



# Electric and Gas Utility Customer Disconnections

## Summary

This memo summarizes electric and gas utility customer disconnections for Q2 of 2016. This is the first report issued by the CPUC that uses zip code level data to summarize utility disconnections.

This memo goes into more depth and expands on the utility level disconnection reports required by rulemaking R.10-02-005<sup>1</sup>. Zip code level data allows for more detailed review of regional, demographic, and other factors that may influence the number and frequency of disconnections. The zip code data for the years 2008 through 2016 Q2 was provided to the Policy and Planning Division (PPD) by each IOU.

Key findings of the data and population weighted analysis employed here include:

- A small upward trend in shutoffs among all utilities. The low point of disconnections was at the end of the great recession in Q4 of 2009 at ~ 0.4%. Disconnection rates were stable from 2009-2013, and have been rising since that time
- Current Q2 disconnection rates are summarized in table 1.
- The majority of disconnections come from just 20% of the zip codes that utilities serve
- When adjusted for population, statewide disconnection rate tends to be lower in the metropolitan areas of San Francisco, Los Angeles, and San Diego than in the less populated portions of the state
- For SCE, SDG&E and SCG, disconnection rates are lower in coastal, urbanized areas. For PG&E, there are more disconnections in the northern and mountainous regions

## Q2 2016 disconnection

Utility	Total # disconnections	# Care disconnections	Average disconnection rate	Average Care disconnection rate
PG&E	70,692	18,186	0.637%	0.162%
SCE	86,581	26,343	0.685%	0.196%
SDG&E	10,348	3,570	0.325%	0.101%
SCG	37,356	12,975	0.191%	0.066%
Statewide	204,553	60,895	0.460%	0.126%

Table 1. Q2 2016 Disconnection rates by IOU. The population weighted disconnection rate is calculated by dividing the # of disconnections by the total number of people in each zip code. The average disconnection rate is the average of all the zip codes disconnection rates in the IOU territory.

<sup>1</sup> OIR R.10 02-005 ORDER INSTITUTING RULEMAKING TO ESTABLISH WAYS TO IMPROVE CUSTOMER NOTIFICATION AND EDUCATION TO DECREASE THE NUMBER OF GAS AND ELECTRIC UTILITY SERVICE DISCONNECTIONS



## ZIP code level data analysis

In accordance with the direction received in [R.10-02-005](#) in 2010, utilities report service disconnections to the CPUC in a quarterly report that contains the number of disconnection in each month by customer class (Non-Care, Care, FERA, and Med Baseline). While this information gives a high level overview of trends at the utility level, it does not allow for a robust understanding of the localized impact that disconnections have.

In order to better understand where and how disconnections impact communities, we have requested zip code level data from each of the four major IOUS. The main challenge with analyzing this data is to find a basis of cross zip code comparison. This is required since zip codes can have dramatically different populations. By normalizing the # of disconnections by the population for each zip code we have generated a simple baseline that will allow for a comparison of zip code disconnections. Population weighted rates are calculated by dividing the number of disconnections by the population for that zip code. US census data for the year 2010 was used to determine the population.

There are a number of caveats with this approach.

- The calculated rate is not based on the customer accounts but on the total US census zip code population and should only be used as baseline normalization. As such this only represents a non-calibrated score of disconnection rates.
- We only used a single population estimate (2010) for all years from 2008 – 2016. So any perceived change in rates may not track actual changes in customer counts. I.e. if the number of customer accounts goes up in the same proportion as the number of disconnections go up then the actual disconnection rate would be constant. Our method however would show a change in the disconnection rate since our population normalization factor is constant.

