

***Emerging Technologies, Development and Demonstration Programs***

*Honorable Mention*

California Statewide Emerging Technologies Program ..... 7-2

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***California Statewide Emerging Technologies Program***

***Pacific Gas & Electric  
San Diego Gas & Electric  
Southern California Edison  
Southern California Gas***

**PROGRAM OVERVIEW**

The goal of the Emerging Technology Program (ETP) is to identify, screen, and accelerate the commercialization process for promising, innovative technologies to improve energy efficiency and demand response across the full spectrum of electricity and natural gas customers. The program's emphasis is on the early stages of commercialization of emerging energy-efficient technologies. The genesis for ETP is the recognition that California's aggressive energy-savings goals cannot be met by the technologies that are currently available on the market. To meet the needs of California's growing population, the cross-cutting statewide Emerging Technologies Program (ETP) seeks to accelerate the market acceptance of innovative energy-efficient technologies, applications, and analytical tools that are not widely adopted in California. The ETP achieves this by: (1) identifying emerging technologies that may be suitable for California's widely varying climate zones and energy needs, (2) reducing the performance uncertainties associated with new products and applications by assessing manufacturer savings claims for the technologies in a controlled environment, and (3) disseminating technology assessment information to utility resource program managers and targeted market actors who then promote the emerging technologies through their programs.

Technologies considered by ETP come via a number of channels. One such channel is the Public Interest Energy Research program (PIER) administered by the California Energy Commission. The PIER program—like other public and private research and development efforts—develops, tests, and demonstrates prototype products. In addition to PIER, ETP works with members of the research and design communities and a broad spectrum of organizations, including manufacturers, energy efficiency advocates, customer groups, engineering professional societies, national laboratories, universities, private research organizations, national laboratories, federal agencies, engineering firms, venture and other private investors, industry and trade groups, other utilities and consultants.

ETP selects technologies for its assessments based on their suitability for meeting California's customers' needs, energy efficiency program goals, and regulatory/business considerations. To be included in ETP's assessments, technologies must demonstrate that they could be cost-effective, meet customer needs, and show potential for rapid, broad market penetration without undue risk

Assessment results from ETP are fed back to the research and development organizations to improve future development of energy-efficient technologies. Partnerships are pivotal to the

success of ETP. It is through these partnerships that potential technologies are discovered and evaluated. In general, partners provide much of the research and development that is necessary for an idea to take shape and, if proven successful, to be brought to market.

ETP also established the Emerging Technologies Coordinating Council (ETCC), consisting of the four investor-owned utilities--PG&E, SCE, SoCalGas, and SDG&E— partnering with PIER to discuss and coordinate energy technology identification and assessments.

Once a technology is assessed, the information is transferred to the energy efficiency program managers. Assessments results that reflect positively on the technology also are shared with customers. Information transfer efforts disseminate project results through many different outlets, including Energy Centers, utility personnel, community organizations and other entities, as well as the ETCC website. Final reports for technologies viewed positively are posted on the website, which is available to the general public. These information transfer activities leverage the utilities' overall energy efficiency communication efforts to disseminate information resources such as reports, fact sheets, design methods and tools developed through the demonstration projects.

## **PROGRAM PERFORMANCE**

Under the PY 2004-2005 funding cycle, California's investor-owned utilities conducted and completed a combined 79 ETP assessments including feasibility studies, simulation analyses, field demonstration, controlled environment tests, commercial product development, design methodologies and tool development. No other entity in California currently fulfills this critical function. In recognition of the need for this kind of knowledge and testing, the California Public Utilities Commission has increased the ETP's budget threefold for the 2006-2008 program cycle, with future increases planned.

## **LESSONS LEARNED**

ETP yields recommendations for new products and services that may produce significant new energy and demand savings opportunities. The program is a model of the type of research necessary to identify promising new technologies that can be incorporated into full-scale utility sector energy efficiency programs. ETP portfolio managers are committed to finding and assessing innovative technologies that will change the energy consuming landscape for both residential and commercial customers. ETP helps accelerate the commercialization and acceptance of new energy-efficient technologies.

Elements of ETP that have contributed to its success include the following:

- Energy efficiency program managers are part of the technology selection process. Before the technologies are selected for assessment, they need the energy efficiency program managers to buy in, ensuring that technologies that pass the ETP assessment will have a "home" and immediate deployment channel.

- Technology assessments may include field testing at customer sites. Account managers identify host customer sites for candidate technologies. Field testing provides information on installation, operation, and maintenance costs and problems that could indicate market barriers. Demand and energy savings profiles are generated so that cost-effectiveness and energy savings levels can be predicted.
- ETP helps program managers develop new energy efficiency and demand response measures for their incentive portfolios.

