

Energy Efficiency Portfolio Risk Management: A Systematic, Data-Driven Approach for Timely Interventions to Maximize Results

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ABSTRACT

A systematic, data-driven approach is being used to maximize the net benefits of Pacific Gas and Electric Company's portfolio of energy efficiency programs. The analysis centers on identifying and minimizing riskier elements affecting portfolio performance and allowing informed optimization of resources. Given the recent tripling in funding and the stretch energy saving goals established for the 2006-2008 period, an approach providing actionable results for timely corrections to the portfolio implementation is needed.

This paper describes an approach for identifying, quantifying, and managing risk that maximizes the probability that PG&E will meet its energy and demand savings targets. The keystone of our systematic risk management approach is Monte Carlo simulation using Crystal Ball (CB) software. CB automatically calculates thousands of different "what if" cases, saving the inputs and results of each calculation as individual scenarios. Analyzing these scenarios reveals the range of possible outcomes, their probability of occurring, which inputs have the most effect on your model results and where program managers should focus their activities to manage risk.

This paper provides concrete examples of how both primary and secondary data have been used to modify various parameters (e.g. net-to-gross ratios, installed units) that adjust the forecast and assess the probability of not achieving the energy and demand targets. The simulation results guide the selection of actionable strategies to manage this risk. Continuous monitoring of key portfolio performance indicators (e.g. installation counts and levelized cost) help determine the success of each particular strategy.