

Case Studies Exploring Efficiency Opportunities and Industrial Customer Decision Making Practices

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Background

This study analyzes five important energy-consuming industries in California to assess reasons why many industrial customers do not take full advantage of cost-effective energy efficiency improvements available.

In California, industry consumes about 52,000 GWh per year (21% of the state's total electric consumption) and 6,300 million therms per year (44% of total). Savings of only 5%, which appears attainable based on scoping study results, would save the state 2,600 GWh and 315 million therms a year.

On paper, there appears to be numerous low-cost and other cost-effective energy efficiency improvements that customers are not implementing. Program planners need to better understand opportunities and barriers in the industrial sector to better design programs.

Approach

The case studies focus on five important energy-consuming industries in California: Canned fruit and vegetables (SIC 2033, NAICS 311421), Paper Mills (SIC 2621, NAICS 322121/322122), Pharmaceutical Preparations (SIC 2834, NAICS 325412), Plastic Bottles (SIC 3085, NAICS 32616), and Cement (SIC 3241, NAICS 32731). Five separate facility case studies are being developed for each industry, resulting in a total of 25 facility profiles. Energy efficiency practices and decision-making processes are compared across facilities within an industry and, in a summary analysis, across industries.

The project includes the following key components:

- (1) A comparison of energy consumption at best-practice versus typical facilities;
- (2) An assessment of energy efficiency potential relative to potential that has been previously identified from analysis of secondary source data;
- (3) A review of decision-making practices for included facilities and how they affect energy efficiency improvements; and
- (4) An examination of how current California energy efficiency programs are addressing energy efficiency barriers in these industries.

An important component of the case studies is an analysis of each customer's propensity to adopt lower-cost energy efficiency measures and practices, such as maintenance of motors, pumps, compressed air systems, and steam systems, and improved control of energy-consuming processes in order to eliminate waste. The extent to which customers replace worn system components with more efficient components is also explored, as is each customer's tendency to make energy efficiency investments in measures such as process controls, adjustable speed drives, and improved process design.

Each customer's energy efficiency decision-making attributes are analyzed relative to facility energy efficiency to identify barriers to increased uptake of energy efficiency measures. Elements include: financial/accounting structures, incentives/disincentives to reducing energy (operating) costs, decision-making authority (local/central), efficiency/equipment purchase policies, access to

capital/approach to financing, capital budgeting process, project timing, investment criteria, and competitive/economic considerations.