SOUTHERN CALIFORNIA EDISON
An EDISON INTERNATIONAL Company

(U 338-E)

SCE’s 2009-2011 Energy Efficiency Demand Side Management Integration and Coordination

Before the
Public Utilities Commission of the State of California

Rosemead, California
July 21, 2008
I.

DEMAND SIDE MANAGEMENT INTEGRATION AND COORDINATION

A. Background

In D.07-10-032, the Commission directed the California IOUs to undertake a strategic planning process and develop a draft California Energy Efficiency Strategic Plan (CEESP) designed to lay out a comprehensive long-term strategy through 2020.\(^1\) This decision also directed that the CEESP include a strategy for integration across the full range of Demand Side Management (DSM) options.\(^2\) Further, the Commission directed the utilities use the draft CEESP to inform the 2009-2011 portfolio of energy efficiency programs.\(^3\)

The Commission convened a coordinated DSM workshop on March 7, 2008, which included discussion of foundational issues and IOU presentations of proposed coordinated marketing efforts and program pilots. The Commission then issued the April 11, 2008 Joint ACR in R.06-04-010 and R.07-01-041, providing additional guidance to the utilities in this regard. In particular, an order of priority was established for Integrated Demand Side Management (IDSM) activities:\(^4\)

1. Comprehensive and coordinated marketing, packaging and delivery
2. Operation improvements
3. Optimization

The Joint ACR also included instructions that “IDSM programs involving the use of demand response funds should be clearly indicated in both energy efficiency and demand response applications.”\(^5\)

\(^1\) D. 07-10-032, p. 141.
\(^2\) Id., p.73., D. 07-10-032, p. 141.
\(^3\) Id., p.144.
\(^5\) Id., p. 14.
Southern California Edison’s (SCE) proposed portfolio for 2009-2011 complies with this direction. The portfolio includes new initiatives to promote IDSM and a fully integrated strategy of information, messaging, and outreach. Finally, SCE’s proposed portfolio continues and expands its efforts focused on integration of energy efficiency and demand response programs.

B. Protocols for Funding Source Allocations and Disbursements

An important consideration for the successful integration and coordination of energy efficiency and demand response is the development of financial protocols for the allocation of program-specific costs across integrated delivery channels. This section will address the identification of appropriate funding sources for each of the coordinated IDSM technologies, pilots, and programs.

SCE will draw from multiple authorized funding sources for the operational budgets for the IDSM programs identified in this Application. There are two categories of costs associated with the program proposals: (1) additional “stand alone” operational costs associated specifically with the DSM programs proposed in this Chapter, and (2) incremental marketing and incentive funding to be drawn from the existing energy efficiency, demand response, renewables, and other programs as identified to achieve the energy and demand savings goals of the programs proposed.

For each DSM program initiative or pilot program requested, there is a corresponding operational budget identified that is necessary to fund SCE’s project management, third-party contractors, and other resources that are specific to the implementation of the program. Additionally, incremental incentives from other programs, such as the Business Incentives Element, New Construction, and TA&TI will be added to the existing energy efficiency and demand response program budget requests and specifically set aside to fund the DSM initiatives. This specific and incremental funding source approach accomplishes three objectives: (1) provides the DSM programs with a specific operational focus by allocating specific funds for management and third parties to accomplish the goals of the programs; (2) associates incremental incentive funding from the individual energy efficiency, demand response, and
renewable programs, which maintains individual program funding and goal accomplishment; and  
(3) provides for a “clean slate” financial tracking mechanism to identify and report incremental  
DSM program costs under separate accounting that are distinct from the energy efficiency and  
demand response program portfolio funding.

For shared costs among two or more DSM programs, costs will be allocated based on the  
size of the approved budgets.

SCE will also look for opportunities to leverage third-party implementers to coordinate  
DSM offerings. Costs for this will be attributed to the applicable DSM program area.

C. Funding Request

<p>| Table I-1 IDSM Programs Forecast Expenses 2009-2011 |</p>
<table>
<thead>
<tr>
<th>Line No.</th>
<th>Expense Type</th>
<th>DR</th>
<th>EE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Commercial New Construction</td>
<td>811,713</td>
<td>63,745,784</td>
</tr>
<tr>
<td>2</td>
<td>Residential New Construction</td>
<td>411,713</td>
<td>35,046,928</td>
</tr>
<tr>
<td>3</td>
<td>Institutional Partnership</td>
<td>311,713</td>
<td>45,447,534</td>
</tr>
<tr>
<td>4</td>
<td>IDSM Pilot for Food Processing</td>
<td>261,713</td>
<td>686,619</td>
</tr>
<tr>
<td>5</td>
<td>EARTH/SmartStudent – LivingWise</td>
<td>61,713</td>
<td>2,509,663</td>
</tr>
<tr>
<td>6</td>
<td>EARTH/SmartStudent – Green Schools</td>
<td>61,713</td>
<td>2,934,951</td>
</tr>
<tr>
<td>7</td>
<td>IDEEA Programs</td>
<td>560,301</td>
<td>38,360,541</td>
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<tr>
<td>8</td>
<td>TRIO Program</td>
<td>320,001</td>
<td>1,477,542</td>
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<tr>
<td>9</td>
<td>Total</td>
<td>2,800,580</td>
<td>190,209,562</td>
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</tbody>
</table>

For energy efficiency, this includes Savings By Design, Automated Energy Review for Schools, and Sustainable Communities (primarily nonresidential).

