Non-Energy Benefits As a Market Transformation Driver

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ABSTRACT

Energy efficiency is often insufficient as a driver for changes in the marketplace. During periods of high energy prices, committed regulation, or environmental fervor, it has momentary successes, but when one of these market influences is withdrawn, interest can quickly evaporate. Linking energy efficiency with non-energy benefits, and linking energy programs with non-energy programs, can create a more powerful and sustained thrust for market penetration. This is how most businesses in other market sectors market their products: stressing positive associations, multiple benefits, hot-button issues, and alliances with other successful products.

Non-energy benefits can create a much vaster market penetration than selling on energy benefits alone. Alliances with non-energy programs can create momentum that carries on even if energy efficiency momentarily loses its luster in the market.

However, multi-dimensional programs also have structural challenges to overcome. Regulatory requirements and agency budgetary constraints tend to require programs that can be strictly justified by energy savings. This makes it difficult to craft programs focused on non-energy benefits or that establish alliances with non-energy programs.

This roundtable focuses on programs designed around non-energy benefits, and discusses their successes and challenges in crafting a new approach to marketing energy efficiency. These programs focused on non-energy benefits: enhanced human comfort, reduced liability, increased occupant performance, and productivity. They have also formed alliances with other non-energy programs, such as water conservation, waste reduction, low-income housing, professional certification, that reinforce linkages with other benefits and create a more diverse, and thus stable, marketing effort.

Introduction

Over the years, energy efficiency, per se, has not always had great success as a market driver. During periods of high or volatile energy prices, committed regulation, or environmental fervor, it has had its momentary successes. But when one of these market factors is withdrawn, interest can evaporate quickly. There is a better way. Linking energy efficiency with non-energy benefits, and linking energy programs with non-energy programs can create a powerful and sustained thrust for market penetration that far exceeds the penetration achieved with singular efforts to sell the utilitarian aspects of efficiency. This is essentially the approach most of the private sector takes to marketing their products: stressing positive associations, multiple benefits, hot-button issues, and alliances with other successful

products. Rather than efficient, new cars are advertised as sexy, and rather than nutritious, fast food is advertised as convenient. Visa vies for market share by positioning itself as the official credit card of the Olympics, and the latest blockbuster movie is advertised on McDonalds soda cups.

Promoting non-energy benefits can result in much greater market penetration than selling a similar program on energy benefits alone. Alliances with non-energy programs can create momentum that carries on even if energy efficiency momentarily loses its luster in the market. Thus, multi-dimensional programs that incorporate energy efficiency as just one of the benefits being sold are likely to have greater penetration and sustainability and consequently, greater energy savings.

However, multi-dimensional programs also have many structural challenges to overcome. Legislative mandates, regulatory requirements, and agency budgetary categories tend to foster programs that can be justified strictly in only one dimension: energy efficiency. In this context, it is difficult to craft programs to take advantage of non-energy benefits or to establish alliances with non-energy programs. Investments to demonstrate non-energy benefits are likely to be considered off-topic, and efforts to coordinate with other groups are likely to be dismissed as outside of scope.

Market transformation as a goal for energy efficiency initiatives assumes that it is possible to selectively intervene in a market to effect a shift in how the market accepts and values an energy efficiency measure. The theory of market barriers focuses on overcoming structural reasons that are preventing the acceptance of a particular measure. Program designers are directed to devise "market interventions" that will remove the identified barriers to greater efficiency. This can be roughly translated as "figure out what's wrong with this market, and how to fix it." This rather negative view of market transformation does not explicitly account for the synergies that can be created by linking energy efficiency measures with other non-energy benefits to the customer, or by linking energy efficiency programs with other non-energy programs. The positive momentum of a coordinated market "buzz" that stresses positive features is likely to have far greater success than more singular efforts that strive to remove barriers.

Creating such a multi-dimensional program often requires a different skill set than found in a typical energy efficiency program manager. Crossing discipline barriers requires a wide-ranging interest in other fields and professions. Energy efficiency providers may find themselves in a position of creating a program outside of their immediate expertise.

