INTERPRETATIONS OF ENERGY MODEL RESULTS

Building energy modeling (BEM) is a crucial tool for evaluating the energy performance of buildings throughout their lifecycle. By simulating various operational scenarios, BEM allows stakeholders to assess the energy implications of design decisions, operational strategies, and retrofitting measures.

Learning Objectives

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INTRODUCTION

- BEM is a tool for assessing energy performance of buildings.
- Key metrics include total energy consumption, energy use intensity (EUI), peak demand, and carbon emissions.
- Data visualization techniques like bar graphs, heat maps, and time series charts are used to communicate modeling results.
- Comparing BEM results against benchmarks, peak demand considerations, and sustainability goals is crucial.
- Sensitivity analysis helps identify variables impacting energy consumption.
- Interpreting BEM results requires understanding performance metrics, comparative analysis, and sensitivity considerations.
- Mastering these skills is essential for achieving energy performance in the built environment.

INTERPRETING BUILDING ENERGY MODEL RESULTS

- Building energy models are mathematical representations of a building's energy performance.
- Key metrics include Total Energy Consumption, Energy Use Intensity (EUI), Peak Demand, and Carbon Emissions.
- These metrics help assess energy efficiency opportunities, sizing HVAC systems, and ensuring grid reliability.

DATA VISUALIZATION TECHNIQUES

- Common techniques include Bar Graphs, Heat Maps, and Time Series Charts.
- Bar Graphs compare total energy consumption across different scenarios or building designs. Heat Maps illustrate energy use intensity across different zones of a building.
- Time Series Charts display energy consumption patterns over time.

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ANALYSIS OF RESULTS

- Comparison Against Benchmarks: The school's EUI indicates strong performance, suggesting design measures have reduced energy use.
- Peak Demand Considerations: Understanding the peak demand of 50 kW is critical for electrical system design.
- Carbon Emissions and Sustainability Goals: The model's output can be compared against the school district's sustainability targets.

SENSITIVITY ANALYSIS

- Identifying which variables have the most significant impact on energy consumption is vital.
- Insights from sensitivity analysis can guide design decisions and resource allocation.

Conclusion

- Interpreting building energy model results requires understanding of performance metrics, comparative analysis, and sensitivity considerations.
- Leveraging these insights can enhance energy efficiency, reduce operational costs, and contribute to sustainability goals.

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