

# 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 26<sup>th</sup>, more than **7 million meters installed!**

- 3.58M Electric Meters
- 3.49M Gas Meters

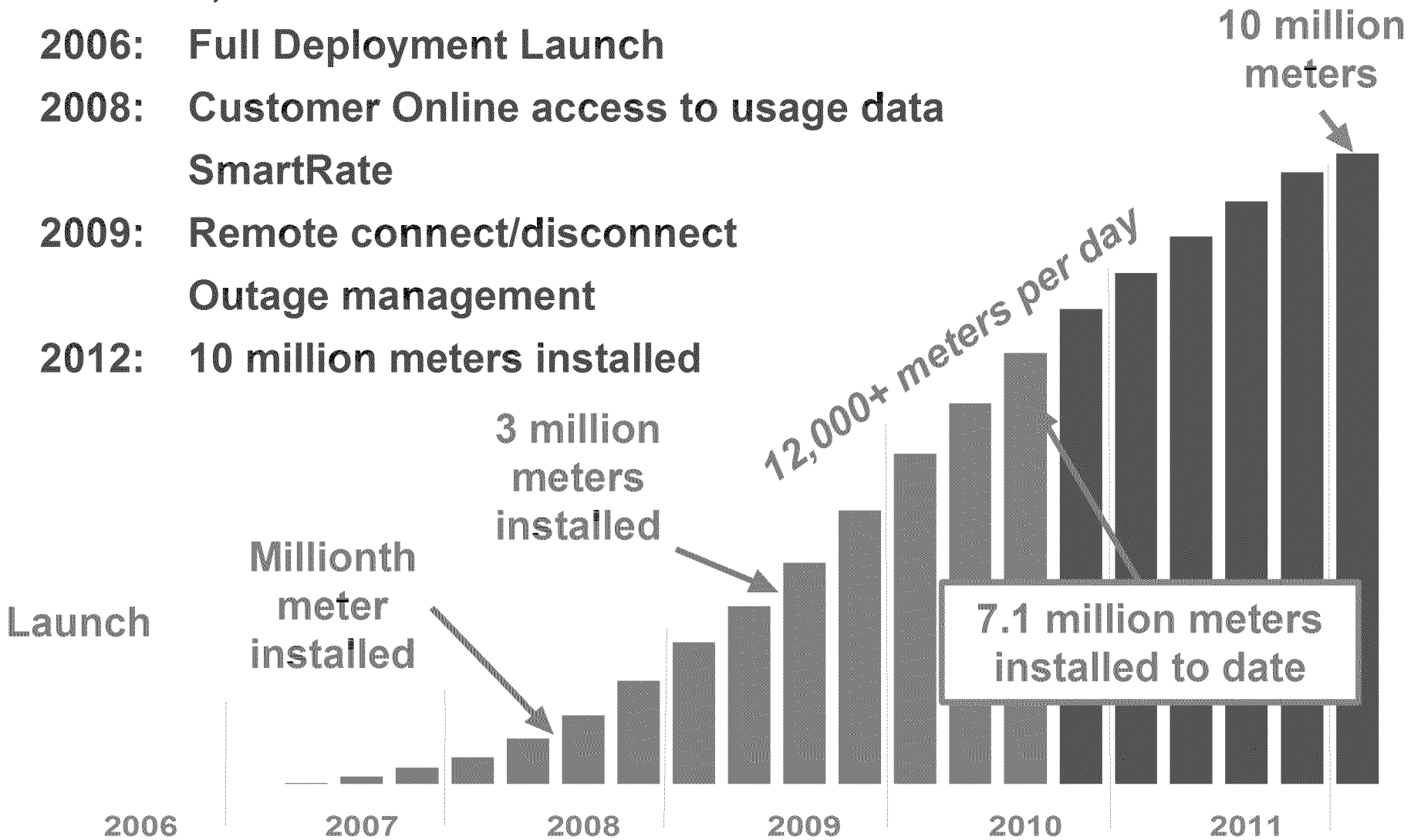
## *Billing Operations:*

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



# PG&E's SmartMeter™ deployment

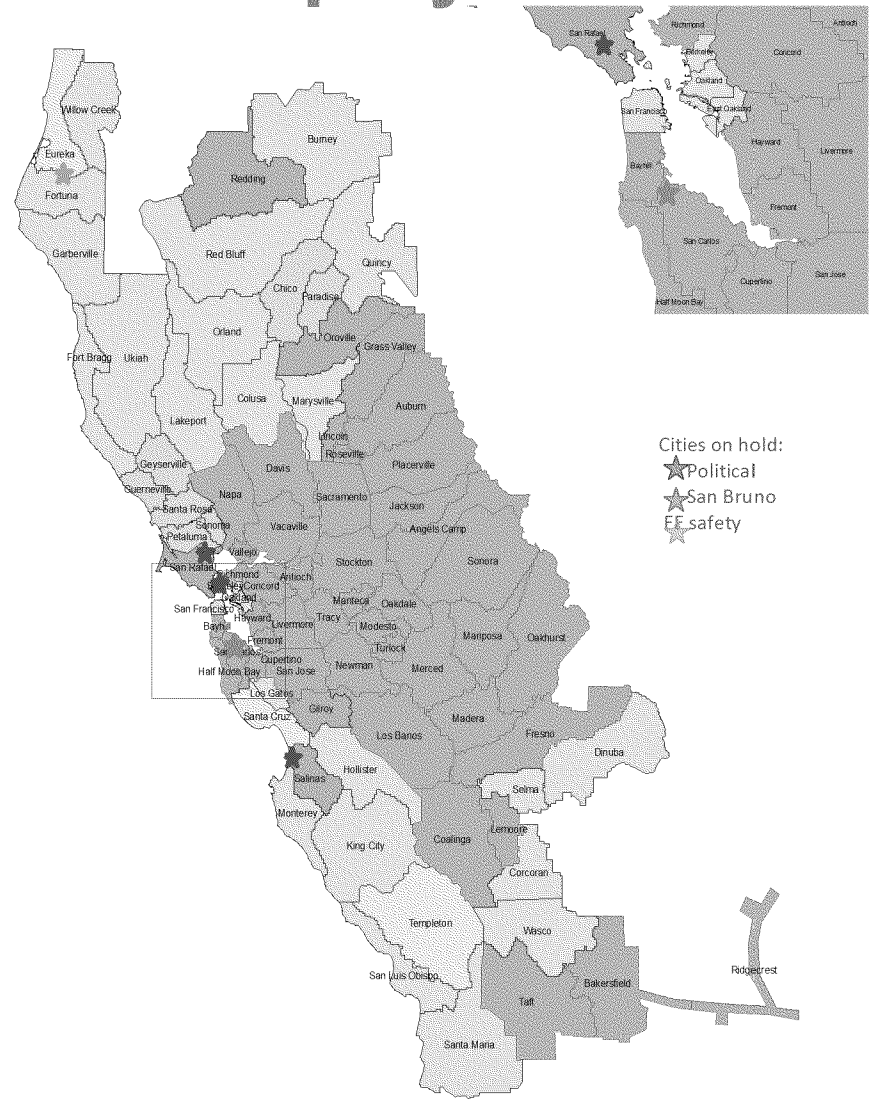
- 2005: 5,000 Meter Pilot
- 2006: Full Deployment Launch
- 2008: Customer Online access to usage data  
SmartRate
- 2009: Remote connect/disconnect  
Outage management
- 2012: 10 million meters installed





# 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
<b>Total</b>	<b>7,058,845</b>	<b>2,644,589</b>	<b>9,703,434</b>	<b>73%</b>	<b>84</b>



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
<b>Total</b>	<b>229,275</b>

