



Residential and Non-Residential Billing Data

California Public Utilities Commission's Data Requests
for the Evaluation of the IOU's Energy Efficiency Programs

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Billing and CIS Data Requests

- Data obtained through the California Public Utilities Commission's Data Requests for the Evaluation of the IOU's Energy Efficiency Programs
- Utilities:
 - Pacific Gas & Electric
 - San Diego Gas & Electric
 - South California Edison
 - Southern California Gas

Data Types

Data requested and obtained is of the following types:

- Customer Information
- Monthly Billing Data
- Interval Load Data from Smart Meters for a sample of residential customers
- Public Property Records (available for a limited number of residential records)
- Fields added by DNV KEMA and Itron
- Energy Efficiency Program Tracking Data



Customer Information

Residential

- Account Id
- Customer Id
- Premise Id
- Customer Name
- Service Address
- Mailing Address
- Phone Number(s)
- Climate Zone
- Weather Station
- Dwelling Type
- Individual or Master Meter

Non-Residential

- Account Id
- Customer Id
- Premise Id
- Customer & Business Name
- Service Address
- Mailing Address
- Phone Number(s)
- Climate Zone
- Weather Station
- Premise Start Date
- Benchmarking Flag
- Direct Access Flag

Monthly Billing Data

- Separate datasets for electric and gas accounts
- Variables
 - Account Id
 - Bill (kWh or Thm)
 - Bill (dollar amount, available for 2011 only)
 - Read dates
 - Rate
 - CARE status (Residential Only)
 - FERA status (Residential Only)
 - Net Metering status (Residential Only)
 - Estimated/Adjusted bill flags
 - Smart Meter Indicator (Residential Only)



Residential Interval Load Data

- Sample of Interval Meter Data for a ZIP-9 code which was among the earliest to have smart meters installed
 - Account number or other identifier to link to customer information and billing data
 - All interval meter data

Residential Public Property Records – Received

- San Diego Gas & Electric

Building Characteristics for 750,000 dwellings:

- Year Build
- Square footage
- Number of bedrooms
- Number of bathrooms
- Number of stories
- Number of units (multi-family units under the same ownership)

Fields Added to Residential Datasets by DNV KEMA

- Account-level matching that combines:
 - Electric IOU
 - Gas IOU
 - Customer Information on electric and gas accounts
- Census Tract and Census Block (for use in WO 20)
- Separate tracking for whether an IOU customer has been solicited to participate in a study. We will attempt to limit the number of solicitations to one only.

Fields Added to Non-Residential Datasets by Itron

- Site ID
 - Using an algorithm based on address, customer name, and premise.
 - This is attached to CIS, EE tracking, and billing data to enable merging between datasets.
- Census blocks and tracts
- Counties
- Program participation, work order assignment, and enduse flags



How has the Residential Dataset been used?

Energy Efficiency Research projects supported by this data:

- California Lighting and Appliance Saturation Survey (CLASS) Sampling Frame (WO 21)
- Macro Consumption Pilot Study (WO 20)
- Whole House/ Energy Upgrade California (EUC) Impact Evaluation (WO 46)
- Lighting Study (WO 28)

