

Evaluating Unregulated Energy Efficiency Programs In Competitive Energy Services Markets

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Abstract

Resource commitments for energy efficiency from electricity companies are disappearing rapidly as the regulated Integrated Resource Planning and Demand-Side Management paradigms that fostered them give way to competitive power markets in a restructuring electricity industry. While free-market advocates claim that energy efficiency needs will be taken care of by competitive energy service providers, there is no assurance that efficiency will compete effectively with the panoply of other energy-related (and non-energy-related) services that are beginning to appear in early market offerings.

This paper discusses evaluation issues related to a certification and brand identity program for energy efficiency geared to competitive power markets. It is based on a feasibility study funded by the Energy Foundation, which involved a survey and personal interviews with stakeholders, plus a workshop to further the discussion. Stakeholders include independent power marketers and energy service companies, utility affiliate power marketers and energy service companies, government agencies, trade associations, non-profit organizations, equipment manufacturers, and consultants.

The paper summarizes the evaluation issues as well as the study's basic findings, including:

- Defining evaluation needs and objectives for an unregulated program;
- Building evaluation techniques into program design; and
- Balancing evaluation needs with program cost constraints

Introduction

Why are Certification and Brand Identity for Energy Efficiency Important in Competitive Power Markets?

By the early 1990s electric utilities had become the largest single source of investment in energy efficiency, spending about \$3 billion on energy efficiency in 1993 (EIA 1997). By contrast, total federal investment in energy efficiency programs has averaged well under \$1 billion annually in the 1990s. Driven primarily by state-mandated Integrated Resource Planning (IRP) processes, energy efficiency was the focus of thousands of utility-sponsored Demand-Side Management (DSM) programs.

In 1994 the era of regulated DSM as an investment vehicle for energy efficiency went into decline. The California Public Utility Commission's announcement of its proposal to restructure retail power markets began a wave of state and federal proceedings aimed at opening retail markets in other parts of

the U.S. At present 13 states have taken official action to mandate retail competition (EIA 1998). A major casualty of this wave of restructuring has been utility investment in energy efficiency; from 1994 to 1996 utility DSM budgets declined by about 20% (EIA 1998). Many utilities have announced plans to curtail their DSM spending further, and many states have suspended or scaled back their IRP and DSM requirements.

It is thus clear that regulated DSM will shrink as a source of investment in energy efficiency, and that retail competition will increasingly drive the content of energy service offerings. Energy efficiency must compete with several new features in competitive energy service offerings: lower price, better reliability or power quality, equipment maintenance services, enhanced billing and information services, and others. In the regulated environment, the customer's main choices were paying regulated prices or investing in efficiency, often with utility assistance. In competitive markets, they will be offered a much longer menu.

In this new competitive environment, a market-based certification/brand identity program could help to enhance the marketability of energy-efficient product/service offerings. Without an organized effort to sustain efficiency investment, competing offers based on lower price and other attributes may squeeze out investment in efficiency. On the other hand, a vigorous and effective program could actually increase investment in efficiency. For example, in a national power market worth more than \$200 billion, even a 5% share of the market captured by efficiency investments would represent more than a tripling of historic DSM spending.

How Certification and Brand Identity Could Help Sell Energy Efficiency

The broad hypothesis behind this study is that a marketing program based on certification and brand identity can be used to help market energy-efficient products and services in competitive power markets. To make this idea more concrete, consider the following example:

An existing certification/brand identity program such as Energy Star, Green-e, or E-Seal would set up a certification program for power marketers. To qualify, marketers would have to meet minimum criteria for energy efficiency in their offerings. One way to do this would be to create a list of qualified products and services, assigning each a deemed energy savings value based on performance data. An overall threshold of deemed savings value would be established, and marketers would have to offer incentives for enough measures to meet this threshold. The incentives would take the form of discount coupons for qualified products, based on co-marketing arrangements between power marketers and product manufacturers. Computer coding of coupons would permit tracking of program impacts.

This paper reports the results of a study of feasibility of such an approach.

