Savings By Design

1. Projected Program Budget	**$**	**28,458,461**
2. Projected Program Impacts		
MWh		128,617
MW (Summer Peak)		26.32
3. Program Cost Effectiveness		
TRC		2.81
PAC		3.95

4. Program Descriptors

Market Sector: Nonresidential New Construction
Program Classification: Statewide
Program Status: Revised Existing

5. Program Statement

Savings By Design (SBD) will continue to improve upon established successful approaches to overcome customer/market barriers to designing and building high performance facilities. SBD will provide the nonresidential new construction industry with a broad palette of technical and financial resources to aid them in designing new facilities to the most cost-effective energy and resource efficiency standards. SBD will also tailor current marketing and delivery efforts to further penetrate into a wider array of market and customer segments.

SBD will provide the nonresidential new construction industry with a broad spectrum of technical and financial resources to assist the industry in the design of new facilities with the maximization of cost-effective electric energy efficiency integration as a primary consideration, along with water, gas, and other related environmental and sustainability

What's New for 2006-08?

- Innovation
  - A new program element to apply incentives to design efforts only rather than both design and construction efforts
  - Targeting specific customer segments such as hospitals, clean rooms, and fast food
- Integration
  - Program materials and assistance to include connections with demand response and self generation offerings.
  - A revised incentive structure that recognizes the time-dependent valuation basis of the new Title 24 energy standard.
- Other Program Improvements
  - Review of processes and procedures to improve participation

considerations (White Paper, "Energy Efficiency Program Ideas," NRDC; PAG/PRG Workshop Recommendations; Green Buildings Action Plan).

California's Title 24 requirements set some of the most stringent energy regulations in the nation. Title 24, for some market actors, can be very confusing. As a result, customers and designers need education and guidance just to comply with the requirements. Exceeding these standard energy performance levels requires an even higher level of intense design, technical assistance, and motivation. SBD provides the tools and expertise necessary to exceed standard energy performance levels and achieve long-term energy and cost savings for the customer.

It's been firmly established in SBD program evaluations that the integrated design process, when implemented correctly, can lead to highly cost-effective energy savings for most projects. Yet, many in the design field are unaware of, or prohibited from, implementing energy efficiency strategies due to a lack of knowledge of the integrated design process and perceived budgetary constraints. As a result, energy efficiency is often a "lost" consideration, abandoned in favor of pursuing the "lower initial cost" option. SBD's integrated design process, combined with financial incentives, can assist customers in moving beyond initial cost considerations and towards the realization of long-term energy cost savings, avoiding "lost opportunities".

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SCE/SCE PAG, PRG, Public Workshop, and Whitepaper Recommendations
A number of recommendations have been made during the scheduled program planning meetings and submitted as whitepapers by interested parties in the 2006-08 energy efficiency program planning process. Several of the concepts, ideas, and suggestions have been included as useful additions to the Savings By Design program. Below are the individual program recommendations and the corresponding actions to be included in the 2006-08 programs.

Recommendation: "Look at targeting programs to particular areas or sectors."
Action: Recommendation adopted. SBD plans to continue and expand a variety of approaches to reach specialized areas of the industry. Areas planned for this type of focus include hard-to reach markets, such as leased office and retail spaces with high turnover rates; segments requiring a high level of technical support, such as hospitals and clean room applications; and rapidly designed-and-constructed facilities, such as quick-service restaurants and agricultural cold storage facilities. Other segments with specialized needs will be targeted as they are identified.

Recommendation: "Provide a higher incentive tier for the New Construction program, so that it continues to push the envelope, and ensure it's consistent with the proposed federal

tax incentives. Consider a green building component for higher incentive tiers." Also, "Provide a cross-marketing approach with the Governor's Green Building Initiative."
Action: Recommendation adopted. The Whole Building Approach in Savings By Design is built around a linearly escalating incentive rate, intended to push designers to aim for the highest levels of energy efficiency. For the 2006-08 program, SBD will work to develop an incentive structure for the Whole Building Approach to reflect the time-dependent valuation basis of the 2005 energy standard and to motivate designers to put a high priority on strategies that save energy during on-peak periods. Including a "green building" tier to support and work with industry trends toward sustainability will also be explored in conjunction with this incentive restructuring.
In addition program incentive structures will be modified across the board to further encourage owners and design teams to expand their inclusion of energy efficient opportunities.