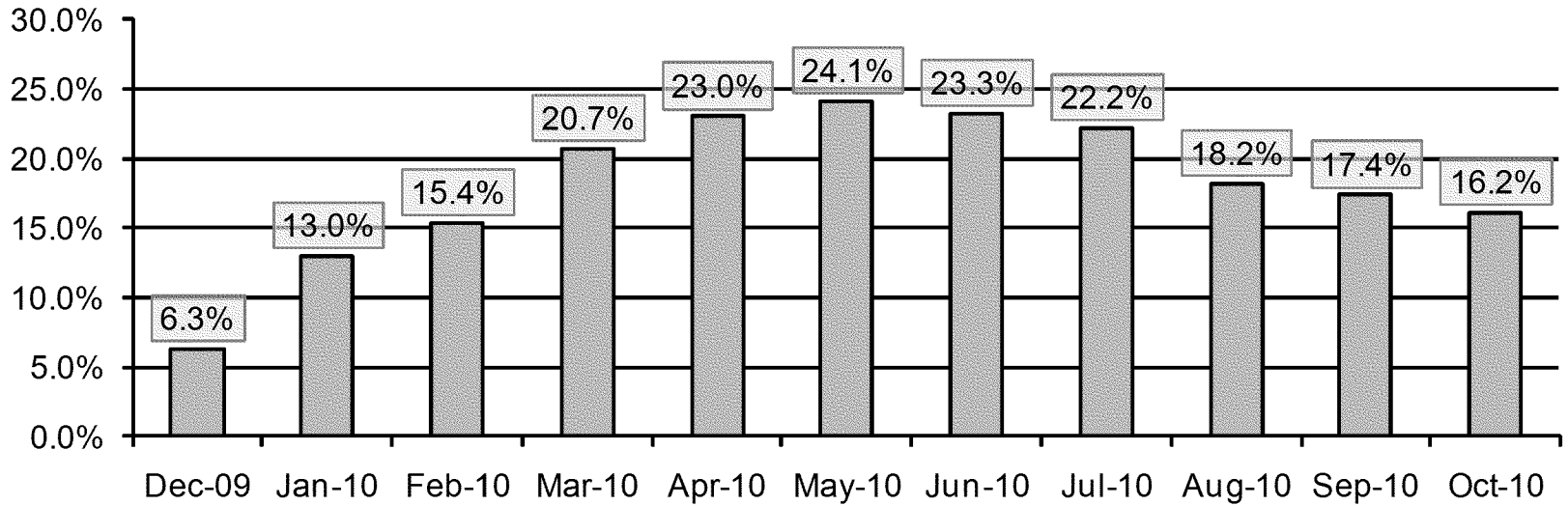


# Transition to SmartMeter™ Billing

Number of cumulative transitioned meters: 5.81M

Number of meters transitioned since Jan. 2010: 2.06M

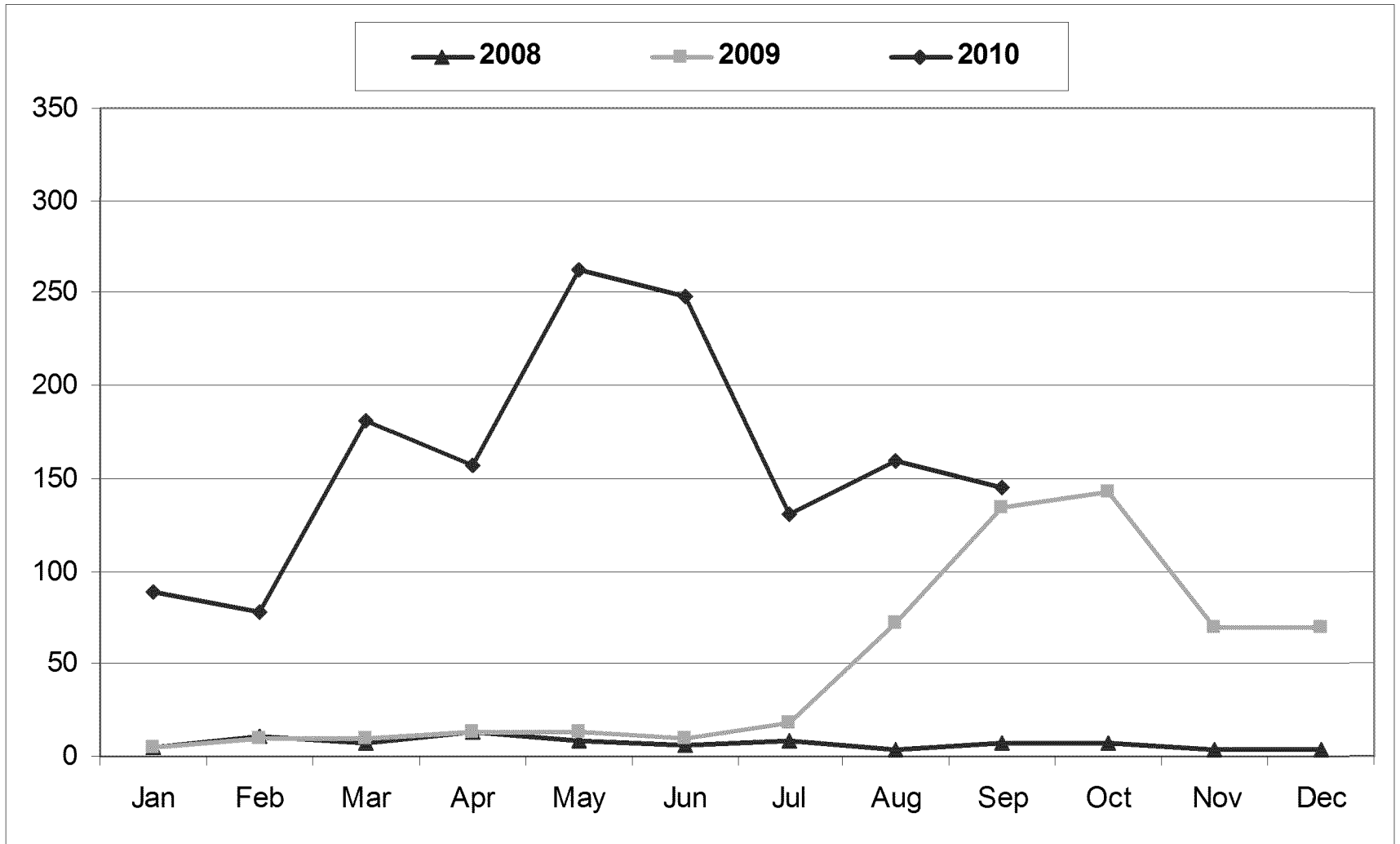
% Untransitioned Meter Volume against Total Installed Meters