Background

A Brief History of Certification and Brand Identity for Energy Efficiency

Certification and brand Identity programs for energy efficiency have had 40 years of market experience, mostly in the utility industry. In the late 1950s, Edison Electric Institute (EEI) created the Gold Medallion Home marketing program: it created thermal efficiency standards for homes built with electric heat. EEI members marketed the program to homebuilders. In the early 1980s The Southern Company (holding company for several southeastern U.S. electric utilities) developed the Good Cents program, similar in concept to the Gold Medallion Home program. More than 500,000 homes received the Good Cents label over a 15-year period (Vories and George 1991). Many other utility-sponsored programs have developed at the national, regional, and local levels: EEI's E-Seal program is the most active national effort at present, with more than 75,000 homes certified since 1994. British Columbia Hydro's Power Smart program attained wide use in Canada and parts of the U.S. during the late 1980s and early 1990s. Scores of other utilities have mounted energy efficiency programs in their local service areas under brand identities linked to energy efficiency.

The most significant development in the 1990s for energy efficiency and brand identity has been the emergence of the federally sponsored Energy Star programs. Private industry has responded eagerly to the perceived government-endorsement value of these programs. Growing out of the Green Lights program at EPA, the Energy Star programs have expanded to include a wide range of markets: new homes, commercial buildings, heating and cooling equipment, computers, office equipment, refrigerators, clothes washers, windows, and others. In 1996 EPA and DOE signed a memorandum of understanding that expanded the use of the Energy Star logo to include DOE programs as well as EPA efforts. The Energy Star logo has been marketed as a national brand through public service announcements as well as participating manufacturer advertising.

Co-Branding of Green Power and Energy Efficiency

Certification and brand identity programs for energy efficiency can be viewed in the context of the wider movement known generically as green marketing. Green marketing is the use of environmentally friendly attributes to create or enhance brand identity for a product or company. It has become an identifiable force in the U.S. economy; by 1997 the overall size of the "green products" market was estimated at \$150 billion (ECW 1997).

Various market research efforts have attempted to define the market segments most likely to buy "green" products, and in particular green power (Ottman 1997). Most broad-based consumer surveys indicate a willingness to buy green products, even at a premium (Farhar 1993), but evidence also suggests that such statements are not backed up by actual purchasing behavior (Byrnes et al, 1995). Public Service of Colorado found that while customer surveys indicated that more than 70% of customers would pay more for renewable power, less than 8% actually subscribed to their offer (ECW, 1997).

The Energy Star programs have cemented the link between green marketing and energy efficiency. Until Energy Star, efficiency was sold principally as a cost-saving strategy for energy users, a resource for utility planners, or an oil-dependence-reduction strategy. Energy Star helped re-position energy efficiency as a tool for pollution prevention, whether it be for criterion air pollutants such as sulfur

dioxide or for greenhouse gases such as carbon dioxide. Energy Star has helped put energy efficiency in the mainstream of the green marketing movement.

Green power is a new manifestation of green marketing that has evolved with the advent of retail competition in electricity markets since 1994. Generally speaking, green power is electricity generated renewable or otherwise “clean” sources, though exact definitions of sources worthy of the “green” label have been controversial. More than 30 green power programs have been offered to date (ECW, 1997). While many of these are offerings of regulated utilities, an increasing number are being provided by unregulated power marketers. These “green power” marketers are seeking to build a niche among customers that value non-polluting energy sources, even at a likely price premium.

Green-e: An Example of Certification and Brand Identity for Green Power. California, as of March 31, 1998, is one of the first U.S. states to offer retail competition for electricity. To help California customers choose renewable energy-based electricity products and to help spur suppliers to sell “green power”, stakeholder groups with the nonprofit Center for Resource Solutions (CRS) launched the nation’s first green power certification program in October 1997 (Rabago, Wisner & Hamrin 1998).

Called the Green-e Renewable Electricity Branding Project, this voluntary program is designed to educate the public about the benefits of renewable energy and to help customers choose renewable-based electricity products that meet the program’s technical standards. A marketer code-of-conduct, disclosure standards, a verification program, and a coordinated public education campaign back the brand itself.

To use the Green-e brand in California, electricity products must meet or exceed standards for renewables content (50% renewables, including biomass, solar, wind, geothermal, and small hydropower), air pollutant emissions (lower than average “system” power), and nuclear content (no differentiated nuclear). Though certification proceeds on a product-by-product basis, marketers must also meet additional requirements that ensure professional and ethical conduct, including contract, pricing, and fuel source disclosure regulations and environmental marketing guidelines.

