Is Energy-Efficient Lighting and HVAC a "Deal or No Deal" for Your National Chain Accounts?

Lynn Ross, National Grid
Carol Sabo, PA Consulting Group
Lark Lee, PA Consulting Group
Tom Coughlin, National Grid

Abstract

This paper answers some key questions about how and why national chain accounts make decisions about energy-efficient lighting and HVAC. In particular, it answers the question of what influence long-standing, major energy-efficiency programs such as National Grid's Design 2000*plus* and Energy Initiative have on these decisions. It also discusses whether these influences extend beyond the utility service area border.

The authors present the results of a research project conducted in 2006 that specifically targeted national chain accounts with stores in National Grid's service area. This study analyzed national chain account program participation data from National Grid's tracking system along with the results of the 2005 Commercial and Industrial Programs Free-ridership and Spillover Study for these accounts. These analyses were followed by in-depth interviews of key decision-makers representing 14 major national chain accounts.

The results of this study help to identify trends in standard practice for national chain account customers and provide valuable information on their decision-making processes. The question of whether system benefits funded energy-efficiency programs influence national account practices beyond the utility service area and state border may indicate a need for cooperative regional or national initiatives to influence these customers' standard practice for energy-efficient equipment and design.

Introduction

National accounts (chains and franchises) are a growing percentage of utility business customers. As this trend continues, it is important to assess how energy efficiency programs can most effectively target and serve this group of customers to maximize net energy savings. With this end in mind, National Grid hired PA Consulting Group (PA) in 2006 to conduct a research study of national accounts that participated in two of its business energy efficiency programs, Energy Initiative and Design 2000*plus* in 2005. The study's primary objectives were to determine:

- What is standard design practice for lighting and HVAC for significant national accounts in the region?
- What influence have utility or other public program incentives had on this standard practice?
- What is the customer decision-making process for energy efficient equipment?

Additional researchable questions for the study included:

- Does withholding rebates cause a customer to revert to previous inefficient lighting design?
- Does a customer practice a different level of efficiency when constructing a store where no energy efficiency rebates are offered?
- Did the incentive influence the design of future projects within and outside of the utility's service territory?

Eighteen unique national accounts participated in Energy Initiative and Design 2000*plus* in 2005. PA attempted to interview each of these 18 unique companies, or a representative such as an energy services provider of the company, to develop a complete picture of decision-making and standard practice for these national accounts. PA was able to complete interviews with 11 respondents, representing 14 of the18 unique national accounts identified for this study.

Prior to the customer interviews, PA interviewed National Grid's National Account Managers and Program Managers about national accounts and reviewed the most recent projects completed in 2005 for each national account. These staff interviews and file reviews provided critical insight on the timing and extent of National Grid's involvement with the project and the key decision-makers. In addition, National Grid conducts an annual free-ridership survey with its business program participants, which PA conducted in 2006 for 2005 participants. As part of the national accounts study, PA analyzed the 2005 free-ridership survey results for national accounts.

The paper begins with an overview of the Energy Initiative and Design 2000*plus* programs, national accounts' participation in the programs and the programs' 2005 free-ridership survey results. This is then followed by results from interviews with National Grid staff and then with the national accounts.

The study results are primarily qualitative (with the exception of the project information and free-ridership analysis) due to the small sample sizes. At the same time, the study conclusions are drawn from those responses that were fairly consistent for those interviewed.

Program Description

Energy Initiative. Energy Initiative is an incentive program available to all nonresidential customers through National Grid. The program promotes the installation of energy efficient electric conservation retrofit measures and efficient energy management practices in existing commercial, industrial, and governmental buildings. Energy Initiative began in July 1989 when several existing commercial and industrial incentive and retrofit programs were combined.

Design 2000*plus*. Design 2000*plus* is an incentive program also available to all non-residential customers through National Grid. This program offers incentives for the installation of electric

conservation measures in three markets: new construction, renovation/remodeling, and replacement of failed equipment. A shift of the latter time-dependent opportunities from Energy Initiative to Design 2000*plus* began in 1992.

The Energy Initiative and Design 2000*plus* programs also provide technical assistance to identify opportunities to improve the electric energy efficiency of facilities. In addition, they provide commissioning services for complex installations such as industrial process measures.

National Accounts Program Participation

Eighteen unique national accounts participated in either Energy Initiative or Design 2000*plus* in 2005. These national accounts represented 86 projects and 8,463,310 of annual kWh savings from project measures. Grocery stores represented the majority of 2005 annual kWh savings—5,481,085 kWh or 65 percent of the total annual savings.