Recommendation: "Allow commercial tenants who are renovating existing spaces (e.g. new HVAC and lighting without touching shell) to participate."
Action: Recommendation adopted. Savings By Design has always allowed these projects to participate. However, historical participation has been low because of split incentives. For the 2006-08 program, a target component, focused on reducing the barriers found in customers involved in leased office and retail spaces with high turnover rates, will be added to the program.

Recommendation: "Include building commissioning in new construction programs."
Action: Recommendation partially adopted. While it has been well-established that building commissioning is an effective avenue to ensure savings in new facilities, incorporating such services into a program has been difficult due to high costs and lack of standardization in the services offered in the market today. For the 2006-08 program, mandating prescribed installation standards for lighting and HVAC systems (beyond what the new code requires) will be adopted. Additionally, the program, through its Energy Design Resources component (now included in the Education, Training, and Outreach program), will continue to provide advanced informational resources and tools to support commissioning efforts within the new construction industry.

Recommendation: "Provide incentives for buildings for not installing central air conditioning in new construction."
Action: Recommendation is already allowed in existing program structure. The Whole Building Approach component of SBD has always recognized and allowed, and will continue to encourage, innovative energy efficiency strategies when they are determined to contribute to real energy savings beyond standard practice.

Recommendation: "Consider the potential building projects associated with seismic upgrades mandated for hospitals throughout California."
Action: Recommendation adopted. SBD will focus resources to better address the unique concerns within this segment as activity increases due to seismic upgrading.

Recommendation: "Do not over-allocate funds to SBD".

Action: Recommendation adopted. The overall percentage of funds allocated to the nonresidential new construction area is no greater than allocated in prior program cycles.

6. Program Rationale

SCE's nonresidential new construction program will play an increased role in reducing the electric energy needs of new and expanding commercial, industrial, and agricultural facilities in SCE's service territory. Savings By Design will offer a full spectrum of support to building owners, architects, engineers, and other specialized consultants, providing the tools and information necessary to achieve optimum energy and resource efficiency in their projects.

By providing multi-level design, technical, and financial assistance to influence the basic design of a customer's project, Savings By Design's focused intervention minimizes lost

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opportunities that may result when a building's performance is not a primary consideration in the design of a project. SCE will work to incorporate other existing offerings, internal and external to SCE, to assist projects that reflect a cohesive sense of sustainability that go beyond the traditional aspects of electric energy efficiency. Such offerings may include coordination with LEED™ certification and Energy Star® ratings; connections with demand-response, self-generation, and water conservation programs; partnerships with industry organizations to promote acceptance of new program approaches by design professionals, and others as applicable.

7. Program Outcomes

Savings By Design will:

- Motivate customers and design industry professionals to integrate energy use and environmental considerations into their standard process of design to achieve cost-effective levels of energy and resource efficiency.
- Move customers to design their facilities to achieve long term energy, resource, and cost savings, not just minimal compliance with mandated government regulations.
- Support industry trends and developments, such as the US Green Building Council's Leadership in Energy and Environmental Design (LEED™) building certification program and the California Energy Commission's switch to time-dependent valuation of energy use as the basis of the new Title 24 energy standards.
- Reduce customer confusion through appropriate alignment of SBD marketing materials with other applicable programs such as Education, Training, and Outreach, Codes and Standards, Emerging Technologies, the Business Incentive Program, and the new Sustainable Communities Program.
- Efficiently extend the reach of Savings By Design through support and coordination with utility-sponsored partnership programs such as the UC/CSU Partnership

program, the Collaborative for High Performance Schools, and the various city/county partnership programs.

- Provide customers with a full spectrum of sustainable energy design consulting and resources through active collaboration with a network of other "energy" agencies and programs (water, gas, renewable generation).
- The Business Incentive Program will process and provide resources to the Systems approach. The move will allow for increased participation and access by market players.
- Promote available resources to the new construction market players regarding Title 24 Code changes and how to exceed them cost-effectively. Support the time-dependent valuation of energy sued as the basis of the new Title 24 energy standards.
- identify and capture additional gas energy savings that might have been overlooked previously.

