PG&E Energy Data for CAP Implementation and Tracking

BayREN Codes and Standards Forum

Jillian Rich, Senior Program Manager
Government and Community Partnerships
January 15, 2014

- PG&E Service Area
- Redwood Coast
- Shasta–Tehama–Glenn
- Sierra Nevada
- Butte–Yuba–Sutter
- Mendocino
- Lake
- Yolo
- Sonoma
- Napa
- Solano
- Marin
- East Bay
- San Joaquin–Stanislaus–Merced
- San Francisco
- San Mateo
- Silicon Valley
- AMBAG
- Madera
- Fresno
- Kings–Tulare
- Kern
- San Luis Obispo
- Santa Barbara

Statewide:

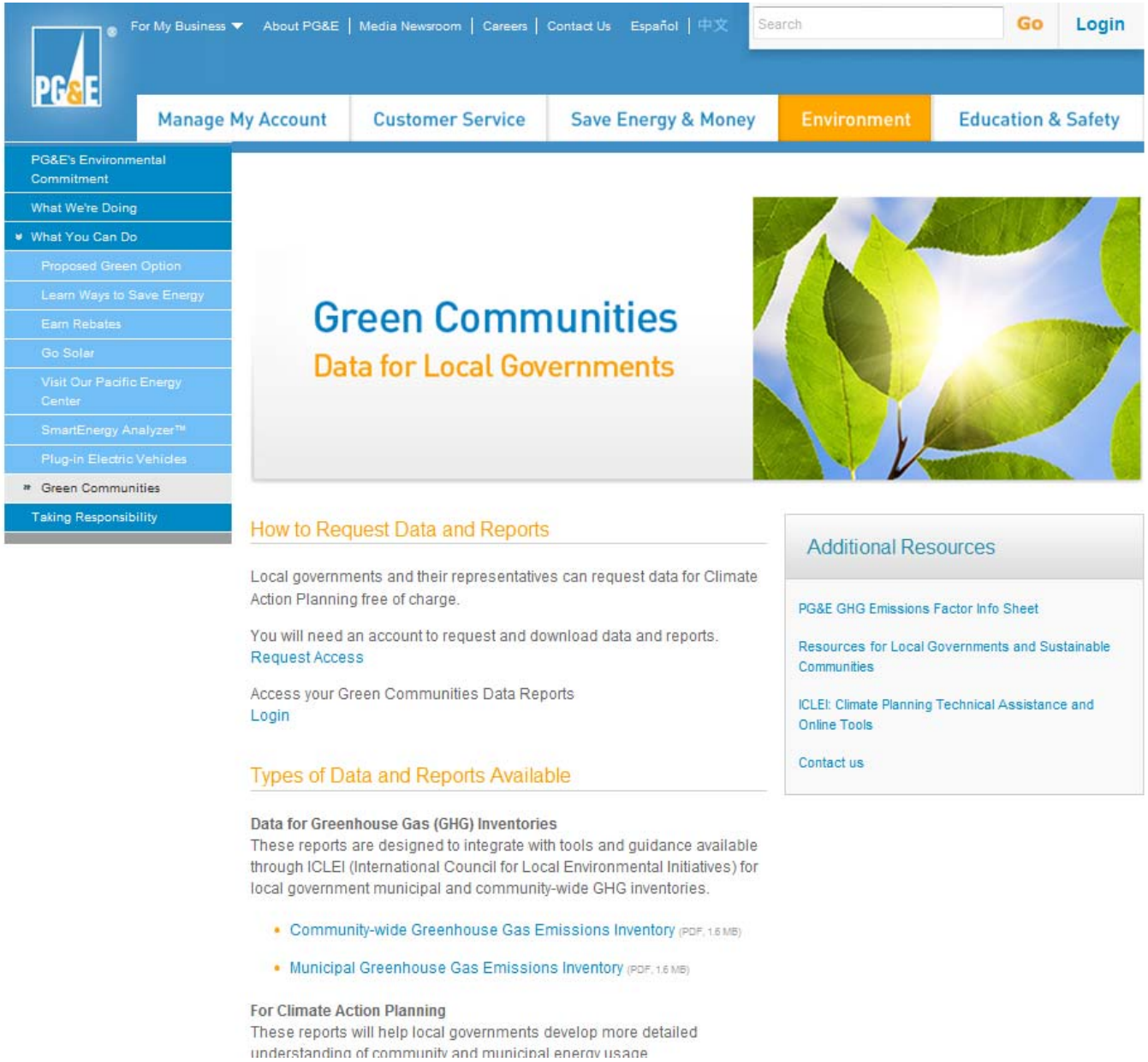
- UC/CSU
- California Community Colleges
- California Department of Corrections & Rehabilitation
- State of California

