

Results from a Comprehensive Impact Evaluation of 2013 California Statewide Non-Residential New Construction (NRNC) Whole Building Program

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This poster presents the results of the California Public Utility Commission's statewide evaluation of the 2013 Non-Residential New Construction program, which focused solely on Whole Building projects. The key objectives of the study were to derive independent estimates of gross and net savings, analyze the discrepancies between ex ante and ex post savings, and to develop findings and recommendations that can be used to reduce the savings discrepancies and improve program, project, and measure effectiveness.

The gross impact evaluation activities included detailed on-site surveys, verification of installed energy efficiency measures, collection of relevant data, and development of energy models and calculation of savings discrepancies for the sample sites. The evaluator also conducted decision-maker surveys to determine the net to gross ratio.

Across all California investor-owned utilities, average gross realization rates for electric energy (kWh) and peak demand saving were 92% and 79%, respectively. The statewide average gross realization rate for gas savings was 54%. These realization rates, when applied to *ex ante* savings estimates, result in first year gross savings of 64 GWh, 17 MW, and 0.48 million therms for the program. Net first year savings were calculated at 34 GWh, 8.7 MW, and 0.48 million therms, reflecting net-to-gross ratios of about 0.50.

This poster will present gross and net savings results, as well as a quantification of the discrepancies between ex ante savings estimates and ex post savings results, including the controllable and uncontrollable discrepancies. "Control" refers to whether the utilities had potential control over the discrepancies between the ex ante and ex post savings estimates, whereas "Uncontrollable" refers to identified discrepancies regarding model adjustments and calibration performed by the evaluator due to changes in building load, use of ex post end-use data and utility billing data, etc., over which utilities do not have any control. The waterfall graphics shown in the poster have demonstrated how various ex ante savings were impacted by various discrepancy factors. The discrepancy assessment provides a different perspective to the utilities and their program administrators on Whole Building New Construction projects and demonstrates how ex ante savings estimates could be improved by collecting appropriate building operational parameters and using them accurately in the savings models.