For energy efficiency, this includes California New Homes and Manufactured Housing New Construction.
D. Proposed and Enhanced Programs to Advance DSM Integration

1. Overview
As part of its 2009-2011 energy efficiency and demand response Applications, SCE proposes multiple initiatives designed to 1) pilot new integrated program concepts, and 2) integrate additional DSM options into existing program designs that have been successful as stand alone energy efficiency or demand response programs. All of the proposed programs are viewed as pilots because the expectation of increased efficacy is based primarily on judgment. SCE selected markets and platforms for the pilots based 1) its judgment that they have a high potential for end use consumer acceptance/adoption of recommended measures; 2) they provide reasonable opportunities to maximize the benefits of integration, and 3) they will serve as good platforms for expanding/modifying the range of integration to further evaluate the best methods and technologies to promote integration. It must be remembered that while SCE can promote the adoption of integrated measures, it is ultimately a customer choice to implement the recommendations in the absence of mandating regulations. Section 2 presents an overview of each new and enhanced program; for more program information, please see the detailed program implementation plans (PIPs) in Exhibits SCE-3 and SCE-4.  

2. Program Proposals
The primary objective of each proposed program is to deliver energy and demand benefits to ratepayers in the immediate and intermediate future. The second objective is to pursue long-term resource and general environmental benefits by supporting the Zero Net Energy and sustainability goals embraced collaboratively through the California Energy Efficiency Strategic Planning process. Consequently, each program is comprised of both proven and promising elements. While promising, some program elements may prove unsatisfactory; those that do will be augmented or replaced. Those that succeed will be enhanced or expanded.

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8 With the exception of the Emerging Technology PIP, which include the TRIO program. Due to an additional guidance document issued by the Commission on May 16, 2008, this PIP will be updated and included in SCE’s 2009-2011 energy efficiency application.
In addition, with experience, additional ideas will arise. SCE intends to introduce new pilot efforts to continue to expand the understanding and benefits of integration. SCE believes that its proposals regarding DSM integration and coordination comply with the direction and suggestions received from the Commission and its Staff.

a) Commercial New Construction DSM Initiative

Opportunities for energy efficiency measures for implementation in commercial new construction have been addressed for years under SCE’s energy efficiency programs. These programs are clearly defined and have been very successful in achieving improvements in commercial building energy efficiency over the current California building standards. The guidelines and measures for improvements for saving energy over the life of the building are clearly defined and prescriptive for that customer market segment.

What may not be clear for SCE’s larger commercial customers is how technologies for demand response and on-site generation can be integrated into the new construction delivery channel. Demand response participation requires a short-term reduction in energy usage from the customer’s typical operations, and experience from SCE’s TA&TI has shown that while retrofitting a building with demand response enabling technology can benefit existing customers, the integration of this technology as part of the design in a new construction approach is more challenging, but clearly more cost-effective than a retrofit.

The Commercial New Construction DSM Initiative is a new approach that SCE will use to leverage the existing delivery channels for energy efficiency in the commercial new construction market, and combine energy efficiency, demand response, and renewable program components. This initiative is intended to serve as an initial “towards Zero Net Energy” (ZNE) effort that can be modified over time to incorporate more and/or different DSM measures to ultimately meet the policy goal of ZNE. In 2009, the program will be initiated with current and planned projects in the energy efficiency pipeline for “quick wins” throughout the first year.

This integrated approach for new construction DSM delivery will build understanding with the design and construction community and enhance program adoption for
future successful delivery of demand response enabling technologies. This approach will also
capture the lost opportunities that many new and emerging energy efficiency technologies can
provide for demand response program participation. By expanding beyond the scope of
enhanced design savings for continuous savings, new buildings can increase their potential for
saving energy on an hourly basis in a demand response program by employing enhanced energy
management systems, dimmable and dispatchable ballasts, intelligent lighting and heating,
ventilation and air conditioning (HVAC) controls, and automated building control systems that
can enable demand response responsiveness to web-based dynamic pricing signals (such as
exemplified by the current auto demand response program). The initiative will also assess the
opportunities for the integration of enabling technologies associated with self generation in the
sector.

b) Residential New Construction Integrated Delivery Model

Southern California’s population continues to grow, and often this growth
includes the development of new residential housing. These new communities are often located
in hotter climates and in constrained areas for electrical distribution. As the new home market is
facing an economic downturn, the market participants also bring with them the challenges of
meeting the requirements for energy efficiency under state standards, and exceeding that
performance with SCE’s new homes incentives programs, while attempting to keep prices low.
As more residences with larger homes and larger heating and cooling systems are built in
warmer regions, the need for both increased overall efficiency and effective responsiveness to
future dynamic pricing for electricity is apparent. For SCE, the residential new construction
delivery channel has been a proven program for enhancing the delivery of energy efficient
measures to this market in a cost-effective manner. The Residential New Construction
Integrated Delivery Model is a new model that seeks to incorporate demand response enabling
technologies as well as renewable generation measures that could be integrated with the new
homes’ efficiency measures for an even more cost effective delivery of the combined
technologies.
One distinct advantage of the Residential New Construction Integrated Delivery Model is that it will leverage the existing marketing, outreach, and collaborative partnership relationships with the new construction community. SCE intends to leverage these relationships and enhance the understanding and adoption of demand response program participation, and combine with energy efficiency and renewable program components already integrated with energy efficiency. This initiative will also serve as an initial ZNE effort that can be modified over time to incorporate more and/or different DSM measures to ultimately meet the policy goal of ZNE. In 2009, as the Edison SmartConnect™ program will be rolled out to areas that may include new construction, the program will integrate enabling technologies that will be compatible with protocols and standards that can be used by homebuilders.