2013-2014 PG&E Partnerships

In the next 10 minutes…

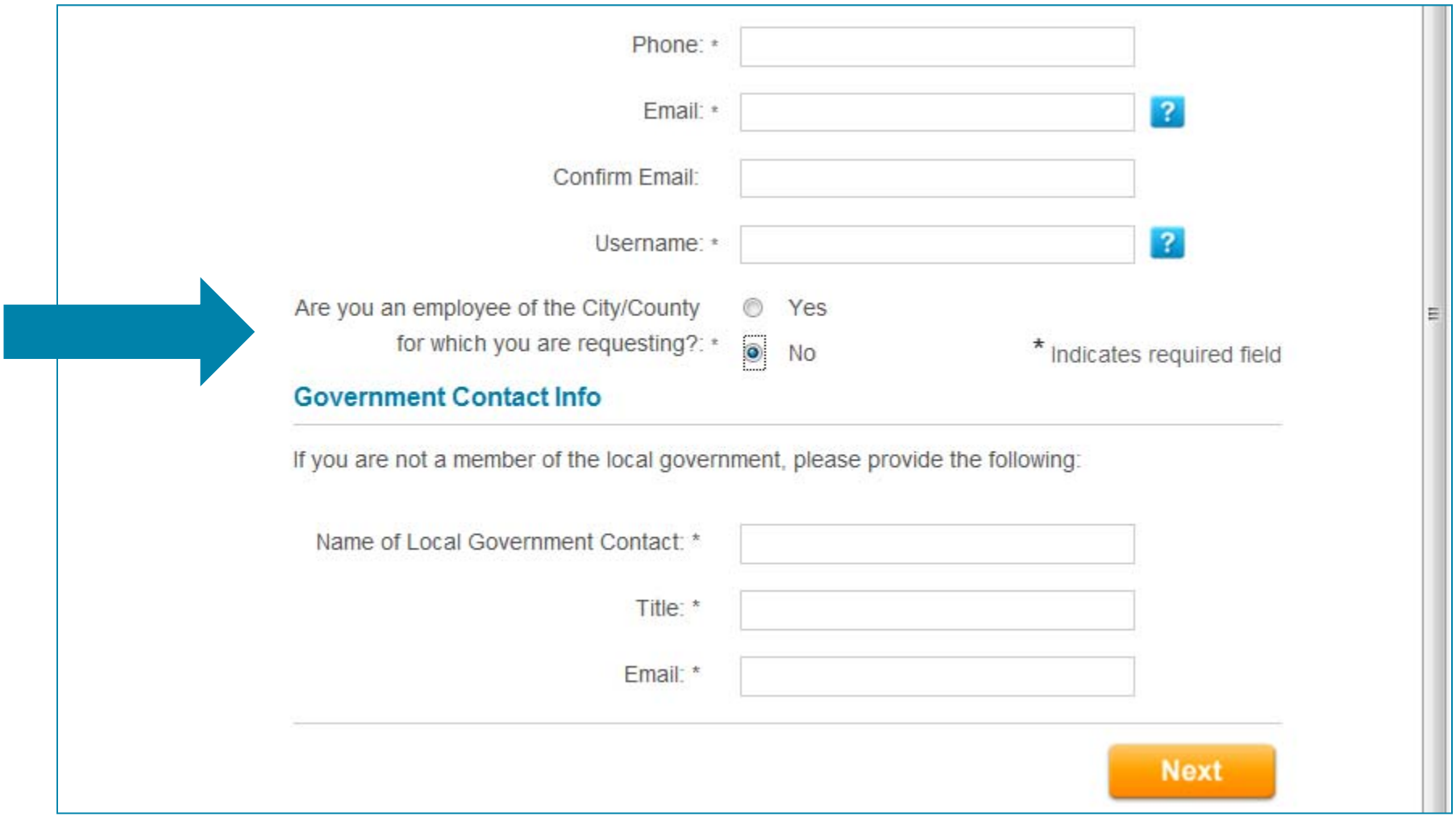
- How to request data
- Available data for:
  - GHG inventories
  - Climate Planning
  - Implementation Tracking

How to Request Energy Data



http://www.pge.com/mybusiness/environment/whatyoucando/greencommunities

Requesting Access



Pacific Gas and Electric Company

Reports for Local Governments

PG&E makes data available to local governments to support Climate Planning Activities. Learn more about impact and opportunities in your community to reduce energy usage and greenhouse gas emissions.

To request reports, email GHGDataRequests@pge.com
or visit http://www.pge.com/mybusiness/environment/whatyoucando/greencommunities/

Report Information

	Description	Level of Aggregation: Geographical: City	Zip Code	Zip4*	Address	Interval: Annual	Quarterly	Monthly*	Customer: Non-Residential	Residential	Single/Multi-Family	PG&E Sector	Account
Inventory Data													
Community-wide GHG Inventory	Community-wide energy usage and emissions for community-wide GHG inventory	•				•			•	•			
Municipal Operations GHG Inventory	Municipal energy usage and emissions for municipal GHG inventory	•	•		•	•							•
Insight and Planning Reports													
Energy Overview	Quarterly energy usage and emissions for residential and non-residential categories.	•				•	•		•	•			
Residential Overview	Residential quarterly energy usage by zip code	•	•			•	•			•	•		
Non-Residential Overview	Non-residential energy usage by zip code and PG&E customer sector (report only; raw data requires NDA)	•	•			•	•		•				
Municipal Operations	Annual energy usage and emissions for all city-owned accounts	•	•		•	•							•
Interconnected PV Generation	Quarterly annual solar capacity and sites interconnected to the electricity grid.	•	•				•		•	•			
Residential Energy Efficiency Opportunity	Opportunity analysis for implementation of residential energy efficiency programs. NDA Required	•	•	NDA		•							

Notes:
- CPUC 15/15 Rule applied to all aggregate data (no categories fewer than 15 customers or one customer greater than 15% of usage)
* Green Communities will provide Non-Disclosure Agreement for local governments where applicable

Available Data

(Refer to Handout)

GHG Inventory Data

GHG Inventory Reports

Community-wide GHG Inventory

Sample of Aggregate Data

RATE DATA ANNALYSIS: DR3712 GAS AND ELECTRIC GHG SUMMARY FOR INCORPORATED CITIES AND UNINCORPORATED PORTIONS OF HOME COUNTY

CITY	YEAR	CATEGORY	RES ELEC AVG (KWH)	RES ELEC USE (KWH)	RES ELEC GHG (metric tonnes)	RES ELEC CLIM (lbs)	COM ELEC AVG (KWH)	COM ELEC USE (KWH)	RES ELEC GHG (metric tonnes)	RES ELEC CLIM (lbs)	IND ELEC AVG (KWH)	IND ELEC USE (KWH)	IND ELEC GHG (metric tonnes)	IND ELEC CLIM (lbs)	IND ELEC 1515	DA KWH
City A	2006	[3] COUNTY					1,143	83,058	17							
City A	2006	NONCOUNTY	649	534,396	7,350		24,610	104,396	8,710						FAIL	ZZZZZ
City B	2006	[3] COUNTY					1,507	342,193	71							
City B	2006	NONCOUNTY	619	652,931	2,617		15,085	982,718	3,100							ZZZZZ
City C	2006	[3] COUNTY					16,258	597,273	1,571							
City C	2006	NONCOUNTY	965	877,514	36,792		20,957	873,480	35,344						FAIL	ZZZZZ
UNINC HOME CO.	2006	[3] COUNTY	609	12,605	3		3,202	911,783	602							
UNINC HOME CO.	2006	NONCOUNTY	2,552	563,867	26,799		14,080	133,523	43,464		15,384	384,609	1,527		FAIL	ZZZZZ