To date, nearly all of the wholesale and retail green power marketers active in California have at least one product certified by the Green-e Program. Seven power marketers with three wholesale and seven retail green power products are currently certified. Of the ten products certified so far, all offer at least 50% renewables supply and several provide 75% or 100% renewables.

The Green-e Program hopes to grow in scope, scale, and definition. Specific areas of intended program expansion include: (1) revising product certification criteria over time to include a “new” renewable resource requirement; (2) broadening the geographic reach of the certification effort to other states embarking on retail restructuring; (3) establishing a certification program specifically targeted to larger electricity customers; and (4) incorporating energy efficiency criteria into a Green-e “plus” type of program.

This last point offers a potential nexus for co-branding Green-e with a brand identity program based on energy efficiency. Many green power marketers have realized that the price premium of their products may limit their market share. In some states, moreover, renewable power is in short supply. The Green-e program, recognizing this fact, is investigating a product variation offering efficiency as well as renewable power. As competitive markets develop and become more differentiated, the development of these kinds of targeted co-branding strategies can be expected to grow, and thus offer energy efficiency additional marketing options.

A Feasibility Study for a Certification/Brand Identity Program for Energy Efficiency

In 1997 the Energy Foundation funded the Alliance to Save Energy to conduct a small feasibility study for a certification and brand identity program for energy efficiency in competitive energy services markets. The cornerstone of this study was a survey of leading organizations in the energy services and brand identity field. Participants included:

- Brand identity program operators, including EPA, DOE, Green-e, Green Seal, and Edison Electric Institute
- Regulated electric utilities including PG&E, Southern California Edison, New England Electric, Cinergy, Wisconsin Electric, Utilicorp, Hawaiian Electric, and Northern States Power
- Unregulated energy services marketing companies, including PG&E Energy Services, AllEnergy, HEC Energy Services, Enron, LG&E Power, Energy Performance Services, Edison Enterprises, Honeywell, Johnson Controls, and Columbia Energy Systems
- Independent energy service marketing and consulting firms, including Conservation Management Corporation, TechMRKT Works, Worksmart Energy Enterprises, and Willis Energy Systems
- Institutional/governmental customer aggregation entities such as the federal energy management program and state and local government agencies.

More than 30 organizations participated in the survey and interview phase. They were solicited directly, and were also invited to participate through the AESP-Net email list as well as through various industry meetings.

The survey instrument collected basic information on the size and type of the respondent's organization. It then presented questions on respondents' level of interest in such a program, views on program design issues, interest in co-branding and co-marketing, and views on market-pull/aggregation issues.

Responses to these questions are summarized below. Because of the limited sample size, the inherent self-selection bias of the sample, and of the qualitative nature of many of the responses, no statistics were generated beyond tabulating and summarizing results where appropriate.

A workshop was held on May 27, 1998 to present the overall concept, review the survey/interview results, and obtain stakeholder feedback. Invitations were selected to provide a balance of major

stakeholder viewpoints. About 25 people attended this session, including federal agencies, national power marketers, Energy Star equipment manufacturers, electric utilities, and consultants. The workshop produced positive responses from most stakeholders, although many wanted to see more specifics before committing to any program. It confirmed the basic findings of the surveys, and gave the project team encouragement to move forward with developing program specifics.

Overall Level of Interest in a Brand Identity Program

Respondents were interested and supportive of the concept overall; 58% of respondents indicated either strong or very strong interest; 22% indicated neutral interest, and 20% showed weak or very weak interest.

Respondents were also invited in an open-ended follow-up question to express the reasons for their interest (or lack thereof). On the positive side, reasons included:

- The need to raise the visibility and the marketability of efficiency in an increasingly complex energy market
- The need for credible third-party standards for efficiency to help consumers make good choices
- Need to find marketing-based vehicles for efficiency after direct subsidies end

Respondents also voices several concerns, including:

- Concern about the cost and bureaucracy of meeting qualification requirements. If marketers are required to spend too much money or time, or if the flexibility of their offerings is too constrained, they may not be interested.
- Concern about revealing competitive information in reporting requirements. Marketers may be reluctant to agree to reporting sales or impact data.
- Timing issues: as retail competition is spreading unevenly across some parts of the country, the focus of energy services marketers is rather short-term and simple. There is limited room for complicated differentiation schemes; most marketers are just trying to sign up customers and protect and build brand identity. Introducing a new program in this climate can be challenging. However, the success of the Green-e program, and the fact that some marketers have already concluded that price alone will not be enough to differentiate their products, indicates that there may be room for a non-price differentiation approach.