This Residential New Construction Integrated Delivery Model approach will build upon the understanding within the design and construction community and enhance program adoption for future successful delivery of demand response enabling technologies. This approach will also capture the lost opportunities that the new construction market can provide for enabling technology installation at the time of construction. Examples of these include controllable lighting systems, communicating thermostats, in-home displays, and any new and emerging energy efficiency, renewable, or energy storage or peak demand management technologies that can add functionality for demand response program participation. The initiative will also assess the opportunities for the integration of enabling technologies associated with self-generation in the sector, which can range from wind and solar local generation, standby storage, and plug-in hybrid vehicles.

c) Institutional Partnership Initiative

Energy Efficiency partnership programs that leverage the institutional customer sector as an energy program delivery channel are an excellent example of a successful delivery channel for DSM programs. SCE has a number of these partnership programs in place, with varying levels of market penetration, partnership models, and bilateral agreement terms. A good example is the SCE Energy Leaders Partnership model that creates energy partnerships
with local governments to generate savings through municipal retrofits and community outreach. Plans are already in place to integrate other DSM measures such as demand response education, outreach, and rebate incentives. While SCE’s partnership model already coordinates both EE and DR recommendations, they have been undertaken as separate activities. This proposal would target customers that would best benefit from integrated measures and then develop and promote adoption of integrated proposals that include a comprehensive range of DSM options. This emphasis is new to SCE’s partnership program.

Rather than duplicate these efforts or interfere with the delivery process at the community level, SCE’s demand response and energy efficiency groups have partnered to use the energy efficiency Institutional Partnership delivery channel as a means to maximize comprehensive DSM opportunities. With an already established relationship with multiple federal, state, and local government agencies, the SCE’s energy efficiency Division can enhance their program delivery to this “hard-to-reach” customer segment, providing an excellent opportunity for deploying integrated DSM programs, including demand response, energy storage, and renewable generation.

For the institutional customers, energy efficiency, demand response, and renewable power all have the same “look and feel” to them as an “energy” category. Though currently separated by regulatory definitions and organizational boundaries, the different DSM programs need to be integrated in both delivery and operation. At the very least, collaboration within the larger delivery channel will provide benefits such as a comprehensive message, a unified program, and coordinated incentives, which can reduce costs and increase customer satisfaction. In addition, since this market sector typically has multiple approval steps, stringent financial requirements, and longer construction lead times for the implementation of efficiency measures, it makes sense to work with the current delivery channel rather than to develop a parallel effort that may duplicate and possibly neutralize current partnerships.
d) **IDSM Pilot for Food Processing**

California has a very strong agricultural manufacturing and food processing industrial base. This customer sector represents an important opportunity for coordinated DSM program integration. The IDSM Pilot for Food Processing is a new program that combines integrated auditing, resource efficiency labeling, and continuous improvement methods to maximize the operating efficiency of customer facilities and to minimize energy and demand resource requirements. Incentives are provided through existing program delivery channels, and the costs of the pilot are limited to administrative, technical support, and consulting services. Projects in this initiative will be site-specific and will be tailored to each facility to seek comprehensive resource efficiency improvements. Additional benefits will include behavioral improvements across energy utilization and waste management, and water usage.

The program’s integrated approach combines traditional measures (energy efficiency retrofits/upgrades) along with strategies to help customers manage/reduce their energy demand during peak periods, especially during hot summer days. By combining these two approaches, this initiative provides the customer with a comprehensive solution to manage day-to-day energy costs and develop a demand response plan to enable the facility to respond to days of high energy use (peak periods) when energy demand is critical. While the primary program focus is energy efficiency, the development of measures emphasizes integrated solutions in proper sequence (energy efficiency first, then demand response) to support the most cost-effective and satisfactory energy and financial solutions for these stakeholders.

The IDSM Pilot for Food Processing will deliver an integrated solutions-driven approach specific for this customer segment, while leveraging the offerings of SCE’s portfolio of energy efficiency and demand response incentive-based programs. Additionally, the long-term solutions will adopt the concepts of continuous improvement and best practices, capture emerging technologies that can maximize energy and demand savings, and optimize systems and technologies that will enable multiple DSM options.
New technologies and methods are required to achieve the fullest use and benefit from DSM Integration. This is not unique to integration; it is also true for every DSM option. However, unlike the individual DSM options, there are very few existing integrated measures. Ultimately, integrated measures must be developed and promoted. TRIO is a new program designed to find, fund, and field-test the best of new technologies and technology delivery approaches from the university marketplace and to provide the opportunity to mainstream them into the overall SCE-managed energy efficiency portfolio of proven, successful, and reliable programs. TRIO places much more emphasis on innovation and promotion of promising technologies. These promising technologies will be nurtured and developed through workshops designed to teach the implementer how to do business with utilities. The workshops will guide the technology developer through work paper format and E3 calculator training. Once this training has been completed, a proposal will be submitted to the IDEEA program and will be scored using the current scoring criteria for the 2009-2011 program cycle. Integrated measures will be emphasized as a pilot effort in the inaugural years of the TRIO Program.

3. **Other Coordinated Activities**

As part of the solicitation activities, SCE will also look to third parties for ideas on how to integrate and coordinate with other offerings as part of the energy efficiency implementation and delivery. With respect to costs, SCE will use the same attribution rules discussed in Section B of this Chapter. Coordination activities in the 2009-2011 portfolio include:

(a) **IDSM Third-Party Solicitation (IDEEA):** The third party solicitations are designed to solicit program ideas centered on technologies and/or program designs that integrate EE with other demand-side offerings, such as DR, self-generation, CSI, etc. The objective is to deliver persistent, innovative,
and sustainable electric energy savings and to reduce utility administration costs.