Municipal Operations GHG Inventory

Sample of Detailed Data

RATE DATA ANALYSIS: DR3728 2005 CITY DETAIL GHG DATA FOR MY TOWN

CUSTOMER NAME	[TOT] CITY NAME	ACCOUNT ID	SERVICE AGREEMENT ID	PREMISE TYPE	BUSINESS ACTIVITY	SERVICE ADDRESS	SERVICE CITY	SERVICE ZIP	BUSINESS OWNER-SHIP	RATE SCHEDULE	KWH	ELEC REVENUE	THM	GAS REVE-NUE
CITY OF MY TOWN	MY TOWN	1234	1	COM OR IND	TRAFFIC SIGNAL	11 EAST HWY	MY TOWN	90000	[4] CITY	TC1 - TRAFFIC CONTROL SERVICE	678	706		
CITY OF MY TOWN	MY TOWN	1234	2	COM OR IND	SEWAGE PUMP STATION	123 INDUS-TRIAL	MY TOWN	90000	[4] CITY	A1 - SMALL GERNERAL SERVICE	347	2,074		

FOR INFORMATIONAL PURPOSES ONLY

Annual GHG Coefficient

Greenhouse Gas Emission Factors: Guidance for PG&E Customers

April 2013

In recent years, an increasing number of PG&E customers have started to track the greenhouse gas (GHG) emissions from their business operations, generated within their city, or saved through energy efficiency. This document is intended to help PG&E customers understand the different emission factors they can use to estimate GHG emissions for their own climate action planning or voluntary GHG emissions tracking or reporting. PG&E's latest GHG emission factor for delivered electricity is available online.

Please note: The information in this document is not to be used for mandatory GHG reporting, financial analysis, or regulatory compliance, and does not necessarily reflect the approaches taken by PG&E for its own regulatory compliance purposes.

What is a GHG emission factor?

A GHG emission factor[1] is a measure of the pounds of carbon dioxide (CO_2) emitted per megawatt-hour of electricity or per therm of natural gas.

- **Electricity** generated from fossil fuels such as natural gas or coal emit CO_2, while other sources of electricity such as hydropower, wind, solar, and nuclear power are considered to be carbon-free. The electricity that PG&E delivers to customers comes from a mix of these generation sources. PG&E's emission factor for delivered electricity incorporates the annual energy and associated emissions from each generation source for the given year. Variance in PG&E's mix of electricity sources largely account for changes in PG&E's GHG emission factor from year to year.
- The **natural gas** emission factor represents the amount of GHGs emitted per therm of natural gas combusted. This emission factor does not vary because the composition of PG&E's natural gas does not change significantly over time.

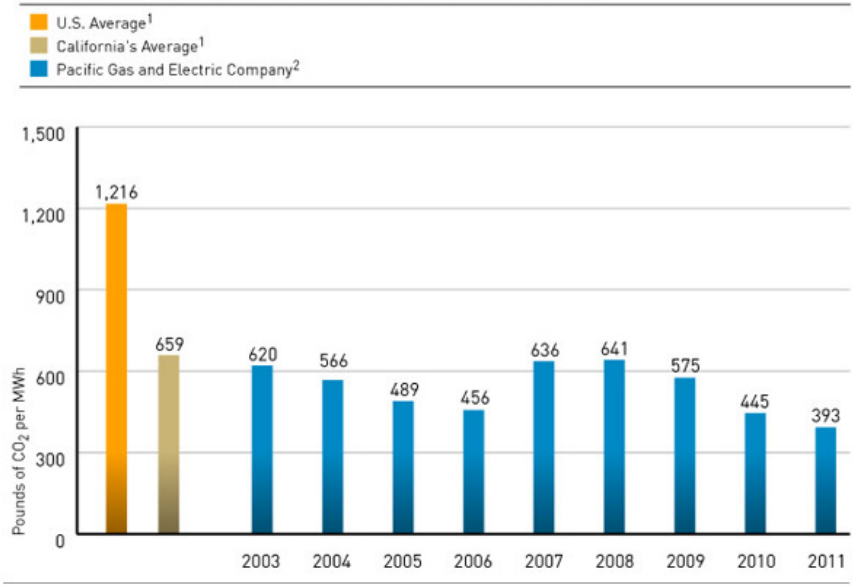
Electricity Emission Factors

If you are estimating the GHG emissions generated by a business, city, county, or related entity over the course of a year, and if 100% of your electricity was purchased from PG&E, you can use the average emission factor for all the PG&E electricity delivered during that specific year.

Historic emissions: Historic average emissions factors take into account all of the sources of electricity that PG&E delivered to customers during a specific year in the past. As a founding member of the California Climate Action Registry (CCAR), PG&E

[1] An emission factor is also known as an emission rate or emission coefficient.

Benchmarking CO_2 Emissions for Delivered Electricity



1) Source: U.S. Environmental Protection Agency eGRID 2012 Version 1.0, which contains 2009 year information configured to reflect the electric power industry's structure as of May 10, 2012.

2) Because PG&E purchases a portion of its electricity from the wholesale market, we are not able to track some of our delivered electricity back to a specific generator. Therefore, there is some unavoidable uncertainty in PG&E's total emissions and emissions rate for delivered electricity.

Climate Action Planning Data

+ableau
SOFTWARE

PG&E Energy Summary Sample County 2005 to 2012

Contact Government and Community Partnerships at GHGDataRequests@pge.com for more information

Pacific Gas and Electric Company

This document will help you understand drivers of **Sample County** energy usage and the ways the community and PG&E are partnering to decrease energy consumption.

Overall energy usage

This is the breakdown between Non-Residential and Residential energy usage in 2012 for Humboldt County.

