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**Abstract Title: A Demand Response Double Play: Residential Peak Time Rebate and Small Customer Technology Deployment Programs**

Abstract Text:

San Diego Gas and Electric (SDG&E) has offered its peak-time rebate (PTR) program to its residential customers for the past five years. 2014 was the first year that SDG&E offered a smart thermostat program, called the Small Customer Technology Deployment (SCTD), in conjunction with its PTR program. If customers are able to save electricity between 11 a.m. and 6 p.m. on PTR days, they earn a credit on their SDG&E bill. The SCTD pilot offered free demand-response enabled smart thermostats that SDG&E can either cycle the customer's central air conditioning by 50% or raise their thermostat setting by 4 degrees between the hours of 2 p.m. and 6 p.m. on PTR event days. This paper presents the methods and findings of the 2014 ex post and ex ante evaluation for both the PTR and SCTD programs. To estimate impacts, regression-based models using a difference in differences format were employed, comparing participant and reference aggregate hourly residential loads calculated from matched control groups selected from SDG&E's population of non-program participants. The matching routine paired each participant with a non-participant that had the most similar estimated probability of participation. Interesting aspects of the methodology include looking into the effects of the large local wildfires during May 2014 events and treatment of customers with photovoltaic generation. The results are presented by each combination of program participation, as well as by various sub-groups such as climate zone, low income status, and notification type/cycling strategy.