Example of Billing Data Use: The CLASS Sampling Frame

Work Order 21

Stratum	IOU	Climate Zone Group	CARE FERA	Daily kWh	Number of Customers	Percent Customers Overall	Percent Customers IOU	Average Daily kWh	Percent Daily kWh	Std Dev Daily kWh
1	PGE	I	N	<= 20.9	939,212	7.5%	16.8%	9,979,587	4.8%	6.1
2	PGE	I	N	<= 33	388,491	3.1%	6.9%	10,177,432	4.9%	3.4
3	PGE	I	N	> 33	224,254	1.8%	4.0%	10,177,563	4.9%	21.3
4	PGE	I	Y	<= 20.6	467,446	3.7%	8.4%	5,946,164	2.9%	4.8
5	PGE	I	Y	<= 32.7	232,332	1.9%	4.2%	5,991,679	2.9%	3.4
6	PGE	I	Y	> 32.7	123,785	1.0%	2.2%	6,005,512	2.9%	91.9
7	PGE	M	N	<= 14.9	1,533,933	12.2%	27.4%	11,910,622	5.7%	4.1
8	PGE	M	N	<= 25.4	627,322	5.0%	11.2%	12,075,995	5.8%	2.9
9	PGE	M	N	> 25.4	304,362	2.4%	5.4%	12,118,454	5.8%	39.2
10	PGE	M	Y	<= 15.2	465,218	3.7%	8.3%	4,127,128	2.0%	3.5
11	PGE	M	Y	<= 28	209,521	1.7%	3.7%	4,226,823	2.0%	3.5
12	PGE	M	Y	> 28	75,015	0.6%	1.3%	4,210,634	2.0%	166.9
13	SCE	D	N	<= 27.1	79,399	0.6%	1.5%	954,642	0.5%	7.7
14	SCE	D	N	<= 48.1	26,808	0.2%	0.5%	961,120	0.5%	5.9
15	SCE	D	N	> 48.1	12,976	0.1%	0.2%	962,392	0.5%	46.4
16	SCE	D	Y	<= 24.2	24,353	0.2%	0.5%	362,100	0.2%	5.8
17	SCE	D	Y	<= 36.9	12,295	0.1%	0.2%	367,191	0.2%	3.6
18	SCE	D	Y	> 36.9	7,600	0.1%	0.1%	369,300	0.2%	12.5
19	SCE	I	N	<= 18.2	1,612,167	12.8%	30.2%	14,696,925	7.1%	5.4
20	SCE	I	N	<= 29.7	640,260	5.1%	12.0%	14,791,400	7.1%	3.2
21	SCE	I	N	> 29.7	352,762	2.8%	6.6%	14,872,178	7.2%	21.4
22	SCE	I	Y	<= 15.6	800,106	6.4%	15.0%	7,763,625	3.7%	3.5
...										
42	SDGE	M	Y	> 18.9	39,739	0.3%	2.5%	1,056,853	0.5%	9.4
TOTAL					12,556,403	100.0%		207,906,045	100.0%	

Example of Billing Data Use: Macro Consumption Metrics (MCM) Pilot Study

Work Order 20

Table ES1: State-Level Policy Impact Findings, Electricity

kWh: 2006-2009 Period	Avg. Ann. Energy Consum.	Last Yr. Cum. Ex Ante Savings	Pct. Est. Impact	Annual Est. Impact
Ind. (PG&E, SDG&E, SCE)	41,554,138,628	2,048,456,628	13.6%	5,668,443,641
Com. (PG&E, SGG&E, SCE)	76,735,020,087	3,403,092,575	1.2%	916,539,984
Res. (PG&E)	30,132,043,300	480,430,254	4.7%	1,408,088,335
Res. (SDG&E)	7,483,267,512	105,504,485	3.9%	289,567,961
Res. Codes (PG&E) ¹	2,571,722,287		1.9%	48,775,285
Res. Code (SDG&E) ¹	742,521,437		3.2%	23,700,542
Total	155,904,469,527	6,037,483,943		8,355,115,748
Percent Impact		3.9%		5.4%
Pct. Standard Error (+/-)				28.6%
kWh: 2006-2010 Period				
Ind. (PG&E, SDG&E, SCE)	41,879,937,508	2,512,486,691	17.8%	7,471,169,145
Com. (PG&E, SGG&E, SCE)	76,829,480,556	4,412,722,613	2.1%	1,611,926,492
Res. (PG&E)	30,207,548,725	526,324,700	6.4%	1,923,104,970
Res. (SDG&E)	7,432,945,519	129,427,756	4.2%	313,568,580
Res. Codes (PG&E) ¹	2,552,293,975		2.0%	51,114,791
Res. Code (SDG&E) ¹	729,653,042		2.9%	21,086,973
Avg. Total. Ann. Consum.	156,349,912,308	7,580,961,761		11,391,970,952
Percent Impact		4.8%		7.3%
Pct. Standard Error (+/-)				18.9%

From Billing Data

From EE Program Tracking Data

Estimated by Study

¹ Average annual energy consumption for census tracts with >30% houses built 2000-2004 .