# SmartMeter™ Customer Complaints





# Compounding factors and response

## Compounding Factors

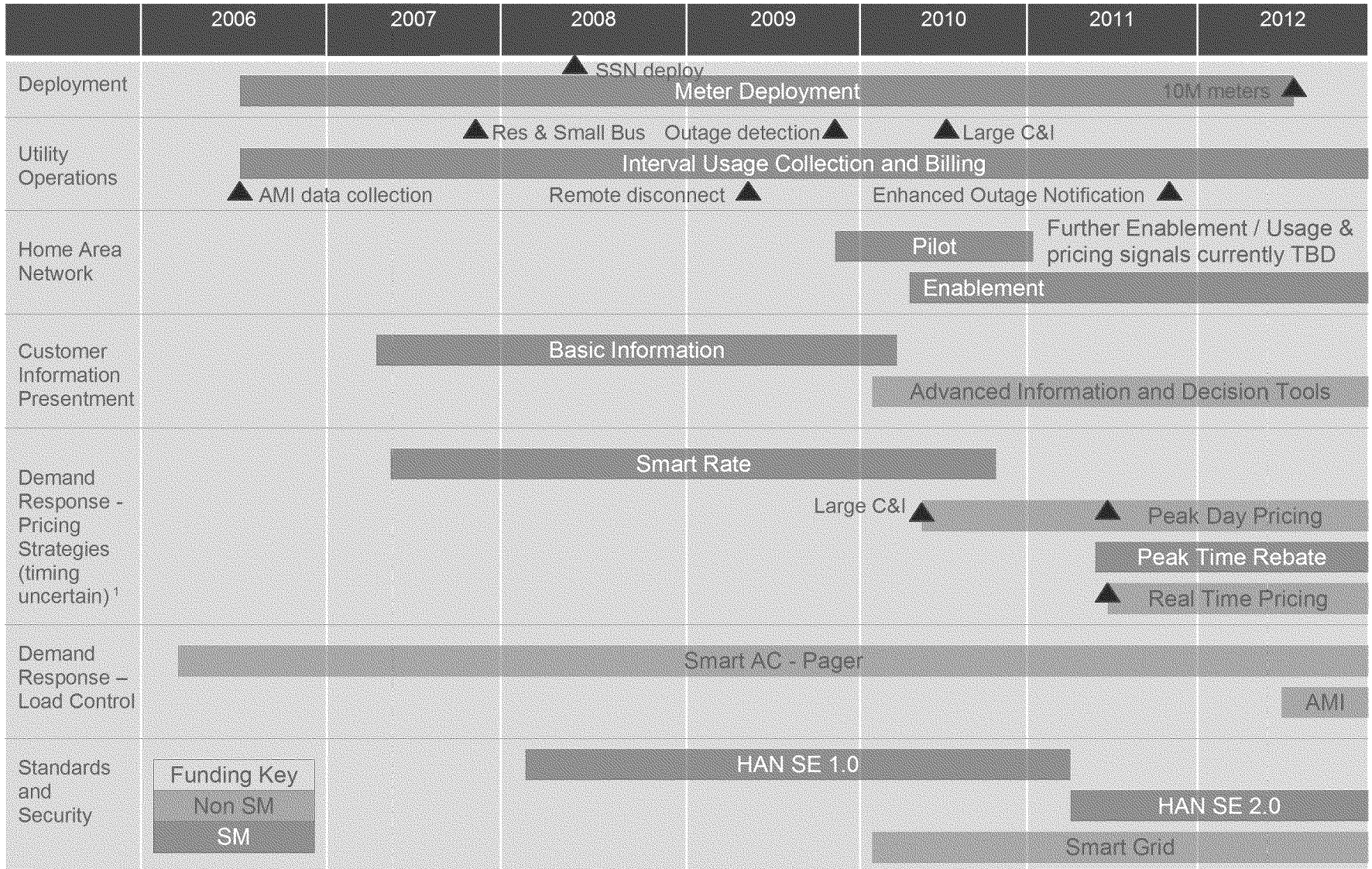
- Heat wave and rate increases coincide with early SmartMeter™ installations
- Media focusing on interesting, rather than balanced, stories
- Political backlash
- Low-key, low-touch approach to customer outreach
- Gaps in customer service

## Public Response

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



# Capability Timeline



<sup>1</sup> 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

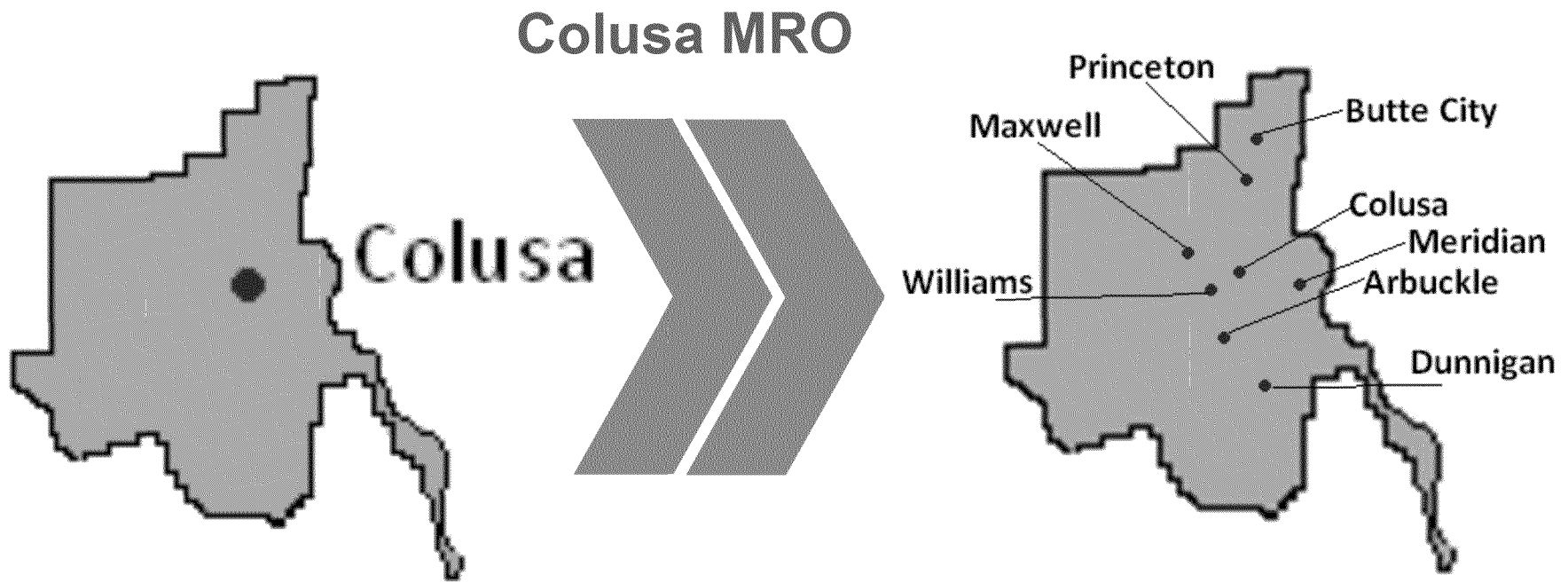
## Timing

- |   |           |
|---|-----------|
| • 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’

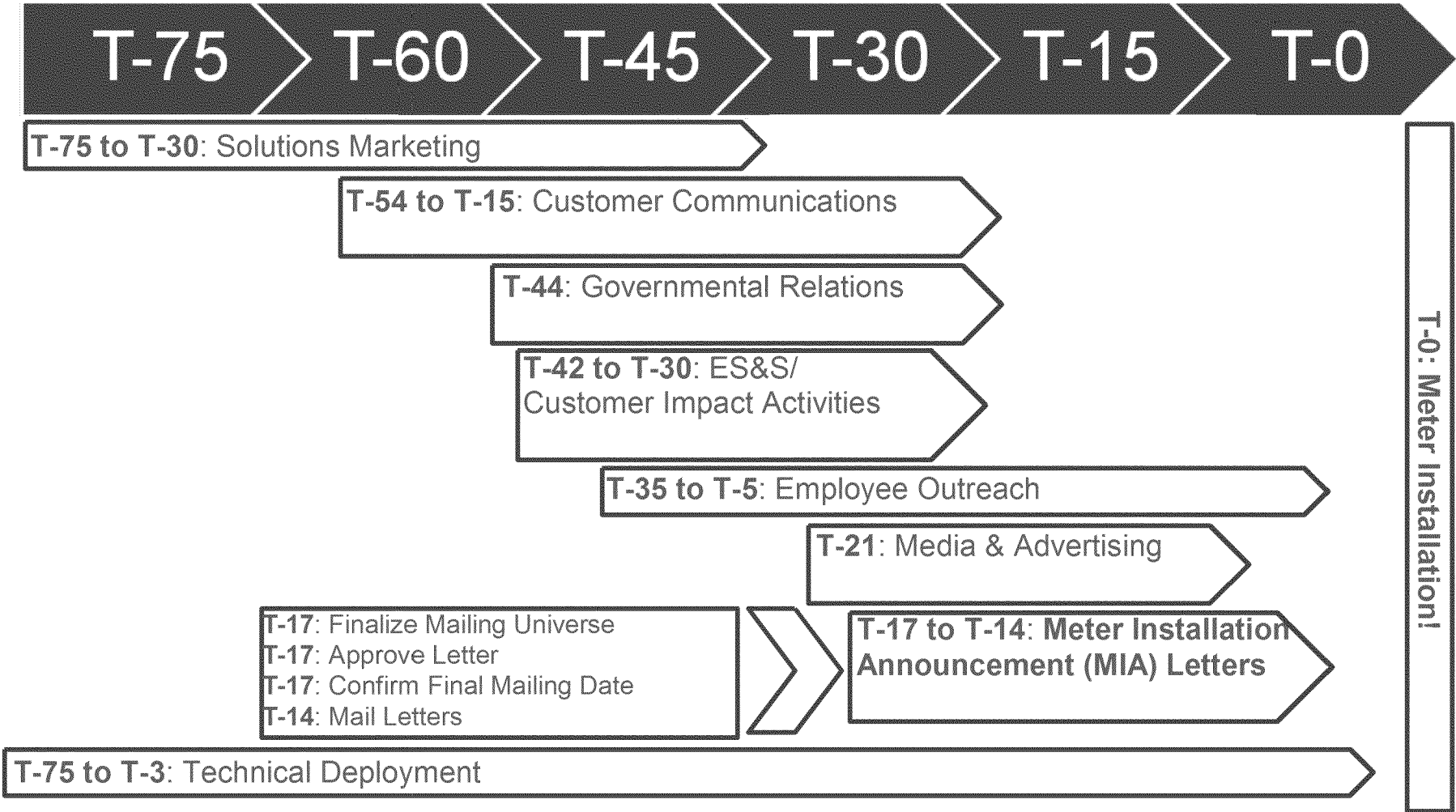
- Deployment is evolving from a Meter Reading Office (MRO)-based approach to a City by City approach





