

UTILITY ALLY

PACIFIC GAS AND ELECTRIC COMPANY



*Pacific Gas and
Electric Company[®]*

Implementation Model: Mass Benchmarking

TYPE OF UTILITY AND LOCATION

Investor Owned Utility
San Francisco, CA

OPPORTUNITY (BARRIER OR CHALLENGE)

Support Energy Disclosure Policy

OUTCOME

Encourage 53,000 whole building owners to benchmark their building and engage in active energy management

PROGRAM START DATE

2012

PROGRAM ACHEIVEMENTS

In progress

PROGRAM PARTNERS

Freeman, Sullivan & Co

Overview and Background

Energy Performance Benchmarking has gained traction in the State of California through local, state and regulatory energy disclosure initiatives:

- CPUC Decision 11-04-005 mandated PG&E to communicate building energy performance to at least 50,000 non-residential whole building owners by December 31, 2012
- California state law (Assembly Bill 1103) will require buildings > 5,000 ft² to disclose energy use upon a whole-building financial transaction; this law will be phased in beginning July 1, 2013
- The City of San Francisco requires non-residential buildings > 10,000 ft² to disclose energy use annually

PG&E leveraged the opportunity to communicate estimated building performance to 53,000 non-residential whole-building owners and also inform owners about new state and local energy disclosure ordinances, make owners aware of the free PG&E services available to support benchmarking activities, engage owners in active energy management, and encourage owners to track their energy usage through Portfolio Manager, EPA's ENERGY STAR® measurement and tracking tool. This project was also a first step in learning about the whole building stock in the PG&E territory, a critical component in supporting long-term whole building policies and savings programs

Pacific Gas and Electric Company's Playbook



Mass Benchmarking Project | Benchmarking Program Roadmap

While Portfolio Manager enables a customer-driven approach to benchmarking, the Mass Benchmarking project was a utility-driven approach to energy performance benchmarking, encouraging building owners—who may or may not be PG&E customers—to benchmark their buildings and engage in active energy management.

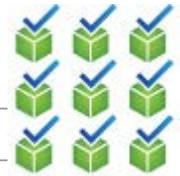
By linking whole building real estate information with PG&E's customer database, PG&E developed a commercial building proxy benchmark score (EUI), compared EUI to the average EUI of buildings of the same segment, and graphically communicated this information to building owners in a mailed communication. This communication also served to encourage building owners to use Portfolio Manager to derive their actual benchmark as well as inform them of state and local energy disclosure ordinances that may apply to their building. To PG&E's knowledge, this is the largest scale benchmarking effort conducted to date, leading to better understanding of their commercial customers and whole building inventory as well as significant insights on benchmarking buildings in the PG&E territory.

- Benchmarked 83,000 buildings (67% of PG&E buildings)
- Letters sent to 56,000 buildings (45% of PG&E buildings)
- 1.7 Billion ft² floor space (85%)
- 12,000 GWh annual electric consumption
- 300 Million therms annual gas consumption
- 207,000 electric accounts
- 108,000 gas accounts

Post-analysis of the buildings that received a letter as well as a control group will allow PG&E to understand the savings and engagement impacts of the Mass Benchmarking project and the potential savings impact of energy performance benchmarking. From a national perspective, benchmarking leads to 2.4% annual energy savings according to the ENERGY STAR Portfolio Manager DataTrends Series. PG&E's Mass Benchmarking project will be a critical component in evaluating the savings impact of energy performance benchmarking in California.

Tools :

- [PG&E's Benchmarking Through ENERGY STAR Portfolio Manager Website](#)



Process

Freeman, Sullivan & Co. (FSC) standardized a PG&E customer demographic database and CoStar real estate database to facilitate the merging of these two databases. This allowed PG&E consumption data for various service accounts to be associated with specific buildings for which the square footage, age, and industry type was known. The FSC team aggregated all available consumption data for a given building and divided it by the building square footage to obtain EUI. This EUI was then compared to the average EUI for buildings in the same segment. Buildings were grouped into segments based on geographic location, industry type, and square footage. Considerable care was taken to ensure that the data used was of sufficient quality to generate reliable EUIs, that the method used to produce EUIs was both efficient and correct, and that the generated EUIs were both externally and internally valid.

Of the approximately 83,000 buildings that were benchmarked through this project, approximately 56,000 received a mailed letter graphically communicating EUI to building owners. This communication also served to encourage building owners to use Portfolio Manager to derive their actual benchmark as well as inform them of state and local energy disclosure ordinances that may apply to their building.



Program Partners

In business since 1984, Freeman, Sullivan & Co. (FSC) is a San Francisco-based energy consulting firm providing strategic policy analysis and analytical support to electric and gas utilities, technology companies, regulators and policy makers. FSC's experience and expertise is focused on the interface between the energy industry and the customers it serves. The company helps utilities, regulators and others understand how markets work, what customers want and need, and how to translate that information into successful strategies, policies and service offerings.

During the past several years, FSC has developed extensive experience in working with the large amounts of customer data being generated by smart meters as they have become commonplace in California. FSC routinely uses this data to complete program evaluations and other analyses for utility clients. The company's intimate familiarity with utility data structures and its understanding of the broader context facing the utility was the main value they brought to the project.



Impact Summary

The approximated cost of this project was \$250,000. The M&V approach is unavailable at this time.

Three key lessons were identified through the Mass Benchmarking project:

- Restaurants had by far the highest EUI scores while industrial warehouses had the lowest. This was determined by evaluating EUI scores for the 10 largest industry segments, by EUI type and square footage, for buildings greater than 5,000 square feet.

- It is very important to compare like buildings. A larger comparison group (e.g., All Retail) will lead to different results than a smaller comparison group (e.g., Retail Auto Repair, Retail Restaurant, etc.) given that the businesses and their buildings are not similar.
- Mass benchmarking has several advantages over traditional benchmarking as noted in the table below.

Feature	Mass benchmarking	Traditional benchmarking
Customer action	No customer action is required to initiate benchmarking	Customer has to initiate benchmarking process
Detail of inputs	Historical electricity and gas use and building characteristics, none of which have to be provided by the customer	Customers often have to provide additional information such as: floor area, operating hours, staffing, end use equipment, share of building space heated and cooled
Relative comparison group	Customer does not get to select comparison group; however, more buildings are available, so comparison is more meaningful	Customers are able to select their comparison group; however, fewer buildings are available, so comparison is not as meaningful
Number of buildings used for benchmarking	Close to full population - 82,000 out of 124,000 eligible building types; comparison is meaningful	California tools - 2,800 buildings, 1,020 in PG&E Nationwide tools - 5,215 buildings; comparison is not as meaningful
Detail of outputs	Comparisons by fuel type and total energy use	Allows comparisons by fuel type and total energy and comparisons for specific end-uses (but customer end-use consumption is based on simulation)