Transforming Design Practices: A Statewide Program For Nonresidential New Construction

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ABSTRACT

Three of the largest utilities in California, Pacific Gas and Electric, Southern California Edison, and San Diego Gas & Electric, collaborated to develop a commercial new construction program aimed at encouraging greater design team cooperation and integrated building design. Each utility had nonresidential new construction programs in the past based on owner incentives, but they wanted to create a program to have a larger, more direct effect on the design process. This new program is called "***Savings By Design***," and is exceptional in that:

- Implementation is coordinated between three investor owned utilities
- It focuses on sustainable changes in design practices
- It offers a variety of design tools and approaches
- It fosters an integrated approach to energy-efficient design

The program was designed to address the major barriers to design teams using a whole building analysis approach. The use of a consistent energy savings calculation methodology across the three utilities provides the program with a consistent look statewide. The program rolled out in mid-1999 and each utility met its regulatory milestones for program startup. Determination of its success in reaching the design community and transforming design practices will have to wait for a longer duration of program operation.

Introduction

Nonresidential new construction programs have generally focused on motivating building owners to incorporate energy efficient features in their projects. California's utility energy efficiency programs have produced significant energy savings at an effective cost (CEC 1994). And yet, the programs have done little to bring about *sustainable* changes in design practices (Mowris 1998). When each program ends, new projects face virtually the same set of barriers as the ones before the program.

The primary goals of energy efficiency programs are driven by the metrics regulators use to evaluate program success. Until recently that metric was the Total Resource Cost Test (CPUC/CEC 1987). This test historically fostered programs with the goal of buying efficiency improvements at a cost lower than the avoided cost of the energy saved. Goals for market transforming programs can be stated as:

- Bringing about a sustainable change in the level of efficiency of equipment and systems available, purchased and installed in buildings,

- Fostering an energy efficiency delivery industry that will provide higher efficiency equipment to end users, and
- Changing the practices of market actors to result in higher levels of efficiency.

The first goal is met if the widgets installed this year, and next, save energy when compared with the widgets installed last year. This goal is not significantly different from the old resource acquisition programs.

The second goal is met if, for example, there is an increase in the level of activity of the energy efficiency service providers (EESPs), they actually get more efficient equipment installed, and they do so at a reasonable level of certainty and cost.

The third goal is met if the practices of the design community and builders are changed to incorporate energy efficiency into designs and construction. This latter is the primary goal of ***Savings By Design***.

PG&E, SCE and SDG&E, with facilitation by the HESCHONG MAHONE GROUP, collaborated to develop a commercial new construction program aimed at encouraging greater design team cooperation and integrated building design. This program is exceptional in that:

- Implementation is coordinated between three investor owned utilities
- It focuses on sustainable changes in design practices
- It offers a variety of design tools and approaches
- It fosters an integrated approach to energy efficient design

This is perhaps the first new construction program coordinated on this scale[a], with such a focused set of market transformation goals and procedures. Program consistency across the three utilities sends a consistent message to the statewide design community. Evaluation of the program effects in the three service territories should provide valuable lessons for energy professionals involved in the creation of similar programs.

The ***Savings By Design*** program was created to affect the nonresidential new construction market in California. This market has two sets of important actors:

1. *Building owners and developers*
2. *Design team members: architects, engineers, lighting designers, energy consultants, contractors and others*

Architects, historically, have been responsible to building owners for managing the entire process of project development – from the initial design to the point when the building is turned over to the owner. The architect coordinated the work of the various design disciplines (mechanical, electrical, structural, etc.) in a way that served the client's interests. For a variety of reasons, the situation has changed for many projects, and now the architect frequently steers clear of the other professionals' responsibilities. It has been described as "over-the-wall" building design – each discipline does its own portion of the design and "tosses" the results over the wall to the next discipline. This obviously results in a lost opportunity to optimize interactions among all the design elements. "Over-the-wall" practices affect each aspect of the design, but none more than energy efficiency.