Qualification Criteria/Certification Requirements

The technical core of the program would be the qualification criteria and the certification and reporting requirements that participants might agree to. Responses to the six items in this question are summarized as follows:

1. Agreement to feature specified products or services in qualifying offerings. Most respondents agreed that this would have to be a threshold criterion for participants. Some sort of minimum requirements should be set, possibly including free diagnostic and information services, and a

minimum bundle of energy savings measures. The lead scenario that evolved in discussion with participants was that the program would establish a list of qualifying products, each with a deemed energy savings value, and that marketers would have to include a threshold level of deemed savings in their offering to qualify for the program.

2. Agreement to monitor customers and report results. Most respondents also agreed that this should be a requirement. However, some voiced strong concerns about the details of such requirements: for example, requiring detailed customer results could be expensive, and could encounter proprietary data issues. The lead scenario focuses primarily on mass markets, and assumes a coupon-based tracking system for verification. These features would minimize monitoring and verification requirements.

3. Proven track record in sales and delivery of efficiency services. Most respondents opposed qualification on the basis of historical sales or results, mainly on the grounds that such criteria would tend to inhibit market entry and favor larger, established companies.

4. Specific targets for percentages of sales as efficiency services. This would be akin to a “portfolio standard” approach: participants would have to show that some minimum percentage of revenue came from energy efficiency services. Respondents mostly opposed this idea as too restrictive and likely to create accounting problems. One scenario in which this issue could be critical would be a case in which the program was used in conjunction with the Green-e renewable power program; in this case the power marketer might have to achieve a certain percentage target in its overall resource mix to maintain its Green-e certification.

5. Certification requirements for company personnel. Most respondents supported this requirement, that participant company personnel should be certified as to their expertise by a third-party source. This requirement would only apply to larger commercial and industrial markets, where company personnel are actively conducting facility analysis, design, and project management. The current lead scenario focuses on mass markets where this requirement would be moot.

6. Minimum levels of expertise and experience of personnel. As an alternative to creating a third-party certification requirement, simpler standards for staff qualifications could be established. Respondents supported this concept somewhat more strongly than (5).

Co-Branding and Co-Marketing

Respondents were asked whether they supported co-branding and co-marketing, either with “green power” renewable electricity marketing, or with power marketers’ existing national company brands. This concept received the strongest overall support of any item on the survey instrument, especially with regard to co-branding with renewables.

Some concerns were expressed on this item: for example, many power want the third-party certification and the implicit endorsement value, but would accept the program brand identity only as a necessary part of the program. In addition, the issue of timing was raised here again. One respondent argued that since neither green power nor individual company brands are well established, it may be premature to aggressively pursue co-branding ventures. This view suggests that the co-branding value evolves over time, with the certification value driving the program initially.

Other Issues

Segmentation. It will be important to carefully identify market segments for such a program, both in the energy services industry and in customer markets. For example, energy service marketers with the greatest historic commitment to and expertise in energy efficiency have worked almost exclusively in commercial and industrial markets. However, the greatest interest in green power appears to be in residential markets. This may create difficulties in co-branding with green power marketers, and illustrates a fundamental difference between green power and efficiency: green power may appeal to certain segments in the residential sector who buy on principle more than price; efficiency may sell better in bottom-line-oriented business segments. On the other hand, buying-behavior-oriented customer research shows that some residential segments are driven by bottom-line efficiency and cost reduction, and some business/institutional segments buy on principle. Defining and reaching these segments effectively may be the ultimate challenge for both green power and energy efficiency marketing.

