



The “Church Problem” in Utility Rate Designs

To underscore the significance and importance of the **whole population bill impact analyses**, this case study describes a real-world example of an embarrassing error resulting from the sampling approach employed in traditional utility rate designs.

The GridX client is a municipal utility that was in the process of rolling out a set of TOU rates as a part of its TOU rate transition initiative. Through a rate making action, the utility established a new Time of Use rate as the default, opt-out rate for small general service customers. In addition, and very importantly, the new rate structure included a demand charge. Upon completing the rate making action, the utility made a very public announcement regarding the expected minimal bill impact to the “average” small general service customer.

Shortly thereafter, the Utility’s Board received a large number of complaints from churches in the service territory about their substantially increased electricity bills as the result of being enrolled into the new rates. The Board instructed rate design staff to investigate.

The results of the investigation showed that, since there are a relatively small number of businesses like churches, the sample data used by the utility’s rate and regulatory team missed this “*class*” of customers. As a consequence, the bill impact analyses didn’t reveal that this class of customers’ bills was expected to double or triple on average as a result of the spikes in load that occur on weekends and drive the demand charge. By failing to use the full population interval data the utility had collected, the utility created a tremendous public relations embarrassment as word made its way through the media that the utility was “taxing God”.

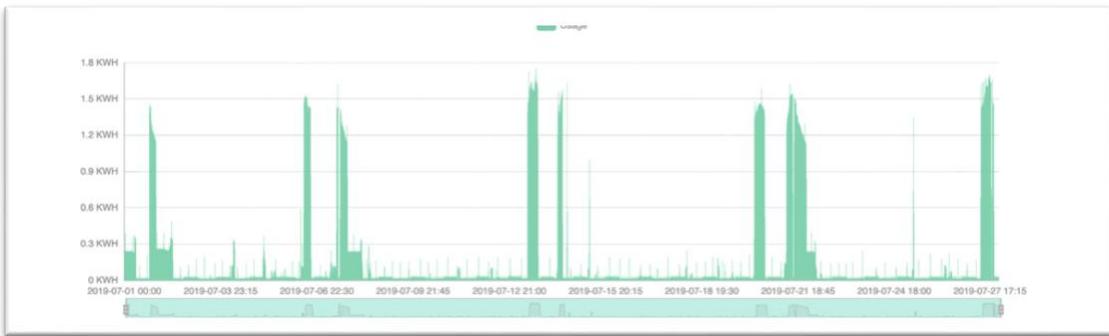


Figure 1. Fifteen-minute interval data for a church located in the GridX utility client’s service territory. Aside from its distinctly increased consumption during the weekend, this customer can easily be segmented into a small and medium commercial class based on its energy consumption.

The very important take away from this story is the incredible value in the **whole population bill impact** study by taking advantage of modern Big Data billing technology and the interval data from all customers when doing rate design evaluation. While the need to communicate the “average” bill impact may never go away, the need to understand bill impacts for all customers is only becoming dramatically more important as rate structures become more time variant.