

The EnergyFocus™ Program: Bringing Together Commercial Tenants, Facility Managers, and the Utility

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ABSTRACT

This paper provides an overview of a comprehensive, energy efficiency initiative targeting tenants in commercial office spaces. The EnergyFocus™ program was developed specifically to address an area where it has typically been very difficult to effect change: tenant-occupied commercial office space. The numerous barriers to addressing efficiency-related issues in this market are well documented, and the EnergyFocus™ program was designed specifically to match the needs of three different parties: facility managers, commercial office tenants, and utilities. In this paper, we provide a discussion of (1) background information (2) program design process, (3) pilot implementation, (4) evaluation results, and (5) recommendations for future implementation.

Background

Market barriers to energy efficiency in tenant occupied space have long been discussed within the ACEEE and other forums. Specifically, in buildings or offices where tenants do not directly pay the electric bills, there is little or no direct incentive for these tenants to use energy efficiently. Similarly, because electricity costs are typically rolled into the overall lease costs for a building, facility managers have little incentive to control these costs – especially in tight real estate markets as has been experienced in Seattle and other high-growth areas. The resulting “split incentive” market barrier typically means that leased office space, in general, is overlooked in program designs.

During the period 2000 – 2001, Seattle City Light (SCL) and other utilities along the West coast faced extremely high wholesale market prices for electricity, the likes of which had never been experienced before. These price increases were necessarily passed on to ratepayers in a successive series of rate hikes. Concurrently, there was a softening in the overall commercial real estate market in Seattle and other major metropolitan areas because of the slumping economy. Facility managers were therefore concerned about the prospects of continuing to pass along all energy costs to their tenants in the face of increased competition for tenants. The concept for EnergyFocus™ resulted from in-house research conducted by *energy* Market Innovations, Inc., (eMI) with Seattle-area facility managers and property management companies. While many of these firms had participated in previous rebate programs, it was discovered that most did not have an established plan to control energy use. Specifically, only one company was found to have efforts in place to work with tenants to use energy more efficiently. Since SCL did not have a program in its portfolio to

address tenant plug loads and other energy use we developed what has since become known as EnergyFocus™.

The Program Design

EnergyFocus™ is based on the premise that each building is a unique community and that all parties within that community can play a role in controlling energy costs. Importantly, the entire effort was designed to create a fun and engaging outreach effort. We describe, below, the elements of the program, and include a detailed discussion of the office assessment process.

Program Elements

Specific program modules and tools were developed that can be mixed and matched to suit the unique environments of each building community. These include:

Passive and interactive lobby displays. A series of daylong foyer displays were developed to focus on (1) the regional energy crisis, (2) energy saving strategies for tenants, and (3) energy saving strategies at home. The latter element was included in the program in recognition that each person working in a building was also a residential customer for SCL or another regional utility. A strong theme to the lobby display component was tenant engagement – it was our goal to engage every tenant in fun and creative ways. To this end, the program included the creative use of mannequins and activities such as “Energy Jeopardy.” Energy Jeopardy was played during the lunch hour and tenants could win fun prizes such as compact fluorescent lamps (CFLs), coffee mugs, and other promotional items.

Workshops. Workshops were conducted for office managers and other interested staff, focusing on identifying energy waste in their offices and motivating staff to cut energy use.

Office assessments and individual office consultations. For both large and small offices, office assessments were offered to identify specific recommendations for ways to cut energy use. Lighting strategies, equipment use, and conservation strategies were discussed. We describe this process in more detail below.

Model purchasing policies. Since a large percentage of energy consumption in commercial offices is due to equipment use (*e.g.*, computers, printers, and copiers), it makes sense that a program dealing with tenant energy use also focus on long-term purchasing patterns. To this end, model purchasing policies were developed, disseminated to interested offices, and discussed during office consultations.

Janitorial recommendations. In each building, EnergyFocus™ staff met with facility managers and their custodial management team to help eliminate energy waste during the evening cleaning periods. Improving energy efficiency was discussed after an initial survey gathering information about the custodial management team and their approaches was conducted. Along with providing general awareness of custodial impacts on building energy consumption, team cleaning and recording of tenant evening energy use were promoted as

solutions. Team cleaning is an arrangement where multiple custodial staff are assigned to clean in groups. Traditionally, custodial staffs have been assigned to clean areas by themselves as a way to promote service accountability. When staff members clean in the same areas with their team, however, fewer total lights are on in the building at any given point during the cleaning process than if each staff member were simultaneously cleaning individually assigned areas. Recording of evening energy use by custodial staff, noting such points as computer monitors or office lights found left on, was promoted as an approach for facility managers to gather information on the energy consumption behaviors of their tenants. This information could allow facility managers to effectively impact building plug load consumption, especially during evening periods when many items are left on but are unused since tenants have left for the day. To respect tenant privacy and security, it was never suggested that custodial staff turn off office equipment.