Source: Demand Research, LLC. Macro Consumption Metrics Pilot Study Final Report. Prepared for the CPUC Energy Division by Marvin Horowitz. November 8, 2012.

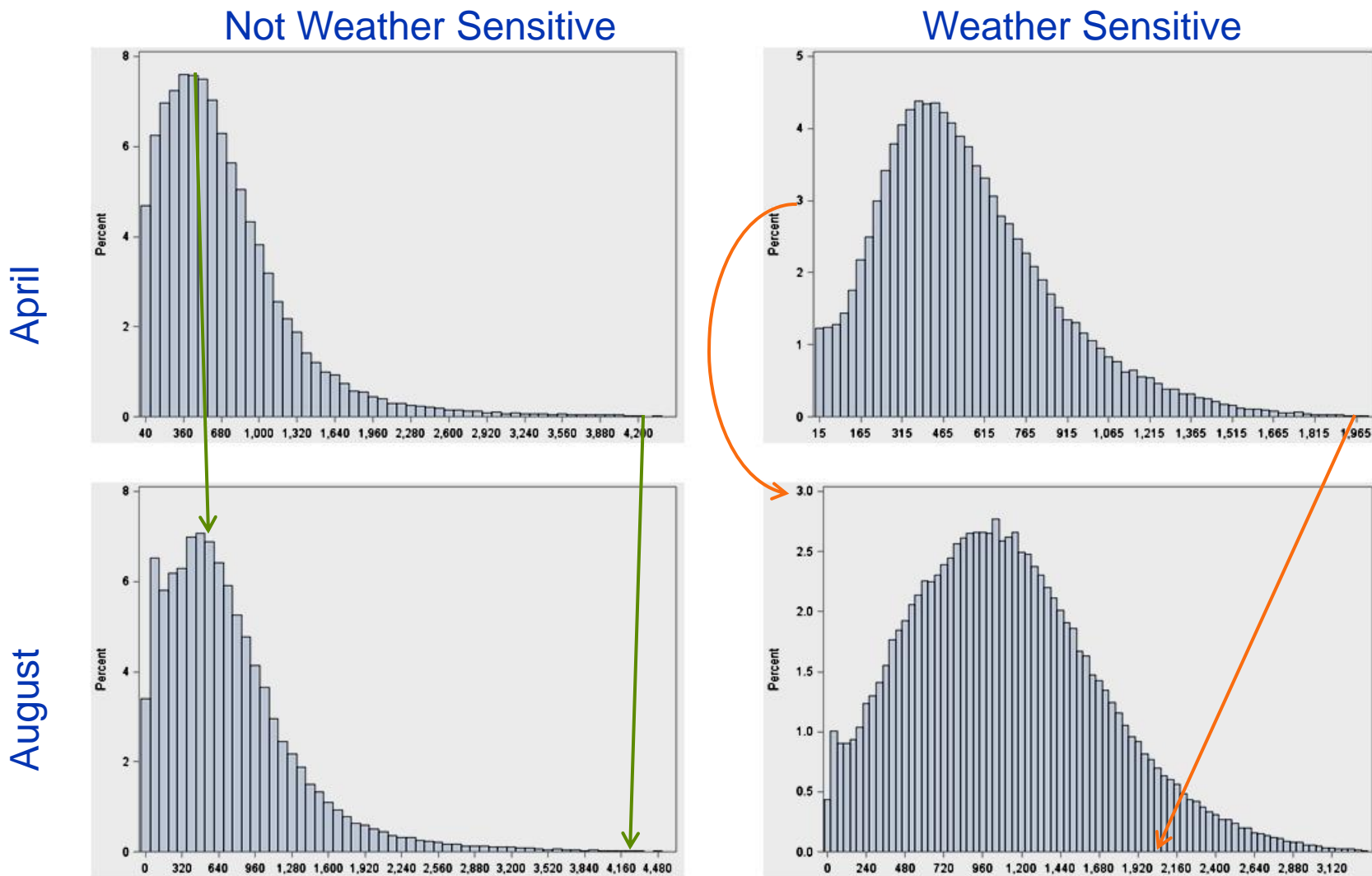


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Example of Billing Data Use: Whole House / EUC Impact Evaluation

Work Order 46



How has the Non-Residential Dataset been used?