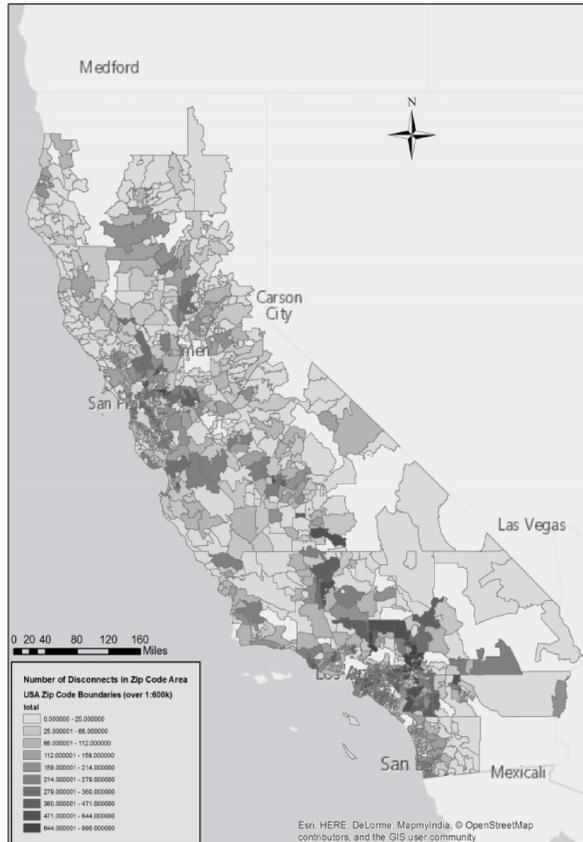
Despite these caveats this disconnection rate “score” gives us a first cut at making apples to apples comparison of disconnection trends across zip codes - e.g. this gives us a way to compare a zip code with 30,000 customers to those with only 300 customers. This also gives us an ability to compare disconnection rates across utilities.



### Disconnections by ZIP code

In this section we have mapped the disconnections on a state wide and per utility basis for both total disconnects and a population weighted measures. Zip codes with populations below 100 have not been included on these maps due to privacy concerns.

Statewide Total Disconnects Q2 2016



Statewide Total Disconnects Per Capita By Zip Code Q2 2016

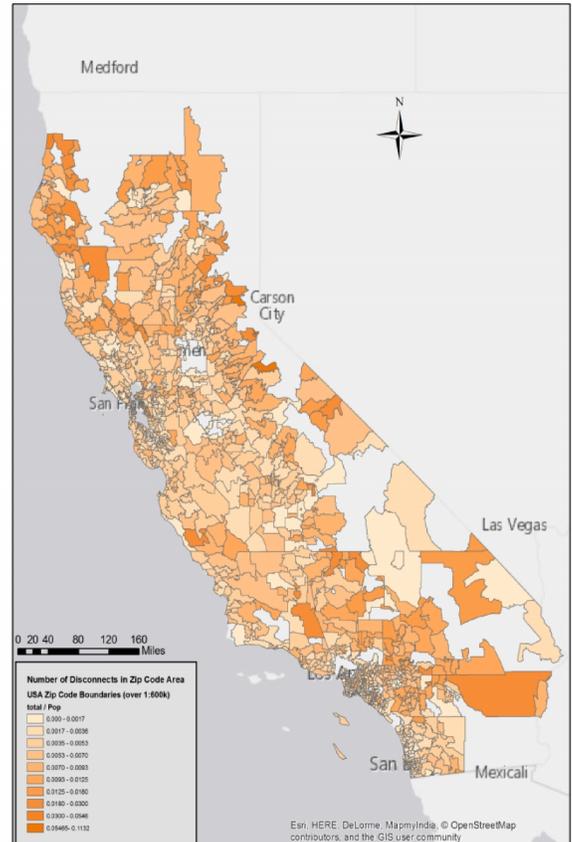
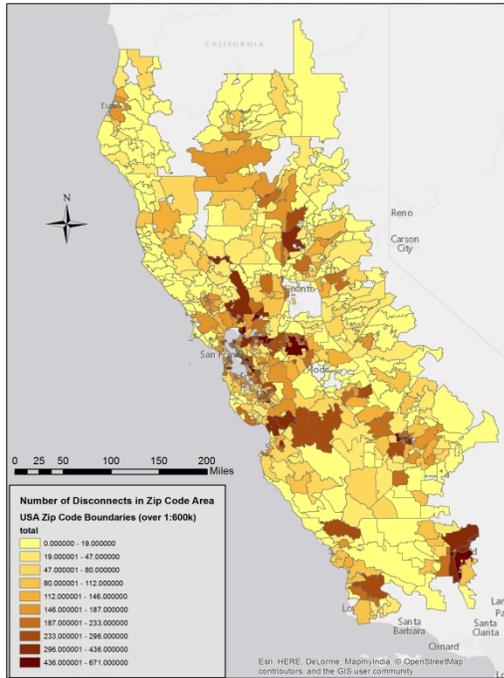