Product demonstrations. EnergyFocus™ provided demonstrations of state-of-the-art energy saving office technologies including liquid crystal display (LCD) computer monitors (known also as flat panel monitors), fluorescent task lighting, The Berkeley Lamp (patent pending), and various plug load controller options. Information was also provided on delamping and lighting control strategies that could be discussed with facility managers. Product demonstrations were displayed in building lobbies during program implementation and were staffed with EnergyFocus™ personnel to answer questions.

Information technology consulting. Information technology (IT) systems are commonly managed without energy efficiency in mind. EnergyFocus™ hired an IT consultant with expertise in network administration to address issues related to centralized control of monitor sleep settings, optimizing back-up procedures, and purchasing policies.

Office commitments. As a focal point of the program, EnergyFocus™ asked both offices and individuals to make commitments to save energy in their buildings. In return for their commitments, offices and individuals were eligible to win prizes (promotional items and energy saving technologies such as an LCD monitor, CFLs and task lights).

Pilot Implementation

Participating Buildings

Program implementation took place during the period September through November 2001. The pilot program targeted five different building types (*i.e.*, high-, medium-, and low-rise office buildings) with a variety of tenants (*i.e.*, legal, accounting, medical professionals, small businesses, and government agencies). The selection of buildings was deliberate in order to learn as much as possible about the effectiveness of the various program elements within a variety of environments. In some cases, buildings were enlisted in the program through utility account executive brokering. Table 1, below, summarizes the buildings in which the program was delivered.

Table 1. Participating Buildings

Building	No. Floors	Square Footage
720 Olive Building	20	286,437
Colman Building	6	140,000
Washington Mutual Tower	55	1,115,000
King County Administration Building	9	220,138
Norton Building	17	240,000

An “immersion” approach was used, wherein the program worked intensively in one building with each program element for an entire week, then moved on to the next building for another week, etc. This approach was initially chosen as a way of ensuring maximum exposure of all building tenants within a short period. In hindsight, this approach works well as a kick-off for the overall effort, but turned out to be overly ambitious for accomplishing all that was desired within each building.

Office Assessment

The tenant efficiency assessments provided an excellent opportunity for working with building tenants. Specifically, assessments offered a unique setting to identify opportunities for changes in day-to-day energy use, lighting systems, equipment purchasing, and computer network configurations. Such assessments also provided an opportunity to promote new technologies and available rebate programs (e.g., beverage vending machine occupancy-based controllers). We present, therefore, a more in-depth discussion of the assessment process.

Educating and assisting tenants that are interested in addressing energy efficiency issues in their offices required a relatively detailed understanding of specific business operations, equipment inventories, purchasing behavior, and network administration practices. Therefore, the design and execution of an effective office assessment strategy required careful planning and sensitivity to each tenant’s business. Support from building management played a key role in opening the doors to tenant staff and, once these doors were opened, the assessment process served as a valuable tool for facilitating dialogue among facility managers, tenants, and utility representatives.

Approach. The first interaction between the EnergyFocus™ assessor and the participant tenant office was a brief introductory meeting. In some cases facility management pre-arranged these meetings. While EnergyFocus™ staff also tried contacting tenants directly, assistance from facility management proved to be the most effective way to reach tenants. Throughout the assessment process, office managers typically represented participant offices, although this title varied between firms, especially those of different sizes. (In smaller firms, the office managers frequently held additional responsibilities. In larger firms, the office manager was typically a more definitive position). The initial meeting outlined the EnergyFocus™ service, its objectives and offerings, described the outreach available for participant offices and distributed service information. The meeting also provided participants the opportunity to ask general energy efficiency questions.

The second stage of the office assessment was an office walk-through and tour. During the walk-through, participants were briefed on potential energy efficiency improvements their office could make. Each office walk-through toured representative areas of tenant space looking at workstations, utility rooms and common areas. It was a goal to minimize the time requirements, so identical office spaces were not included in walk-throughs. The walk-through aimed to address specific participant concerns as they related to energy efficiency. Detailed notes were taken during each walk-through and, after the walk-through was completed, a customized, summary report was compiled and provided for each participant tenant office.