The authors of this paper have created and managed a number of innovative, collaborative programs stressing non-energy benefits and alliances. They have collaborated in writing this roundtable paper to focus on a few of the programs that have taken on that task in recent years, and, to illustrate the broader issues, discuss their successes and challenges in crafting a new approach to marketing energy efficiency. Each of these programs has incorporated enhanced human comfort and productivity into their key sales message, using evidence of non-energy benefits as the way to "set the hook." They have also formed alliances with other non-energy programs, such as water conservation, waste reduction, low-income housing, professional certification, or risk management that reinforce linkages with non-energy benefits and create a more diverse and thus more stable marketing effort.

Program Types

The five programs discussed in this paper present a range of types: research, information outreach, collaborative building, and modified DSM incentive based programs. Examples from these five are used to illustrate common issues that the authors have identified about programs that attempt to achieve the goals described above. It is hoped that this paper will provoke more discussion about how to appropriately support, manage and judge the success of such efforts.

- The **Daylighting and Productivity Studies**, by the Heschong Mahone Group, with funding from PG&E and the California Energy Commission, have used research to establish a compelling connection between good daylighting (which has a huge energy savings potential) and human performance in buildings. The key to this research is the use of outcome metrics that are most meaningful to building owners - the performance metrics that they collect themselves. Thus, the studies focus on sales for retail store owners, student performance for educators, worker performance for office and industrial owners. (Heschong 1999a; Heschong 2001; Heschong 1999b)
- The **California High Performance School Collaborative** (CHPS) was formed to unite a variety of messages on how to design better school facilities—ones that are healthy, comfortable, energy efficient, resource efficient, water efficient, serve as a community resource, have stimulating architecture, are easy to maintain and operate, and are adaptable to changing needs. CHPS has received support from seven state agencies, four utilities, two non-profits, and two federal agencies. Uniting multiple benefits under a single CHPS "brand" has served both to reinforce the brand and has helped the target audience to make mental links between the many disparate issues that were previously perceived to be unrelated. The program has focused so far on guidelines, education programs, a rating system and recognition for achievement. (Eley Associates 2001)
- The **Building Codes Assistance Project** (BCAP), an affiliate of the Alliance to Save Energy (ASE), has been working to create a collaborative with the Institute for Business and Home Safety (IBHS), the Alliance of American Insurers and various insurance companies. This project is designed to help create a linkage between energy efficiency and reduced insurance risk. It seeks to educate the insurance industry on how the International Energy Conservation Code (IECC), energy efficiency, and building performance programs can positively impact their liability exposure. It also engages them as advocates for building energy codes and building energy efficiency. (Panetti 2002)
- The **Daylighting Collaborative** is a program developed by the Energy Center of Wisconsin in 1998 to promote the incorporation of daylighting into every commercial building. A primary goal was to incorporate messages and engage participants not historically related to energy. The Collaborative has funded demonstration sites, education programs, and information outreach. The program's success is largely based on results of research on non-energy benefits and unusual communication and education modes that are directed at reaching every-day building owners and architects. (Ternoey 1999)

- ***Designed for Comfort*** (*DfC*), is a program designed to motivate multi-family housing developers to incorporate more energy efficiency into their designs. The program, however, focuses on occupant comfort, reduced maintenance, and facilitated funding as its primary benefits. In addition to incentive payments, the program also offers developers branding and co-marketing. Created by the Heschong Mahone Group, working first with San Diego Gas & Electric Company (SDG&E), then with Southern California Edison (SCE), *DfC* also has included local housing authorities as partners, helping them address the impact of efficiency in their funding decisions and rental allowances. (Stone 2001)

Proving Non-Energy Benefits

The primary effort of most of these programs is to link energy efficiency programs to highly desirable non-energy benefits. Program managers have found that proof is far more powerful as a motivator than mere suggestion. Quantifiable benefits are more powerful than broad, general benefits. Benefits that affect the core mission of an organization are more powerful than a demonstration of simple cost savings. (Bensch and Weitner 2002).

