# Methodologies for Estimating Building Energy Savings Uncertainty: Review and Comparison

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## ABSTRACT

The reliability, and accuracy, of the building energy use savings is the factor that customers are interested for evaluation of a project performance. In general, the savings uncertainty is affected by many factors, some related to the quality of the statistics of the baseline model use to estimate savings and others related to the energy use patterns after the energy efficiency measures are applied. This paper includes a review of the commonly used methodologies and other recent approaches for the energy savings uncertainty. The review included the original description of most of the known uncertainty models: Reddy and Claridge, which has different expressions for different interval time of monitored data and different categories of goodness-of-fit baseline models; the improved simplified equation from the matrix algebra equation (Sun and Baltazar; Subbarao, Lei and Reddy propose on determining "local" uncertainty using Nearest Neighborhood method and Shonder and Im on the use of Bayesian inference for a retrofit projects. In this study, besides the review and comparison of these methodologies applied to several actual building cases, a guideline on what should be used for the right case is given.