Another consequence of these changes is that communication between the architect and the owner is diminished, and the owner, or his/her construction manager, has taken more responsibility for management of the contractor. At the extreme, the 'design/build' model

[a] These three utilities account for one out of every ten energy customers in the United States.

has the architect, along with the mechanical engineer and other disciplines, working for the contractor.

Contractors often offer to substitute a 'cheaper' alternative (to what the original plans specified) to the owner, with little discussion or understanding of the long term costs of the design change. Ironically, this is referred to as "value engineering," though it frequently decreases the value of the property and involves little engineering analysis. The architect's involvement for the duration of the project can make inappropriate value engineering less likely.

Theory of Barriers and Strategy

Savings By Design was created to affect prevalent design practices and bring about greater inclusion of energy efficiency through (a) helping to integrate the design team and their process, (b) encouraging integrated energy efficiency analysis/design, and (c) providing incentives to encourage all the actors to support the extra up-front work that integrated design requires. The specific barriers we address in this program are:

1. The building design process frequently occurs as a set of sequential, semi-isolated elements, "passed off" from one discipline to another.
2. Design professionals generally have little financial incentive to take extra time making a building more efficient.
3. Design teams frequently lack working-experience with the sophisticated modeling tools needed to examine multiple energy efficiency options or integrated energy designs.
4. Design professionals are not normally encouraged to work closely together or to become involved in the efforts of complementary disciplines.
5. Designers' specifications often carry over from job to job (representing both an energy efficiency barrier if there is no change, and an opportunity for transformation if there is).
6. Designers are not often paid to "guard" energy efficiency elements from "value engineering" during the construction phase.
7. Designers generally have little investment in the inclusion of energy efficiency features and therefore, are not strong advocates for the measures during design or construction.
8. "First cost" concerns often override concerns for long-term energy cost savings, eroding the building owners support for additional efforts in energy efficient design.

The utilities' program managers sought to create a program, which would address most of these barriers, and would bring about a sustainable change in design practices. The team's specific goals were to:

A. Encourage an integrated approach to nonresidential building design through incentives for designing and modeling energy systems together.
B. Encourage design teams to routinely include analysis of energy efficiency options and modeling in their procedures.
C. Provide design assistance that is useful both to the sophisticated team, and to the newly formed team.
D. Create a program consistent across the state and consistent over time.
E. Strike a budget balance between financial incentives (large enough to interest busy design professionals) and other program functions (such as design assistance and training).

Program Summary

The program can be summarized as follows:

Savings By Design has three program components:

- Design Assistance
- Design Team Incentives
- Owner Incentives

Savings By Design has two approaches to analysis of efficiency alternatives:

- The Whole Building Approach
- The Systems Approach

Table 1 shows eligibility for the three major program services. Design Assistance is available for any participating project. Owner Incentives are available for projects using either approach, provided that energy savings are at least 10% greater than the Title 24 energy code minimums. The incentive levels are greater for projects using the whole building approach. Design Team Incentives are only available for projects using the whole building approach and achieving savings of at least 15% better than Title 24.

Table 1. Eligibility Criteria

	Design Assistance	Design Team Incentives	Owner Incentives
Systems Approach	**X**	**n.a.**	**X**
Whole Building Approach	**X**	**X**	**XX**
Minimum energy Savings	No Minimum	15%	10%

Design Assistance

Design Assistance is made available to project teams regardless of analysis approach. In addition to the traditional customer service efforts of the utilities' field staff, Design Assistance can include:

- *Help locating information*: introduction of new technologies, cases studies, seminars, energy centers, sample specifications, design guidelines
- *Connections for team*: references to other projects and designers, references to product suppliers, energy simulation services

- *Design tools*: for example, eQUEST, SkyCalc, Energy eVALUator[b]

The specific assistance offered is tailored to the needs of the design team and project, and varies somewhat between the three utilities. For example, SCE does not pay any Design Team Incentive if the utility provides the personnel to perform the building modeling (DOE2 runs), PG&E makes no distinction, and SDG&E program representatives and consultants help design teams with performance modeling programs on their first one or two projects.