# 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

Redacted



# 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

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# Meter deployment – unique deployments

## San Francisco: 8 Unique Deployment Areas

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# 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	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 <sup>(1)</sup>	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	<b>9,692,201</b>	1,830,465	3,418,454	<b>5,248,919</b>	1,056,249	3,387,033	<b>4,443,282</b>
Meters/Modules Installed <sup>(2)</sup>			64,088			37,315			26,773	

Notes:

<sup>(1)</sup> Data for week ending 9/17/2010.

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

<sup>(3)</sup> "SM" includes meters and modules that utilize SM technology.

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

Notes:

<sup>(1)</sup> Data for month ending 08/31/2010.

<sup>(2)</sup> 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.

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

<sup>(4)</sup> "% 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 <sup>(1)</sup>	Combined	Electric	Gas
% Total Intervals Received <sup>(2)</sup>		99.78%	99.76%	99.81%
Non-Communicating Meters Outstanding <sup>(3)</sup>	Weekly	6,596	3,276	3,320
% Non-Communicating Meters Outstanding <sup>(4)</sup>		0.10%	0.10%	0.10%
Data Storage Issues Outstanding <sup>(5)</sup>		6,012		

Notes:

<sup>(1)</sup> 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 <sup>(1)</sup>	Combined		
		Non-SM	SM	Total
Meter Tests Completed <sup>(2)</sup>	Weekly	122	868	990
Meter Tests Passed <sup>(3)</sup>		118	868	986
Meter Tests Failed <sup>(4)</sup>		4	0	4
Total Meter Tests Completed, Cumulative <sup>(5)</sup>	Weekly	30,824	29,546	
Total Failed Meters Confirmed, Cumulative <sup>(6)</sup>		377	10	
% Total Failed Meters Confirmed, Cumulative <sup>(7)</sup>		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 <sup>(2)</sup>	Monthly <sup>(1)</sup>	1,554,040
SmartMeter™ Online Usage Inquiries <sup>(3)</sup>		296,075
SmartRate participants <sup>(4)</sup>		24,885
"Energy Alert" participants <sup>(5)</sup>		19,365
EBill Customers <sup>(6)</sup>		1,544,083
SmartRate SmartDays, Cumulative <sup>(7)</sup>	Weekly <sup>(8)</sup>	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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Start | SmartMeter™ Progra... | Inbox - Microsoft Out... | PW: FINAL DOCS... | RFFast FactsFINALN... | SmartMeterQ3\_ALL... | http://www.pge... | 9:08 AM



## 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



# Meter performance

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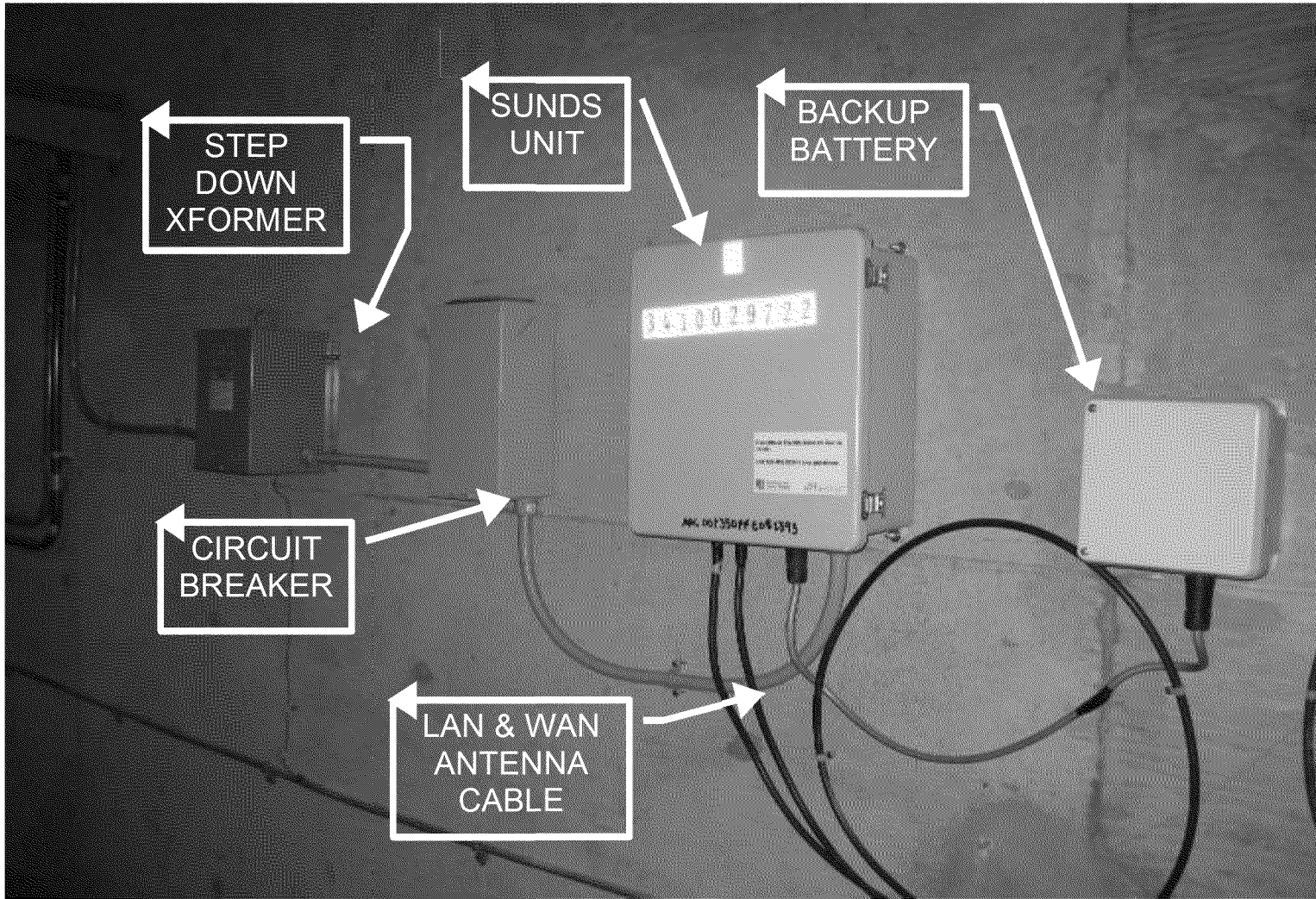


# Meter performance

Redacted



# SUNDS AP Installation





# Antenna Installation Below Vault Vent Grate





# Communicating the SmartMeter™ value proposition



# Communicating the SmartMeter™ Value Proposition

## Description

Proactively communicate the benefits of SmartMeter™ to raise customer awareness and appreciation of the program.