Manufacturer involvement. One of the most promising aspects of this concept is the potential for co-marketing between energy service marketers and efficient equipment manufacturers. For example, if the program were to use an existing brand identity such as Energy Star, it could immediately capitalize on the availability of Energy Star products. An Energy Star power marketer could, after meeting threshold qualification requirements such as free diagnostics and low-cost measures, offer customers discounts or other incentives for Energy Star equipment. These arrangements could be made freely on a bilateral basis between individual marketers and manufacturers. The co-marketing benefits of such ventures could drive a vigorous, flexible market expansion for Energy Star products.

Cost. Respondents pointed out that cost could become an issue in two ways: excessive costs for participants could limit interest in the program, and the cost realities of creating a viable national brand identity could limit the programs ultimate brand equity. Some respondents pointed out that a “deep pocket” to support program development costs and to generate public awareness would be needed to make such a program thrive.

Simplicity versus Verifiability. From a marketing point of view, such a program should impose as few requirements as possible and give marketers maximum flexibility. From a policy point of view, there needs to be some assurance that qualification requirements are set high enough that marketers would have to change their offerings to participate, and that reporting requirements are sufficient to show whether real market impacts flow from the program. The tension between these two viewpoints will require a fine balance in the development of a brand identity program for energy efficiency.

Certification. The issue of how product and service certification would be conducted was a concern for several respondents. Much of the concern revolves around the question of self-certification versus third-party certification. In the Energy Star programs, self-certification is typically the norm: manufacturers agree to technical standards, and then self-certify that they are complying. A more rigorous requirement, undertaken in such programs as Green Seal, is that a third party tests and certifies products. This requirement assures that products perform as required, but also imposes costs and other burdens on manufacturers.

Outline of a Certification/Brand Identity Program for Energy Efficiency

Based on the survey, interview, and workshop results, a review of the literature, and an assessment of market conditions, this section outlines some of the potential features of a national brand identity program for energy efficiency.

Organizational structure

Based on the results of this analysis, the Energy Star brand identity appears to offer several advantages, and we thus assume that the initial focus will be on working with EPA and DOE. Energy Star has developed a robust family of products, has begun to enjoy national brand equity, and appears to be a preferred approach for the industry audiences involved. Especially with the prospect of carbon emissions cap-and-trade or other climate change-driven policies in the future, the Energy Star program could become an effective vehicle for implementing carbon emissions control strategies.

Qualifying Criteria

Most energy efficiency certification/brand identity programs have focused on specific products for certification purposes. In this case, energy service marketers, because their offerings are typically bundles of commodity power and services, might offer incentives for certain minimum energy efficiency measures as part of their bundled offerings. For specific hardware products and service offerings to qualify under the program, some kind of certification procedure would be needed. In the Energy Star programs, these procedures are typically in place. However, if other kinds of services are included, such as customer diagnostics, new certification processes might be needed, such as software certification for accuracy and completeness.

A key issue identified in the survey was self-certification versus third-party certification. Marketers and product manufacturers typically prefer self-certification because it imposes minimum costs and scrutiny. In practice, most Energy Star manufacturers self-certify, and to keep the costs of a program reasonable, this approach may be desirable. From a credibility standpoint, however, the value of a brand identity depends on its perception as a reliable third-party source of accurate information. This will be a key issue in designing the certification aspects of the program.

Co-Branding and Co-Marketing

The success of this concept appears to hinge on its ability to foster co-branding and co-marketing agreements between energy service marketers, green power marketers, and efficient equipment manufacturers. For the purposes of illustration, consider the following example:

A marketer targeting the Pennsylvania residential market offers three basic packages: regular service, Green-e service, and Green-e Plus service. Regular service would be a price-only offer. Green-e would meet the renewable-content standard. Green-e Plus would allow energy efficiency to be part of the renewable content, and would enter a partnership with a new EPA Energy Star Power Marketing program. The marketer, who had qualified previously for the EPA program, is

allowed to meet part of their Green-e requirement through it. The marketer uses the EPA program's list of eligible measures, with deemed energy savings values for each measure, to develop a series of co-marketing deals with equipment manufacturers. Customers are offered discount coupon packages for the equipment included in the offering. Using a bar-coded coupon system, the marketer's performance in selling qualified products is tracked, and an annual report is generated for Green-e and EPA.

