

California's Automated Benchmarking System Cost Summary

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As more states and utilities consider establishing mandates or programs to facilitate greater energy performance transparency, questions arise about the cost of implementing large scale energy benchmarking projects. The experience of California, the first state to implement statewide energy performance benchmarking, provides the first opportunity to answer these questions based on actual projects. California's Assembly Bill 1103 makes utilities responsible for helping their customers comply with the benchmarking mandate by establishing systems for uploading customer energy data to EPA's Portfolio Manager benchmarking tool.

The large California utilities chose to leverage EPA's Automated Benchmarking System (ABS) to comply with the legislation. With the goal of estimating the cost for utilities to create benchmarking systems, interviews were conducted with project management and information technology staff from the four large utilities that spearheaded the benchmarking implementation effort in California: Pacific Gas and Electric, Sacramento Municipal Utility District, Sempra Energy (San Diego Gas and Electric and Southern California Gas), and Southern California Edison. The interviews revealed that project costs can range from \$50,000 to \$310,000 and that certain project components play a key role in determining these costs. It is important to note that these cost ranges represent limited experience with four large utilities. Other smaller utilities or even large utilities with different IT infrastructure challenges could potentially experience costs higher than those of California utilities.

The results of interviews with California utilities are summarized in two formats: (1) the following description of the key project components that can affect costs; and (2) a table (Appendix A) summarizing the interviews and providing project costs for each utility.

Access to Data

One of the largest technical hurdles is determining how to access the data from the utility Customer Information System (CIS). The staff designing a utility's ABS needs to understand the structure of the database and the protocols for accessing the data. In most cases, the more difficult and expensive approach is connecting directly to a utility's enterprise CIS. ABS involves more than just reporting from a utility CIS - although this is what it may appear to be at first glance. In fact, ABS requires that a utility not only pull customer data, but also store some of the values returned from ABS. This type of transactional process may not be ideal for the typical CIS architecture and can provide greater challenges for a legacy CIS.

A better setup is for a utility to have a separate data warehouse where usage data is replicated on a daily basis to support utility programs including demand side management efforts. This infrastructure allows a utility to build ABS without adding additional requirements to the enterprise CIS. To effectively address this issue, a utility will want to make a thorough upfront comparison of its specific infrastructure and the ABS web services to plan the data access approach.

System Design

A significant planning effort is required to understand the elements of the EPA's Automated Benchmarking System (ABS) and how the utility can best use the web services. This includes determining:

- **How the utility will provide all the correct meters for a specific customer building.** A utility may know how many meters a customer has but not which meters are

associated with which buildings. California utilities chose to have their customers create buildings and meters in Portfolio Manager and then share that information with the utility through ABS.

- **What sequence to call the web services to efficiently achieve the desired results.** One utility IT professional pointed out that “ABS is about understanding the order of the process steps and ordering those steps correctly.” Pacific Gas and Electric’s ABS system design is available as an example of how one utility set up its system.
- **What legal considerations need to be addressed.** Legal and regulatory considerations can affect what data can be sent via ABS and how.

Utilities that take the time to address all of these issues up front will see their programming and testing move forward more quickly than those that have to backtrack to address design oversights.

Customer Data Confidentiality

The privacy of energy data is a concern whenever a utility transfers data to a third party. While the specifics may vary from one regulatory environment to another, utilities will likely need to obtain authorization from their customers before using ABS to transfer data to EPA’s Portfolio Manager. After experiencing challenges with a paper authorization in California, EPA now includes a customizable terms and conditions field in Portfolio Manager where a customer can authorize a utility to begin ABS. While this feature addresses a significant aspect of this challenge, utility lawyers are still needed to consider this issue and determine if and what terms need to be established, and what regulatory or legal barriers may still remain.

A more complex variation of this issue exists for buildings where there is one owner and multiple tenants. If the tenants are directly billed and there is no master meter, it is difficult to obtain individual authorizations for usage data from every tenant in the building. For larger properties, obtaining these authorizations can delay benchmarking for months. ComEd pioneered one approach for addressing this issue. To obtain whole building usage data, ComEd requires that the building owner or manager verify the list of tenants associated with the service address during a specified date range. Once verification is completed, the building owner or manager receives a monthly whole building electricity consumption total that does not reveal the individual usage for any of the tenants. Other utilities may need to develop an alternative approach depending on the regulatory environment.

Once all these project components are addressed, a utility can move forward with ABS programming knowing that important cost drivers have been considered.

Appendix A: California Utilities Automated Benchmarking Cost Interviews Summary				
	Initial Cost	Modern or Legacy CIS	Ongoing Costs	Other Cost Background
Utility A	\$50,000	Modern	Developed an informative web site and a customer user guide to keep support costs down.	<ul style="list-style-type: none"> ▪ Lower costs attributed to establishment of view into database to easily see data without having to manipulate it. ▪ Lead developer estimated that ABS could be a three week job for two people, one person who knows how to get the billing data and one who knows how to code.
Utility B	\$230,000	Legacy	Leveraging informational web site and EPA customer support to keep costs low.	<ul style="list-style-type: none"> ▪ It took a significant amount of planning to get ABS right including meetings with legal, call center team, billing staff, and account managers. ▪ Cost breakout: <ul style="list-style-type: none"> • 2/3 IT • 1/3 Non-IT (planning, project management, call center, legal)
Utility C	\$160,000	Modern	Costs for a commercial service contact person and training account managers and call enter staff.	<ul style="list-style-type: none"> ▪ Used capital allocations for state projects to cover initial costs. Additional costs were covered by the operations and maintenance budget. ▪ Expect to incur costs for one ABS contact person at the customer service center.
Utility D	\$310,000	Legacy	Concerned about IT maintenance costs if changes are made to ABS by EPA. Customer service costs could also be significant. Overall ongoing costs could be 100K/year.	<ul style="list-style-type: none"> ▪ Costs driven up by utility company wide project to modernize IT simultaneous to ABS project. ▪ An important step was determining what checks need to be done prior to extracting data from the CIS. You have to check: <ul style="list-style-type: none"> • If the customer has twelve months of data; • Has a new building owner gained historical data authorization from the old owner; • If there are any errors in the data.

Appendix A shows that California utilities incurred significantly different costs for implementing ABS. The variance in costs cannot be attributed to how the utilities chose to deliver the rating to their customers as they all chose to follow a similar approach – connecting to existing facilities in Portfolio Manager and having customers retrieve ratings from Portfolio Manager. With this common approach in place, the variance in costs can largely be attributed to infrastructure and implementation issues.