Figure 1. Statewide disconnections for Q2 2016



PG&E Total Disconnects Q2 2016



PG&E Total Disconnects Per Capita by Zip Code Q2 2016

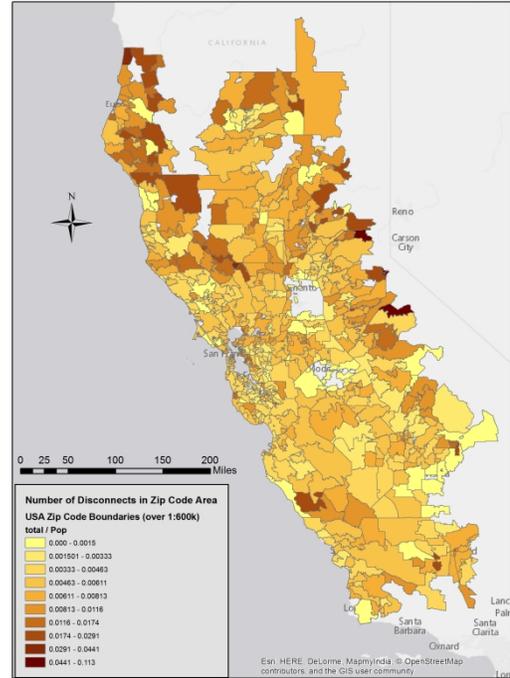
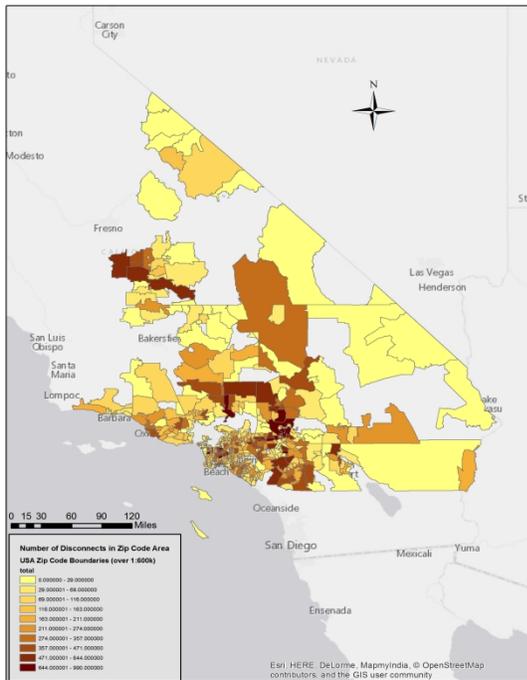