The assessment report summarized the services conducted with each tenant and identified no- and low-cost steps the participant should consider to improve energy efficiency within their office. Each summary report also provided extensive web resources for participants to expand their knowledge of both general and office-specific energy efficiency issues, including various technology options. While reports were frequently similar, they focused on suggestions unique to each specific tenant.

Efficiency suggestions. The end result of the office assessment service was detailed suggestions customized to each tenant's unique concerns. The suggestions were basic, but nevertheless effective. Frequent suggestions included:

- turn off lights and equipment at night;
- turn off lights and equipment when not it use;
- purchase ENERGY STAR® compliant office equipment;
- communicate extensively with employees regarding conservation;
- maximize use of outside daylight;
- turn off lights in unused areas;
- delamp ceiling fixtures where possible;
- where lighting is needed, use energy efficient lighting (such as CFLs);
- remove all screen savers (these don't save energy);
- engage energy saving features on office equipment;
- investigate ENERGY STAR; and
- plug in timers to outlets for equipment without on/off switches (*e.g.*, coffee brewers with heated reservoirs).

Effectiveness. The office assessment was a valuable tool for both interacting with tenants and for influencing behavior. We discuss, below, some of the benefits of this approach.

Education. Myths abound in regards to energy efficient best practices, and education is an effective way to combat these misconceptions. While the office assessment service assisted office managers to identify where energy consumption could be reduced, education was a cornerstone of the effort. The service recognized that to achieve a lasting impact, participants needed to be educated, and not simply handed a card with the top ten steps managers could take to save energy in their office. Beyond the commercial office arena, the assessment service was also available to educate participants about residential, utility and building energy issues, although these subjects were not a primary focus.

Personal interaction/attention/outreach. The office assessment service provided personal interaction with participants. This outreach attention was important beyond merely education as it put a name and a face on the utility and their energy conservation concerns. Creating the personal connection was critical to relaying the service's message to participants and engaging them.

Evaluation of facilities, behaviors, and equipment. The objective of the office assessment service was to evaluate the energy efficiency within commercial tenant offices. To achieve this end, several office aspects were examined. Facility energy efficiency issues are commonly addressed, and this was included as a focus of the service. The office assessment service also examined office equipment and tenant employee behavior and practices. These additional and non-traditional focuses separate the office assessment service from previous energy efficiency campaigns.

Identification of no- and low-cost steps. Ultimately, the goal of the office assessment service was to identify efficiency enhancing steps that commercial tenant offices could take. The focus of these recommendations were no- and low-cost actions. It was hoped that offices would be motivated to take simple steps, which would require little time investment and little or no capital investment.

Evaluation Results

Early results indicate that the program is leading to long-term sustained changes at some very large and visible companies. Perhaps most importantly, however, the program has established relationships among the sponsoring utility, property managers, and tenants – relationships that can be leveraged to support office energy efficiency in the future.

Feedback from Facility Managers and Tenants

Formal surveys were conducted with facility managers and tenant representatives to assess their experiences with various elements of the program and to identify areas for improvement. Highlights from this feedback, which is documented more fully in the evaluation summary report, are provided below:

- **each service element worked** – The overall design of the service worked well, with each component part fulfilling its intended role.
- **facility managers value the service** – Facility managers were supportive of the service and reported they were satisfied with the services, the professional approach employed by staff, and the depth of engagement offered to themselves and their tenants. EnergyFocus™ is perceived as offering a valuable service that the facility managers alone do not have the time, expertise or resources to provide for their tenants.

- **the office assessment tool worked well** – Office assessments were well received and facilitated in-depth discussions of plug load efficiency topics with office managers and their staff.
- **two levels of office assessments were warranted** – In smaller offices, a relatively quick assessment and recommendation list was all that was necessary. In larger offices, more in-depth assessments and detailed discussions were required in order to address opportunities with adequate depth. The follow-up, summary reports, with additional energy efficiency resources, were well received by tenants.
- **larger tenants require customized one-on-one consultations** – These tenants are overall more receptive to service efforts and have multiple parties who are involved in energy-related decisions. Concurrently, efficiency opportunities in these offices are greater and, therefore, generally warrant more attention than smaller tenants.
- **office recommendation reports are required** – Recommendations were made at the time of the assessment and, in the case of larger offices, followed up via e-mail summaries and/or in-depth reports summarizing our recommendations. A great deal of time was spent preparing these materials (which was not allocated in the original project scope). These reports were determined early on in the implementation to be necessary to maximize the effectiveness of the service delivery.
- **facility manager endorsement is critical to the success of office outreach efforts** – In the Washington Mutual Tower, in particular, the facility manager worked actively to schedule appointments with target tenants. In other buildings, where EnergyFocus™ staff were required to “sell” tenants on the need for an assessment, the process was substantially delayed and labor intensive.
- **tenant workshops are best targeted at smaller tenants** – While smaller offices were less likely to warrant significant individual attention, the workshop was very effective in communicating detailed service messages to these tenants in large numbers.
- **information technology energy efficiency training needs are relatively basic in most offices** – Since this is a very new concept to most IT personnel, discussions focused primarily on purchasing policies and monitor sleep settings. Network-related barriers were addressed in some offices, but these were a minority.
- **information technology staff are protective of their time** – Since these staff have many demands placed upon them, there is a desire to have information provided to them as a first step, followed by detailed consultations as necessary.