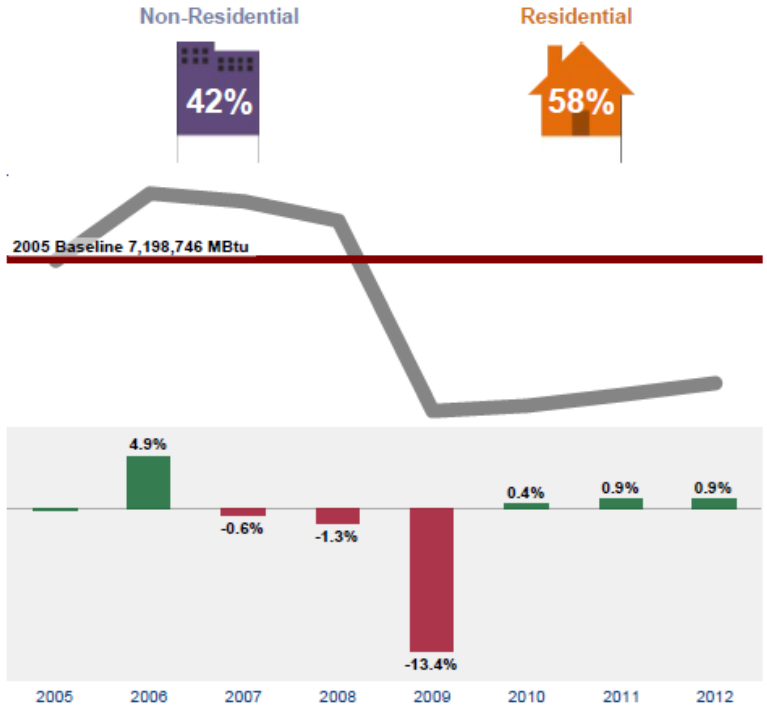
6,556,663

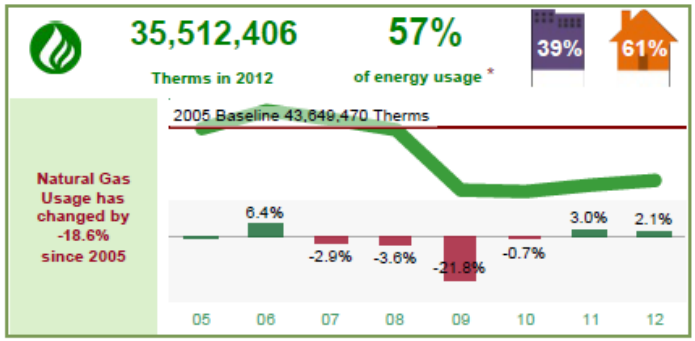
million British thermal units in 2012*

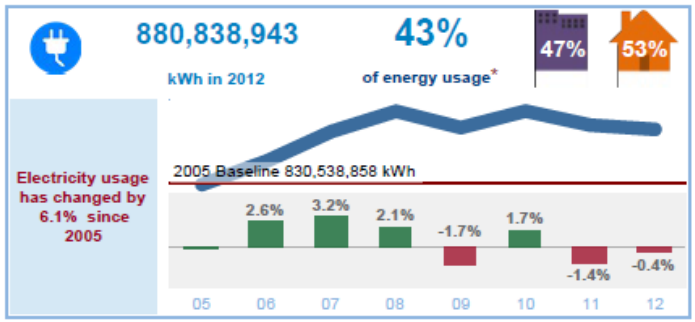
Energy usage has changed by -8.9% since 2005

This is the Year over Year change in overall energy usage from the prior year

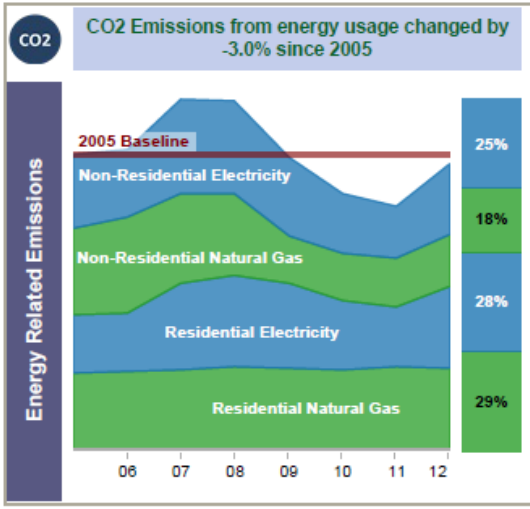
*Consumption has been converted to British thermal units (Btu) to compare electricity and natural gas usage

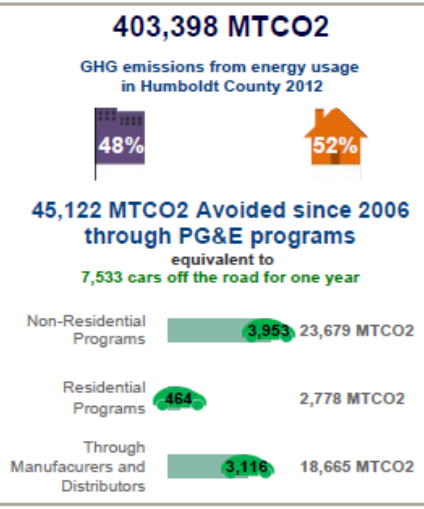




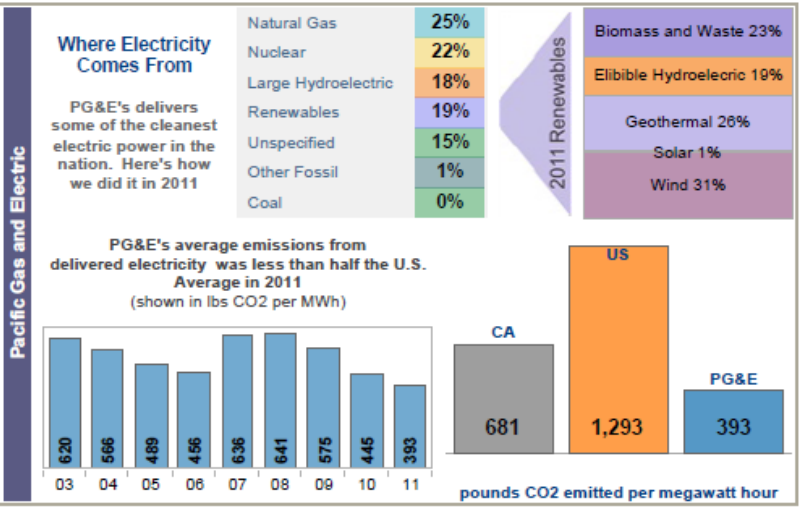


Energy Related Emissions





Pacific Gas and Electric



Residential Energy

Usage

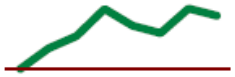
58% of community energy usage (Btu) is from residential customers

Energy usage has changed by 14.7% since 2005

41%

59%

Residential electricity usage changed by 28.4% since 2005



Residential natural gas usage has changed by 6.4% since 2005

Averages

Averages

Monthly Household Averages in 2012

Multi Family	350 kWh per month	6.7% since 2005
Single Family	632 kWh per month	29.1% since 2005
Multi Family	32 therms per month	0.9% since 2005
Single Family	42 therms per month	4.4% since 2005