## Past activities

- Community events, mobile tours, community meetings, See Your Power and Information is Power ads as well as 3-touch direct mail, door-hangers and booklets.

## Current and future activities

## Timing

- |   |                           |
|---|---------------------------|
| • Continue to conduct face-to-face community events and engage regulators and state and local elected officials | Ongoing                   |
| • 3-touch mailers, door-hangers and booklets  | Ongoing                   |
| • “See Your Power” campaign (ads and online - Fresno/Visalia, Bakersfield, Sac/Mod/Stockton).                   | 11.8.10 – 11.26           |
| • “See Your Power” mobile tour – developing additional events and dates beyond November                         | Ongoing thru mid-November |

# Customer Engagement Strategy

➤ Initial outreach strategy: SmartMeter deployment equivalent to a standard meter change.

➤ Significantly expanded and improved customer communication and outreach based on customer learning and feedback.

## Initial Outreach Strategy (2007)



## Learning From Our Customers

- Benefits Unclear to Some Customers
- Awareness
- Satisfaction
- Inconsistent Customer Experience

## Current Holistic Outreach Strategy\*

### Responding to Our Customers

- Improved Communication Messages & Channel
- Multiple Contacts Through Sustained Media
- Responsive & Proactive Outreach
- Employee Education
- Readiness and Response Team

- Pre-installation letter
- Door hanger
- Welcome booklet
- Energy Alerts postcard or e-mail

- PG&E employee experience zone training and tool kits
- Additional Contact Center resources and support
- SmartMeter Response team for complex issue resolution
- Home energy audit



- Online tools in My Account
- Energy Alert via e-mail or text message
- Digital "Information is Power" ads on news sites
- See Your Power Blog
- PG&E's PGE4ME Twitter Feed or Facebook
- Customer and third-party testimonial videos on [www.pge.com/smartmeter](http://www.pge.com/smartmeter) and YouTube

- "Information is Power," TV commercials (July '10)
- "See Your Power," TV Commercials (Fall '10)
- Retail Partnerships

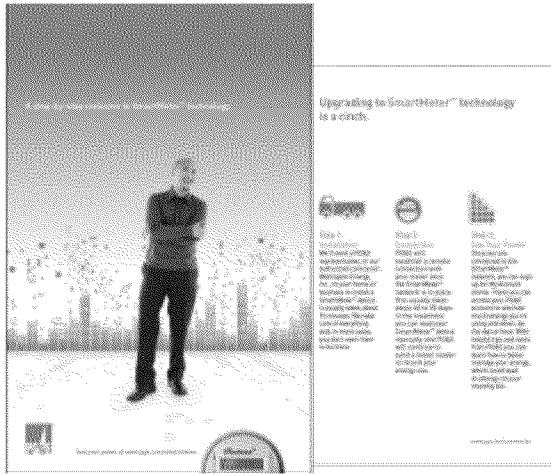
- Customer Advisory Groups
- City Council presentations
- Homeowner's association and civic group meetings
- CPUC workshops
- PG&E Answer Centers
- "Mobile tour" events

*\*Strategy will continue to evolve and adapt as customer needs change*

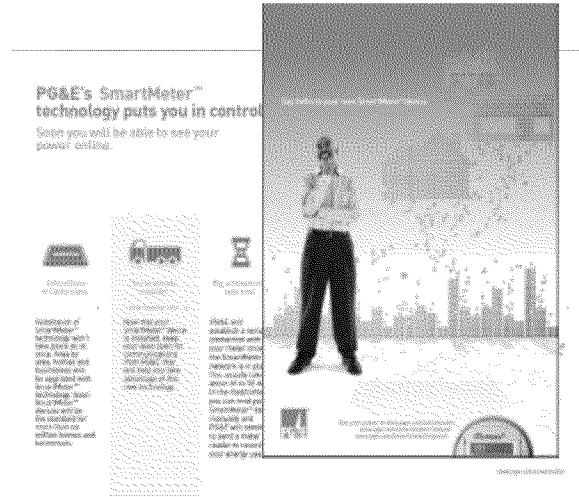




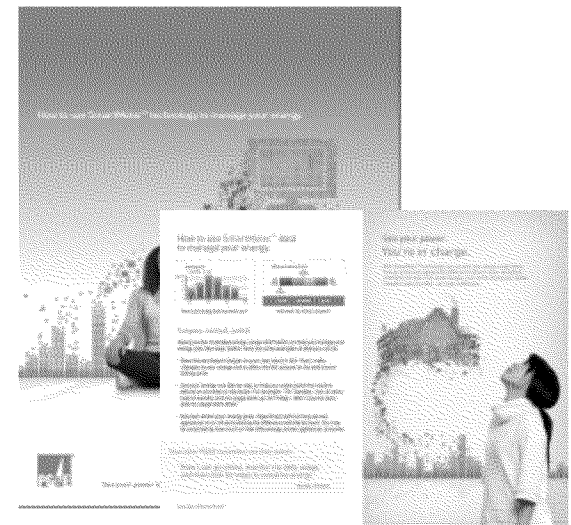
## Touch 1 Pre-Install



## Touch 2 At Meter Install



## Touch 3 When connected to the SmartMeter™ network



When customers receive their SmartMeter™ devices, they receive a series of communications to help them prepare for the arrival of the new meter and how to read and leverage the benefits of the new meters once they are connected to the network.

**Touch 1** Before installation: Letter & Brochure

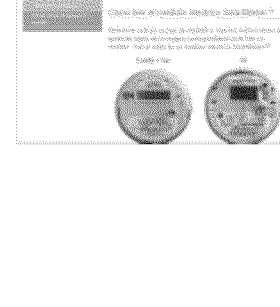
**Touch 2** Meters are installed: Door hanger announcing meter change & brochure - how to read new meters.

**Touch 3** Meter is connected to the SmartMeter™ network : How to go online and “see their power” & manage energy use.



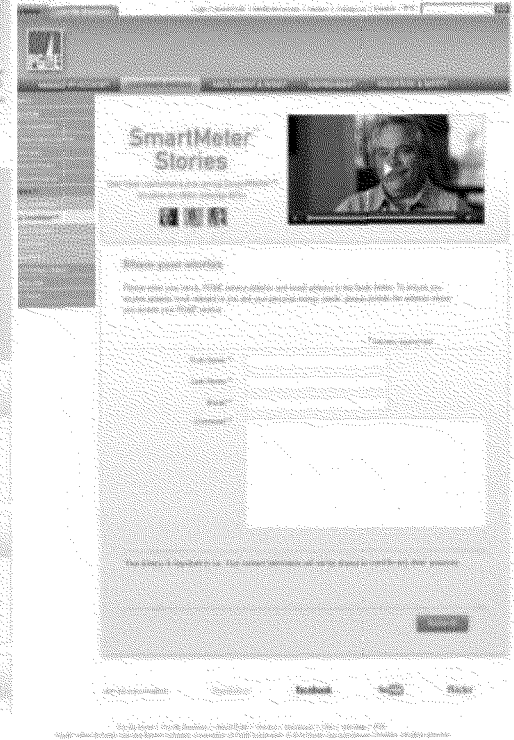
# Web content

SmartMeter content on pge.com leverages third-parties and customers to share benefits of SmartMeter. Content currently available in English, Spanish and Chinese.