- **participants report finding the workshops informative** – Based upon feedback from participants, the workshop was a success. Workshop participants reported that they learned meaningful information from an engaging instructor. The workshop evaluation responses also highlighted actions that may warrant future efforts, such as continued energy efficiency education for commercial office environments, and coordination of energy conservation efforts for the building communities.
- **custodial service providers and facility managers were willing participants in exploring opportunities for reducing nighttime kWh consumption** – Facilitated by EnergyFocus™ staff, both facility and custodial management teams were interested in discussing what role custodial staff could play in conserving energy within their respective building communities. While all facility managers were committed to maintaining their level of custodial services and doing what they could to save energy, some were interested in reshaping their management strategy to help reduce wasted energy by following recommendations from EnergyFocus™ staff (*e.g.*, adopting team cleaning approaches).
- **lobby engagement was effective** – These displays and activities were effective at engaging the tenant community and creating an awareness of the EnergyFocus™ initiative.
- **displays of new technology were successful and generated considerable interest** – This element of the service warrants considerable expansion in future initiatives. People relate well to hands-on displays and were frequently intrigued by motion sensors turning lights on and off, etc. This is an effective way to spark peoples' interest about efficiency tools for their offices.

Energy Savings

One of the primary goals of the evaluation was to quantify, to the extent feasible, electric energy savings that resulted from the EnergyFocus™ pilot. To this end, an extensive analysis of the billing records was undertaken for the five EnergyFocus™ buildings and nineteen comparison buildings. The results of the billing analysis suggest that it is not possible to determine, statistically, whether or not savings have resulted from the service. The results provide suggestions that the service may have had a positive effect on use in the treated buildings, however, the magnitude of these savings are too small to stand out among the more prominent factors influencing energy use in the buildings over the treatment period.

Impacts Reported During Tenant Surveys

During the course of implementing EnergyFocus™, and while conducting the follow-up surveys with service participants, we collected substantial information related to actions that people and companies have taken as a direct result of the service. This information indicates that, despite the fact that energy savings are not readily discernible through a near-term analysis of electric consumption for the participating buildings, energy savings are nevertheless being achieved. Many companies and offices reported, during the participant

survey, that they had taken steps to save energy because of the program. While by no means meant to be exhaustive, the following examples illustrate the range of steps that companies have taken:

- **energy deputy** – One large accounting firm assigned a part-time position in each office to do after-hours walk-throughs, including turning off lights, computers and other office equipment left on after employees had left for the day.
- **team cleaning** – In the King County Administration Building, the Division of Construction and Facilities Management instituted janitorial team cleaning throughout the building. The new janitorial policy results in tangible energy savings.
- **enabling ENERGY STAR settings** – As a result of EnergyFocus™, a large financial management company set-up all of their computers and monitors with ENERGY STAR features. The firm also eliminated incandescent lighting, and now uses either compact fluorescent bulbs or fluorescent tubes. The firm has also used the “friendly reminder” sticky notes provided by EnergyFocus™, and has now adopted these in their office and printed up their own version for use not only in their Seattle office, but in their other offices as well.
- **installation of timers** – One consulting firm noted that they had purchased a timer for their water cooler so that it only heats and cools during the day and not during the evening or night when the office is unoccupied. Since EnergyFocus™, the firm is also considering replacement of cathode ray tube (CRT) monitors with energy efficient LCD monitors and is considering the purchase of a new, energy efficient refrigerator.
- **company policies** – A large electrical engineering firm circulated an office memo reinforcing energy efficiency efforts and encouraging employees to be more aggressive in office conservation. The company also has plans to adopt a formal energy efficiency purchasing policy, and IT staff is enabling power-savings capabilities throughout their IT network.
- **modified network back-up systems** – As a result of EnergyFocus™, one firm noted that they re-vamped their computer back-up schedule. The back-up system now runs three hours earlier than it did prior to EnergyFocus™, saving three hours worth of energy used by computers waiting to be backed-up before they can be shut down. A second back-up time was also instituted, geared especially towards employees working late. The second back-up time runs at 5:00 a.m., before most employees arrive.
- **delamping and employee recognition** – A firm delamped some areas of their offices as a result of EnergyFocus™ and presents certificates to employees to recognize their efforts to conserve energy within the office.