SCE will continue to collaborate with the statewide Savings By Design team to share and coordinate program process "best practices" and marketing strategies, and contribute to tools and resources that enhance the overall cost-effectiveness of the statewide program.

8. Program Strategy

Savings By Design will:

- Build on the existing, award-winning statewide program that has been validated and proven successful for over six years in California. SCE will continue to collaborate with the statewide Savings By Design team to share and coordinate program process "best practices" and marketing strategies, and contribute to tools and resources that enhance the overall cost-effectiveness of the statewide program.
- Design and implement several focused efforts to more effectively reach customer and market segments where a traditional design assistance/financial incentive offering has been marginally successful. Areas currently planned for this type of focus include markets that have not been receptive to traditional program delivery approaches such as leased office and retail spaces with high turnover rates; segments requiring a high level of technical support such as hospitals and clean room applications; and rapidly designed-and-constructed facilities such as quick service restaurants and agricultural cold storage facilities. Other segments will be targeted as they are identified.
- Develop a program component that applies incentives to offset increased design costs rather than increased construction costs. It is anticipated that this will take the form of a training/certification process that will prepare design professionals to lead and facilitate an integrated design process with the goal of enhanced energy and resource efficiency into the majority of their projects, such that no additional construction costs are necessary. The results of this effort will be tracked and reported towards program goals.
- Develop and include a full spectrum of energy use and sustainability program offerings by collaboratively working with applicable gas, water, and other industry

groups. Issues such as energy savings associated with water use efficiency and the energy impacts of embodied energies in building materials and transportation will be explored and analyzed to identify potential new sources of energy savings.

- Collaborate with SCG specifically within the SCE service territory, Pacific Gas & Electric (PG&E) and San Diego Gas & Electric (SDG&E) generally, to assist in the identification and development of gas energy savings opportunities that have historically been overlooked.
- Collaborate with demand response and self-generation programs, as appropriate, to combine program offerings into a customer-friendly and easy to navigate suite of materials. Technologies, such as building-integrated photovoltaic systems and energy management systems that are flexible enough to respond to new demand response strategies, are obvious strategies that can be integrated into a whole building approach to educate designers in the benefits of their adoption in new construction.

Collaborate with demand response and self-generation programs, as appropriate, to combine program offerings into a customer-friendly and easy to navigate suite of materials.

9. Program Objectives

The Savings by Design program will provide cost-effective energy savings and demand reductions as the result of installments which occur from the 2006-08 program. SCE's energy savings and demand reduction goals are provided in the detailed tables included with this Application. In addition, SCE intends to facilitate between 9 and 19 integrated design projects during the 2006-08 program period and between 4 and 7 projects in niche markets (e.g., leased spaces, hospitals, quick-service restaurants) during the 2006-08 program period.

10. Program Implementation

The Savings By Design program will promote two successful components – Whole Building Approach (Integrated Design) and Systems Approach to its customers with new construction or major remodel/renovation projects:

The Whole Building Approach (WBA) is the preferred method of estimating energy savings within SBD because it enables a design team to consider integrated, optimized energy efficiency solutions. This customized approach provides and requires a high level of energy analysis and interactive feedback, which generally leads to much more efficient design decisions. The key to maximizing energy choices, using this type of collaborative effort, is intervention at the earliest phase of building design.

For 2006 – 2008, the statewide Owner's incentives for electrical energy savings offered by the WBA will increase in a straight-line to 25% better than code. The incentive will range from $.10 to $.25 per kWh saved. Incentives for therms will range from $.34 to $1.00 per therm saved.

The Systems Approach (SA) is a simplified performance-based method utilizing a calculation tool known as CaNCCalc to optimize efficiency choices. It is straightforward and participants may find it the best available option for certain types of projects. The Systems Approach makes it easy for designers to look at the interaction of systems within their project, rather than individual equipment or fixtures. The Systems Approach is provided to address small, simple facilities where integrated opportunities are limited, as well as projects where program intervention may come late in the design phase.