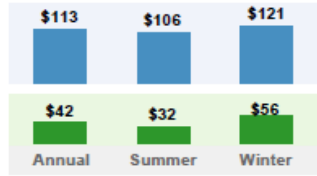
Climate Zone Average: 670 kWh

Climate Zone Average: 42 therms

Climate Zone 01

By Season

Average Monthly Bill



Renewables

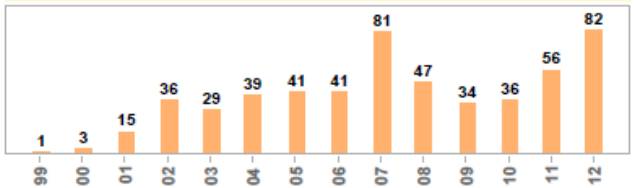
Photovoltaics

541 Sites

1,842 kW

CEC AC Capacity

Residential sites interconnected to the PG&E grid 99 to 12



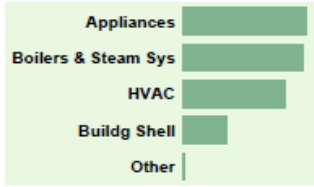
Energy Efficiency

2,778 MTCO2

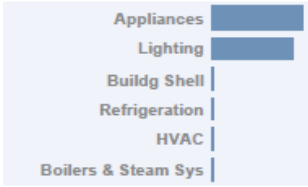
Annual avoided emissions since 2006 through PG&E programs

CO2

180,000 Therms Saved

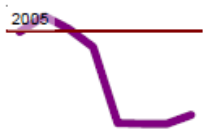


7,166,000 kWh Saved



Non-Residential Energy Usage

42% of Humboldt County energy usage (Btu) is from non-residential customers



Non-residential energy usage has changed by -28.8% since 2005

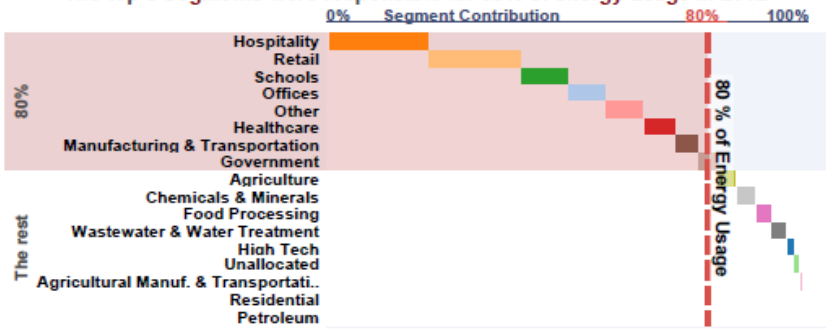
45%

Electricity usage has changed by -11.4% since 2005

55%

Non-residential natural gas usage has changed by -40.7% since 2005

The top 8 Segments were responsible for 80% of energy usage in 2012



Renewables

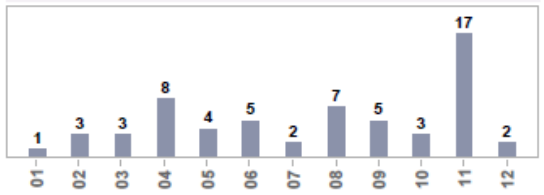
Photovoltaics

60 Sites

571 kW

CEC AC Capacity

Sites Interconnected to the PG&E grid 01 to 12



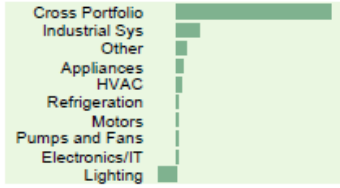
Energy Efficiency

23,679 MTCO2

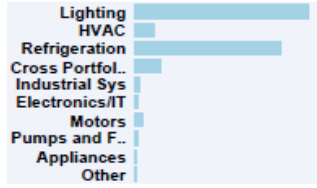
Annual avoided emissions since 2006 through PG&E programs

CO2

2,573,000 Therms Saved



41,205,000 kWh Saved



Pop Quiz!

Question:

Who is able to request and access the following data reports for the City of San Carlos?

- Community-wide GHG inventory
- Municipal Operations GHG inventory
- Energy Overview
- Residential Overview
- Non-Residential Overview
- Interconnected PV Generation
- Municipal Operations

___ A. City of San Carlos staff

___ B. A consultant with permission from the City

___ C. A UC Berkeley Student

___ D. San Mateo County Energy Watch


E. A, B, and D above

___ F. A-D above

When and How to Use Planning Reports

- Green Building Ordinances
- Energy Conservation Ordinances
- Community Outreach
- Solar Permitting

Overall energy usage

This is the breakdown between Non-Residential and Residential energy usage in 2011 for [redacted]