Energy Efficiency Research projects supported by this data:

- The full dataset of customers was used as the sampling frame for WO024 (Commercial Saturation Study and Commercial Market Share Tracking).
- The SiteID is used to attribute tracking data records to a single site for sampling across all impact work orders.
- The flags allow work orders to coordinate to avoid multiple phone calls to the same site.
- The full dataset going back to 2006 was used as the underlying datasets for WO020 (Macro consumption study)

How else can the datasets be used?

- Consumption trends
- Savings trends
- Penetration rates
- Measure uptake/measure mix trends
- Characteristics of non-participants

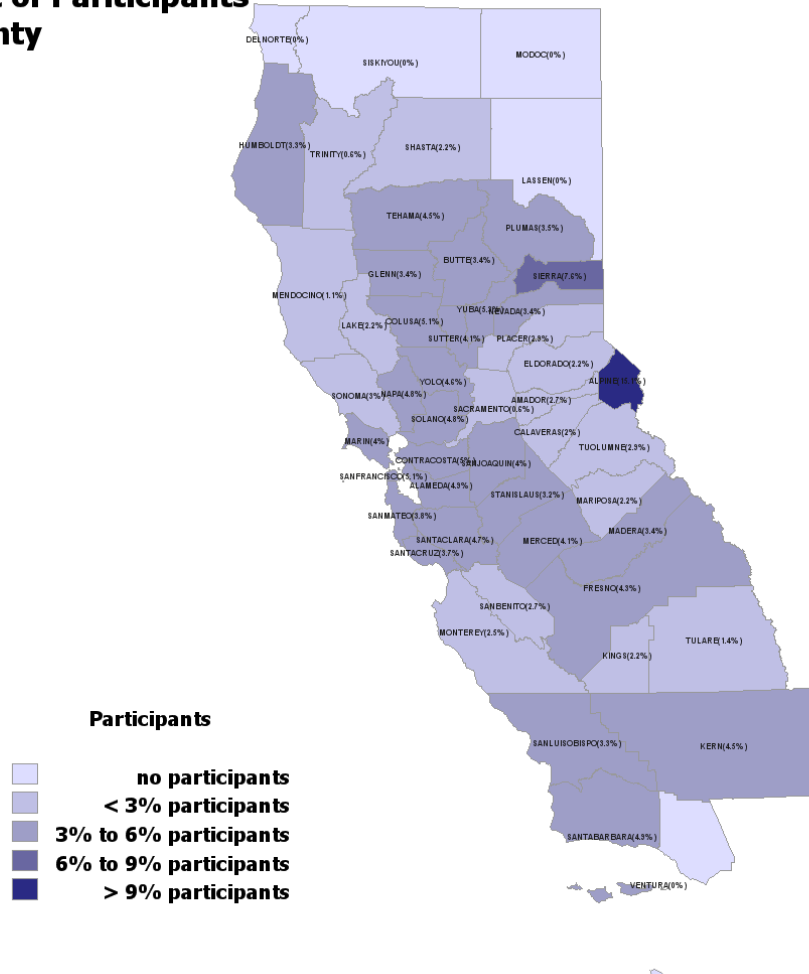


How else can the datasets be parsed?