Other principle variations result from differences in the facilities that each utility has. At its Pacific Energy Center, PG&E operates a heliodon to help designers model daylighting of their designs. SCE has a refrigeration lab at its Customer Technology Application Center, where they can assist clients with supermarket projects with their system designs.

Two Approaches

There are two approaches available for analyzing efficiency alternatives. The Whole Building Approach uses a comprehensive analysis of all the building's systems and their interactions. The Systems Approach relies on pre-calculated estimates of savings for specific systems[c]. The approaches to energy efficient design differ depending largely on the size and type of the project or the stage of the project when applying for participation in ***Savings By Design***. Another factor that greatly affects which approach is taken is the experience of the program representative. For example, SCE's field staff had significant experience with a prior tool that forms the basis of the Systems approach, and SCE 1999 projects were almost entirely based on the Systems Approach. PG&E's and SDG&E's field staff had no prior experience with the Systems Approach tool and their 1999 projects were almost entirely under the Whole Building Approach.

Whole Building. This is the preferred approach since it provides the greatest opportunity to integrate systems and benefit from additional efficiencies. It is based on performing two building energy simulation runs (using any program approved by the California Energy Commission for demonstrating compliance with Title 24). One run is of the design meeting the State's energy code, and the other is with all the selected energy efficiency options. The level of incentive is based on the estimated energy savings, calculated as the difference between the two runs.

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b eQuest is a DOE-2 based simplified building modeling tool that uses a "wizard" to help the user through the inputs. It is simpler to use than most DOE2 based programs, and can give a good first order evaluation of alternative strategies. However, it is not sophisticated enough to evaluate all the building configurations that more powerful simulation tools can, nor is it approved for code compliance runs in California. SkyCalc is a modeling tool that allows the user to optimize the size and number of skylights based on energy savings from lighting and HVAC equipment. Energy eVALUator is a financial program that calculates the lifecycle benefits of investments that improve building design. It analyzes financial benefits from measures that reduce energy cost, raise employee productivity, and enhance tenant satisfaction. All three tools are available from SCE's web site: http://www.energydesignresources.com/tools.html.

c Within ***Savings By Design***, the "Systems Approach" indicates a schema wherein analysis focuses on complete systems (such as the lighting system or HVAC system) rather than individual components of a system (such as lamps or chillers). The Whole Building Approach takes integration one step further to analysis of all the systems, and their interactions, together.

It is the intent of the program that the design team analyzes several options to optimize the design. A Whole Building Approach to maximizing energy savings through an iterative process fosters a more cooperative relationship among the design team than does an isolated, sequential look at the building systems. In addition to making the most of their energy efficiency opportunities, this approach can result in downsizing equipment, reducing maintenance costs and increasing occupant comfort.

Systems. The **Systems** Approach requires that building systems be analyzed for energy efficiency. For example, rather than just providing incentives for putting in so many high efficiency lamps or occupant sensors (widgets), the program provides incentives for reducing the building's lighting power density (LPD – a measure of overall lighting system efficiency).

Savings are estimated and incentives are determined by the utility field representative using a simple software tool based on extensive tables of pre-calculated Unit Energy Savings (UES). The tool used is called "NCCalc" and is supported by SCE staff. NCCalc allows the program representative to estimate the energy savings and calculate the incentive based on simplified assumptions. The energy savings estimates are simplified because (a) the inputs regarding the specific project are relatively limited, (b) the total effect of two interacting efficiency improvements is generally less than the addition of them alone, and (c) the UES tables were generated using **generic** building and product descriptions. While the UES tables may simplify the program process, they are extensive, comprehensive and the analysis leading to them was rigorous. It took over 21,000 DOE-2 runs to develop the UES tables (Hirsch 1999). These runs represent energy-efficient technologies in nine categories, some with numerous technologies, and several tier levels per technology. These technologies were applied to nineteen building types across California's sixteen climate zones, as appropriate. Table 2 shows the building types and categories (Systems).