What are some of the non-energy benefits that these programs have been able to use convincingly? In approximate order of persuasive power, these include productivity, comfort, maintenance benefits, financing and permit expediting, and risk reduction. Many other potential non-energy benefits, such as increased building valuation or reduced absenteeism, are under investigation but remain to be demonstrated in a convincing fashion.

Occupant productivity is hugely motivating for any company, for it affects their basic mission and has vastly larger economic effects than energy savings. (Raiford 2002; Pearson 2002). Energy typically accounts for a very small percentage of a company's cost of doing business, while labor is a major cost for almost all organizations. By showing a statistical association between daylight and retail sales in stores, the Daylighting and Productivity Studies have been able to move the issue of daylighting from the desk of the chain store energy manager to the desk of the CEO. Likewise, by showing a statistical association between more daylight and better student performance, the Studies have dramatically increased interest in daylight among school boards and superintendents who are inherently more interested in educational outcomes then facility management. Reductions in absenteeism, through improved health, comfort or morale, are likely to be just as motivating, if they can be conclusively linked to energy efficiency measures. (Ternoey 1999; Bensch and Weitner 2002)

Comfort has proven to be another motivator that building developers and owners pay close attention to. Low-e windows reduce radiant heating and cooling discomfort of people sitting near windows, while also increasing the energy performance of the windows. Gentle ambient daylight provides more visual comfort and less visual fatigue than starker electric lighting systems, while also reducing electricity use for lighting and cooling. Developers recognize that increased occupant comfort can translate into fewer complaints and call-backs, more tenant (or buyer) loyalty, shorter vacancies, and higher rents or sales prices.

Reduced maintenance benefits of most energy efficiency improvements can be a powerful driver, especially when a decision-maker has responsibility for both construction and maintenance budgets. Some compact fluorescent lamp (CFL) manufacturers have recently changed their marketing approach from touting energy savings to touting longer life. For example, Philips has changed the name of their CFL brand from "Earthlight" to

"Marathon." (Fowler 2002) A big selling feature for low-e windows is reduced fading from UV penetration. Schools, which always have precarious maintenance budgets, have responded well to CHPS's message of reduced maintenance from the use of more durable materials.

Facilitation of financing and permitting are extremely valuable to owners, developers and architects, saving both time and money, and helping them to leverage larger, more profitable projects. It is a function of institutional structures, rather than an inherent benefit. *Designed for Comfort* has helped set up second-tier utility allowances that help both tenants and developers qualify for more expensive units by explicitly recognizing that energy costs are lower. CHPS has helped "high performance" schools get through the state review process faster with high visibility and quality assurance measures. The ultimate financing benefit would be achieved if we could demonstrate a consistent increase in market valuation of energy efficient buildings. Although an increase in value has often been claimed, it has not yet been demonstrated to the satisfaction of the real estate industry, such that appraisers have a routine method to assign value to energy efficiency features. (Nevin and Watson 1998; Chao, et al 1999)

Risk avoidance can function as a powerful motivating factor for some energy related improvements. It is the flip side of other benefits discussed above—avoiding negative consequences rather than accruing positive outcomes. Daylighting, natural ventilation, and co-generation, for example, all reduce the risks from grid-wide power outages. Proper insulation and ventilation reduce the risk from mold and indoor air quality concerns. The BCAP insurance program has taken on risk avoidance as its primary driver.

Showing these linkages works best when the benefits are direct and quantifiable. Despite the increasing data and consensus on the link between climate change and human activities, insurers in this country show little interest in becoming involved in promoting energy efficiency, which can help mitigate climate change. However, many energy efficient technologies also carry the potential of reducing or preventing insured losses caused by fire, ice, water, wind, theft, bodily injury, acute and chronic illness, business interruption, and professional liability. These direct benefits to insurers became the hook in BCAP's program to involve the insurance industry in energy efficiency activities.