(b) EARTH Education and Training Program (energy efficiency)/Smart Student Program (Demand Response): this education program leverages the energy efficiency EARTH Education & Training Program to promote demand response programs, and is delivered through two proven coordinated program strategies – Green Schools and Living Wise. SCE will modify the 2006-2008 energy efficiency portfolio’s LivingWise® kit contents as well as the Green Schools Compact Fluorescent Lamp Exchange events to include information and incentives tied to enrollment and participation in demand response’s SDP. Green Schools will also continue distributing SCE Residential Savings Guide to students in 2008 which includes demand response/SDP.

(c) Online Buyer’s Guide: Promotes incentives available through demand response and CSI programs.

(d) K-12 Private Schools Program: Provides referrals to demand response and information about distributed generation, as applicable.

(e) Comprehensive Home Performance Program: Encourages and integrates demand response, CSI, self-generation and SmartConnect™.

(f) Energy efficiency for Entertainment Centers: Encourages and assists enrollment in demand response programs.

(g) Appliance Recycling Program: Energy efficiency’s Appliance Recycling Program will coordinate with demand response’s SDP by designing joint marketing messages that will increase participation in both energy efficiency and demand response programs.

(h) Mobile Education Unit: The Mobile Education Unit is a converted recreational vehicle equipped with program literature, educational
materials and technologies and displays that promotes SCE’s DSM offerings including energy efficiency, demand response, and CSI.

(i) Edison SmartConnect™ is an Enabling Technology for Integrated DSM:
In Edison SmartConnect™ Phase III Application (A.07-07-026), SCE has proposed to install 5.3 million state-of-the-art “smart” meters in households and businesses under 200 kW throughout its service territory over a five year period beginning in 2008. These “smart” meters will be part of SCE’s advanced metering infrastructure (AMI), Edison SmartConnect™. This system of 5.3 million meters and ubiquitous yet secure communication standards enables powerful customer tools to manage energy consumption, enhances the customer service efficiency, opens up new services with smart technology, expands dynamic rate alternatives, and provides a flexible, robust platform that can create additional future value for SCE’s customers. As such, Edison SmartConnect™ more than adequately supports federal and state energy policy objectives.

Customer access to interval electricity information is one of the core tenants of AMI. Such data is currently only available to large customers with demands greater than 200kW. Edison SmartConnect™ will allow SCE to expand the availability of both historical and near-real time interval usage data to the masses. Both forms of data can be presented and analyzed through a variety of communication channels, including the Internet and customer-owned home area network (HAN) devices. The availability of these various forms of information is a critical component of SCE’s IDSM efforts, which is focused on sustaining socially responsible changes in customer energy consumption through energy conservation, DR, EE and other advanced technologies.
SCE expects customers to conserve energy from the combination of customer access to historical and near real time usage data provided by the Edison SmartConnect™ meter. Whereas near real time information works like a speedometer – showing the current rate of energy consumption – the historical cumulative displays act like an odometer – showing total energy used to date. Experience to date indicates clearly that information feedback reduces total electricity consumption. In a Meta-study of over 100 DR programs, electricity customers cut energy consumption by as much as 20 percent. The results indicate that information feedback provides a positive reinforcement from changes in customers’ behavior. A clear and positive conservation effect is derived from providing customers historical and near real time usage information. The evolution of providing information feedback will eventually move from passive to proactive whereby customers will have notifications or automated responses to signals from the utility. By providing proactive communication in the style of “alerts” and notifications, SCE’s customers will experience an even greater conservation effect. In the above automotive analogy, the alerts work like warning indicators – showing a condition that should be responded to. The Tier Alert program is a clear example of SCE’s approach of leveraging the SmartConnect™ infrastructure to provide important customer feedback to encourage energy conservation.

In addition, Edison SmartConnect™ will be instrumental in designing new DR programs for managing peak consumption among millions of customers. The availability of interval usage information enables dynamic pricing options which provide incentives for customers to shift their usage, in part or whole, to off-peak hours, resulting in
avoided capacity benefits. Edison SmartConnect™ will also allow all residential and business customers to participate in reliability and economically dispatched programs as part of a more comprehensive IDSM approach, in addition to current base load control and DR programs. The ability for the new meter to communicate and exchange data with other devices on the customers’ premises serves as a critical component in the design of future DR programs. The added dimension of interval data provides SCE the opportunity to design advanced rates and programs to assist over five million customers better manage and understand their energy consumption.

Furthermore, as customers receive more informative data and analyses about the cost of their energy usage through Edison SmartConnect™, it is expected that their interest will increase in EE programs that help them to more permanently reduce their energy consumption. For example, with Edison SmartConnect™, a customer can view the bill impacts of installing an energy efficient appliance the day after it is installed using historical comparative analysis. In addition, SCE will be able to expand valuable energy analytic tools, which currently are only available to its large customers. These tools can help customers forecast bill reductions that result from investments in energy efficient products and services.

Finally, promising new technologies enabled by Edison SmartConnect™ offer the potential to significantly broaden the field of stakeholders in the energy management arena of the future for IDSM programs, thereby promoting more effective use of capacity resources. In anticipation of future changes in technology and changes in regulatory policy objectives, SCE has designed flexibility into its Edison
SmartConnect™ system to accommodate the likelihood of IDSM programs (including plug-in hybrids), future building code changes, in-home energy information displays, smart grid management, and distributed resources.

By expanding interval usage information to essentially all of SCE’s customers, Edison SmartConnect™ is a critical component in facilitating the effective delivery of IDSM to over five million SCE customers. As the gateway into these customers’ premises, Edison SmartConnect™ will serve as a critical component in the infrastructure required to support the entire portfolio of IDSM measure types. In short, Edison SmartConnect™ is that platform that will serve as the springboard to wide-scale adoption of IDSM programs in the future.