See your Power Re-skin

- Communicates benefits of SmartMeter Technology
- Outlines each stage in the SmartMeter program from pre to post-installation
- Will include videos of customer testimonials on how they use SmartMeter to control their energy use



Social Media



Eric Wesoff | December 18, 2008 at 2:20 PM  
18 Comments

Smart Meter Backlash, Part 2: Smart Grid RF

Smart grid equipment CEOs have claimed:

- A \$2.2 billion meter deployment would have a questionable ROI if most of came from reduced truck rolls
- Smart meters currently being deployed are not smart enough

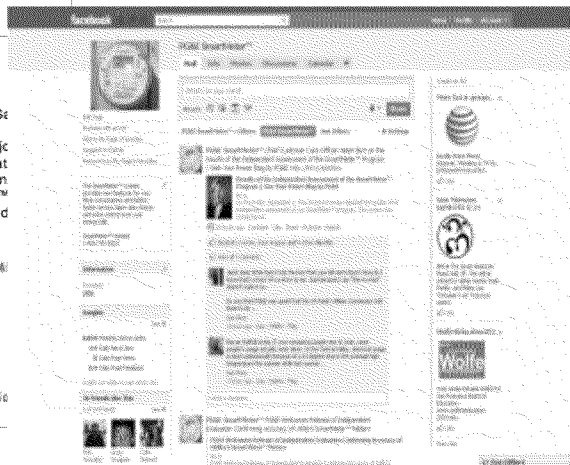
• Con Paul Parmley 12/18/09 7:24 PM

Hi Eric,  
I wanted to address the claims made by the EMF. So the belief that SmartMeters™ are not accurate. First, we agree that we should have done a better job the SmartMeter™ roll-out, and we've recently updated /smartmeter) to better explain the technology, the in benefits our customers will enjoy with SmartMeter™ While we are confident that the third-party independent accurate...we will, too

JoeJoe 12/18/09 7:41  
PG&E 1, Team Tinhat 0

Eric Wesoff 12/18/09 8:48 PM

Paul,  
Thanks for the response.  
I have to agree with JoeJoe. I think you put the RF health question  
Eric



• Twitter, Facebook YouTube, and blogs (including PG&E's See Your Power Blog) to address customer questions, concerns and service requests

• See Your Power and Information Is Power Commercials on YouTube

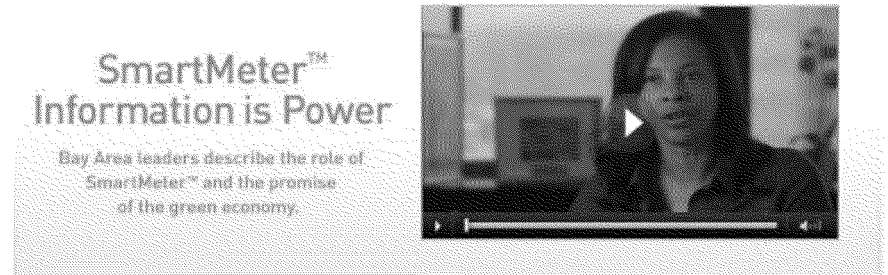
• PG&E's See Your Power Blog to engage in a two-way dialogue with customers and stakeholders on the SmartMeter program and other energy management issues



# Traditional media (Information is Power campaign)

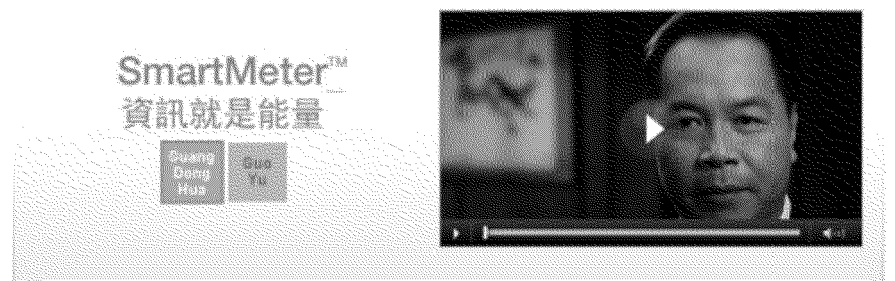
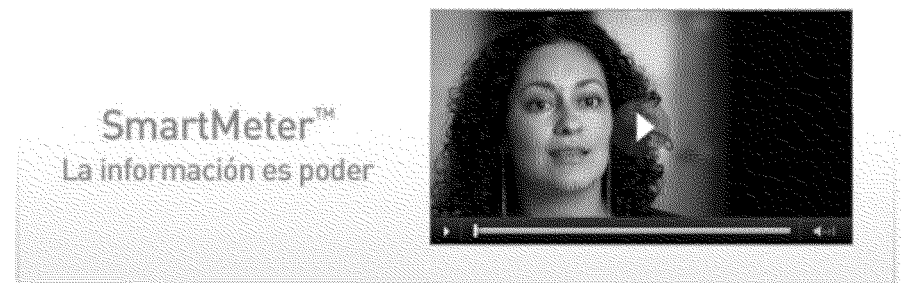
## Objective:

- Present business and community thought leaders as an impartial and positive voice in support of SmartMeter™ technology and the potential benefits associated with the smart grid
- Reach English, Spanish, Mandarin and Cantonese-speaking customer groups



## Details:

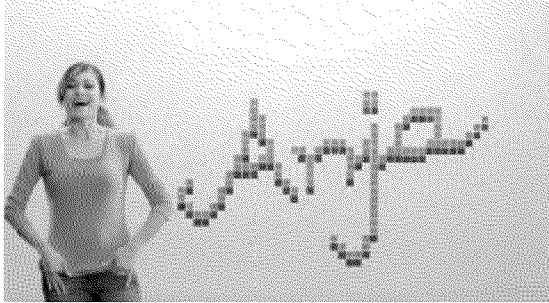
- Campaign began in advance of deployment in many parts of the Bay Area (San Francisco, North Bay) and was distributed via TV and online
- Features third-parties speaking positively about smart grid and the SmartMeter™ program
- Additional spots have been developed for Central Valley and Sacramento areas







# Traditional media (See Your Power TV campaign)



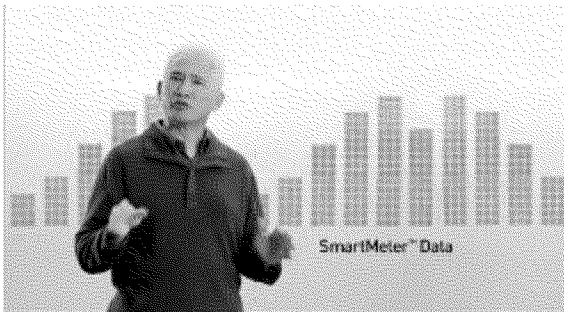
## Objective:

- Share that customers across the service territory are using their SmartMeters to make smarter energy choices and save on their energy costs.



## Details:

- Features real stories of customers from diverse backgrounds across the service territory speaking to how the SmartMeter changed their energy use and costs
- Campaign will be run throughout the service territory on TV and online



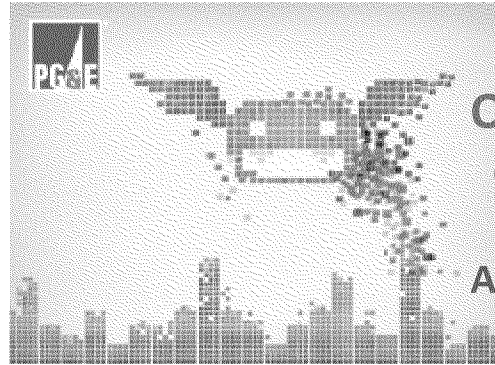


# SmartMeter™ Online

## Online Advertising Campaign – See Your Power



Digital graph animates as text slides in from left.



Type fades. Vampire grows out of graph.

### ONLINE AD CAMPAIGN

Creative:

Anja)

- :30 Video (Bob and

- Banner Ad



Type slides in from left. Vampire dissolves into graph.



SmartMeter slides in. Digital graph evens out as remaining line and button fade on.

