

Abstract #: 185

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Abstract Title: Smart thermostats -- results from a multi-pilot research collaborative

Abstract Text:

Advances in technology have enabled the development of a new generation of communicating, or "smart" thermostats, which holds the potential for improved ease of use and control of comfort from a consumer perspective, and energy and demand savings at a relatively low program cost from a utility perspective. However, questions remain as to how customers use and interact with these devices, as well as the energy savings attributable to them. This presentation will outline the preliminary findings from multiple pilots that are part of EPRI's smart thermostat collaborative research project, which involves thousands of thermostats representing multiple technologies. The presentation intends to cover i) lessons learned (and related workarounds) from implementing experimental designs in real-world utility environments, ii) findings regarding the participation and installation rates associated with the various pilots, iii) preliminary energy and demand impacts attributable to the thermostats from the first test season, and iv) preliminary results from customer satisfaction and preferences surveys. Finally, given smart thermostats make available new types of customer data such as HVAC runtime, indoor temperature, set point preferences, and when and how customers interact with their thermostats, a parallel component of the collaborative project involves understanding the ways in which these data streams can be used for evaluation purposes, and to better understand customer behavior and preferences. Preliminary results from this work will be presented as well.