- **additional lighting control installed** – As a result of EnergyFocus™, one firm contacted building management to have additional lighting switches installed to increase their lighting control so they could turn off lighting in vacant office areas.
- **new employee education** – Since EnergyFocus™, one firm noted that it has implemented an approach to educate all new employees about the energy conservation actions within the office.
- **lights off** – The barber shop in one building (established in 1926), now turns off its lights every evening – previously, these lights were left on 24 hours a day, seven days a week, for many years.
- **information technology purchasing policies** – Multiple offices reported that they have adopted an energy efficiency purchasing policy as a result of IT discussions.
- **Vending machine controller installations** – During office walk-throughs, EnergyFocus™ staff identified beverage vending machines where lighting and refrigeration could be controlled. EnergyFocus™ staff worked with SCL and facility managers to ensure that these vending machines had occupancy-based controllers installed on them.

Recommendations

Major recommendations for the initiative, based upon the findings of the evaluation and the experiences of staff implementing the EnergyFocus™ service, include the following:

Establish a Two Year Market Transformation Time Horizon

Feedback from facility management staff, office participants, and staff suggests that the service will be more effective if conducted with facility managers and their building population over an entire year. During this time, the EnergyFocus™ service would work with facility managers, developing building-specific strategies and delivering services from the EnergyFocus™ menu:

- individual office assessments;
- consulting services for facility management;
- marketing of existing SCL programs;
- IT consulting;
- energy efficiency newsletters;
- promotion of purchasing policies and new technologies;
- review of lease terms and energy efficiency provisions (energy efficiency is typically not addressed in office lease agreements and this may be a way for facility management to promote energy efficient behaviors among tenants); and
- consulting for security and janitorial staff.

Work with Facility Managers and Seattle City Light Account Executives to Develop Year-Long Tenant Education and Engagement Plans

The development of a yearlong plan would provide facility managers with a road map for working with their tenants to address plug loads. The development of the plan itself would provide an educational opportunity for the facility managers to understand the importance of plug loads and steps that may be taken to reduce consumption. With this, facility managers would then be in a better position to utilize available promotional and technical resources available through EnergyFocus™.

Shorten the Foyer Activity Time and Use This Activity as a Kick-Off to Individual Building Efforts

In the interest of improving cost effectiveness, we recommend shortening the foyer activities to one, two or three days rather than an entire week. This effort should focus on (1) building energy use and steps that can be taken to minimize plug loads, and (2) strategies for reducing residential energy consumption. In general, the foyer activities should serve as a kick-off for establishing awareness about the EnergyFocus™ service that will occur over the entire year.

Expand Plug Load Tools Demonstration

Considerable interest was generated by our demonstration of plug load controls and innovative lighting products. EnergyFocus™ has established relationships with numerous equipment vendors and recommends building upon this to develop expanded interactive displays and, perhaps, plug load demonstration centers in each building.

Consider the Use of Financial Incentives for Specific Tenant Actions

Some utilities are providing financial incentives for the purchase of occupancy-based plug load control devices and the implementation of ENERGY STAR features on computers. Even modest incentives in this regard would likely serve to focus tenant and facility management attention on technologies and strategies available to help manage plug loads.

Require Facility Management Involvement to Recruit Tenants

In buildings where the facility management played an active role in recruiting office managers for office assessments and workshops, we were able to reach more offices in a cost effective manner (i.e., eliminating the “cold calling” otherwise necessary), and were more effective. Facility manager involvement clearly legitimizes the EnergyFocus™ program in the eyes of many building tenants.

Require that Facility Managers Provide a Matching Budget for Service Promotional Items

Promotional items used to raise building awareness over the course of a yearlong effort provide a direct marketing benefit to facility managers. These items are arguably within the scope of their business.

Partner with the Building Owners and Managers Association and Other Professional Associations to Sponsor Workshops and Training for Facility Managers

Broad-based sponsorship and increased visibility through the Building Owners and Managers Association (BOMA) will accelerate awareness regarding plug load efficiency issues. Training for facility managers could be a way to promote EnergyFocus™ and develop a broad base of long-term relationships.

References

Energy Market Innovations, Inc. April 2002. *EnergyFocus™ Evaluation – Final Report*. Prepared for Seattle City Light, Seattle, WA.