Message and target aligned with TV campaign

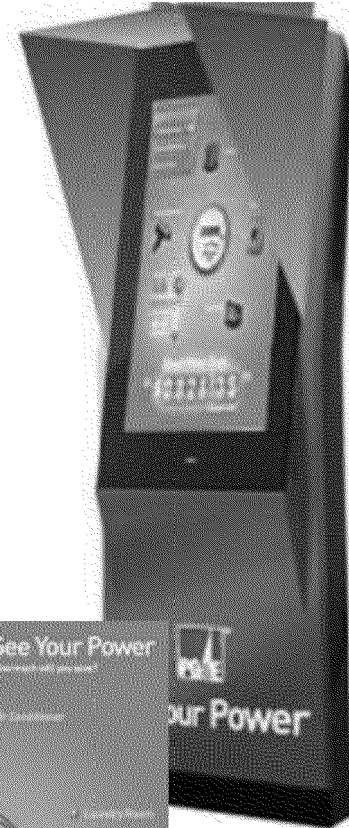
Online Ads in the same markets as TV



# Events/Community Outreach: See Your Power Tour

## Mobile Tour

- Educate customers in a fun and engaging way about SmartMeter™ technology
- English, Spanish and Chinese content and materials at all events
- Provides program benefits, hands-on experience, demonstrates ways the SmartMeter™ program empowers customers to manage their energy use and costs
- Over 40 events scheduled between August and November.
- New events being planned beyond November





# See Your Power Tour

Estimated reach of 2.1 million in event attendance with 200,000 deep engagements

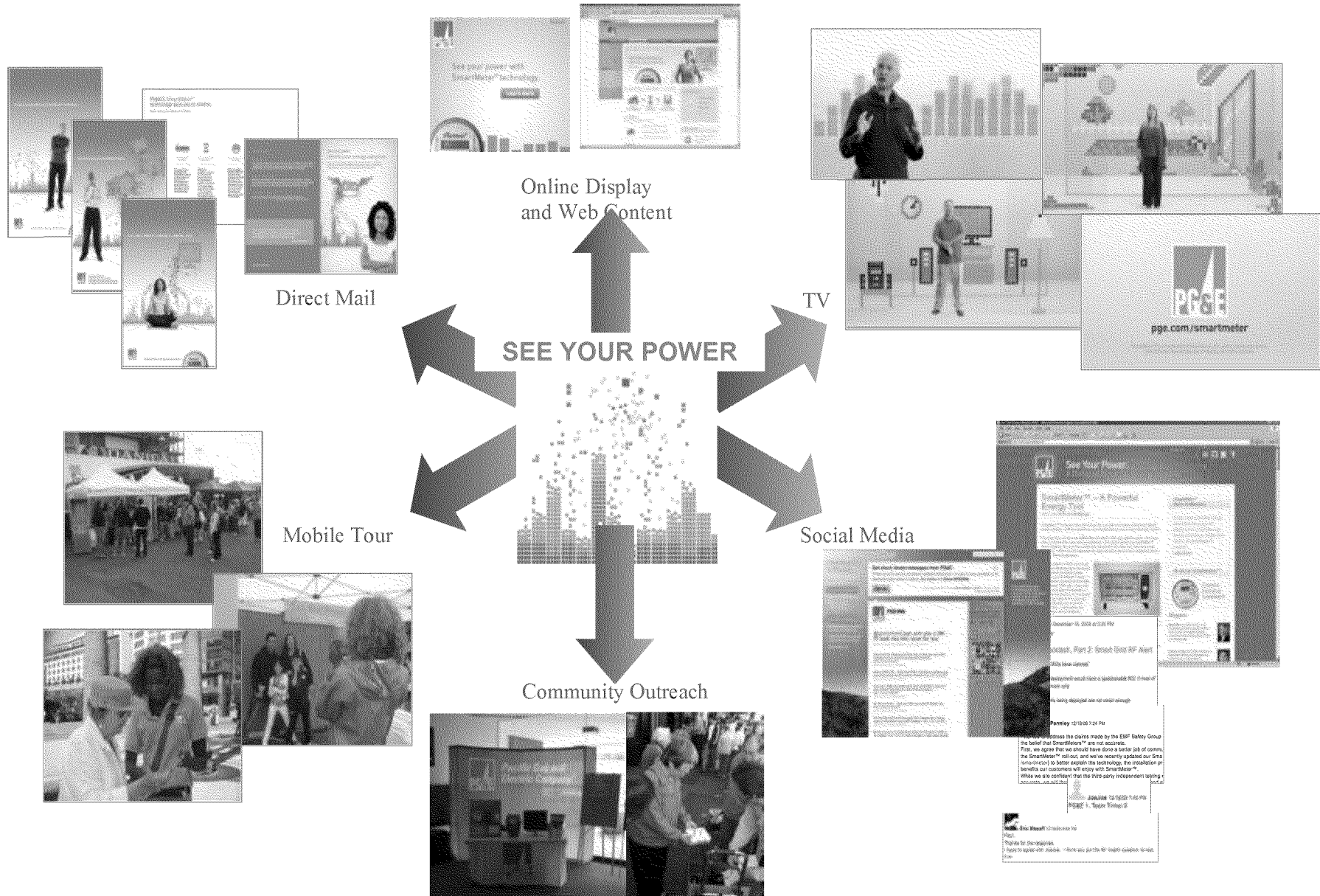
## Multiple Mobile Tour Components:

- Touch Screen Kiosks show ways to see energy savings, TV commercials and My Account demos
- Touch Screen Game to show ways to see energy savings
- Photo Booth with static electric orb to drive online engagement
- English, Spanish and Chinese





# Multiple touches; variety of platforms



# Enhancing the customer experience





# Enhancing the customer experience

## Description

Improve experience around SmartMeter™ by being more responsive to customer needs and issues

## Past activities

- Created a dedicated team of SmartMeter™ call center reps, a Customer Impact Outreach Specialists team and added 165 additional customer service representatives

## Current and future activities

- |   | Timing   |
|---|----------|
| • Call SmartMeter™ customers who have received an estimated bill for two billing cycles and all customers with delayed bills greater than 60 days | Ongoing  |
| • Rollout Customer Intervention process – enabling reps to intervene on behalf of a customer  | By 10/31 |
| • Implement follow up Customer Experience training in the contact centers   | By 11/30 |
| • Reduce escalated complaints by 50%  | By 12/31 |
| • Increased the number of Answer Centers, Customer Advisory Groups and proactive community engagement.  | Ongoing  |





# SmartMeter™ Answer Centers

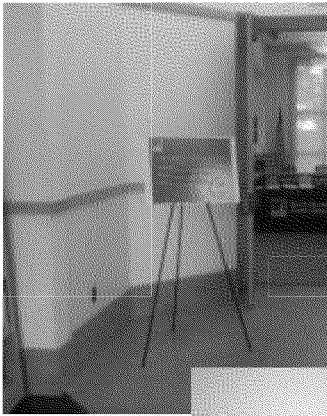
Week of 10-15-10

Other Presentations:

Lincoln



Marina



Fleet Week



San Jose City Hall



Santa Cruz



Lorna Homeowner's Assoc.