Figure 2 PGE Disconnects Q2 2016

SCE Total Disconnects Q2 2016



SCE Total Disconnects per Capita by Zip Code Q2 2016

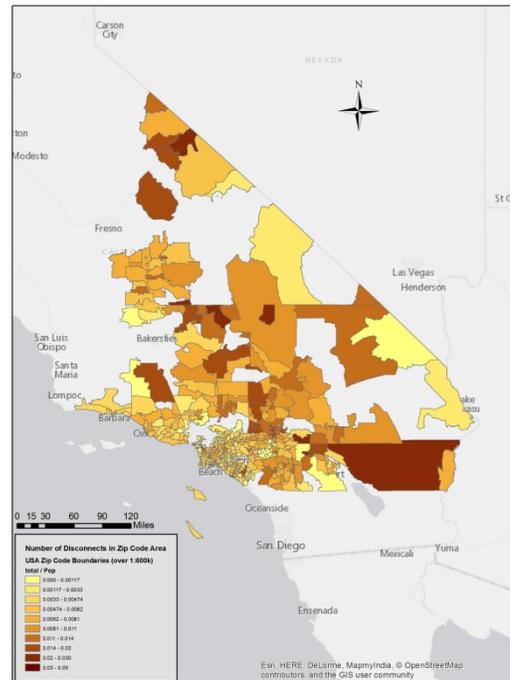
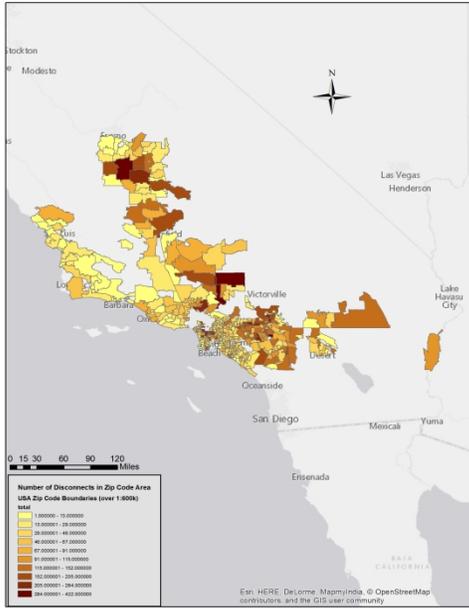


Figure 3 SCE Disconnects Q2 2016



SCG Total Disconnects Q2 2016



SCG Total Disconnects Per Capita By Zip Code Q2 2016

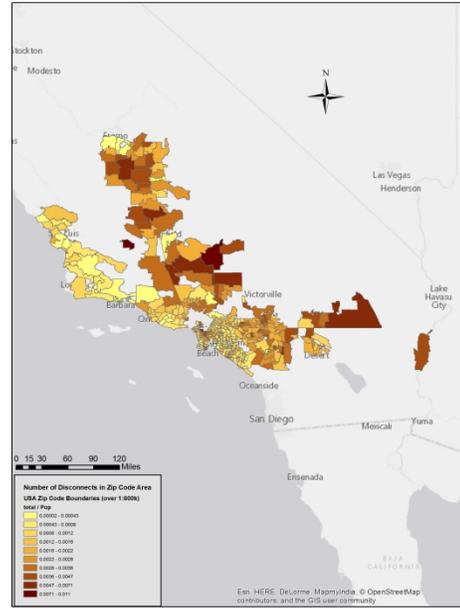
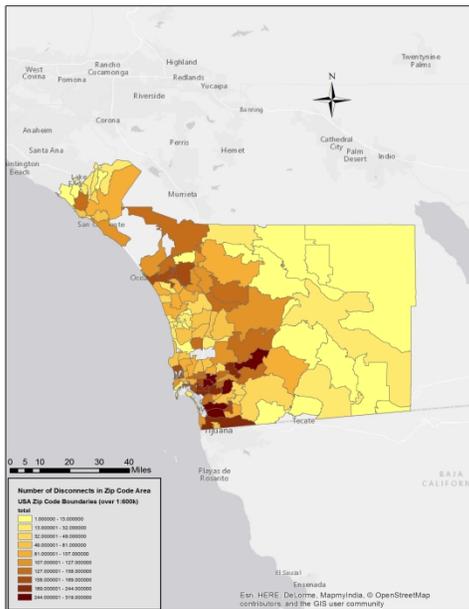