Table 2. Buildings and Measures Addressed by the Systems Approach

Building Types	Systems
Small Office	Reduced Lighting Power Density
Large Office	Low Solar Heat Coefficient Glazing
Small Retail	High Performance Glass + Daylighting Controls
Large Retail, Single Story	Premium Efficiency Motors
Large Retail, Multi-story	Variable Speed Drive Motors
Grocery	High Efficiency Chillers
Restaurant, Full Service	High Efficiency Unitary Systems
Restaurant, Quick Service	Supermarket Refrigferation
Conditioned Storage	
Unconditioned Storage	
Hotel	
Small public School	
Large Public School	
Community College	
University	
Assembly	
Hospital	
Light Manufacturing	
Bio/Tech Manufacturing	

Design Team Incentives

Savings By Design provides incentives directly to the design team to support their continued involvement in the project and to acknowledge the additional effort required to make buildings more efficient. The program provides design team incentives if the project achieves at least a 15% efficiency improvement over Title 24[d] using the Whole Building Approach to analysis. The program procedure encourages the design team advocacy for energy efficiency features by tying payment of the incentive to actual installation.

Eligibility varies slightly between the three utilities, but in general, the design team for any project that is in its schematic (early design) phase, is eligible. Projects that are farther along in their development may not be eligible. The graph in Figure 1 shows the range of design team and owner incentives available. Design Team Incentives are limited to a maximum of $50,000 per project and are not available for projects that use the Systems Approach.

[d] The 1998 Energy Efficiency Standards, Title 24, Part 6 of the California Code of Regulations.

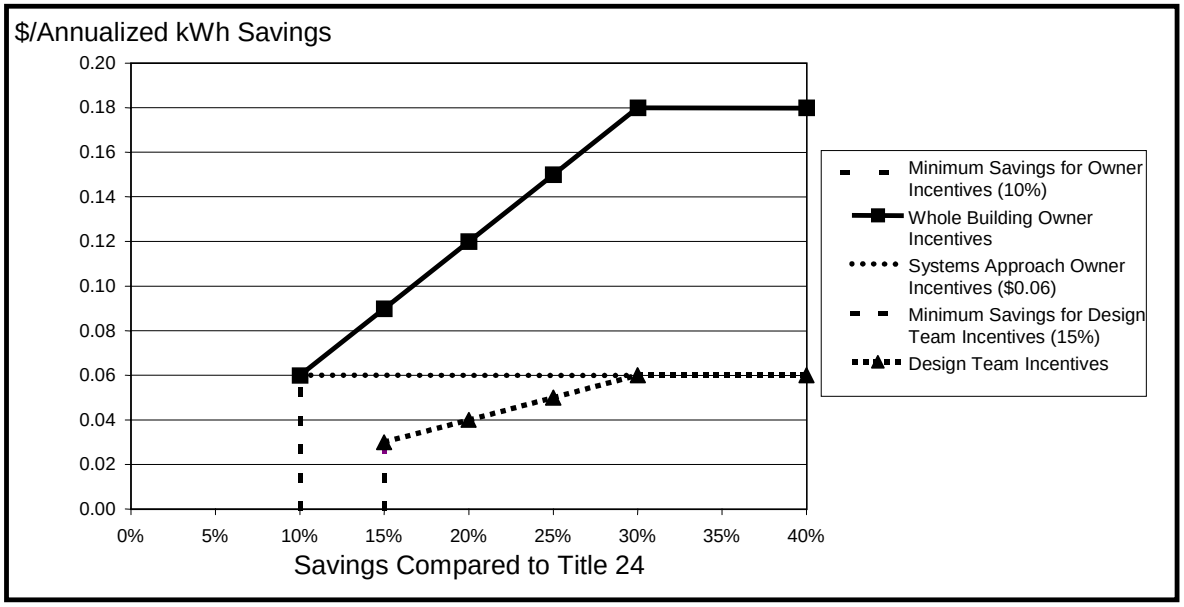

Figure 1 - Savings By Design Incentive Levels

Owner Incentives

Owners' incentives are provided in conjunction with the Design Team Incentive. , The owners' incentives are always larger than the design team's. The maximum Owner Incentive available for a project is $250,000.[e]

Although owner incentives by themselves are unlikely to bring about sustainable changes in the nonresidential new construction market, it is important to have the full support of the owner. If the owner rejects the design team's improved designs, the designs will never become part of standard specifications and design practice. If the design efforts result in extra costs to owners, and those extra costs are not covered or result in perceived value to the owner, then again the design team doesn't get anything different done.

