**DATA REQUEST**

**SUBJECT: LOAD DIVERSITY WITHIN MEDIUM/LARGE COMMERCIAL & INDUSTRIAL (M/L C&I) CLASS**

Load diversity currently is reflected in revenue allocation by multiplying marginal cost revenues by

effective demand factors (EDFs). In the October 15, 2019 workshop, there was discussion about

how load diversity decreases with customer size, thereby increasing the EDFs.

1. Rather than calculating EDFs for different sized customers within the M/L C&I class, please

provide data on the decrease in the number of customers on feeders and substation by

customer kW size. Do so by filling in the table on the following page. Please note that we are

looking for a single number in each cell in the last two columns representing an average for all

the feeders and all the substations on the distribution system. *Please base this on 2016 data*

*only.*

**SDG&E Response:**

Please see the table below. Note that the data provided in this response is not tied to Effective Demand Factors for the following reasons:

1. Effective Demand Factors are a relationship between two demands, yet this data requests only reflects one of the demands in that relationship.
2. While Effective Demand Factors used hourly data in order to produce those relationships for all SDG&E customers, this request pulled demands from 15-minute interval data, which is what this class of customers is billed on. 15minute data is not available for Residential customers.

The “Total Load in Size Cohort” column is populated with the sum of maximum demands in a year for all customers in that category, based on a clarifying discussion with CalPa.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Size | Number of Customers | Total Load in Size Cohort | Average number of customers on each feeder | Average number of customers on each substation |
| 20 – 99 kW | 12,328 | 598,501.42 | 15.72 | 207.46 |
| 100 – 199 kW | 2,810 | 394,552.37 | 3.58 | 27.02 |
| 200 – 499 kW | 1,800 | 544,747.88 | 2.29 | 16.96 |
| 500 – 999 kW | 517 | 352,901.88 | 0.66 | 4.93 |
| 1.0 – 5.9 MW | 208 | 453,160.04 | 0.26 | 1.97 |
| 6 – 9.9 MW | 10 | 74,911.68 | 0.01 | 0.08 |
| 10 MW and above | 9 | 251,144.00 | 0.01 | 0.08 |

**Revised Table – CalPA requested the above table be re-calculated using new assumptions.**

Below is the revised table that reflects an updated calculation that was discussed during a November 25, 2019 call with CalPA.

The old calculation (used in the table above) for average number of customers per circuit used total counts per group and divided that number by the total number of circuits. The new calculation takes that same total number of customers per group but now divides it by the number of circuits where that group has customers. The same is done for substations.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Size | Number of Customers | Total Load in Size Cohort | Average number of customers on each feeder | Average number of customers on each substation |
| 20 – 99 kW | 12,328 | 598,501.42 | 16.8 | 118.5 |
| 100 – 199 kW | 2,810 | 394,552.37 | 4.4 | 28.4 |
| 200 – 499 kW | 1,800 | 544,747.88 | 3.0 | 19.1 |
| 500 – 999 kW | 517 | 352,901.88 | 1.7 | 6.2 |
| 1.0 – 5.9 MW | 208 | 453,160.04 | 1.2 | 2.7 |
| 6 – 9.9 MW | 10 | 74,911.68 | 1 | 1.3 |
| 10 MW and above | 9 | 251,144.00 | 1 | 1.3 |

2. There was discussion at the workshop, as a result of questions asked from the audience, about

whether it would be better to: (1) Subdivide the M/L C&I class into two classes, as PG&E and

SCE have done (given the large differences in customer kW sizes in the M/L C&I class), or

(2) In the M/L C&I tariffs, differentiate demand charges by customer kW sizes (as has been

done for monthly fixed charges). Either of the latter two approaches would allow more accurately reflecting the class revenue requirements reductions given that EDFs tend to vary inversely with the number of customers on different feeders and substations.

A. Please articulate any pros and cons that SDG&E sees with each of the two approaches.

**SDG&E Response:** Option 1 is more cost based. However, Option 1 does not guarantee that medium commercial customers will end up with lower demand charges than they currently see as part of the M/L C&I customer class. The portion of distribution demand costs that determine revenue allocation are EDFs, or a customer class’s contribution to circuit and substation peaks. If the hypothetical “Medium C&I Customer Class” had higher EDFs than the hypothetical “Large C&I Customer Class”, then the “medium” class could end up with a larger allocation of distribution demand revenues. Although EDFs may tend to vary inversely with the number of customers on different feeders and substations, this is not guaranteed to be the case in reality.

Option 2 would not follow the same logic as monthly fixed charges. Monthly fixed charges are differentiated by size because there is a clear cost basis for it; smaller customers require lower cost meters, service drops, and transformers, on average. The demand-based portion of the distribution cost study is not based on customer size (demand), but on customer class EDFs. This option would require SDG&E to subdivide distribution demand into medium and large C&I customers, which is one of the steps that would be required for a new medium commercial customer class (the second being marginal distribution customer costs). This approach would essentially require SDG&E to create a separate class for distribution demand marginal costs but not for distribution customer marginal costs. While the data can be segmented differently, and is for this particular request, rate design is traditionally performed at the customer class level, and any allocation that is different would deviate from the way SDG&E has done this historically.

B. Does SDG&E have an opinion on which of the two approaches would be better? If so,

please share that opinion and explain SDG&E’s reasoning for its opinion.

**SDG&E Response:**

SDG&E does not believe that it is necessary at this time to separate the medium and large commercial class into two customer classes, or to subdivide the M/L C&I customer class. Customers who move from the Small Commercial class to M/L C&I class move because their load has increased, and therefore they are a higher cost to serve. This move is appropriate based on the customer’s cost to serve. The load factor of the customer does not make that customer any more or less costly to serve; although a customer with a low load factor may only have a few times where demand rises above 20kW, this customer is the same cost to serve as if their load was always at the higher level.