

Analysing implications and value of the calibration process of building energy models (BEMs)

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Summary

The project involved evaluating the process currently used in the IES Company to carry out the calibration of BEMs. Using past and existing consultancy and R&D projects to identify benefits, limitations and ways in which the process can be optimised. Bringing everything together in one document that will help the Company with future calibration projects.

Abstract

Calibration involves using real measured data from a building in order to improve the performance of a simulation model of such building.

With the increase on quantity, quality and accesibility of building data due to the advancment of technology, the applications and accuracy, efficiency of calibration are growing rapidly.

Applications of calibration being implemented currently can be clasified in two main areas:

- Measurement and Verification (M&V) of acnieved savings due to the impleentation of an Energy Conservation Measure (ECM).
- Prediction or targeting of future savings.

Researchers in this area all agree that there is a lack of an available defined methodology and that its existence would ensure improved accuracy, completeness, consistency, relevance and transparency.

The present paper brings together all the information that the IES Company has been using for different calibration projects into one single document, identifying areas where there is room for improvement and streamlining the process.

The key elements of the methodology applied are:

- An extensive literature review, aiding the researcher to gain a broder undstanding of the ange of applications, different approaches used in the past and ways in which the accuracy of a calibrated model can be assesed.
- The use two case studies of different characteristics in order to implement the improvments identified.
- The analysis of the cost/benefit balance of the different approaches identified.

It is believed that this project will add a postivie value to the Company as it will contribute to the efficiency and accuracy of future calibration projects.