It is also important not to establish a potential for the architect to be conflicted about working in his or her best interest or that of the client.[f]. In ***Savings By Design***, the owners' incentives are always larger than the design team's. As can be seen from Figure 1., the owner's incentives begin at 10% energy reduction below Title 24, and are calculated at an accelerating rate if the Whole Building Approach is used. As can be seen from Figure 2, not

[e] Program budgets are finite and programs are meant to have a wide reach. Without incentive caps, two or three large projects could wipe out the entire year's budget, leaving the utility with no program for the remainder of the year.

[f] In early program design discussions, the three utilities' program managers argued that if the Owner Incentives were not larger than the Design Team Incentives, owners might have the perception that design team efforts to make their buildings more energy efficient were self-serving. This argument was reinforced by comments of architects in focus groups after the program was launched. Some architects who had participated in ***Savings By Design*** went so far as to suggest that the Design Team Incentive should be paid to the owner and not the design team. They stated that to prevent a conflict of interest perception, **all** "fees" paid to the design team for a project should come from the owner. (HESCHONG MAHONE GROUP 2000)

only are the Owner Incentives larger than the Design Team Incentives, but dramatically so at higher energy savings percentages.

There are two other important facts illustrated by Figure 2. First, the Owner Incentives are structured to provide strong encouragement for seeking greater energy savings. For a 50 percent increase in savings (over the 12% level), the Owners Incentive increases by 225 percent; for a 100 percent increase in savings, the incentive is four times as great. Secondly, the incentive structure rewards using the Whole Building Approach over using the Systems Approach. The example shows that at 12 percent savings, there is a difference of less than $3000 between the Owner Incentives using the two approaches. Yet, at the 24 percent savings level, the Whole Building Approach nets the owner $40,320 more. The design team gets no incentive at any savings level if they use the Systems Approach.

	Whole Building Approach	Systems Approach	Whole Building Approach	Systems Approach	Whole Building Approach	Systems Approach
Exceeds Title 24	12%	12%	18%	18%	24%	24%
Estimated Energy Savings (kWh)	240,000	240,000	360,000	360,000	480,000	480,000
Design Team Incentive	$0.00	$0.00	$12,960.00	$0.00	$23,040.00	$0.00
Owner Incentive	$17,280.00	$14,400.00	$38,880.00	$21,600.00	$69,120.00	$28,800.00
Total	$17,280.00	$14,400.00	$51,840.00	$21,600.00	$92,160.00	$28,800.00

Figure 2: Example of Incentive Levels

Exceptional Features of *Savings By Design*

Three IOUs Coordinating on a Statewide Program. Pacific Gas and Electric Company, Southern California Edison and San Diego Gas & Electric collaborated on developing this program so that it would operate statewide in California and appear seamless to program participants across their service territories. This helps to provide a sense of stability to the program that should help increase its penetration, and encourages market transformation. The effort to create this program has been one of the first and most successful[g] of such collaboration efforts in California, and it is hoped that other collaborative efforts will be able to follow suit.

Focus on Sustainable Changes to Design Practices. Incentives to owners and to builders have been tried in a number of programs both in California and elsewhere. They work, if success is measured as a more efficient building. But if success is defined as sustained changes in practices, then it is unclear whether owner and builder incentives, by themselves, have been a success or failure (Eto, Prahl, and Schlegel 1996). ***Savings By Design*** goes beyond incentives, and is specifically focused on permanently altering the **practices** of the design community. An explicit goal of this program is to have designers work more as teams, to have very positive experiences from doing so and to maintain those teams over the course of the their future projects. Program representatives work directly with the design team pulling in all members and help them gain the knowledge and tools they need for exploring alternatives. Successful teams are given recognition as well as financial rewards.

