

Improving the Performance of Power Distributors by Statistical Performance Benchmarking

By: Steve Fenrick

Power distribution utilities strive to supply their end-use consumers with reliable service at a reasonable cost. Many mission statements are produced based on a variation of this theme. Measuring where the power distributor stands within the industry is the first step in improving operational efficiency. However, determining what constitutes “reliable service” or “reasonable cost” takes careful statistical analysis. Simple comparisons tell an incomplete story and can be misleading.

The power distribution industry is unique in several key ways. Power distributors typically operate as monopolies. The service territories in which they operate have a significant influence on appropriate cost and reliability levels. These facts require advanced techniques in measuring performance.

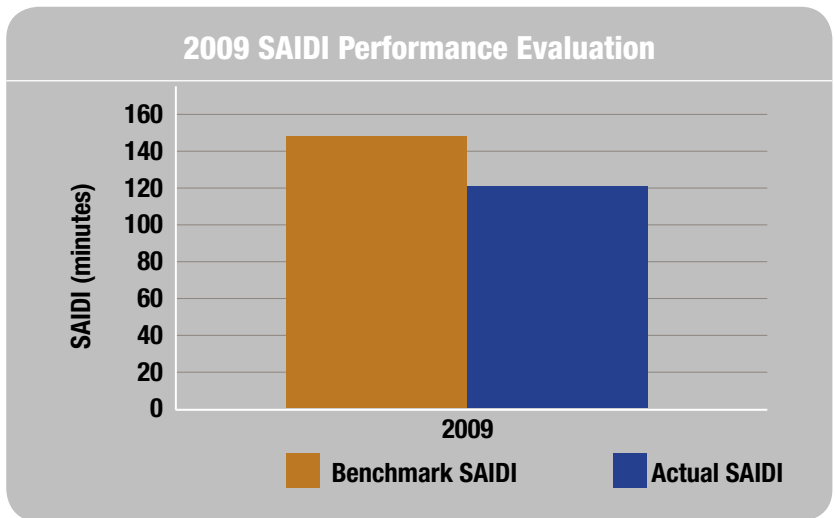
What is Statistical Performance Benchmarking?

Statistical performance benchmarking uses data inputs from a large sample of utilities to construct econometric models that adjust for differences in each service territory. These models reveal cost and reliability levels adjusted for each power distributor’s specific service territory characteristics. This process levels the playing field, providing accurate assessments of performance in each examined category.

Power System Engineering, Inc.’s (PSE) performance models adjust for the specific service territory characteristics of each participating utility. Characteristics that PSE models adjust for include the number of meters, volume per meter, peak demand, vegetation levels, line density, percent underground, residential customer mix, etc. In contrast, more traditional approaches to benchmarking depend on simple industry or peer group comparisons. These traditional approaches

do not explicitly adjust for service territory differences. Thus, conclusions based on such comparisons are less reliable. Given the high dollar values that can accompany inefficiency, technology investments, or process modifications, it is wise to employ the most reliable methods in assessing performance.

The graph below compares the actual reliability and “benchmark” reliability for a utility that participates in PSE’s benchmarking program. As shown, reliability in 2009, as measured by SAIDI without major event day outages, for this utility was significantly below benchmark values. The performance conclusion is that, given their service territory characteristics, 2009 reliability performance exceeded that of the industry for this utility.



Benchmarked versus Actual Reliability

How Can Benchmarking Improve Decision-Making?

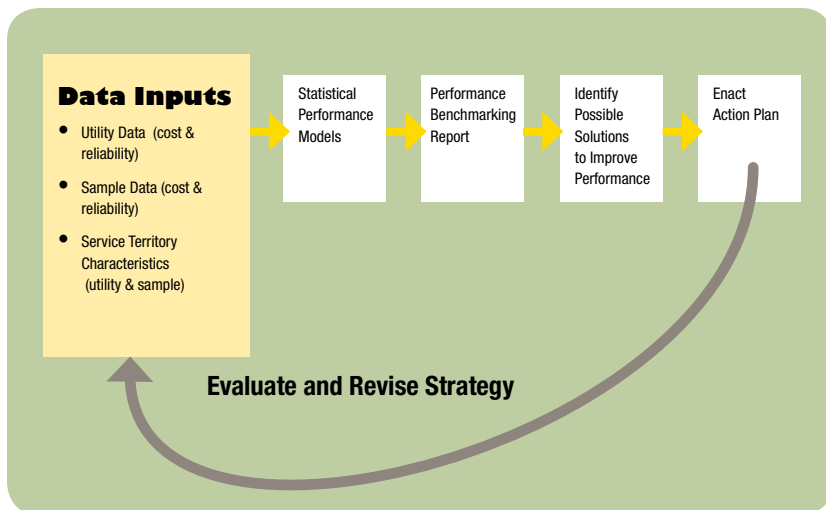
Utility system planning has typically taken a bottom-up approach in determining appropriate investments, strategy, and processes. This approach depends heavily on the decisions of experts. Benchmarking research offers a different perspective, a top-down approach, which examines the available historic data to evaluate the investments, strategy, and processes chosen by utility management.

This approach offers utility experts a different perspective based on statistical analysis when making important management decisions. Utility managers and staff can utilize this data to supplement knowledge of their utility and its members.

Industry best practices can also be identified through the use of accurate benchmarking. The strategies, processes, and investments made by top performers can be examined to help determine why they are top performers. Likewise, utilities on the bottom of the rankings in specific areas may shed light on why they are at the bottom. Such research can help utilities decide on specific action plans to maintain or improve performance levels.

PSE Benchmarking Approach

The PSE benchmarking process emphasizes accurately assessing performance in specific areas, working together on developing solutions, and then enacting action plans. It also stresses the importance of evaluating those action plans after they have been implemented.



PSE Benchmarking Approach

The regulatory community has recognized the PSE econometric benchmarking approach as far more reliable than standard peer group benchmarking methods. In a recent paper, the National Regulatory Research Institute cited PSE’s econometric benchmarking methods and noted that this method is more reliable than simple peer group or industry comparisons.

Method	Ease of Application	Reliability of Results	Data Requirements
Peer Group	Easy to Apply	Not Reliable/ Medium Reliability	Low Data Requirements
Econometric	Medium/High Difficulty	Medium/High Reliability	High Data Requirements

*** Source: National Regulatory Research Institute

Conclusion

Benchmarking offers a fresh perspective on utility operations. It can be used in a number of ways to improve the overall performance of a utility. However, benchmarking accuracy is of paramount importance. If results are inaccurate, they can misinform and mislead

management into non-optimal decisions. The econometric benchmarking method offers the most accurate benchmarking results available.

PSE believes performance benchmarking is an important tool for effective utility management. Our benchmarking program aims to provide utility decision-makers with quality information that managers can depend on when devising strategies to best fulfill the mission of providing reliable service at a reasonable cost.

About the Author:

Steve Fenrick holds a BS in Economics and has completed all classes for a Masters in Applied Economics both from the University of Wisconsin-Madison. Steve has worked in the area of utility statistical cost and reliability benchmarking for nearly a decade. His current Master’s thesis work is focused on the evaluation of cost and reliability performance of U.S. IOU power distributors. He has testified and co-authored numerous reports submitted in regulatory filings in regards to benchmarking, performance-based regulation, and revenue decoupling. His additional research includes demand-side management (DSM), value-based reliability planning, survey sampling and design, and load forecasts and load research for electric utilities. Steve can be reached at fenricks@powersystem.org or 608.268.3549.

Power System Engineering (PSE) is a full service consulting firm with more information available at: www.powersystem.org