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Title: Beyond the RCT: Leveraging Meter-Based Savings Methods to Drive Behavioral Energy Efficiency

Abstract: Normalized metered energy consumption (NMEC) methods are currently being adopted in California with other states planning to incorporate them into DSM programs in the near future. NMEC uses analysis of metered energy usage, whether from billing or AMI meters, to estimate the effects of energy efficiency improvements over time and allow accurate measurement of savings rather than reliance on legacy methods such as deemed savings. This approach is changing the way EE programs are structured, removing silos as programs are measured on the energy saved as opposed to the type of widget installed. Because NMEC offers the ability to measure energy savings at the meter, it supports the application of behavioral measures outside of the randomized-controlled trial RCT experimental designs commonly employed in behavioral energy efficiency programs. Can NMEC be used to address the constraints imposed by RCT on behavioral energy programs? We explore ways to apply NMEC to facilitate several forms of behavioral interventions using different program designs. The first intervention uses behavioral messaging as an enhancement to a conventional direct-install DSM program. This combines NMEC and a pay-for-performance (P4P) structure to test whether behavioral messaging added to direct-install measures can provide deeper, more persistent energy savings than direct-install measures alone. The second intervention includes treating SMB customers via behavioral energy reports and outreach with savings measured via NMEC instead of using an RCT structure. This design allows us to deliver behavioral treatments to narrowly targeted customer segments and without the need for the large treatment and control groups required by RCTs, among other potential benefits. We cover the opportunities of using NMEC to isolate behavioral savings as well as the challenges, such as stimulating sufficient levels of savings to allow for accurate measurement using NMEC methods. As NMEC and P4P structures become more common, we discuss how these open the door for behavioral methods to support other EE programs and to have the impact measured more directly than could be done with a traditional RCT-based design.