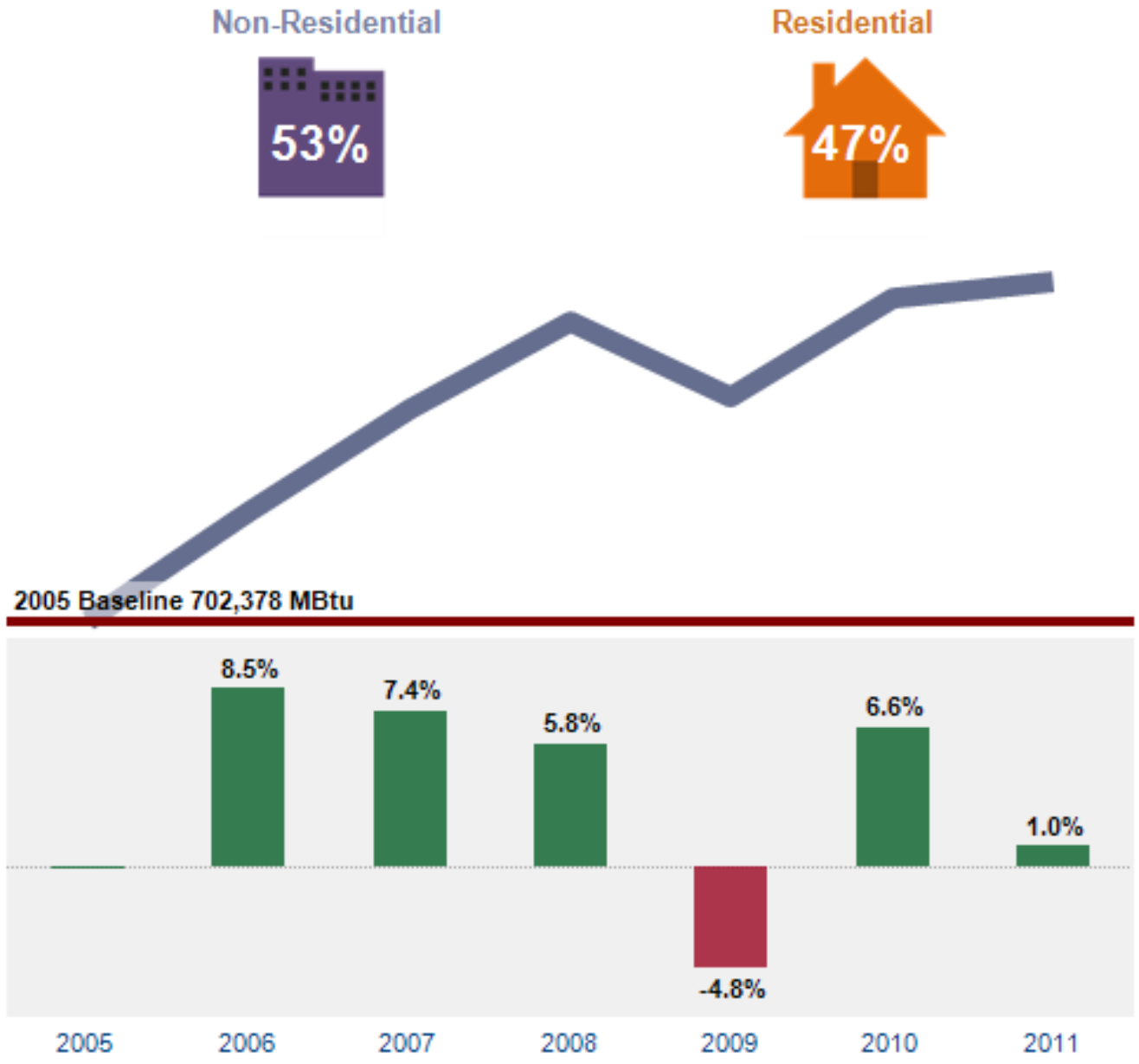
888,343

million British thermal units in 2011*

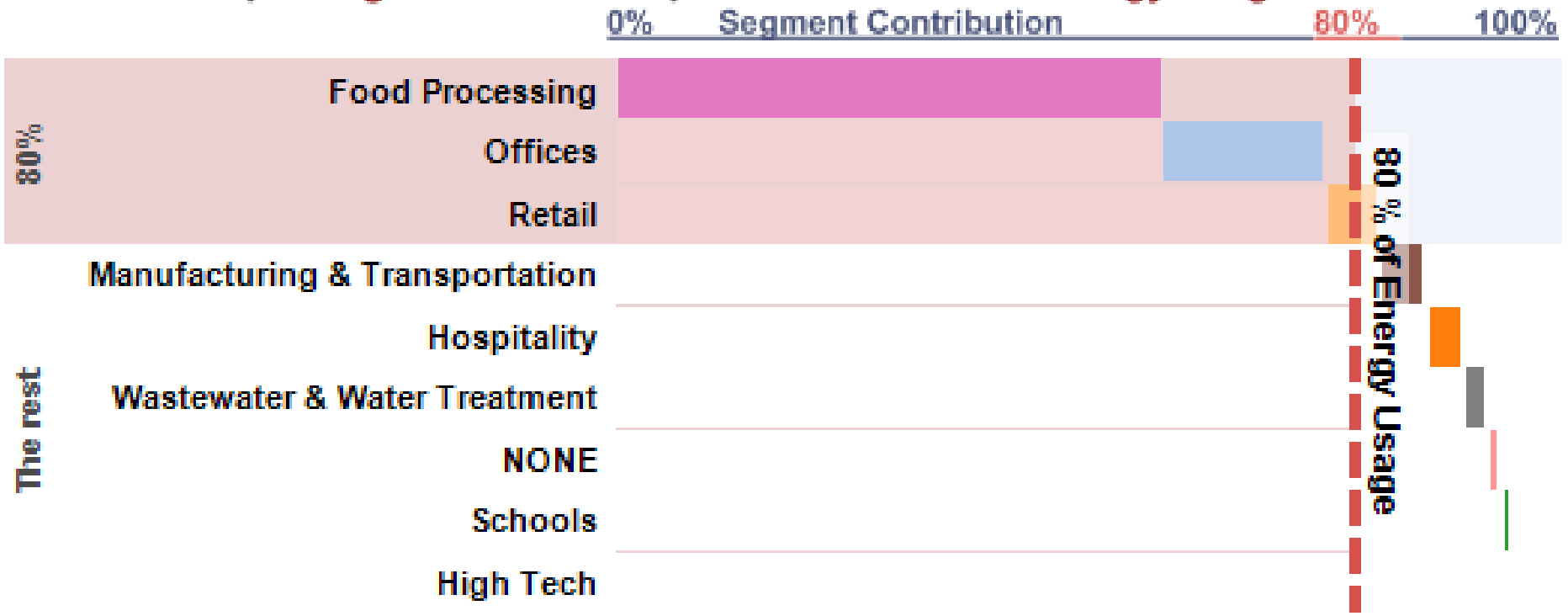
Energy usage has Increased by 26.5% since 2005