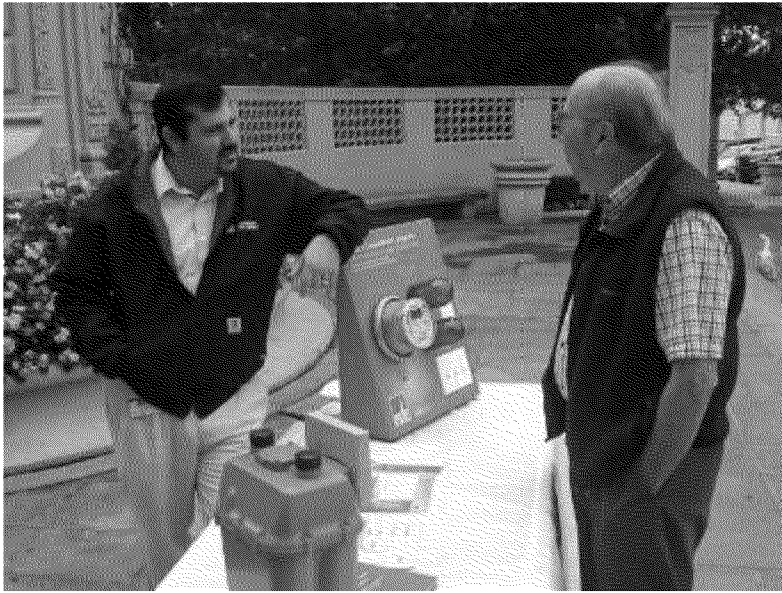




# SmartMeter™ Answer Centers

*Week of 10-18-10*

Piedmont



Salinas





# Appendix

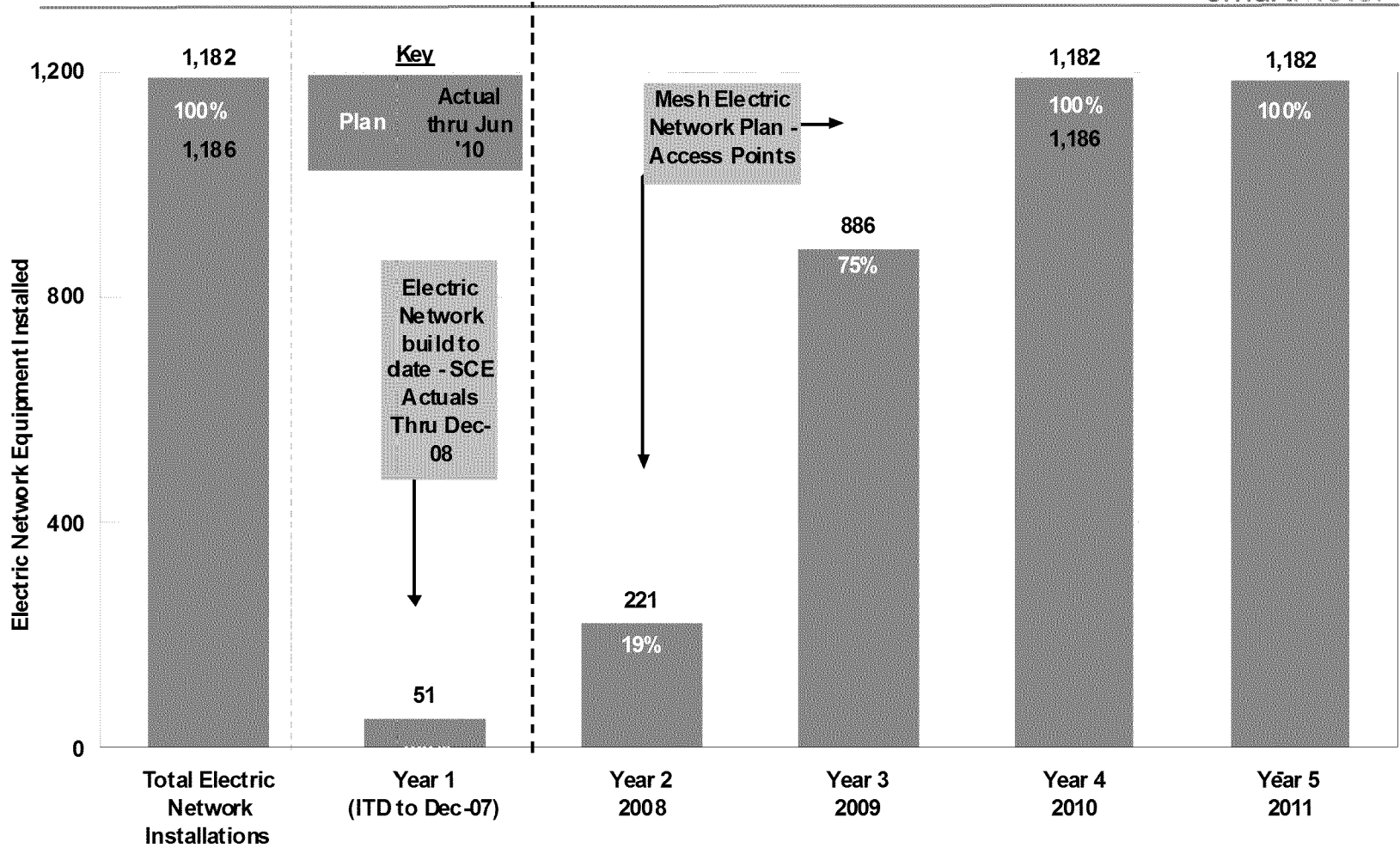




# From Semi-Annual July 31, 2010

## Electric Network Installations

Cumulative Electric Network Installations: Substation Communication Equipment (SCE) & RF Mesh Access Points

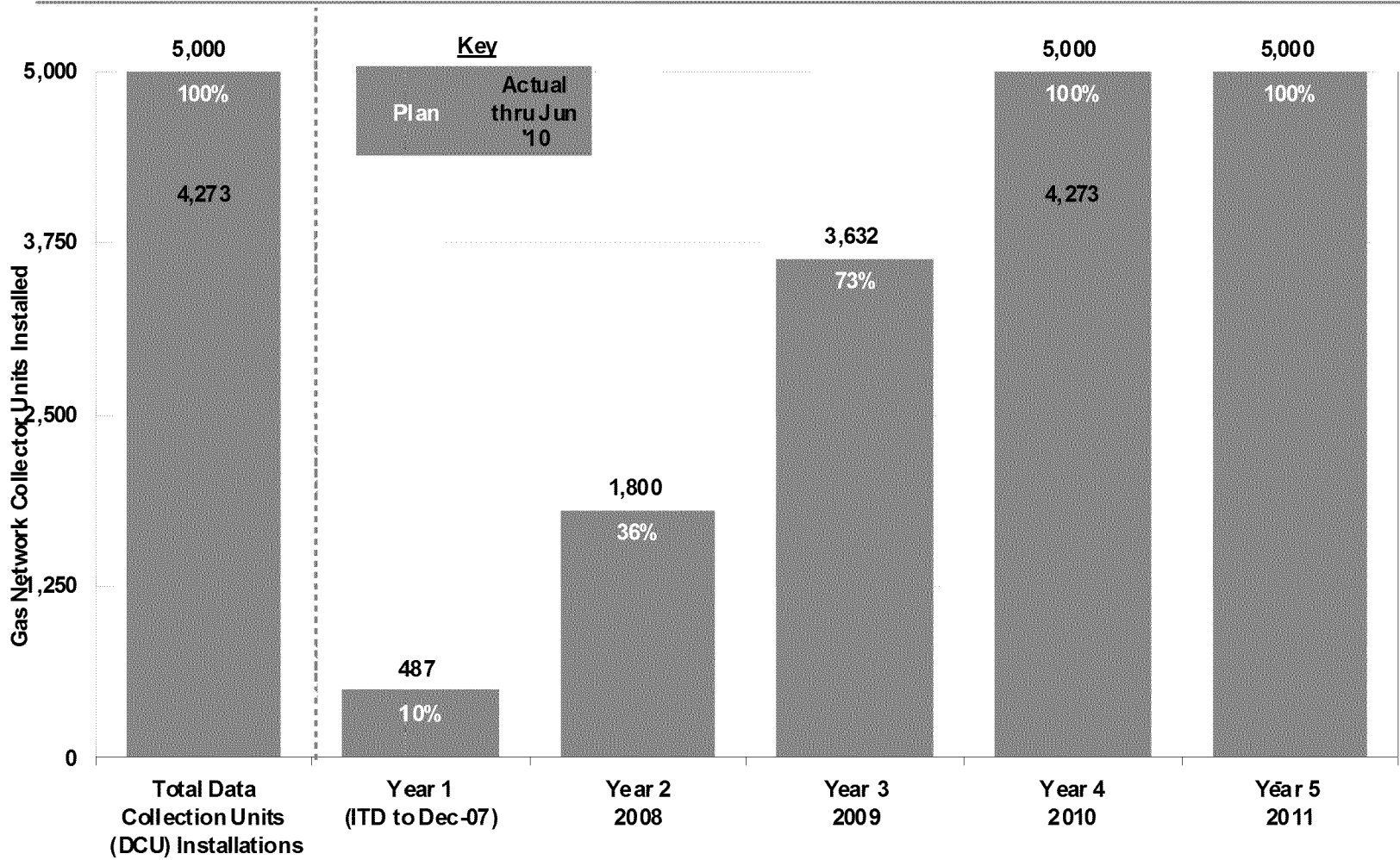




# From Semi-Annual July 31, 2010

## Gas Network Installations

Cumulative DCU Network Installations







# From Semi-Annual July 31, 2010

## Endpoint Installations

Cumulative Network Enabled Locations (in 000s)