Figure 4 SCG Disconnects Q2 2016

SDG&E Total Disconnects Q2 2016



SDG&E Total Disconnects per Capita by Zip Code Q2 2016

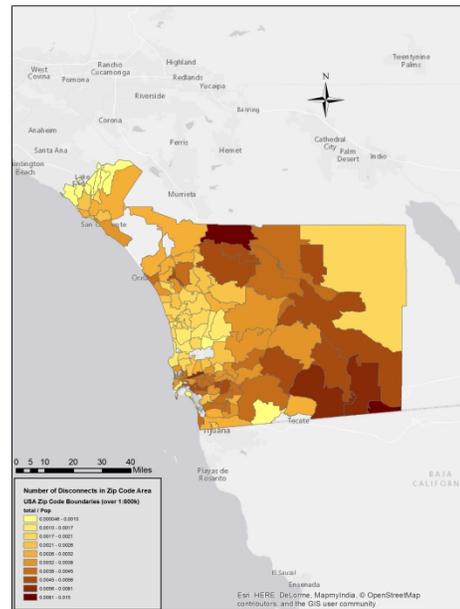


Figure 5 SDG&E Disconnects Q2 2016



## Historical trends in disconnections

Figure 1 shows the change in the disconnection rates from 2008 to 2016. The rate for each utility is determined by calculating the population weighted rate for each zip code and then averaging the rates over all zip codes in the territory.

The low point of disconnections was at the end of the great recession in Q4 of 2009 with a rate of about 0.3%. Since that time the disconnection rates were relatively stable for a few years and then seem to start raising around 2013 and now are about 0.64% for PG&E and 0.68% SCE. It should be noted that many zip codes experience disconnection rates higher than 1%.

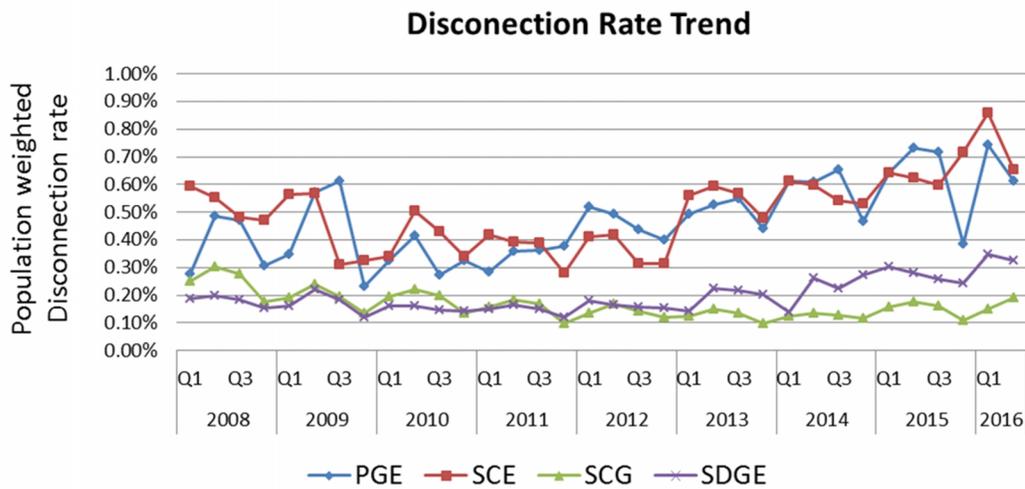


Figure 6. Average population weighted disconnection rate for each IOU from 2008 through Q2 2016

## 20<sup>th</sup> Percentile Disconnections

Each utility has hundreds of zip codes in its territory. In this section we have binned zip codes in the top 20<sup>th</sup> percentile of disconnections together. This plot illustrates the degree to which disconnections are concentrated in the top 20<sup>th</sup> percent of zip codes. As the 20<sup>th</sup> percent line (the Blue line) moves closer to the All disconnects line (the Purple line) the percentage of disconnects in the 20<sup>th</sup> percentile increases. For example for PG&E in 2015 Q3 about 70% of all disconnections occurred in 20% of its zip codes. In 2009 Q4 – at the end of the recession - about 78% of disconnects occurred in the top 20<sup>th</sup> zip codes.