It is clear from the structure of all of these programs, that their success is largely a function of proof of the benefits. One of the barriers to building a permanent, sustainable partnership between the insurance and energy efficiency industries is the lack of actuarial data. Although researchers for the insurance industry recently undertook a study to collect this data and attempt to make correlations between claims and building performance, one of the main challenges BCAP sees is that the methodology used by the industry to collect data on claims does not lend itself to identifying energy efficiency status. Likewise, until the appraisal industry has access to data that will enable it to relate specific energy efficiency improvements to value, there can be no research that may, or may not, establish increased value for energy efficient buildings.

Setting Up Partnerships

A second common aspect to all of these programs is setting up partnerships with other organizations that interact with the target audience, but don't have energy efficiency as their primary motivation. In order to achieve successful partnerships, program managers have found that you must first set your immediate goals aside and discover the goals and

motivations of your potential partners. Market research becomes even more essential for programs that try to reach outside the normal expertise of their managers. Careful listening can identify where there are parallel goals or specific technologies or techniques that meet the partners' goals while also enhancing energy efficiency. (York and Paulos 1999). These following lessons were learned by performing initial research (formal and informal) on the needs and issues of the target market and potential partners.

- CHPS recognizes that school administrators are always looking for ways to improve the learning environment. Good daylighting can help them meet their educational goals while also achieving energy efficiency.
- *DfC* recognizes that the folks at housing authorities are driven by a goal of increasing the stock of affordable housing for families, seniors and others. Rather than "pushing" energy efficiency, DfC focused on demonstrations of how to increase comfort, reduce tenants' overall costs, increase developers' net income, and create faster recycling of development funds.
- The BCAP insurance project discovered that mold was the hot button issue for insurers, and therefore looked for specific linkages between reduced mold risk and energy efficiency.

Many of these programs have taken advantage of alignment with established organizations that resulted in perceived legitimacy. Even the best ideas gain supporters faster once they already have partners, and especially well-known ones. Finding the first few partners is the most difficult. In establishing the Daylighting Collaborative, the Energy Center of Wisconsin found that aligning with non-energy program partners (such as Wisconsin Department of Commerce, Safety and Buildings, University of Wisconsin, WasteCap Wisconsin, AIA Wisconsin, Wisconsin State Energy Bureau, Wisconsin Public Service Commission) helped created almost immediate legitimacy for the program. (Hansen, et al 2000)

Bringing in partners can also assist in obtaining needed funding and providing additional channels for information delivery. The CHPS program has greatly increased its funding base, outreach, and support, by including diverse partners such as the California Integrated Waste Management Board, Division of the State Architect, and the California Air Resources Board. Furthermore, the target audience, school planners and designers, now receive sthe CHPS message from almost every state agency with which they interact. Similarly, the Daylighting Collaborative greatly benefited from the diverse sources of messages about its program, sent out by its many partners.

One key lesson learned by most program managers was that when setting out to create partnerships, one may find the focus of the program shifting as additional players bring more issues and insights to the collaboration. This can create problems and opportunities. Multi-purpose programs are more likely to generate innovative solutions, but are less likely to give perfectly satisfying results when measured against singular, pre-determined goals. In general, collaborative programs have to be more flexible, because program needs may also shift with an ever more diverse group of partners. For example, the CHPS program created a "high performance schools award," but soon realized that not all schools given the award could meet the criteria of all funders. Some awards were likely to recognize energy efficiency, while others might acknowledge exemplary waste recycling or water conservation.

There is a strong possibility (stronger than with a traditional DSM program) that a non-energy benefit or multi-partner program will take on a direction of its own – because it is driven more by the motivations of partners and "participants" than program managers. This leaves program managers with the dilemma of being responsible for program outcomes, but unable to completely "manage" the outcomes of the program. Thus, finding the appropriate organization to sponsor such programs—an organization that can tolerate such a diversity of approaches and measures of success—becomes a pressing challenge.

Surviving Funding Constraints

There are a number of challenges to creating a market transformation program based on non-energy benefits. Some of these challenges are familiar to program managers who have designed resource acquisition or market transformation programs, but some are unique to programs with a multi-dimensional, non-energy benefit focus.