For 2006 – 2008, statewide agreement was established to increase the following incentives:
Interior Lighting and Daylighting Systems - $.05 per kWh
HVAC* - $.14 per kWh and $.60 per therm
Process and Other Systems - $.08 per kWh and $.60 per therm
Service Hot Water - $.60 per therm

Projects participating under the SA, the cap will be increased to match the WBA cap at $150,000 per project.

* Incentives offering will be dependent on the establishment of a downstream HVAC incentive component.

SBD also offers Design Team Incentives to support the extra effort for integrated energy design and to provide an incentive to reward exceptional design accomplishments within the context of the Whole Building Approach. In addition, SCE will pilot and develop a mechanism by which incentive dollars can be effectively applied to the design phase such that incremental costs are minimal and no financial offsets to the construction costs will be necessary. It is anticipated that this will take the form of a training/certification process that will prepare design professionals to facilitate an integrated design process focused on energy and resource efficiency into the majority of their projects.

For 2006 – 2008 DTI incentives will parallel the Owner's incentive offering by 1/3. Track A DTI will allow 50% of the DTI to be paid upon Agreement acceptance by the Utility, if the project performs at least 25% better than code.

The Track B DTI will continue to require "parametric analysis with life-cycle cost to enhance decision-making requirements. These analyses are contained in a report that is presented to the project owner and accepted by the Utility. Under this option, 50% of the DTI will be paid upon Agreement acceptance by the Utility. The stipend will not be offered.

Savings By Design will continue offering Design Assistance (DA) services. DA services have proven successful over the past years in providing energy calculations, design facilitation, and energy recommendations that provide the guidance and information building owners need to make well-informed design and construction decisions for their facilities. In many cases building owners find that design assistance services is the main influencer in their including energy efficient options in their building, even more

influential than a direct incentive. In these cases, Savings By Design will track and report such results toward its program goals.

Savings By Design will continue to build on the successful Alternative Delivery Method which invites third-party market players to implement program goals in specific hard-to-reach niches such as facilities with dominant refrigeration loads. For 2006-08, the program will explore a similar effort to more effectively extend the reach of the program into the arena of leased commercial spaces with high turnover rates. Other niche markets that may respond to a higher level of technical support will also be considered as they are identified.

SCE will also explore the potential of extending Targeted Approaches to market segments or industries where alternative interventions may be more effective than the traditional design assistance/incentive approach. For example, simplified approaches to working with the segment of rapidly designed-and-constructed building types would consider such facilities as quick service restaurants. Customized Targeted Approach will focus on market segments such as hospitals and clean room facilities.

The integrated design process embodies the ability to design a facility with energy efficiency included as an objective from the start.

The integrated design process embodies the ability to design a facility with energy efficiency included as an objective from the start. When this is done correctly, it is assumed that the overall cost of construction for the energy efficient building will not exceed the cost of the building at minimum code compliance. As such, the focus of this offering is to provide an incentive to a certified design professional that provides an energy efficiency influence at the earliest stages of the design process using the integrated design approach. Therefore it is of utmost importance to insure the integrity of design professional's application of the Integrated Design/Whole Building approach process, to ensure the highest level of cost-effective energy efficiency in the final design.

SCE will fully support the inclusion of other energy sources and sustainability issues in its program delivery to its best ability. The first phase of including sustainability is to educate the field delivery team which is composed of new construction representatives (NCRs) and Business Customer Division Account Management.

SCE will bring in experts to identify energy savings measures for water and gas through technology solutions. In addition, educational opportunities will be provided to enhance the current understanding of self-generation applications, renewables, and the issues that might influence their use by customers.

Materials will be provide for those existing agencies and programs whose current offerings may be leveraged to raise the awareness and adoption of certain measures by

customers in their building design. Existing agencies and programs include Water agencies, SCG, USGBC LEED®, CHPs, Energy Star®, and others.

SCE's SBD representatives and staff will work closely with the SCG's SBD team to provide enhanced recommendations that will lead to higher fidelity gas savings in new construction projects and major renovation projects in SCE service territory.

11. Customer Description

Savings By Design specifically targets design and construction industry decision-makers: architects, mechanical engineers, electrical engineers, lighting designers, developers, contractors, energy consultants and, of course, building owners and operators.