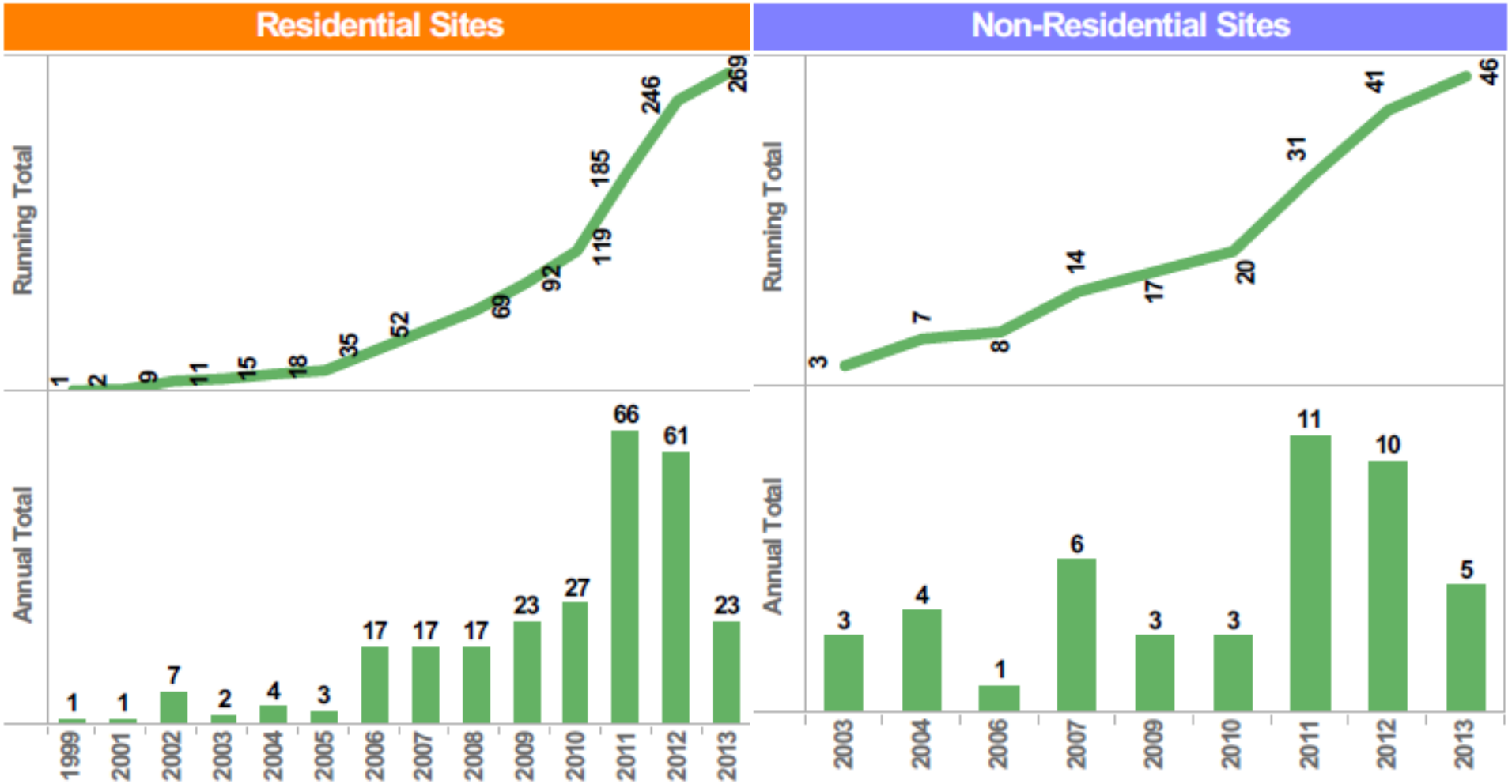
This is the Year over Year change in overall energy usage from the prior year

*Consumption has been converted to British thermal units (Btu) to compare electricity and natural gas usage



The top 3 Segments were responsible for 80% of energy usage in 2011

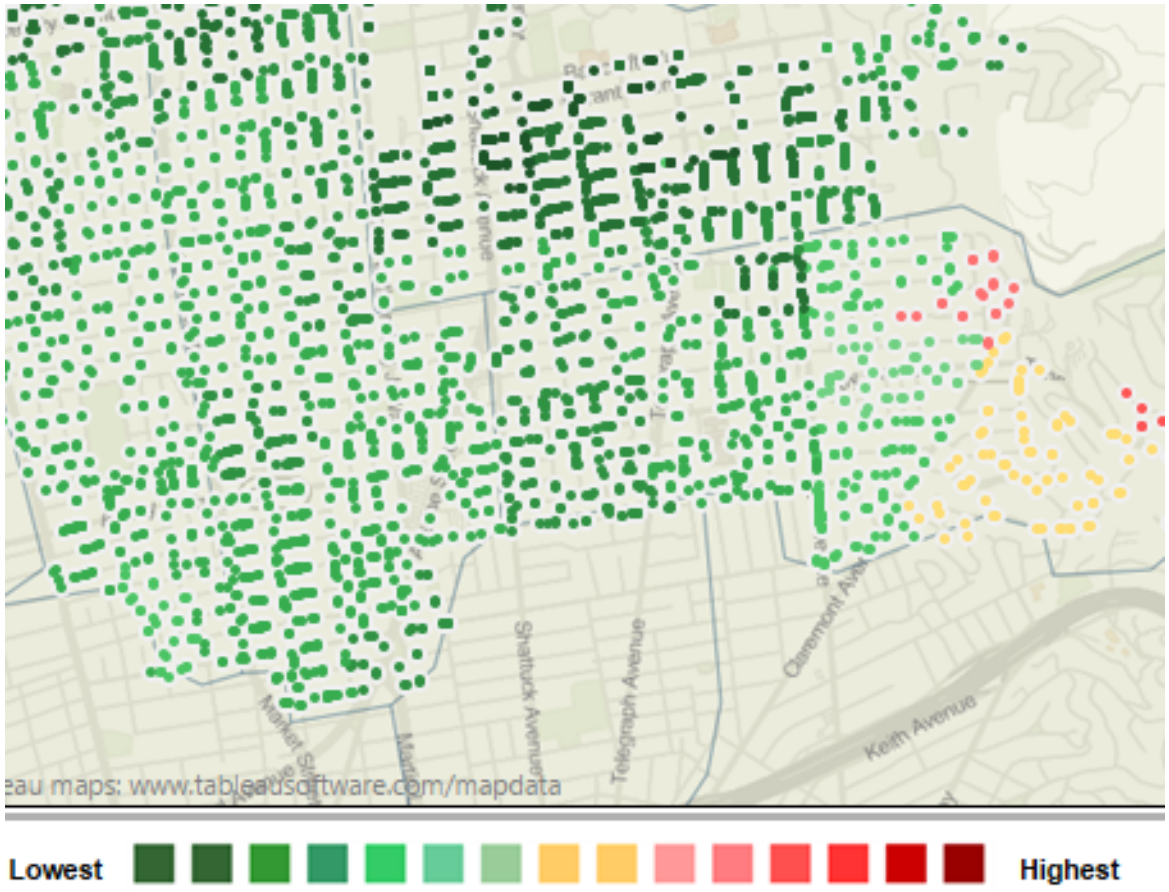



Residential Sites
Running Total
1
2
9
11
15
18
35
52
69
92
119
185
246
269
Annual Total
1
1
7
2
4
3
17
17
17
23
27
66
61
23
1999
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
Non-Residential Sites
Running Total
3
7
8
14
17
20
31
41
46
Annual Total
3
4
1
6
3
3
11
10
5
2003
2004
2006
2007
2009
2010
2011
2012
2013

Implementation / Program Execution Data

Residential Energy Efficiency Opportunity Report

NDA Required!!