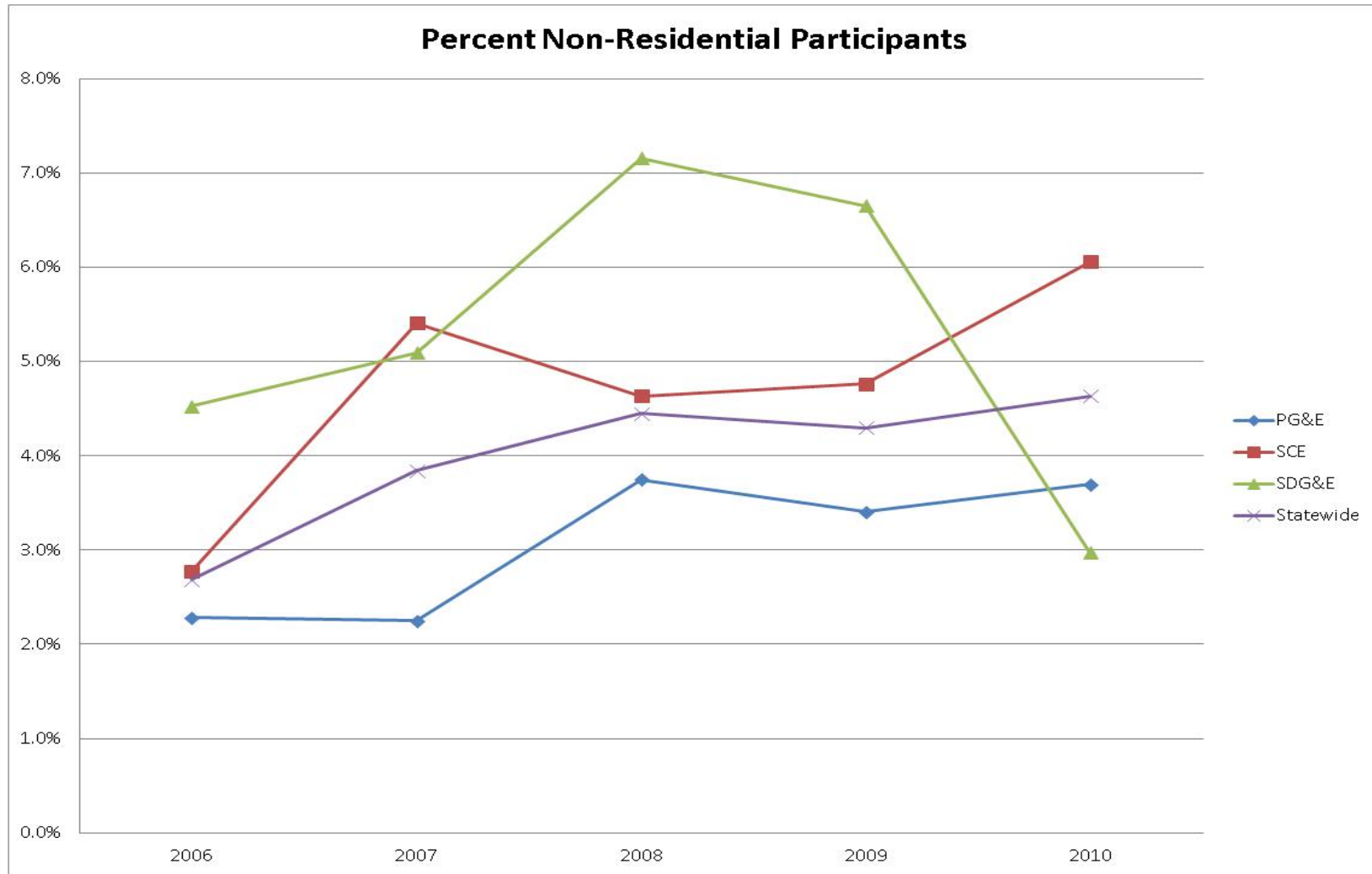
- By sector (NAICS code or building type)
- By geographic region (zip code, climate zone, census blocks, etc)
- By participation status
- By measure or end use

