Commercial Gas Energy Efficiency Potential in California

Fred Coito, Kema-Xenergy Inc., Oakland, CA
Chris Ann Dickerson, PG&E Co., San Francisco, CA
Julia Larkin, Kema-Xenergy Inc., Oakland, CA
Mike Rufo, Quantum Consulting, Berkeley, CA

Background

This study assesses natural gas energy-efficiency achievable potential in existing commercial buildings in California over the next 10 years. The study focuses on the service territories of the three major investor-owned gas utilities (IOUs), which account for about 99 percent of the state's natural gas end use consumption.[1]

Our method for estimating the achievable potential is a "bottom-up" approach in which we assess energy efficiency costs and savings at the market segment and energy-efficiency measure level. For cost-effective measures, we estimate the likely achievable energy-efficiency program savings potential as a function of energy-efficiency measure economics, and energy-efficiency programs rebate levels and marketing efforts. Four different commercial sector energy-efficiency funding scenarios were constructed. The base scenario assumes the current annual program funding levels of approximately $8 million continue for the next 10 years. The other three scenarios represent increases in funding of 50%, 100% and maximum achievable (about 600%) over the 10-year period. Three future energy cost scenarios are assessed to address uncertainty in these costs. For the twelve possible scenarios, the study assessed the program cost-effective energy and peak demand savings.

Results

The findings show there is untapped achievable and cost-effective potential savings for natural gas in California's commercial sector over the next ten years. Increased marketing efforts combined with higher rebate levels can result in still more cost-effective additional savings. The largest natural gas savings are likely to be obtained through the further dissemination of energy-efficient water heating, space heating and cooking.

Under the base energy cost forecast, net program natural gas savings achievable potentials range from roughly 30 Mth under current program activity levels to 193 Mth if current program activity is increased to maximize achievable savings. Net financial savings to California range from $12 million to $ 312 million. All these base energy cost funding scenarios are cost-effective.

The main achievable natural gas savings are water heating (37%), space heating (33%), and cooking (21%).

[1] End use consumption figures exclude natural gas used in the production of electricity. Gas usage for generation accounts for 20 percent of California's total gas consumption, while end use consumption accounts for the remaining 80 percent.