Evaluation Issues

Defining Evaluation Needs

One might think that for an unregulated program of this type, no independent evaluation is needed. The market players that drive the program—power marketers and Energy Star product manufacturers—would conduct their own business evaluation of the program and decide whether or not to continue participating. However, two factors drive the need for some type of credible independent evaluation:

- **Public Funding**—It is likely that, at least for a startup phase, public or philanthropic funds will be needed to develop and maintain the program infrastructure. Private sector players are unlikely to pay such upfront costs, though they may support the program long-term if it proves successful. The initial funders will undoubtedly want some evaluation of the effectiveness of the investment and the workability of the concept for policy purposes.
- **Credibility**—Since this is likely to be a third-party certification program, its credibility to the private sector, the sponsors of the Energy Star and/or Green-e brands, and the energy advocacy community must be upheld. The issue of “greenwashing” is controversial in newly-unregulated markets such as California and Pennsylvania. Some environmentalists claim that such green marketing programs as Green-e legitimize for-profit marketers without achieving significant gains for the environment. To address such concerns, evaluation is necessary.

Evaluation Methods and Program Design

The feasibility study made it clear that power marketers are unwilling to take on significant cost burdens in order to gain the benefit of such a program. Their other business issues and severe margin limitations do not allow them much room for added expenses. This constraint rules out methods that might be used in traditional residential efficiency programs, such as site visits, participant surveys, or utility bill analysis.

The chief options left are engineering estimates of per-measure savings, and verification of installation and use.

The feasibility study reviewed these latter two options as part of its program design assessment. The tentative approach for this program concept is to develop a list of deemed savings values for eligible efficiency measures. This would entail basic engineering estimates of typical measure impacts, coupled with discounting for estimated erosion of savings. Savings erosion would be based on estimates of

actual usage of the measure (e.g. the number of CFLs actually in use vs. the number provided), and of persistence (measure removal or failure prior to rated service life).

Fortunately, the evaluation literature provides a body of data from which to make such estimates. Based on this kind of analysis, the program would develop a list of eligible measures, with deemed savings values discounted to estimate realistic energy savings for the overall customer base. This approach works in the residential sector, for a list of measures whose performance is not very site-dependent. In commercial markets, the challenge would be greater; on the other hand, the size of customer projects could be large enough to warrant site-based evaluation techniques.

The program design also examined options for verifying that measures were in fact purchased by the customer. While we considered requiring customer-signed forms and other customer-based techniques, the most practical technique for this appeared to be the use of bar-coded coupons, which would permit tracking of equipment sales through retailers and manufacturers. Indications are that Energy Star product companies are now developing sales reporting systems; these could be integrated with this program concept. Since coupons appear to be a likely way for marketers to offer customer incentives, this approach seems to fit both program design and evaluation needs at low cost.

Attribution and Free Ridership

This concept is not a resource acquisition program. Since the program costs are borne primarily by private entities, it is less critical to demonstrate net program impacts than in traditional utility resource acquisition programs in which ratepayer funds and utility shareholder incentives may be at stake. Nonetheless, since public funds and the credibility of public programs are involved, it is still important to document net program impacts to the extent possible.

Since the primary impact evaluation technique is likely to be coupon redemption tracking of product sales, the anticipated approach to estimating net impacts is to assess historical baseline equipment sales in the affected product types and geographic areas. Incremental sales above the baseline can be attributed to the program to some degree.

Conclusions

This feasibility analysis for a certification/brand identity program for energy efficiency in competitive power markets shows that there is relatively strong conceptual interest in this idea. Most respondents, representing the key constituencies needed to support such an effort, indicate support for the concept.

Most respondents also want to know more details before committing to a specific program. Their concerns revolve around the types of requirements that will be placed on them for certification, reporting, and other administrative needs. There is also the timing issue: it may take a number of years before fully competitive markets are mature enough to accommodate non-price differentiation

strategies. On the other hand, some power marketers say that non-price differentiation is the only way to sell in competitive mass markets now, because the room for price discounting is so small.

This program concept presents unique evaluation challenges. While some level of evaluation is needed to support the program's credibility and policy effectiveness, the market will not bear a high cost for evaluation. The program design analysis indicates that for the residential market and a limited list of predictable measures, evaluation techniques can be built into the program design at very low cost. A commercial-customer program might need to incorporate more site-specific evaluation techniques.

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