Non-Residential Participation in PG&E

**Percent of Participants
by County**

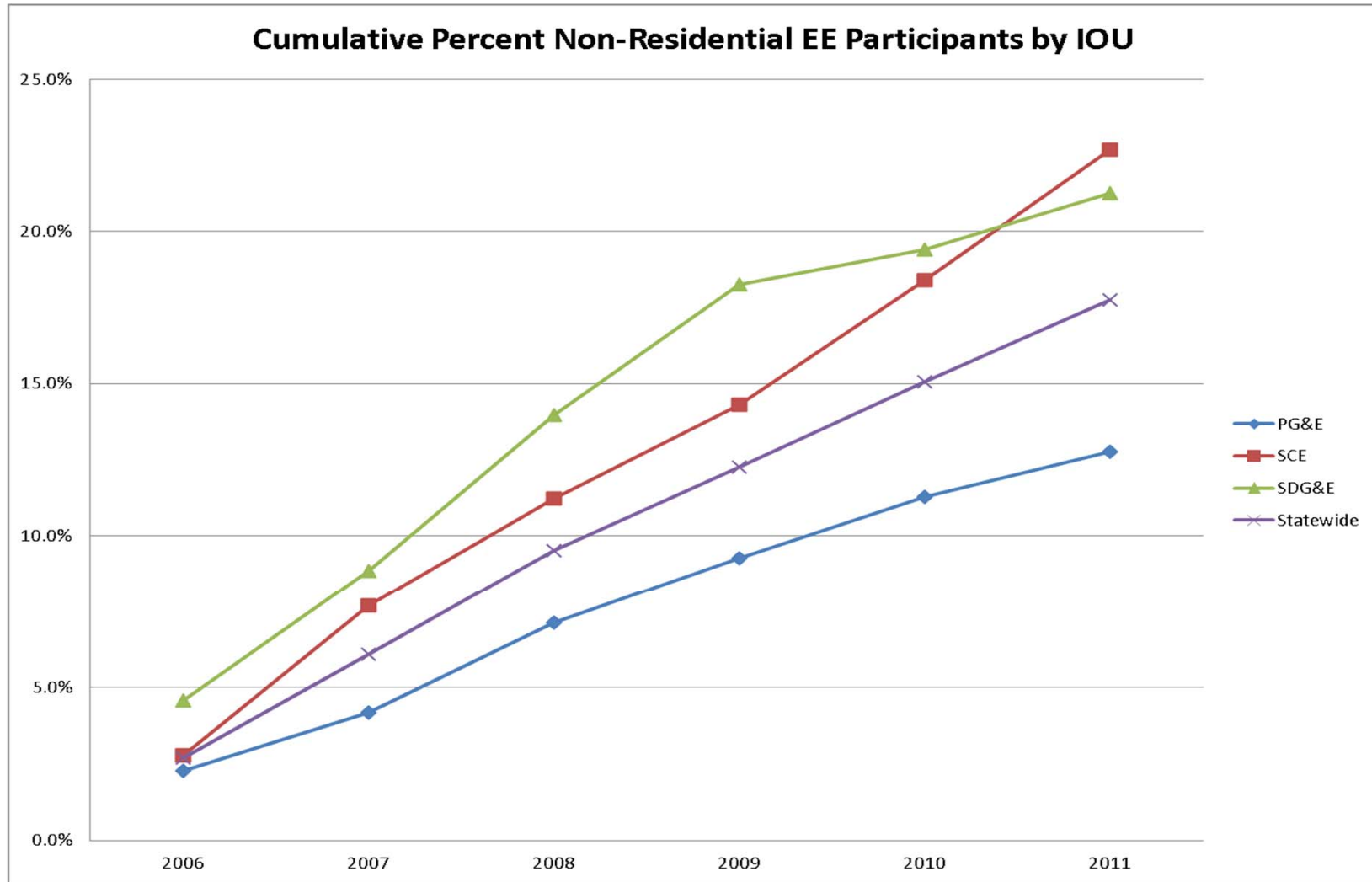


Non-Residential Participation in California



*Gas program participants are not included.

Non-Residential Participation in California



*Gas program participants are not included.

Information Protection

- DNV KEMA's data physically resides on a SAS Server, at the Chalfont, Pennsylvania facility
- Itron's data physically resides on a SAS Server, at the Oakland, California facility
- Individual records are available on a “need to know” basis – access is limited to analysts that need it for their work
- Transfer of individual records to portable devices that are not encrypted is strictly prohibited
- Transfer of individual records to portable devices that are encrypted or printing of data on paper requires a valid business reason (e.g. surveys) and project manager approval



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