[g] As is said elsewhere, it is too early to rule on the success of the program itself, but the effort the multi-utility collaboration effort on this program was hailed by program managers in other program areas, as well as by the regulators, as an example of successful cooperation on statewide program development.

Additional goals include making energy efficiency design tools more readily available to designers so that they can be applied to future projects, and encouraging design firms to upgrade the energy aspects of their standard specifications and design details. To these ends, the utilities offer classes in modeling and high-performance equipment and systems, and introduce design team members to the expertise and tools available from the utilities for all projects.

Offers a Variety of Tools and Approaches. ***Savings By Design*** provides a range of services and benefits to participants, adapted to their specific needs, but designed to function as part of an overall program to transform design practices. For example, if all that is needed is better information about the availability or performance of energy efficient HVAC equipment, the utilities' field representatives provide product information on specific equipment, or a list of manufacturers' representatives. In most cases, however, the program's support of the design process goes beyond information. For example, in order to optimize the lighting and daylighting systems in a building for Hewlett Packard in San Diego, SDG&E's ***Savings By Design*** program manager brought project consultants together at PG&E's Pacific Energy Center to make use of their heliodon.

For some projects, the connection between the utility and the design team is made too late to expect a whole building approach to be successful. Therefore, ***Savings By Design*** has the "Systems Approach" which encourages owners to include more energy efficient systems without redesigning the whole building. But the jewel preferred approach is the "Whole Building Approach." The program advertises the potential benefits of the integrated building analysis to prospective participants.

Fosters Integrated Approach to Design. The intention of the program construct is to encourage more integrated design practices, both in terms of looking at the building as an integrated set of systems, and in terms of the design team acting as a more integrated unit. For example, incentive rates for owners are higher if the Whole Building Approach is used, and designers only qualify for incentives if they perform a whole building analysis. It is hoped that the simpler elements of the program will be the entrée for many architects, engineers and lighting designers who are unfamiliar with integrated energy systems design or whole building analysis. Once introduced to the rewards of ***Savings By Design***, the program managers expect that teams will come back to the utility early enough in the development process for their next project to seek the greater performance and higher incentive levels of the Whole Building Approach.

Program Development Process

Three Utilities Instead of One. The HESCHONG MAHONE GROUP facilitated a development process that involved senior nonresidential new construction program managers from Pacific Gas and Electric Co., Southern California Edison, and San Diego Gas & Electric. Together, we built a program that incorporated some of the best elements from each utilities' past programs, new ideas that we all brought to the process, and insights and innovations that evolved as we worked through the process. Working with three separate utilities, and their legal and graphic departments' requirements, introduced interesting constraints on the process, but we created the program in four months and rolled it out in the fifth month.

Basis for Incentives. Often program development involves analysis to correlate the potential incentive amounts to the actual costs of making the energy efficiency improvements. In developing ***Savings By Design***, we ignored that metric and instead focused on the potential savings from various systems, and estimates of what it would take to get owners and designers interested in participating. Incentives are based on a simple pennies per annualized kWh saved, with thresholds and caps designed to (a) elicit enough participation to effect a change in the design community, and (b) encourage designers who do participate to take a whole building approach. We assume that generally, the owner's incentives will only partially pay for the incremental cost of higher performing equipment and materials.

Conclusions

The most important information that we could provide here would be an answer to the question, "How successful is the program?" Unfortunately, the program is less than a year old and an answer to that question would be premature. What we can report is the level of participation so far. Each of the three utilities met their PY1999 milestones for regulatory review of program achievements. SCE achieved 8.4 gigawatt-hours of savings in 1999 participating projects. PG&E had over forty participating projects in 1999. In the first quarter of PY200, they already have over 130 projects.

SCE's first performance award milestone for PY2000 is a 15 percent increase in energy savings of participating projects using the Whole Building Approach measured against all participating projects for 1999. This will indicate how well the design industry is being moved toward integrated design method of the Whole Building Approach. PG&E and SDG&E have a target of a twenty percent increase in absolute energy savings of all PY2000 program participants versus all PY1999 participants, and an increase in the fraction of developers' Requests For Proposals (to design teams and builders) that include energy efficiency in the specifications. This latter measurement will allow them to gauge how effective ***Savings By Design*** is in transforming the practices of the buyers' (developers') side of the market.