### Historical PGE Disconnections

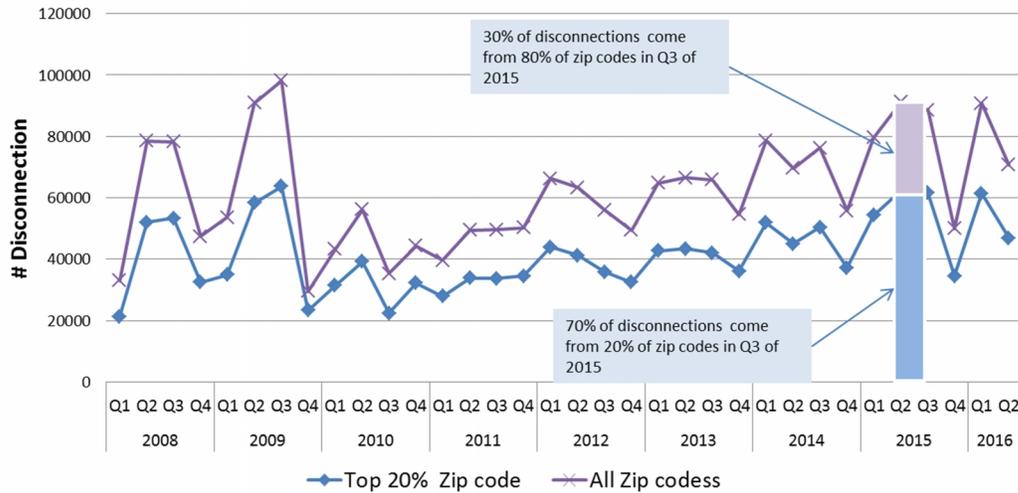


Figure 7 Population weighted disconnection rate for PG&E from 2008 through Q2 2016

### Historical SCE Disconnections

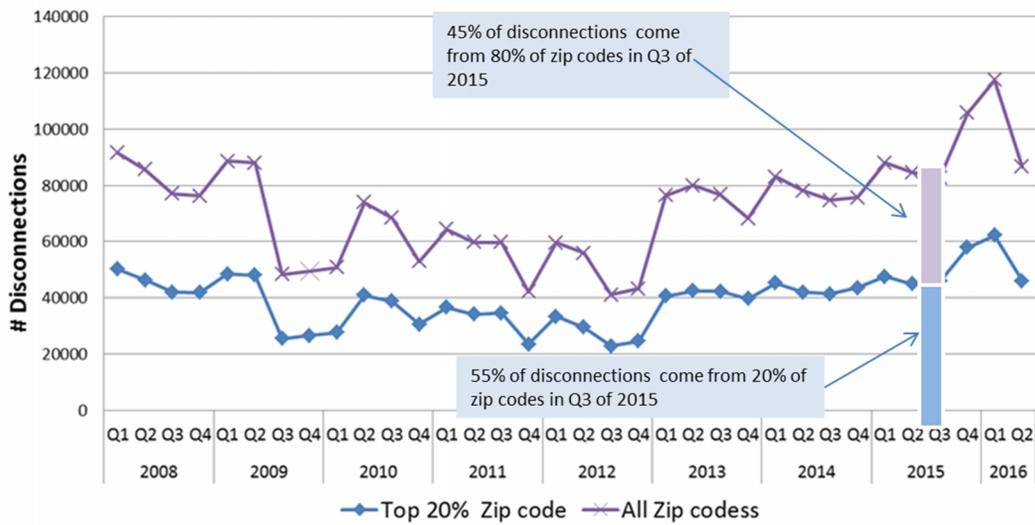


Figure 8 Population weighted disconnection rate for SCE from 2008 through Q2 2016