E. Coordinated DSM Marketing

The objective of SCE’s marketing, education and outreach efforts from 2009 to 2011 is to maximize energy efficiency savings and move customers towards adopting an energy-efficient lifestyle. Marketing, education and outreach campaigns, and materials will be developed in a manner that leverages statewide branding, in order to maximize participation, market transformation, and adoption of long-term energy efficiency behaviors. SCE’s marketing efforts are consistent with CEESP’s objectives in that it leverages an integrated portfolio of DSM programs.

SCE will also continue to develop integrated marketing campaigns, which have been a key part of the utility’s marketing efforts since 2002. The integrated marketing campaigns use customer segmentation research to better understand customers and provide them with a wide range of action-oriented solutions that will maximize energy savings. Segmentation will also enable SCE to customize the characteristics of its offerings, providing customers with solutions that are relevant to their needs.
In order to accomplish SCE’s key objectives, marketing efforts will be designed to move consumers through a continuum from awareness, to attitude change, to long-term behavior change. Given the diversity of SCE’s customer base, SCE will use multiple layers of integrated marketing to effectively reach customers and drive them to action.

Integration will be achieved by presenting IDSM as the complete energy management solution that can help customers save energy and manage their energy costs, while helping the environment. SCE will ensure customers clearly understand “energy management” as a whole with respect to how all of the components of the DSM portfolio work together.

Integrated marketing begins with understanding the customer and providing them with relevant solutions, which may include energy efficiency, demand response, LIIE, CSI, and SmartConnect™ offerings.

Customer segmentation will enable SCE to target customers with integrated marketing solutions that are relevant. For example, SCE could use its segmentation to identify customers who are proactive savers and conservers and provide solutions including rates, demand response programs, and energy efficiency rebates. SCE could also send relevant messages to conservationists to help them lower their carbon footprint, providing solutions such as integrated energy efficiency/demand response audits, SDP, CSI, and energy efficiency measures. By providing customers with relevant solutions made up of programs and services from across SCE’s DSM portfolio, customers will be able to more effectively take action that benefits them, the environment, and SCE’s community.

F. Attribution of Energy Savings

1. Background

   a) Foundational Issues

   One of the projected key benefits of integrating demand-side programs is enabling broader and deeper penetration of markets to reach the multiple program goals of energy savings, peak demand reductions, system-callable load management, and displacement of other energy sources with renewable energy sources.
Two critical principles for integrated programs are to assure that:

- All these benefits are accounted for, and
- They are each counted only once for the combined program effect.

In fact, satisfying these principles is actually more feasible for an integrated program than for programs that are not coordinated. When programs are not coordinated, the effects of one program on another are easily overlooked. Energy efficiency programs that reduce peak demand generally reduce the callable load reduction potential of demand response programs. A demand response program that provides addressable dimmable ballasts to enable load reduction when a demand response program is called, also provides a possible conservation option that may or may not be captured by the customer, and is certainly not counted.

b) Commission Guidance

The Joint ACR requires that the utilities’ pilot programs should enable and include “the identification and testing of different energy savings attribution methodologies potentially feasible for use in IDSM pilot projects or programs.” This should include testing the stepwise attribution approach outlined by Energy Division at the March 7 workshop.

2. Plan for Identification and Testing of Different Savings Attribution Methodologies

Initial identification of potential measurement approaches to be tested should be completed by Fall 2008. Evaluation, Measurement, and Verification (EM&V) staff at the utilities and the Commission and/or their assigned contractors should review the literature on attribution methods and identify and develop approaches that are most appropriate for IDSM programs. These approaches should be informally communicated to the other organizations. Utility EM&V staff should then schedule a workshop to discuss the options and the issues each one raises, and identify which options may work best with which programs. Utility EM&V staff will then work with the pilot program managers at their utility to assure that detailed program design and implementation procedures take into account the need to gather data necessary for the
testing of the most appropriate approaches. These approaches will include the stepwise approach described by Energy Division.

As is the case with other EM&V plans, it is not feasible to develop strong impact evaluation plans before program and portfolio plans are completed.

There are numerous other important issues that could be illuminated by process and impact evaluations of the pilot programs. Among them are:

- The hypothesis that integrating or coordinating programs will reduce program marketing and administration costs;
- The hypothesis that integrated/coordinated programs will enable deeper and broader program penetration in the target population;
- The mix of individual program goal achievements;
- The role of integrated approaches in furthering progress towards ZNE goals;
- The effects of alternative cost allocation approaches; and
- The tradeoffs between customer choice and technology optimization.

G. **IDSM Cost-Effectiveness**

1. **Background**

Cost-effectiveness analysis of IDSM measures presents significant challenges because of the different characteristics and resource values associated with the different types of measures that could conceivably comprise IDSM programs. As directed in the Joint ACR, SCE has provided recommendations regarding methodologies to perform cost-effectiveness analysis of IDSM programs. However, SCE views its recommendations simply as a starting point for discussion. SCE recommends that a series of workshops be held during Fall 2008 to further examine and develop cost-effectiveness methodologies for IDSM programs. Ideally, these workshops would be conducted in conjunction with workshops to examine attribution (i.e., measurement and evaluation) protocols for IDSM programs.
a) **Commission Guidance**

There is currently no Commission guidance regarding specific methodologies to perform cost-effectiveness analysis for IDSM programs. The Assigned Commissioner’s and Administrative Law Judge’s Ruling Regarding Cost-Effectiveness Metrics And Energy Efficiency Policy Manual, dated March 14, 2008 (March 14 Ruling), identified one-stop shop coordinated DSM delivery and statewide IDSM Marketing, Education and Outreach (ME&O) activities as specific strategies in the CEESP that may require alterations to the Energy Efficiency Policy Manual in order to affect their launch and full implementation in a timely fashion. In their comments to the March 14 Ruling, the Joint Utilities requested that the Commission ensure consistency of cost-effectiveness methodologies across the various DSM proceedings, including a consistent value for a carbon adder that can be used for demand-side and supply-side resources:

“In advance of the May 15 Strategic Plan and Portfolio Application filing, the Joint Utilities encourage the Commission to strive for consistency with cost effectiveness approaches developed for other demand-side resources when making modifications to current energy efficiency cost-effectiveness metrics and to the Energy Efficiency Policy Manual. In particular, See discussion infra Section II.B.3., recommending that the energy efficiency rulemaking leverage recent work in the demand response rulemaking (R.07-01-041) to ensure consistent methodologies for cost-effectiveness evaluation. Further, on the issue of the appropriate level for a carbon adder, multiple Commission proceedings are currently examining the value of a carbon adder to be used in resource valuation. These proceedings affect both demand-side and supply-side resources and include R.06-04-010, R.07-01-041, and R.06-02-012. It is important that a consistent value for a carbon adder be used across all of these proceedings so that all resources, demand-side and supply-side, are valued in a comparable manner.”

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The Joint Utilities also provided multiple policy proposals for the Energy Efficiency Policy Manual to accommodate the DSM integration and coordination strategies in the CEESP in response to the March 14 Ruling. The Division of Ratepayer Advocates (DRA) also acknowledged the importance of cost-effectiveness guidelines for IDSM cost-effectiveness in their reply comments to the March 14 Ruling. Further, DRA recommended that the Commission establish a new Order Instituting Rulemaking to consider integration of DSM programs, including the adoption of common avoided costs and cost-effectiveness methodologies. However, there was no specific guidance regarding coordinated/integrated DSM in Revision 4.0 of the Energy Efficiency Policy Manual.

In the demand response OIR the utilities were directed to include information on proposals to coordinate energy efficiency and demand response that would also be filed in the energy efficiency 2009-2011 program application. However, no other guidance was provided in this rulemaking regarding how to perform cost-effectiveness analysis for IDSM programs. In their comments about Energy Division staff’s draft demand response cost-effectiveness framework, DRA pointed out that the framework did not provide guidance regarding cost-effectiveness evaluation for IDSM programs.

The Joint ACR of April 11, 2008 directed utilities to include an outline of a plan to develop and test different cost-effectiveness approaches for proposed pilot project implementation pathways. The Joint ACR directed utilities to consider two approaches at a minimum:

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11 Id., Attachment A, p. 10
14 Comments of the Division of Ratepayer Advocates, April 25, 2008, R.07-01-041, p. 11.
• Sequential analysis of the cost-effectiveness of a combined IDSM pilot or program package, starting with the most cost-effective measure.

• Use of an integrated cost-effectiveness test that assesses on a cumulative basis the combined cost-effectiveness of the entire IDSM pilot, program or set of measures.

SCE’s recommendations to utilize these approaches for the cost-effectiveness analysis of IDSM programs are provided in Sections G.3 and G.4 below.

b) **Foundational Issues**

The Joint Utilities identified cost-effectiveness as one of the “foundational issues” presented at the March 7, 2008 IDSM workshop, and provided general recommendations regarding how IDSM cost-effectiveness could be addressed for the 2009-2011 energy efficiency and demand response applications. These recommendations included development of an IDSM cost-effectiveness framework in conjunction with the IDSM pilot projects.

2. **Plan for Identification and Testing of Different Cost-Effectiveness Methodologies**

In providing recommendations for determining cost-effectiveness of IDSM programs SCE has attempted to balance theoretical purity, analytical rigor, and computational complexity. SCE’s objective underlying these recommendations is to deliver accuracy levels adequate for program assessment and policy-making while avoiding methods that greatly increase computational complexity but provide little or unknown increases in accuracy. The proposed methodologies attempt to promote transparency where practical. This transparency combined with the use of feasible/workable methodologies will yield results and supporting

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analyses more readily understandable to stakeholders and will facilitate greater implementation of IDSM programs.

SCE recommends that evaluation of both of the proposed approaches be included as a fundamental element of the IDSM pilots. This evaluation would support the “learn by doing” objective of the IDSM pilots.

a) **SCE’s Proposed Cost-Effectiveness Approaches Use the Standard Practice Manual**

Both of the IDSM cost-effectiveness approaches proposed by SCE would use the framework of the California Standard Practice Manual (SPM). The approaches differ only in that one applies the SPM to each DSM measure sequentially, the other applies it to the integrated (system) impacts of the IDSM programs.

b) **Separate Avoided Energy and Capacity Costs Are Required**

In the Joint Utilities’ response to the March 14 Ruling, the Joint Utilities recommended that separate avoided energy and capacity costs be used to calculate energy efficiency cost-effectiveness, rather than the current approach that only implicitly considers avoided capacity value based on the 1998-2000 PX price shape. The current time differentiation should be retained.

In addition, avoided energy and capacity costs should be disaggregated. The use of disaggregated avoided energy and capacity costs will more fully capture the value of energy efficiency, especially during on-peak periods. Separating avoided energy and capacity costs is particularly critical for IDSM to reflect the specific characteristics of the various DSM measures within an IDSM program.

