Simulate and Investigate the Electrical Energy Consumption of Building Management System, Case Study: Tabriz University

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Abstract

Presenting a fairly controlled environment for instrumentation and implementation of energy use policies, the Tabriz University provides an excellent testbed to characterize and understand energy consumption of buildings at the scale of a small town with over 15,000 residents. We present data collected from four selected buildings that are archetypes of diverse buildings from residence halls to data centers. In particular, we focus on 'mixed-use' buildings where the energy consumption of IT equipment accounts for more than a quarter of the total energy use. Our detailed observations identify the primary components of the baseline energy use and the sources of peaks in energy consumption. Surprisingly, computing accounts for a large fraction of the baseline energy use, thus giving insights in how to significantly reduce power consumption by creating effectively duty-cycled buildings.

Keywords: Building Management System, BMS, Green building