SBD is available to the following customer participants: New construction or major renovation projects in nonresidential market segments (commercial, governmental, institutional, agricultural, and industrial).

SCE will explore the potential of developing targeted approaches to market segments or industries where alternative interventions may be more effective than the traditional design assistance/incentive approach. Simplified approaches for rapidly designed-and-constructed building types such as quick service restaurants and agricultural cold storage facilities will be considered, as well as others where potential is identified. Customized approaches for complex and specialized facilities, such as hospitals and clean rooms, where informed design assistance can be more persuasive than incentive dollars, will be actively explored.

SCE will explore the potential of developing targeted approaches to market segments or industries where alternative interventions may be more effective than the traditional design assistance/incentive approach.

Applicable program support and targeted efforts involving third-party driven activities will be competitively bid following SCE procurement diversity policy.

12. Customer Interface

Both the Systems Approach and the Whole Building Approach, as described in the "Program Implementation" section, follow the same delivery process. The process begins with initial contact between the customer and/or the customer's design team and an SCE new construction representative. These representatives are technical support staff trained to understand the dynamics and language of the design and construction industry and are focused primarily on the delivery of the Savings By Design program.

SCE will evaluate and explore options enhance access to participating in the program offerings while providing checks and balances to insure the integrity of the process and the results.

The owner completes and submits to the NCR a brief Letter of Interest that documents the specifics of the project, the design team (if known), and the owner's interest in participating in and receiving program benefits.

An initial meeting between all members of the design team, the NCR, and supporting technical staff is then held to discuss the parameters of the project and determine the appropriate approach for the project. Design assistance, matched to the needs and scope of the project, is offered for the project to identify and validate energy savings strategies appropriate to the facility under design.

The NCR and supporting technical staff continue to provide recommendations, feedback, consulting, and energy use analysis, as needed, to the owner and design team as the project proceeds through the various design phases. Such activity can vary in duration from months to years depending on the requirements of the customer's needs. This phase of the process culminates in a list of agreed-upon energy efficiency strategies that will be incorporated into the project.

At this point, an Incentive Agreement between the owner and SCE is executed. The execution of the Agreement generally should take place before the onset of building construction. When applicable, an Incentive Agreement between the design team leader and SCE is executed after the Owner Agreement has been finalized. These agreements can extend up to four years.

When the building construction has been substantially completed, SCE will make an on-site visit to each participating project to confirm compliance with the terms of the Agreement. Once the inclusion of all measures/strategies has been confirmed, the owner is paid the agreed-upon incentive amount. Should the completed construction vary from the Agreement, the available incentive will be recalculated to reflect the actual construction, and resulting energy savings, before the incentive is distributed.

13. Energy Measures and Program Activities

13.1. Measures Information

Measure information is provided in the corresponding cost-effectiveness calculator and portfolio workbook.

Calculation assumptions for eQUEST and CaNCCalc are located in Appendix 1, Section -IV. Calculation Assumptions.

13.2. Energy Savings and Demand Reduction Level Data

Energy savings and demand reduction information is provided in corresponding cost-effectiveness calculator and portfolio workbook.

13.3. Non-energy Activities

- Outreach/marketing activities, including annual Energy Efficiency Design Awards, co-sponsored with the AIA, California Council, to raise the awareness of successful high performance facilities within the design professions.

- Feasibility studies and pilot program components as needed to develop new program approaches to more effectively engage targeted market segments.
- Training and resource enhancements in concert with the Energy Design Resources component (now included in the Education/Training/Outreach program).
- SBD will participate in various conference and workshops to develop tools and concepts that will aid the program expand its education and efforts to encompass sustainability issues, Demand Response, water conservation, and enhanced gas savings into the program.
- SBD will continue to provide scholarships for students to attend the UC/CSU's Sustainability Conferences. The annual conference provides the architectural students with the rare opportunity to "see first-hand" that sustainability issues are growing in importance. The scholarship also provides SBD with a participatory role on a panel that answers questions regarding the SBD program and the compliance characteristics of potential customer projects.