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3. **Sequential Analysis of the Cost-Effectiveness of a Combined IDSM Pilot or Program Package, Starting with the Most Cost-Effective Measure**

SCE has interpreted the direction in the Joint ACR regarding sequential analysis to be one that would align with the stepwise attribution approach for energy savings described in Section F of this Exhibit SCE-5. Taken literally, the direction provided in the Joint ACR would require a sequential analysis with the most cost-effective DSM measure being evaluated first. This approach would assume a priori knowledge of the cost-effectiveness of each DSM measure in an IDSM program. In other words, one would have to know the cost-effectiveness of each measure to perform a cost-effectiveness analysis. Conceivably, a cost-effectiveness analysis could be performed for each DSM measure reflecting the full impact of each measure without regard for the interrelated impacts across measures. However, this approach would result in multiple (i.e., double, triple, or more) counting of the savings from the various measures, and therefore would not accurately reflect the integrated aspect of the measures.

To avoid this potential multiple counting problem, SCE has interpreted the sequential cost-effectiveness analysis to be based on the Energy Action Plan loading order, consistent with the stepwise attribution approach for energy savings. In SCE’s sequential analysis, the cost-effectiveness of each demand response measure in an IDSM program would be evaluated independently based on the energy and demand savings of that measure when implemented according to the loading order. The energy and demand savings and resulting resource benefits for DSM measures would be reduced based on the measures that preceded them.

SCE’s proposed sequential approach is shown in Figure I-1 below.
This sequential approach correctly reduces the benefits of measures as one moves down the loading order, and consequently, it is a conservative approach to valuation. However, this approach also has the greatest analytical complexity because of the multiple analyses that are required to evaluate each measure separately. The sequential approach also presents a real risk of sub-optimization as measures further down the loading order may be found non-cost-effective when their impacts are measured in a stepwise manner and then valued. This sub-optimization may seriously undermine the ability of the Joint Utilities to cost-effectively implement IDSM programs.
A sequential approach also presents challenges in assessing the cost-effectiveness of an IDSM program as a whole, rather than for each of its component measures. There is no straightforward way to combine the measure-level cost-effectiveness analyses to determine a program-level cost-effectiveness. Conceivably, a weighted-average Total Resource Cost (TRC) could be calculated for an IDSM program based on its component measures, but the appropriate weighting factor is not immediately obvious.

4. **Use of an Integrated Cost-Effectiveness Test That Assesses on a Cumulative Basis the Combined Cost-Effectiveness of the Entire IDSM Pilot, Program or Set of Measures**

An integrated cost-effectiveness test of IDSM would look at the combined effects of all DSM measures on a system or holistic basis, rather than in isolation. An integrated cost-effectiveness approach would present significant challenges in the valuation of impacts because of the differences in the resource value that derive from the characteristics of the individual IDSM measures. For example, energy efficiency programs provide peak reduction impacts across many hours during the on-peak period over the course of a year. However, these impacts are not dispatchable. By comparison, demand response programs provide fewer hours of peak reduction, but these impacts are dispatchable at times of greatest need. These differences translate into different avoided capacity benefits per kW saved.

Measuring and valuing IDSM impacts on a holistic or system basis provides the best opportunity to reflect the synergies that result from integrating measures, rather than implementing them on a piecemeal basis. Consequently, it may be reasonable to trade-off some conservatism to more fully value the benefits of integrating multiple DSM measures into a single program. Analyzing IDSM cost-effectiveness on an integrated or system basis also avoids the risk of sub-optimization that potentially could occur with a sequential analysis. In addition, an integrated cost-effectiveness approach enables IDSM measures to be optimized based on customer needs, rather than being driven by the Energy Action Plan loading order, i.e., an integrated approach does not presuppose that the measures installed based on customers’ needs
align exactly with the loading order. SCE’s proposed integrated cost-effectiveness methodology is illustrated in Figure I-2 below.

**Figure I-2**

*Integrated Cost-Effectiveness Analysis of IDSM Measures*

<table>
<thead>
<tr>
<th>IDSM</th>
<th>Avoided energy benefits (by TOU)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Avoided capacity benefits</td>
</tr>
<tr>
<td>EE</td>
<td>Deferred T&amp;D benefits (right place, right certainty)</td>
</tr>
<tr>
<td>DR</td>
<td>Environmental benefits</td>
</tr>
<tr>
<td>CSI/SGIP</td>
<td>Other benefits (e.g. market benefits)</td>
</tr>
<tr>
<td></td>
<td>Program costs</td>
</tr>
<tr>
<td></td>
<td>Customer incentives</td>
</tr>
<tr>
<td></td>
<td>Other costs</td>
</tr>
</tbody>
</table>

**H. Continued Coordinated DSM Activities**

D. 05-01-056 directed SCE to implement integrated energy efficiency and demand response programs targeted at all customer segments. During 2007, SCE tracked several integrated pilot program efforts to develop best practices for energy efficiency/demand response integration through the end of 2007.

The intent of the energy efficiency/demand response integration programs is to develop effective collaboration with the energy efficiency/demand response organizations to provide continuity of communication with customers, improve customer satisfaction, and enhance the delivery of energy efficiency and demand response programs in an integrated manner. This collaborative program design is intended to provide customers with simultaneous program information from individual energy efficiency and demand response programs, rather than isolating the energy efficiency and the demand response delivery, to avoid the need for multiple SCE representatives to meet with a customer on individual programs. This collaborative approach improves customer adoption of the programs, enhances customer satisfaction, reduces operating costs, and improves operational efficiencies between energy efficiency and demand response. This coordination also leverages opportunities to maximize energy savings for
customers and count those savings towards achievement of energy efficiency goals, while also integrating opportunities for demand response program participation. The following are ongoing integrated activities that will be extended in 2009-2011:

1. **Energy Efficiency/Demand Response Outreach Integration**

   SCE’s Demand Response Event Consortium and energy efficiency Partnerships programs will jointly distribute energy efficiency and demand response information to customers at events and include both energy efficiency and demand response collateral in direct mail promotional materials to partnerships, with a goal of seamless delivery of information materials, reduced customer confusion, and reduced efforts and costs.