Helps find neighborhoods in your community that have high opportunity for energy reduction based on a comparative analysis of energy usage.

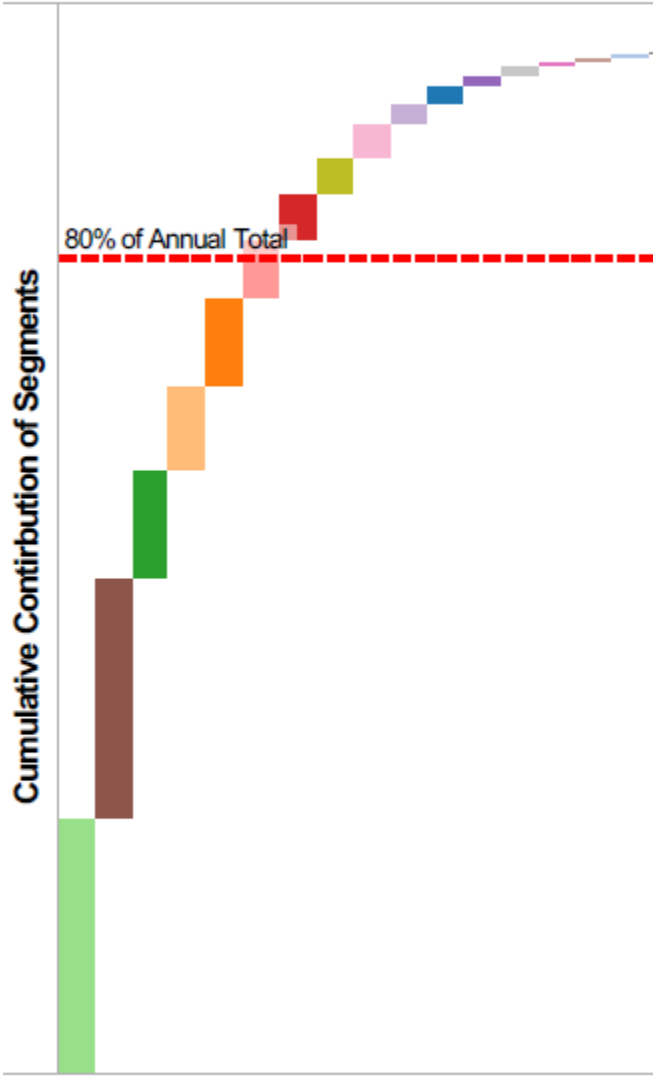

CITY OF FRESNO

SORT BY: Total

Estimated Emissions in 2012

Market Segments *Service Location Types*	Annual Total Emissions Rank	Average Emissions *per Service Agreement* Rank	# of All Service Agreements Rank
Manufacturing & Transportation	1	6	5
Food Processing	2	2	13
Retail	3	9	3
Hospitality	4	8	4
Offices	5	13	2
NONE	6	14	1
Healthcare	7	7	7
Wastewater & Water Treatment	8	3	14
Manufacturing and Transportation	9	1	18
Government	10	11	9
Schools	11	10	12
High Tech	12	15	6
Chemicals & Minerals	13	4	16
Residential	14	12	11
Unallocated	15	16	8
Biotech	16	5	17
Agricultural Manuf. & Transportation	17	18	10
Agriculture	18	17	15

Segment Contribution to 2012 Annual Total Estimated Emissions



. *Segments to the left of graph contribute more to Total Estimated Emiss*
. *Segments below the 80 % of Total line collectively make up 80% of To*
. *Steepness of curve = impact of the segments in that part of the curve*

Non-Residential Targeting Tool

City: Not available.

Year: (Multiple values)

Sort List By: Energy

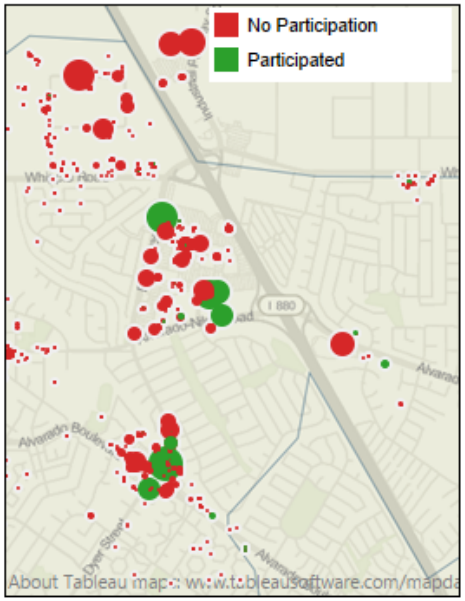
NAICS1_CUSTOMER_SE: (Multiple values)

There are **671 customer locations**
9% (63 / 671) have participated in PG&E programs.

Total electricity usage over the last 12 months was 29,662,775 kWh
Total kWh savings since 2010 were 1,039,409.

Total natural gas usage over the last 12 months was 228,929 Therms
Total Therm savings since 2010 were -2,779 Therms

Segment(s): All City: UNION CITY INC Size: All



Segment	Participating Locations			Therm Savings
Retail	21% (69 / 325)			2,772
Hospitality	27% (58 / 213)	16,764,198	163,625	0
Offices	9% (63 / 671)	29,662,775	1,039,409	228,929	612

Energy Savings by Technology Family

Actual	kWh	Thm	Opportunity	kWh	Thm
LIGHTING	1,260,573	0			
REFRIGERATION	194,764	0			
HVAC	71,423	1			
MOTORS	66,444	0			
FOOD SERVICE TECHNOLOGY	10,976	612			
BOILERS AND STEAM SYSTE..	0	2,771			

Customers

Customer	kWh Usage & Savings		Thm Usage & Savings	
Customer 1	4,901,332	1,835	27,631	0
Customer 2	4,687,508	0	15,032	0
Customer 3	2,420,186	66,444	44,659	0
Customer 4	2,666,735	0	2,571	0
Customer 5	2,445,319	7,964	7,564	0
Customer 6	1,053,611	7,800	50,177	0
Customer 7	2,156,839	40,488	8,710	0
Customer 8	1,284,954	0	28,764	0
Customer 9	340,366	6,553	58,843	0
Customer 10	1,994,395	0	1,347	0
Customer 11	1,672,065	0	9,321	0
Customer 12	1,358,336	10,804	17,463	0
Customer 13	1,641,000	15,230	5,327	0
Customer 14	1,180,630	0	20,596	0

Thank You

Jillian Rich
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