### Historical SDGE Disconnections

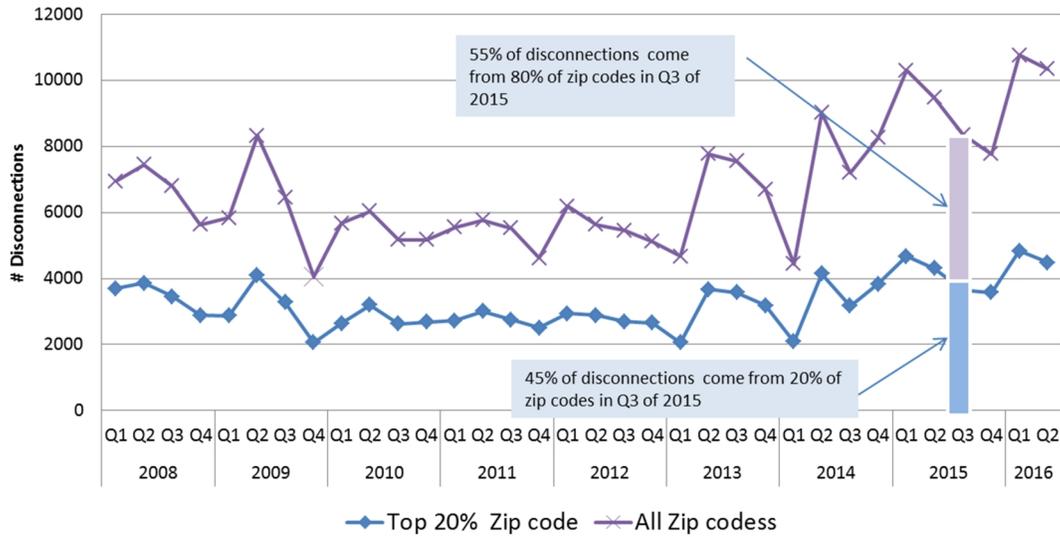


Figure 9 Population weighted disconnection rate for SDGE from 2008 through Q2 2016

### Historical SCG Disconnections

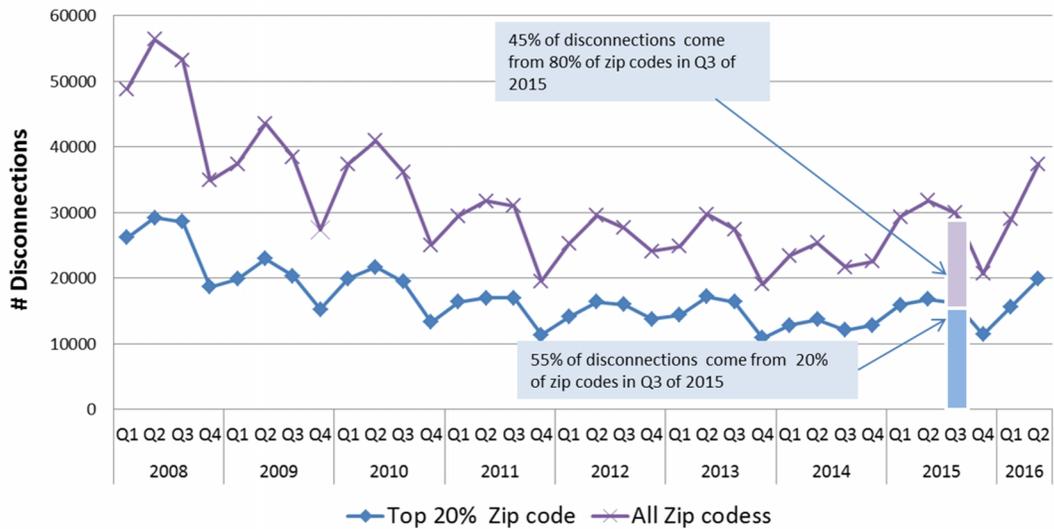


Figure 10 Population weighted disconnection rate for SCG from 2008 through Q2 2016

## Top ten zip codes by disconnection count

Table 1 shows the top ten zip codes for each utility, ranked by the total number of disconnections in Q2 2016.

It should be noted that while these zip codes have a high number of disconnections they also have higher than average population compared to other zip codes in the service territory. Essentially these tend to be zips in urban areas with high population density.