13.4. Subcontractor Activities

SCE recognizes that including other industry experts in certain program implementation processes enhances and extends the value of program benefits that customers can receive. SCE will use competitively bid solicitations to select appropriate consultants for any and all of the following activities:

- Project-specific energy simulation design assistance for Whole Building Approach projects.
- Integrated energy design support, such as charrette facilitation and process training.
- Program marketing and delivery in technically specialized, hard-to-reach industries.

13.5. Quality Assurance and Evaluation Activities

To the extent subcontractors implement portions of the program, quality assurance measures will be put in place to ensure that standards of service and claimed savings have been achieved.

13.5.1. Expected Number/Percent of Inspections

One hundred percent of the participating projects are verified during an on-site visit as soon as a facility is substantially complete.

13.6. Marketing Activities

The primary marketing agent for Savings By Design is SCE's New Construction Services group, working in concert with SCE customer representatives to leverage long-standing relationships with assigned customers. For 2006-08, SBD program information will be included in marketing materials of the Business Incentive Program and other programs/services as appropriate, to extend the reach of the program through that delivery channel and reduce customer confusion as to program availability.

Additionally, individual memberships in pertinent local industry organizations such as American Institute of Architects, American Society of Heating, Refrigeration, and Air-conditioning Engineers, the Illuminating Engineers Society, the US Green Building Council, Construction Specifications Institute, and the International Council of Shopping

Centers are leveraged to build a presence in, and an informational resource for, members of these organizations.

Activity	Quantity
Brochures – one pagers	3- 6 projects/year
SBD Statewide Brochure	1 for program period
SBD Inserts (for program changes)	3 for program period
Targeted Market Fact Sheet	4 – 6 per year
Trade Journal Ads/Articles	1 - 3 per year
Energy Efficiency Design Awards	1 event
Conferences: CEE, AIACC, AIA National, AEE, ASHRAE, USGBC, Urban Marketplace, Green Expo.	4 – 8 per year
AIACC Sponsorship/Design Awards	1 per year

14. Program Changes

Savings By Design (SBD) for 2006 will modify its incentive structure. It will affect the following:

Category	Incentive Rate
Interior Lighting and Daylighting Systems	$0.05/kWh
HVAC*	$.014/kWh
Process and Other Systems	$0.08/kWh

* The HVAC incentive will be offered to all measures not covered by the Comprehensive HVAC program or if a "downstream" incentive component is established.

In addition, the Whole Building Approach incentive structure will be modified. The statewide Owner's Incentives for electrical energy savings will increase in a straight-line up to 25% better than the Title 24 Code requirement. The incentive rate will range from $0.10 to $0.25 per kWh saved. Incentives for therms will range from $0.34 to $1.00 per therm saved.

Project caps will be established at 50% of incremental measure costs or $1,500,000 dollars whichever is lower.

The SBD program will evaluate establishing an incentive structure for the WBA which will reflect the time dependent valuation basis adopted in the 2005 Title 24 energy standard.

For 2006 – 2008 the Design Team Incentives (DTI) will parallel the Owner's incentive offering by one-third. Track A - DTI – will allow 50% of the incentive to be paid upon acceptance of the Agreement, by the Utility, if the project performs at least 25% better than code. The balance of the incentive is paid at the time the project is completed. If the project does not meet the 25% standard the incentive is paid in full, at the time of project completion.

Track B – DTI – will continue to require "parametric" analysis with life-cycle cost analysis as part of the report. These features have proven to be a beneficial tool in a customer's decision making process. Under this option 50% of the incentive is paid upon acceptance of the Agreement by the Utility. However, a stipend will no longer be offered.

SBD will continue offering its Design Assistance Services (DAS). DAS, which include energy calculations, design facilitation, training, and energy recommendations, have proven very successful in aiding customers' decision to implement energy efficiency measures over the past years. In may cases building owners find that DAS is a significant influence in moving forward on energy efficient measures, anecdotally in some cases, more than a direct incentive. In cases such as these, SBD will track and report such results towards its program's goals.

Although SBD has been very successful in its delivery and influence on the design and new construction market, it will over the next 3 years, evaluate and modify those processes that will help increase customer participation while maintaining the program's high standards of quality services and energy savings.