Free-ridership Survey Results

The 2005 free-ridership survey was completed with 87% (60/69) of 2005 participating national accounts' projects sampled for the survey. In comparison to all other Design 2000*plus* 2005 participants, national accounts had significantly higher free-ridership rates for HVAC equipment and significantly lower free-ridership rates for lighting. This is true both at the customer-level and when weighted for kWh savings. There was no statistical difference in spillover for national accounts and all other 2005 participants when weighted for kWh savings. However, there is a directional indicator of increased spillover for national accounts for Design 2000*plus* lighting projects, but this is not significant because of the small sample sizes. For Energy Initiative, none of the national accounts were free riders for lighting projects compared to 12% of all other participants. This difference again is not statistically significant because of the small sample size.

Staff Interview Results

The interviews with National Grid National Account Managers (NAMs) identified the following positive influences on national accounts' standard practice:

- National Grid has experienced, well-qualified staff that are a good source of information to national accounts customers
- National Grid has a well-developed infrastructure to support the national accounts
- NAMs leverage other energy efficiency information resources such as Edison Electric Institute
- Rising electric costs have raised awareness of the benefits of energy efficient lighting
- Manufacturers and vendors are taking a more active role in making product available

- Other firms see energy efficiency as a business opportunity
- Customers are looking at energy efficient technologies to benefit from demand response programs
- There are state lighting codes in place

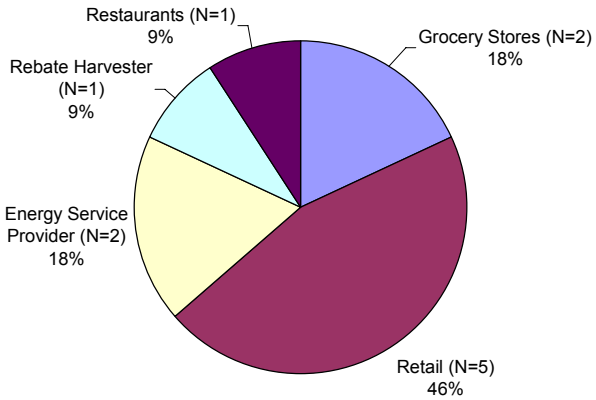
The interviews with NAMs identified the following barriers to more energy efficient standard practice for national accounts:

- Costs—financial incentives are still needed for some customers to achieve desired payback, particularly for retrofit projects; incentives are also driving customer demand, which in turn is energizing the equipment suppliers to make appropriate energy efficient products available to meet that demand
- Aesthetics—retail stores need customized energy efficient lighting in some cases to fit their unique design and performance criteria
- Lack of knowledge—many customers are not well-versed in the state lighting codes and do not know how to measure compliance

National Accounts Interview Results

PA completed interviews with 11 respondents, who had experience working on energy efficiency projects at 14 of the 18 unique national accounts identified for the study. Figure 1 shows respondents interviewed by business type. Almost half of interviewees were retail chains.

Figure 1
National Account Interview Respondents by Business Type



Source: National Account Interviews

We summarize key findings from the customer interviews in the following sub-sections:

- The customer energy decision-making process
- Key factors in going forward with energy projects
- The role and effects of utility programs
- Standard practice

The Customer Energy Decision-making Process

- National accounts have varied stakeholders in the management and implementation of energy efficiency projects. These include internal energy staff, outside contractors and equipment manufacturers.

- The importance of the customer's energy department, or in many cases, individuals in the customer's energy department on customer decision-making process cannot be overstated. Internal energy staff are most influential in the decision to go ahead with retrofit projects. However, outside energy service providers tend to play a greater role in new construction at the design and construction phase.

- For new retail stores, at least one national account noted that the "new store planning" group and the "visual people" are involved. They are also involved in work on major remodels. For new projects and major remodels, the "maintenance department" has a say and they are adverse to "high maintenance" lighting.

- Customer's energy departments tend to be small (1–3 individuals) with more business administrators than technical staff. The exceptions to this are grocery chains that tend to have larger and more sophisticated internal staff.

- All of the interviewed national accounts work with third party contractors, such as energy service companies, to some extent.

- HVAC manufacturers were also identified as key stakeholders influencing national accounts' energy efficiency decision process.

Key Factors in Going Forward with Energy Projects

- The primary factor for national accounts to move forward with projects is the project payback. The majority of national accounts reported that they needed a project payback of two years or less to move forward.