2. **Energy Efficiency/Demand Response Survey Integration**

   Demand response will continue to leverage the Home Energy Efficiency Survey (HEES), by providing a comprehensive energy report including all energy efficiency and demand response measures and recommendations based upon responses to survey questions. By leveraging an existing energy efficiency survey tool, residential customers already expressing an interest in saving energy and money will receive additional information on SDP.

3. **Energy Efficiency/Demand Response Integrated Audits**

   The TA&TI Program (demand response) and the Nonresidential Audit program (energy efficiency) will continue to conduct energy efficiency/demand response integrated field audits for medium to large non-residential customers to encourage their participation in voluntary demand response programs and energy efficiency programs. SCE has also developed a central source for information related to identifying segment-specific recommendations for energy efficiency and demand response measures, and intends to further develop the design and delivery of energy efficiency/demand response integrated field audits, as well as training, marketing and other roll-out strategies through its Business Customer Division account representatives.
4. **Energy Efficiency/Demand Response Integrated Messaging**

SCE will continue to identify and implement effective marketing strategies to integrate messages between energy efficiency and demand response programs, to avoid redundancy and enhance the customer offer. In the 2006-2008 cycle, energy efficiency and demand response worked together by integrating messaging between SDP and the AC Tune-Up Program; joint messaging will be extended to the HEES, Home Energy Efficiency Rebates, and the Appliance Recycling Program, as part of the overall integrated DSM marketing approach.

5. **Other Energy Efficiency/Demand Response Integration Pilots**

SCE will continue to seek other integration opportunities as feasible. For example, in the 2006-2008 cycle, SDP (Demand Response) and the Appliance Recycling Program (Energy Efficiency) and the Palm Desert Partnership integrated demand response into their marketing efforts, asking customers if they were interested in SDP and generated leads to the SDP recruitment office. As a result, of the 26,025 refrigerators picked up from customers in the Appliance Recycling Program, 8,027 customers (31 percent) asked to be contacted for SDP program enrollment. The SDP personnel also included energy efficiency messaging during their customer contacts, and encouraged customers to participate in numerous SCE energy efficiency programs to maximize their energy savings and reduce their costs during the summer months.

I. **Objective for 2009-2011**

The results of the integration pilot program efforts from 2007 provided confirmation of the benefits for program integration through improved operations and optimization of coordinated marketing. The pilot efforts also developed informative learning precedents to both the energy efficiency and demand response organizations on the resource and budget constraints and the incremental impacts of integrating energy efficiency and demand response programs. Staff personnel found that it was technically feasible to coordinate marketing and enrollment activities for programs, and the assumed benefits for customers for capturing lost opportunities became obvious as the integration activities progressed. However, the foundational barriers of
funding sources, cost allocation, cost recovery, and attribution of energy and demand savings still pose a challenge to true IDSM deployment.

SCE proposes to focus on integrating energy efficiency and demand response program messaging, delivery, and technologies in a cohesive manner to capture downstream benefits that are the result of enhanced customer adoption of combined DSM measures. Improvements planned in 2009-2011 for energy efficiency/demand response integration are to increase collaboration between the energy efficiency and demand response programs, leverage existing program delivery channels from the enhanced energy efficiency programs for 2009, and combine program offerings in both the retrofit and new construction areas.

The goals and objective for 2009-2011 are as follows:

- Provide customers one-stop shopping for products and services
- Develop efficient energy efficiency and demand response programs collaboration that is simple to understand and implement among employees and customers
- Provide continuity of customer communication
- Improve customer satisfaction through greater dual participation
- Generate more kW and kWh savings for customers
- Increase efficiencies of program delivery with better approaches and program offerings to attract customers
- Ensure cost-effectiveness in alignment with developing Commission criteria

J. Energy Efficiency and Low Income Energy Efficiency Coordination Efforts

In addition to coordination between energy efficiency, demand response, and Self Generation offerings, Energy Efficiency and Low Income Energy Efficiency (LIEE) will coordinate efforts to reach a broader residential market containing low income segments and will use energy efficiency and DSM specific messages to create a bridge between the two. The following programs include energy efficiency/LIEE coordination:

- Home Energy Efficiency Rebates: will provide customers with information and marketing materials on SCE’s LIEE programs
• Multifamily Energy Efficiency Rebate Program: offers property owners LIEE program materials and information and increased incentives for installing energy efficient measures in qualified low income tenant units; also provides energy efficient services and appliances to these qualified tenants.

• Comprehensive Mobile Home Program: provides customers with information and marketing materials on SCE’s LIEE programs.

• Home Energy Efficiency Surveys: provides information and marketing materials on SCE’s LIEE programs. As customer surveys are returned, SCE will review customer account information and look for low income opportunities.

• Efficient Affordable Housing: offers property owners increased incentives for installing energy efficient measures in qualified low-income tenant units; also provides energy efficient services and appliances to these qualified tenants.

• WE&T EARTH Education and Training Program: provides information and marketing materials on SCE’s LIEE Programs to students.

• Mobile Education Unit: will exhibit and demonstrate measures/products installed under the LIEE program, and include visits to economically disadvantaged communities.

• Community Language Energy Outreach Program: provides customers with in-language information and marketing materials on SCE’s LIEE programs

• Local Government Partnerships: provides customers with information and marketing materials on SCE’s LIEE programs at partnership events. Local community-based organizations will be encouraged to work with partnerships to coordinate outreach events to enroll eligible customers in low income programs.