Like more traditional market transformation programs, the relatively short budget periods for programs (and the corresponding short-term managerial attention spans) make it difficult to establish and maintain long-range goals. This is exacerbated when the very philosophical heart of the program is outside the experiential framework of those approving budgets. For example, when a public utility commission is somewhat skeptical about the concept of market transformation in general, it is even more difficult to get long-term budget commitments for an activity about which you are claiming the biggest benefits are not even energy related! In order for interest to be maintained, energy efficiency has to be recognized not only as a long-term social goal, but also as only a secondary benefit to the many other things that concern the building industry. As long as energy efficiency is pursued as an immediate solution to a short term crisis (as was the case in California during the power shortages of 2001), it will not be possible to create long term marketing efforts which take advantage of these other alliances.

There is a chicken and egg problem, that in order for such a program to be successful, proof of the non-energy benefits must be established through research or demonstration, but it is difficult, or nearly impossible to support such research with short term budgets. It is far easier to make the case that short term funding should be used to fund short term actions with guaranteed results, such as simple widget–based retrofits. The Daylighting and Productivity Studies had the ironic requirement to do a study of baseline attitudes towards daylighting as part of the initial project, so that long term market transformation effects could be measured and demonstrated. However, by the time some very obvious market transformation effects were occurring, the California Public Utilities Commission had changed its interest from market transformation back to resource acquisition.

There is a related problem that also poses additional challenges: strict organizational mandates. Public utilities commissions, for example, are mandated to be concerned with utilities—not productivity, design excellence, occupant comfort, or any other non-energy issues. Likewise, state architect's offices and school facilities agencies have a mandate to provide safe, healthy and economical school buildings, but not energy efficiency. Finding linkages between missions is generally no one's mission, and thus likely to remain un-funded.

The recent support for "third party initiatives" and "cross cutting programs" has created some programmatic space for more innovative programs focusing on non-energy benefits or multi-partner programs. However, inconsistent support for such programs and the

inherent territorialism of supporting agencies runs counter to programs which have broad benefits and wide impacts. The Daylighting and Productivity Studies and *Designed for Comfort* were both initially funded through the third party mechanism in California. But, in spite of their success, did not receive continued funding from their sponsoring utilities. Indeed, *DfC*, like many other successful third party programs, was taken over and renames by its original sponsoring utility—speaking to the success of the program but undermining the concept of third party administration. The Daylighting Collaborative was given a mandate to broaden its funding support outside of the Energy Center of Wisconsin, and then ran into trouble justifying its existence with so many benefits occurring outside of Wisconsin.

The need for attribution creates another hurdle for obtaining funding, at least initially. Even if the potential funder accepts the basic strategy of creating more market force by showing a linkage between energy efficiency and non-energy benefits, it may still find the actions of the program too indirect for establishing attribution. If there are many benefits bundled into one program, which one is most responsible for moving the market? If there are many partners, which one gets the credit for the success of the program?

Planning for Success

Given the power of non-energy benefits in motivating the market, it is also fairly easy to be overwhelmed by success. Given potential funders innate wariness about speculative programs or research, the tendency is to ask for the smallest amount needed to get a non-energy benefits based program going. Logically, this should lead to a small success that will make the case for expanded funding. However, the success of these programs has often proved not to be small but overwhelming, and the rate of funding support was not pre-arranged to keep pace.

Three good examples of excess success are *DfC*, the Daylighting Collaborative, and the Daylighting and Productivity Studies. In its first half year for SDG&E and later for SCE, *DfC* generated so much interest that it exceeded its goals in the first few months. The Daylighting Collaborative rolled out the program before they were ready to meet the (unanticipated) level of demand for the services offered. The Collaborative was so successful in developing synergistic relationships, that the multiple points of promotion created an early demand for services and training which the Collaborative simply could not meet. The Daylighting and Productivity Studies suffered a similar fate once results were published showing a link between good daylighting and student tests scores, and good daylighting and enhanced retail sales. The clamor from around the country for additional information became all consuming, but unfunded.