Advantages

The advantages of ***Savings By Design*** over previous program designs could be significant.

- By the three utilities running ***Savings By Design*** as one program, architects and engineers whose work extends across the state are more likely to adopt and retain new practices leading to sustainable energy efficiency improvements to the market. [Addresses Barriers 2, 3, 5 and 7; and Goals "B" and "D", in "Theory of Barriers and Strategies" section above]
- By focusing on the practices ***of*** the design team, the program is encouraging sustained design changes, instead of rewards for specific installations. [Addresses Barriers 1, and 3-5; and Goals "A," "B" and "C".]
- By providing a range of tools for the field representative to offer the design team and owner, the program can reach more projects while still incrementally moving the market with even the smallest project. [Addresses Barrier 3; and Goals "A," "B" and "C".]

- By having direct program benefits for both owners and design teams, ***Savings By Design*** will foster an environment where all parties are seeking to optimize cost-effective energy-efficiency improvements. [Addresses Barriers 2 and 6-8; and Goals "A" and "E".]

Recommendations

One of the goals of the program partners, the program managers from the three utilities, is to maintain consistency in the program while still making needed modifications. Any modifications will likely be incremental changes, rather than program re-designs. Some of these may include:

- ***Coordinated Budgeting and*** Milestones**.** The partners have already begun to coordinate their budgets for future years so that the delivery of the program can be more consistent across the state. The utilities' program budgets for the year ***Savings By Design*** was created and launched, were based on how each ran their 1998 programs and differences in individual program element funding levels created a few coordination problems. The three utilities are also moving toward more consistent regulatory milestones and reward mechanisms.
- ***Systems*** Approach ***Revision.*** One very promising idea for the Systems Approach is to reduce reliance on the UES tables and to replace them with an interactive, simple, yet sophisticated computer program that will allow the estimation of energy savings to be more building specific. The three utilities and the engineering firm that performed the analysis necessary to create the UES tables have discussed this change.
- ***Building*** Commissioning**.** One of the utility partners (PG&E) has included a pilot Building Commissioning element in how they implement ***Savings By Design***. Assuming that the pilot is successful, the others may adopt the design in the next couple years.
- ***Design Team Incentive for the Simpler Route.*** In a focus group meeting with a number of members of the design community, one of the changes architects and engineers indicated they'd like to see is an extension of the Design Team Incentives to projects that use the simpler Systems Approach. For this to be a viable change, the incentive structure would still have to maintain an emphasis on the whole building as an integrated system, while responding specifically to the needs of simpler projects (where a whole building analysis really doesn't make sense).
- ***Phased Incentive Payments.*** Designers also would like to see the incentives divided into partial payments staged along the design and construction process. Since some nonresidential projects take three or more years to complete, the design team may have little sense of connection between financial rewards and the qualifying energy efficiency improvements. Additionally, there is a risk of the design team never getting paid for their extra effort. Making partial payments could increase the opportunity for transforming design practices by making the encouragement more immediate and increasing the number of jobs to which the new practices would be applied. This could be an advantage as long as the payment isn't divided into so many pieces that they appear insignificant and their administration overly complicates the process. Even if the savings don't materialize on the job at hand, the program still would have the valuable effect of increasing the design community's familiarity with energy efficient technologies and analysis tools.

It will not be possible to evaluate the market transformation success or failure of this new statewide approach to nonresidential new construction energy efficiency until after the program has operated for a number of years. As a necessary but insufficient indicator of

whether it might be successful or not, we can, however, look with some satisfaction at how well it has been accepted by the design community in the three utilities' service territories based on the level of participation. New market transformation programs such as ***Savings By Design*** need to have a consistent presence in the market place (both across time as well as geographically), appear simple to the prospective participants, and provide value to all involved. Then, time will tell whether expectations are met and design practices sustainably improved.

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