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Abstract Title: A Data-Driven Approach to Plug Load Energy Reduction Programs for Office Buildings

Abstract Text:

Stanford University completed a comprehensive equipment inventory in 2014, collecting data on 55 types of equipment across nine million square feet of Stanford's campus. The results of the 220-building inventory have informed several plug load energy reduction programs, which together could save up to $2.3 million per year once fully implemented. Two of these programs—minimization of space heaters and basic energy efficiency measures—focus on controlling miscellaneous loads in offices. These programs entail a series of easy-to-implement measures that are all estimated to have a payback period of less than one year.   In Winter 2015, Stanford utilized its inventory data to address macro-level temperature issues in buildings with a high number of electric space heaters. As actions were performed to improve occupant comfort in these locations, Stanford monitored the presence of space heaters in these areas and has developed materials to address any remaining devices through possible campaigns and incentives. Additionally, Stanford's Energy Retrofit Program Express offers rebates for energy efficiency devices like appliance timers and smart power strips. As a result of the equipment inventory, Stanford is currently evaluating a variation of this program that would focus on installing appliance timers on coffee makers and water coolers, replacing incandescent light bulbs in task lights with LEDs, and installing vending misers on vending machines through a campus-wide direct install program. A pilot of these efforts will be performed in April 2015, with launch of the direct install program planned for summer 2015 based on the pilot results.