PGE				# Disconnections		Population weighted disconnection rate	
Rank	Zip	Population	Median Income	All	Care	All	Care
1	94565	84,641	\$ 55,255	671	200	0.79%	0.24%
2	94509	62,439	\$ 53,953	610	214	0.98%	0.34%
3	94605	39,016	\$ 56,944	604	162	1.55%	0.42%
4	94533	69,277	\$ 55,413	580	198	0.84%	0.29%
5	93307	82,658	\$ 33,711	579	284	0.70%	0.34%
6	93722	76,448	\$ 55,500	579	225	0.76%	0.29%
7	94541	61,635	\$ 56,656	529	126	0.86%	0.20%
8	94591	53,042	\$ 73,509	525	136	0.99%	0.26%
9	94590	35,420	\$ 41,819	495	193	1.40%	0.54%
10	94544	73,026	\$ 60,448	471	127	0.64%	0.17%
Average		63,760	\$ 54,321	564	187	0.95%	0.31%

SDGE				# Disconnections		Population weighted disconnection rate	
Rank	Zip	Population	Median Income	Total	Care	Total	Care
1	91977	58,368	\$ 59,849	286	138	0.49%	0.24%
2	92115	58,560	\$ 41,866	264	126	0.45%	0.22%
3	92114	65,433	\$ 56,310	229	125	0.35%	0.19%
4	91910	75,802	\$ 54,056	319	124	0.42%	0.16%
5	91911	82,999	\$ 48,111	255	124	0.31%	0.15%
6	92020	57,767	\$ 46,856	198	106	0.34%	0.18%
7	92021	65,068	\$ 49,521	258	100	0.40%	0.15%
8	91950	60,322	\$ 37,987	157	99	0.26%	0.16%
9	92102	43,267	\$ 40,557	212	96	0.49%	0.22%
10	92084	47,654	\$ 47,559	189	89	0.40%	0.19%
Average		61,524	\$ 48,267	237	113	0.39%	0.19%

SCE				# Disconnections		Population weighted disconnection rate	
Rank	Zip	Population	Median Income	All	Care	All	Care
1	93550	74,929	\$ 38,316	990	460	1.32%	0.61%
2	92404	58,271	\$ 37,175	911	420	1.56%	0.72%
3	90250	93,193	\$ 45,995	836	294	0.90%	0.32%
4	92553	73,722	\$ 42,825	825	324	1.12%	0.44%
5	92335	95,397	\$ 42,943	813	387	0.85%	0.41%
6	90201	101,279	\$ 37,267	707	333	0.70%	0.33%
7	92345	78,715	\$ 42,421	690	252	0.88%	0.32%
8	90805	93,524	\$ 44,070	687	262	0.73%	0.28%
9	92376	81,516	\$ 44,550	686	295	0.84%	0.36%
10	92407	56,689	\$ 51,471	667	229	1.18%	0.40%
Average		80,724	\$ 42,703	781	326	1.01%	0.42%

SCG				# Disconnections		Population weighted disconnection rate	
Rank	Zip	Population	Median Income	Total	Care	Total	Care
1	90044	89,779	\$ 29,870	422	240	0.47%	0.27%
2	90003	66,266	\$ 29,686	400	229	0.60%	0.35%
3	93535	72,046	\$ 44,399	349	197	0.48%	0.27%
4	92553	73,722	\$ 42,825	341	156	0.46%	0.21%
5	93550	74,929	\$ 38,316	330	186	0.44%	0.25%
6	93230	65,264	\$ 52,611	321	144	0.49%	0.22%
7	90043	44,789	\$ 40,658	320	131	0.71%	0.29%
8	93274	69,721	\$ 44,775	284	141	0.41%	0.20%
9	90019	64,458	\$ 42,043	275	84	0.43%	0.13%
10	91342	91,725	\$ 59,329	274	80	0.30%	0.09%
Average		71,270	\$ 42,451	332	159	0.48%	0.23%

Table 2. Top ten zip codes with the highest number of disconnection in 2016 Q2

The columns are defined as follows.

- Rank – The rank of the zip code in terms of the total number of disconnections
- Zip – US Zip code
- Population: US census estimate of population for each zip code. Used for population weighting
- Median Income: - Based on Census data for each zip code
- # Disconnections : All ( Care and non-Care) and Care Disconnections
- Population weighted disconnection rate: Our population weighted score should only be used as baseline normalization score for relative comparisons.