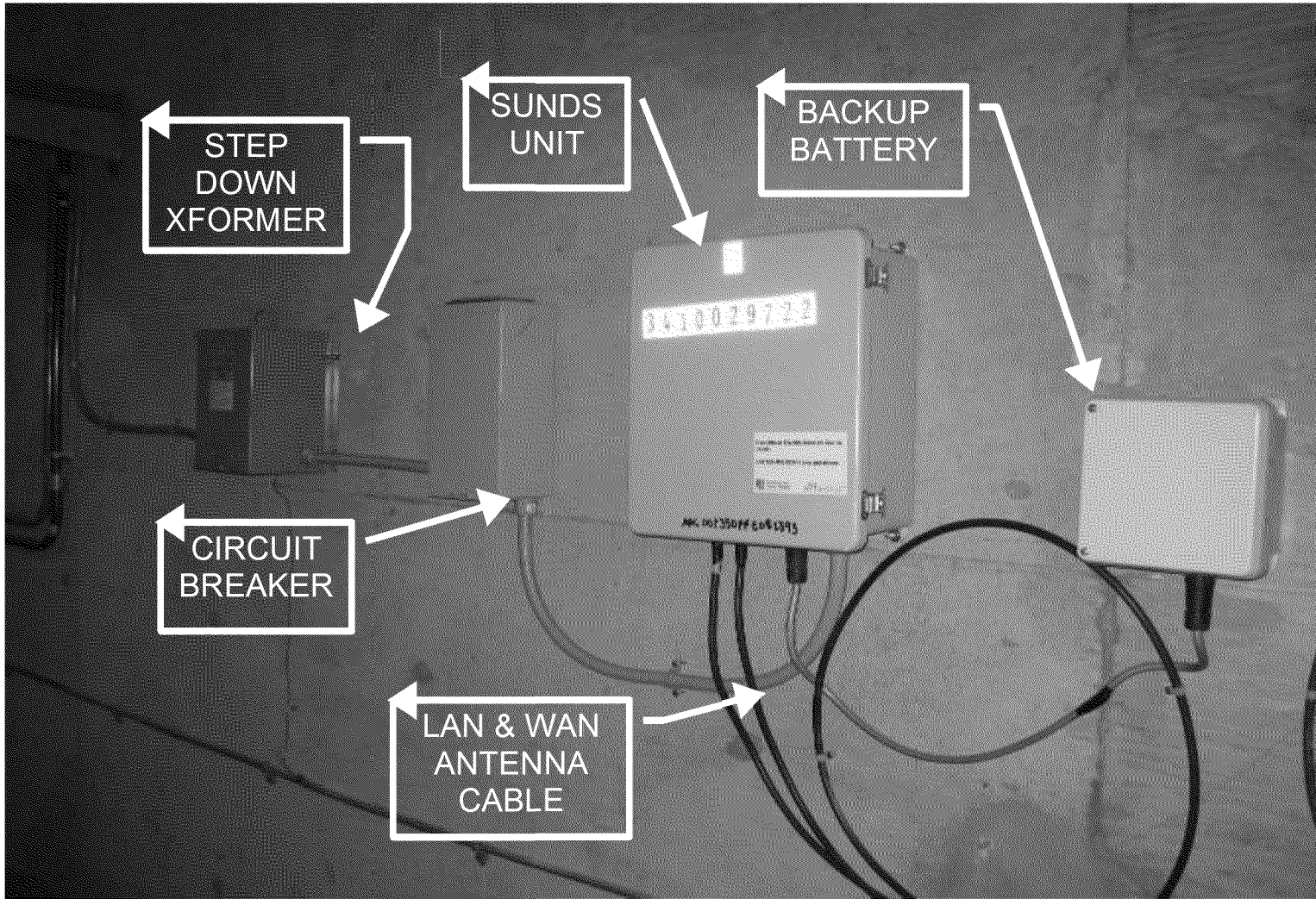




Meter performance



SUNDS AP Installation





Antenna Installation Below Vault Vent Grate