CHPS is a better example where anticipated success led to a more complete, staged implementation plan. The CHPS program growth has been thoughtfully managed and supported by the partners and funders.

Judging Success

We may need to completely rethink measurement and evaluation for this type of program. Public utility commissions and others funding energy efficiency programs expect to see an impact in kWh, kW or therms. Many programs live or die by the amount of energy they can be demonstrated to save in their first year. Programs designed to focus on non-energy benefits to achieve market transformation goals clearly cannot be judged with the

same yard stick, or at least not on the same time frame. But other measures of program success may be relevant.

BCAP's efforts with the insurance industry is aimed at the International Energy Conservation Code (IECC) being adopted more widely, and through training, being enforced more diligently. While the quantifiable energy effects have been estimated, the impact of a collaboration between the insurance industry and *BCAP* will be, at best, subjective.

For a collaborative type program, perhaps success in pulling together x representatives of y different occupations for z sets of discussions, may be success enough. Perhaps for a research type program, establishing a compelling relationship between an energy efficiency related measure and a non-energy benefit valued by the targeted industry, is success enough. Each program could be recognized as a necessary strategic step to achieving the broader goals of true market transformation.

While the energy efficiency community may want to quantify energy impacts, other partners in these programs are likely to judge success by other results that they value. These non-energy results may ultimately contribute to greater energy impacts, but be far more difficult to quantify. For example, *Designed for Comfort* produces quantifiable changes in the design of individual multifamily buildings, but the restructuring of the utility allowance schedules of housing authorities contributes to even greater amount of energy efficiency through the impact on all the "non-participant" projects that follow. To the housing authority, the important effect is that affordable housing tenants will have low overall housing burdens and be more comfortable, while the housing authority receives faster repayment on its loans and therefore more affordable housing is built.

A new measure of success might be whether the linkage with non-energy benefits has been adopted into the applicable culture. For example, do appraisers include a metric for energy efficiency in their appraisals? Do insurers include energy efficiency in their actuarial tables? Do other researchers control for the presence of daylight in their studies of human performance? Do housing authorities account for energy efficiency in setting eligibility requirements? Do parents demand high performance criteria for schools in their meetings with school boards?

Ultimately, the goal of all of these programs is increased energy efficiency in buildings. So if a program is successful, it should be possible to demonstrate a trend towards greater efficiency, or at least adoption of program-associated measures in the building industry. The ultimate solution may be a construction industry database that tracks trends in energy efficiency. Small examples of such tracking databases have been achieved nationally for some individual products, such as CFLs, or locally, such as the California non-residential new-construction database. However, even if any trends can be identified, attribution may be difficult if not impossible to achieve given the indirect nature of market transformation programs. Local programs do not necessarily have only local impacts. Does PG&E get credit for a daylit school built in Pennsylvania because the superintendent heard that daylight might be associated with increase student learning? Does BCAP get credit for a change in vapor barrier practices by a residential builder in Idaho because the builder thought it might lower his risk?

Recently, there has been a push for efficiency programs to demonstrate that they are "sustainable" or will have persistent impacts even after the withdrawal of funding. Non-energy benefit based market transformation programs are perfectly suited to achieve these goals, but it may be difficult proving that they have done so. Once a developer or school

superintendent is convinced that high performance building techniques will lower hi/hes building costs and improve occupant comfort or performance, you don't have to continue to pay rebates for energy efficiency measures. Given the indirect nature of these programs, it is almost impossible to distibguish a "participant" from a "non-participant." If the program is successful in getting its message delivered by multiple partners as with the Daylighting Collaborative or CHPS, or primarily through the media as was the case with the Daylighting and Productivity Studies, it is even difficult to determine the source of influence on a changes in behavior. In such cases, ironically, the greater the program success, the more difficult the attribution.