## PROGRAM AT A GLANCE

**Program Name:** California Statewide Emerging Technologies Program

**Targeted Customer Segment:** All customer sectors (residential, commercial, industrial and agricultural), public agencies, government

**Program Start Date:** 2004

**Program Participants:** 79 assessments were completed under the 2004-5 program cycle.

**Annual Energy Savings Achieved:** Not applicable.

**Peak Demand (Summer) Savings Achieved:** Not applicable.

**Budget:** \$10 million per year statewide (all IOUs) for 2006-2008.

**Funding Sources:** Public goods funding from IOU ratepayers

### Best Person to Contact for Information about the Program

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*Emerging Technologies, Development and Demonstration Programs  
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***Innovative Designs for Energy Efficiency Applications (IDEEA)  
Southern California Edison***

**PROGRAM OVERVIEW**

Innovative Designs for Energy Efficiency Applications (IDEEA) is a program administered by Southern California Edison (SCE) that conducts broad competitive solicitations of proposals for innovative program designs for promoting one or more energy efficiency measures. Such proposed designs must also demonstrate a real potential for cost-effective energy efficiency or demonstrate an effective approach for market testing of emerging technologies. IDEEA includes a related initiative, Innovative Designs for Energy Efficiency-InDEE. The InDEE program solicitation is designed to draw proposals that place emphasis on innovation, market introduction, promotion, and other assistance to the commercialization process of promising new and/or different energy-efficient technologies from those offered in SCE's portfolio of energy efficiency programs.

SCE initiated this process of searching for innovative programs through the Third Party Initiatives Program, using a process mandated by the California Public Utilities Commission (CPUC) in 1998. The primary goal of the Commission's process was to add more program opportunities and funding for non-utility program implementers, redirecting funding that had previously gone to utility-implemented programs. SCE's innovation was to use this mandated process as a way to search out innovative energy efficiency program design concepts and program technologies, rather than just to replace mainstream utility-implemented programs with third party-implemented programs.

Beginning in 2004-5, SCE was able to modify the program to allow the third-party initiatives to be viewed as an integral part of the utility's overall portfolio, rather than arms-length contracts with third parties who would implement programs independently of the utility and who would regard themselves as responsible to the CPUC rather than the utility. This shift enabled SCE personnel to provide support for the programs, including assisting in program promotion through SCE account representatives, identifying potential customer targets, integration with activities of other programs, use of the SCE logo in program marketing materials, and providing consultation and guidance when the program ran into difficulties.

For 2006-8, SCE proposed an annual solicitation process that would continuously bring in innovative programs on a pilot basis. The explicit goal was to use this as an ongoing mechanism to try out innovative program concepts and technologies, and if successful, bring them into the mainstream portfolio of successful, reliable, and proven programs.

As bidders learn from the solicitation, the "mainstreaming" can occur in three ways, depending on the nature of the pilot program: the program can be brought into the mainstream in one of three principal ways:

- As is, retaining third party implementation;
- The program concept can be adopted as a mainstream program, but be utility-implemented; or
- The innovative measure can be added to an existing mainstream program.

At this point, SCE has success stories in all three categories. Examples in each category are given below:

- An efficiency program for small oil producers was brought in as a long-term component of SCE's industrial program, with the same third party implementer;
- A refrigerated warehouse program concept was folded in as part of SCE's industrial program, but under the general program management of SCE; and
- An innovative technology initially offered by a third party through a direct installation program—cold cathode fluorescent lighting—was adopted into not just SCE's Express Efficiency prescriptive nonresidential rebate program, but into the statewide prescriptive rebate program.

## **PROGRAM PERFORMANCE**

SCE has commissioned process and impact evaluations of the individual IDEEA and InDEE programs, to determine their cost-effectiveness and to find ways to make them more effective. In addition, SCE has commissioned ongoing process evaluations of the IDEEA/InDEE umbrella program, to improve its outreach for new ideas, to reduce its burden on bidders, and to streamline and increase the effectiveness of the solicitation, review, contracting, and administration processes.

## **LESSONS LEARNED**

The evaluation of the 2004-5 program (process plus impact evaluation of the umbrella program and constituent programs) is nearing completion. In an early feedback process, it has led to changes in the 2006 program, and the already-begun 2006 program review has led to several improvements in the 2007 program processes. Early feedback is being given to both individual programs and the umbrella program, so that improvements can be made on an ongoing basis. Two evaluations of the 1998 Third Party Initiative program are publicly available on the CALMAC website, [www.calmac.org](http://www.calmac.org), in its Searchable Database, and the IDEEA program evaluations will also be posted there as they are completed.

IDEEA is noteworthy for numerous reasons, particularly the following:

- IDEEA has developed and improved over several years of experience an ongoing process soliciting innovative program designs and technologies from a broad external audience, to give them a pilot test with utility support, and to bring successful programs into the mainstream portfolio of programs;

- It is a transferable process; published process evaluations provide excellent guidance for energy efficiency program administrators interested in establishing such a program; and
- It has successfully appealed to a large market of program designers/implementers, gaining over 100 proposals in a recent year.

## PROGRAM AT A GLANCE

**Program Name:** Innovative Designs for Energy Efficiency Applications

**Targeted Customer Segment:** All customer segments

**Program Start Date:** Origins of program stems from 1998 Third Party Initiatives Program

**Program Participants:** About 100 program proposals received in the most recent year

**Annual Energy Savings Achieved:** Not applicable

**Peak Demand (Summer) Savings Achieved:** Not applicable

**Budget:** 2006: \$10 million (IDEAA and InDEE umbrella programs, and constituent programs combined). Final dollar amounts for 2007 not yet certain.

**Funding Sources:** Utility power procurement funds that are utilized under the same rules as California Public Goods Charge funds.

### **Best Person to Contact for Information about the Program**

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