



Abstract Format

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How to Promote Energy Conservation Behaviors based on Smart Meter Data Analytics: Case Studies on Energy Advice Reports for Residential and Commercial Customers

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Abstract

Many countries are starting to deploy smart meters in residential and commercial sectors. Meanwhile vast energy consumption data are becoming available in this trend for novel energy conservation services, information provision should be carefully designed to promote customers' energy conservation efficiently considering how real human beings react, as the term 'Nudges' coined in behavioral sciences suggests.

In this talk we introduce 2 case studies in Japan on how to generate energy advice reports for residential and commercial customers. The case study for residential sectors refers to a method to automatically generate reports on energy conservation tips to 'Nudge' customer's energy conserving behaviors, based on each customer's electricity demand data. The reports feature the aspects of real human behaviors, including search cost, social norms, and expression to emphasize nuances of the information, to mainly aim at reducing electric system's peak-time demand. For commercial customers, we proposed another type of energy advice report generation tool that employed unique features including fault detection and simplified disaggregation, targeting small- and medium-sized C&I customers. Whereas a typical individual energy audit requires not only energy demand data but also depth of other information on building equipment or how they are operated, our tool can provide energy advice reports based solely on smart meter data even if the provided information is relatively less detailed. Yet even such a "rough" information provision can be useful for many SMEs without adequate information on efficient energy use, and can outweigh the difficulties and limitations of individual auditing that provides more detailed advices at the expense of the low cost and scalability.