Conclusion

Programs designed around non-energy benefits, and/or around alliances with non-energy based partners, have enormous potential to transform the market toward greater energy efficiency. They are likely to be especially goot at motivating participants to adopt energy efficiency measures, and to sustain that motivation over time, in spite of changes in the economy or immediate energy conditions. However, they are subject to numerous challenges making their implementation very difficult. Some of these challenges are structural, in that current program sponsors cannot easily tolerate the diverse directions, long term perspective, or lack of clear attribution associated with such programs. Other challenges include the inherent difficulty of meeting the needs of multiple partners, of finding managers with sufficient multi-disciplinary experience, or maintaining program focus in the face of divergent partner goals.

The energy efficiency industry would likely benefit from forging alliances with other organizations that have sustained synergistic interests. To make this happen, the task of looking for potential linkages between such organizations and programs, and then maintaining them, needs to be somebody's job definition. Likewise, research that could potentially establish those linkages is unlikely to be funded until it is specifically included in the defined mission of a funding organization. Establishing and maintaining those linkages may be one of our most powerful tools in efforts to transform "the market" such that energy efficiency becomes the norm. This paper suggests that we may need to rethink some organizational structures in order to get that to happen.

References

Bensch, I., and S. Weitner. 2002. *New Construction Market Assessment Literature Review*. Madison, WI: Energy Center of Wisconsin.

Chao, M., G. Parker, D. Mahone, and R. Kammerud. 1999. *Recognition of Energy Costs and Energy Performance in Commercial Property Valuation.* San Francisco, CA: Pacific Gas and Electric Company.

Chao, M., and G. Parker. 2000. *Recognition of Energy Costs and Energy Performance in Commercial Property Valuation.* New York, NY: New York State Energy Research and Development Authority.

Eley Associates. 2001. *Best Practices Manual, Volume I: Planning*. San Francisco, CA: The Collaborative for High Performance Schools.

Fowler, G. March 6, 2002. *'Green' pitch isn't growing sales*. New York, NY: The Wall Street Journal.

Hanson, M., A. Vogen, S. Ternoey, and M. Lord. 2000. "The Daylighting Collaborative: Creating an Advanced Market Transformation Program." In *Proceedings of the ACEEE 2000 Summer Study on Energy Efficiency in Buildings*. Washington, D.C.: American Council for an Energy Efficient Economy.

Heschong, L., 1999a. *Daylighting in Schools: An Investigation into the Relationship Between Daylighting and Human Performance.* San Francscio, CA: Pacific Gas and Electric Company.

Heschong, L., 2001. *Re-Analysis Report: Daylighting in Schools, Additional Analysis.* Sacramento, CA. New Buildings Institute.

Heschong, L., 1999b. *Skylighting and Retail Sales: An Investigation into the Relationship Between Daylighting and Human Performance.* San Francscio, CA: Pacific Gas and Electric Company.

Mills, E., A. Deering, & E. Vine. March 1998. *Energy Efficiency: Proactive Strategies for Risk Managers.* Risk Management Magazine, p. 12-16.

Panetti, C. 2002. *Better Energy Codes for Risk Management and Insurance Loss Reduction.* Building Codes Assistance Project.

Pearson, D., L. Skumatz. 2002. "Non-Energy Benefits Including Productivity, Liability, Tenant Satisfaction, And Others – What Participant Surveys Tell Us About Designing And Marketing Commercial Programs." In *Proceedings of the ACEEE 2002 Summer Study on Energy Efficiency in Buildings*. Washington, D.C.: American Council for an Energy Efficient Economy.

Raiford, R. February 2002. *Solar Gains – Reaping the energy-saving and productivity-boosting benefits of daylighting*. Buildings.

Stone, N. 2001. *A Two-Tiered Utility Allowance: Encouraging Energy Efficient Low-income Housing Construction.* Rosemead, CA: Southern California Edison.

Ternoey, S. 1999. *Daylight Every Building.* The Daylighting Collaborative.

York, D., and B. Paulos. 1999. *A Discussion and Critique of Market Transformation: Challenges and Perspectives.* Madison, WI: Energy Center of Wisconsin.