- Other key factors reported by at least one interviewee were total life cycle costs, cost of ownership (operating costs, initial cost and maintenance cost), equipment warranties and longevity of equipment.

- The importance of being able to "duplicate" energy efficiency projects to other locations is a key factor to national accounts.

- Social responsibility or being a good corporate citizen was also reported as important to national accounts, although some were not sure how to best market this to customers.

- Product presentation and ambience are key factors for lighting projects.

- Industry standard for retailers is to double the footcandles in stores because research shows there is a direct correlation between sales and illumination.

The Role and Effects of Utility Programs

- All interviewees were emphatic about the importance of utility rebate programs in making energy efficient projects possible in their organization.

- National accounts report they have limited energy efficiency project budgets. Therefore, they are much more aggressive in implementing energy efficient retrofit projects in regions with good rebate programs such as National Grid's.

- National Grid's technical assistance plays a key role in the decision to install high efficiency projects.

- For national accounts that have a significant percentage of their stores in malls, utility programs face barriers that limit their participation. Barriers that don't allow individual gains in energy efficiency to be realized include the lack of submeters and centralized AC units.

Standard Practice

- Utility programs are reported as key in moving the market and changing standard practice towards higher efficiencies according to national account interviewees.

- In the absence of utility programs, lighting standard practice for the majority of national accounts has evolved toward higher efficiency—standard T-8s and HIDs for track and accent lighting and metal halides with electronic ballasts. When a utility rebate is available, many national accounts said their standard practice is T-5s.

- National accounts report higher efficiency HVAC standard practices. Standard practice tends to be SEER 13, with EER of 11.0 for smaller equipment and lower EER (one reported 10.4) for larger (20 + tons) equipment.

- Utility programs have also played a role in defining standard practice and influencing national accounts' bulk purchasing standards—sometimes nationally, but at least regionally, according to national account interviewees.

SUMMARY

The study results suggest that energy efficiency programs are having an effect on national accounts' standard practices. Most particularly, standard T-8s have become standard practice for new construction lighting. High efficiency HVAC units (SEER 13.0, EER of 11.0; less for larger units) also appear to now be standard practice for new construction. Interviewees report that utility programs have played an integral role in moving national accounts toward these higher efficiency standard practices. It has not just been the incentive that has been important, but also utilities' technical assistance and education about higher efficiency equipment.

Because of national accounts' stringent payback requirements for going forward with a project (a 2-year payback for most) and pre-approved fixed annual budgets, interviews indicate that utility program incentives are essential for national accounts to continue to pursue higher efficiency equipment when the payback is not sufficient on its own and the budget is based on less energy efficient equipment. Interviewees indicated this is normally the case with energy efficient lighting, which tends to have a payback between 3 to 5 years. This is also substantiated with the lower levels of free-ridership for lighting projects of national accounts than of other program participants.

On the other hand, customer interviews and the free rider survey results provide consistent evidence that the HVAC market may now be transformed to higher efficiency standards for national accounts. Interviewees reported higher levels of efficiency as standard practice for HVAC equipment. This was further substantiated by the higher levels of free-ridership for HVAC projects seen for national accounts. This transformation was most likely influenced by utility programs and codes and standards. In addition, the lower incremental cost between standard and higher efficiency HVAC equipment and/or the greater involvement of HVAC manufacturers with national accounts reported by interviewees may also have played a role in this transformation. At the same time, it is worth further investigation to understand what impact utility programs have had and continue to have on HVAC market transformation to more energy efficient equipment relative to state and national codes and standards. Given the qualitative nature of this study, it would be worth further investigation to identify what efficiency levels of HVAC equipment national accounts are purchasing in the absence of utility rebates.

All of the interviewees discussed how important the programs were for selling energy projects to upper management. They were unanimous in their opinion that without the programs, significantly fewer projects would be implemented.

Utility programs also affect where national accounts choose to implement energy efficiency projects. In general, they tend to choose regions with aggressive utility programs to spend their limited energy project budget. This is because projects in these regions have the shortest project payback for the national accounts.

At the same time, it appears that utility programs may be having a limited national effect for some national accounts. For example, some national accounts decide on standard design and purchase the higher efficiency in 'bulk' based on the rebates available nationwide. Therefore, there may be 'spillover' from regions with utility programs to regions without utility programs.

In addition, if a pilot energy project is tried in a region with a utility program and found to have significant cost savings, a national account may then implement it nationwide.