

Application of San Diego Gas & Electric Company  
(U-902-E) for Adoption of an Advanced Metering  
Infrastructure Deployment Scenario and Associated Cost  
Recovery and Rate Design.

Application 05-03-015  
Exhibit No.: \_\_\_\_\_

**CHAPTER 5  
AMI MARKETING AND CUSTOMER PROGRAMS**

**JULY 14, 2006 AMENDMENT**

**Prepared Supplemental, Consolidating,  
Superseding and Replacement Testimony  
of  
MARK F. GAINES**

**SAN DIEGO GAS & ELECTRIC COMPANY**

**BEFORE THE PUBLIC UTILITIES COMMISSION  
OF THE STATE OF CALIFORNIA**

**JULY 14, 2006**

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2 **AMI MARKETING AND CUSTOMER PROGRAMS**  
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7 **of**

8 **MARK F. GAINES**

9 **SAN DIEGO GAS & ELECTRIC COMPANY**

10 **I. INTRODUCTION**

11 The purpose of this *amended* testimony is to update my March 28, 2006 testimony  
12 to include material information which will impact my (Chapter 5) testimony in which I  
13 describe the following SDG&E customer-related AMI issues: (1) Customer  
14 Communication and Assistance Plan (CCAP), (2) proposed Demand Response (DR) rate  
15 and program options, (3) expected customer participation levels in the DR rate and  
16 program options, (4) benefits from avoided DR program costs, and (5) costs and benefits  
17 that are anticipated to accrue in SDG&E's Load Research area. New to my testimony is  
18 the inclusion of enabling technologies to the small and medium commercial sector and  
19 the impact in demand response in section II C and in addition a revision to the rate  
20 options available to C&I customers. This testimony consolidates, supersedes, and  
21 replaces all previous direct and supplemental testimony filed by me or by any other  
22 SDG&E witness testifying in this docket, on the topics covered herein.

23 **II. SDG&E's AMI CUSTOMER COMMUNICATION AND ASSISTANCE**  
24 **PLAN**

25 **A. Objectives**

26 SDG&E's AMI Customer Communication and Assistance Plan (CCAP) is  
27 designed to achieve two primary objectives: (1) to ensure customer awareness  
28 and satisfaction with the meter and rate change process, and (2) to facilitate  
29 customer participation in DR programs and rates.

30 **B. Customer Impact and Value Assessment**

31 Prior to designing the CCAP, SDG&E first identified the "touch points" with  
32 the customer that would need to be addressed in the plan.

1 The key AMI-related touch points identified include:

- 2 1. Scheduling appointments to install the new AMI meter (as necessary).
- 3 2. Installation of the meter.
- 4 3. Information on the purpose/function of the meter.
- 5 4. Information on DR program and rate options.
- 6 5. Receiving the new bill and/or online usage information.
- 7 6. Notification of DR events.

8 The activities and costs associated with the first two touch points listed above  
9 are addressed in the testimony of SDG&E's witness Carranza in Chapter 12. The  
10 remaining four touch points are discussed further in my testimony as part of the  
11 CCAP.

12 SDG&E also conducted research to determine likely success factors in  
13 implementing DR programs. This research included studies which identified  
14 lessons learned at other utilities implementing similar DR programs<sup>1</sup> for  
15 residential, small commercial, and medium to large commercial/industrial (C&I)  
16 customers. In addition, SDG&E conducted focus groups to assess drivers for  
17 customer reaction, feedback and acceptance of and participation in dynamic  
18 pricing programs<sup>2</sup> in the residential and small C&I market segments. Not  
19 surprisingly, the results from the "lessons learned" search and the focus groups  
20 were fairly consistent.

21 The key customer preferences identified through SDG&E's research included:

- 22 1. **No Mandates.** Customers have expressed their preference that their  
23 available rate alternatives be optional rather than mandated.
- 24 2. **Simple Pricing Structure.** Customers prefer simple rate structures which  
25 contribute to an ease of understanding and participation in the rate.
- 26 3. **Fairness of Rates.** Customers believe that rate structures that contain  
27 penalty provisions should have at least equal, or greater, opportunities to  
28 save if they modify their energy consumption behavior in response to the  
29 rate structure.

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<sup>1</sup> DSR Consumer Surveys Subgroup-Summary of Member Contributions, September 30, 2004.

<sup>2</sup> Advanced Metering Infrastructure Qualitative Research Topline Report, March 2005; SDG&E Automated Metering Infrastructure Focus Group Study, November 2005.

- 1           4. **Community Effort.** The opportunity for all customers to participate, and  
2           the perception that everyone should contribute for the benefit of the  
3           community, improves customer acceptance of DR programs.
- 4           5. **Convenience.** Customers have indicated their preference for the  
5           availability of technology assistance, or some other form of flexibility, to  
6           help them understand and enable them to perform within the DR programs  
7           and available optional rate structures.
- 8           6. **Minimize “Thinking About Energy”.** Customers have expressed a  
9           preference to minimize the time and effort needed to manage their energy  
10          use.
- 11          7. **Broad Range of Price Responsiveness.** Data indicates that price  
12          elasticity varies greatly among classes of customers, and among customers  
13          within a segment, with small commercial customers being less responsive  
14          than residential customers.
- 15          8. **Feedback on Performance.** Customers indicate that it is very important  
16          that they receive feedback with respect to their performance under  
17          dynamic pricing, in order to gauge their success in managing their energy  
18          consumption and costs.
- 19          9. **Significant Savings.** Customers tend to lose interest in programs that do  
20          not provide sufficient reward for their behavioral changes.

21           SDG&E has utilized these findings in the design of the AMI CCAP, as well as  
22           in the design of new dynamic pricing structures.

### 23           **C. Plan Description**

24           SDG&E intends to use a two-phase approach to communications related to  
25           AMI. The first phase is to educate and prepare its customers in advance of the  
26           AMI deployment and the transition to dynamic pricing with ample notice and  
27           information. The second phase relates to DR event day notification.

#### 28           **1. Phase 1—AMI Deployment**

29           In the first phase, by working with customers, SDG&E will provide  
30           information on the potential benefits of AMI, gather and review customer  
31           feedback, preview dynamic pricing and program options, provide solutions for

1 energy management, and lay a foundation for future enhancements. This first  
2 phase will also provide a means for customers to enroll in DR programs and  
3 available rate options, and to sign-up for DR event-day notifications through  
4 SDG&E's Web site or by returning a post card designating their preferred  
5 electronic notification method. SDG&E's AMI CCAP consists of a number  
6 of components, each intended to address the customer touch points and  
7 customer expectations identified above.

8  
9 **a. Message Summary.**

10 The message will provide information on what changes customers can  
11 expect to see through the deployment of AMI. These changes include the  
12 new look of the AMI meter, the energy consumption information that will  
13 be presented to customers, the energy management tools that will be  
14 available, and the new dynamic pricing options that customers can choose.  
15 Embedded within that message will be a discussion of the value to the  
16 individual customer, as well as the community value that can be achieved  
17 through AMI, dynamic pricing and demand response. Emphasis will be  
18 placed on such key elements as controlling energy costs by managing  
19 energy consumption and the value of more efficient (in terms of time and  
20 price) use of energy and the related energy infrastructure. Another  
21 component of the education messaging will be the DR event-day  
22 notification process, e.g., how it will work and how customers will be able  
23 to sign-up for notifications.

24 **b. General AMI Awareness Campaign.**

25 Achieving customer awareness and acceptance depends on the  
26 saturation of the message points, often through multiple and overlapping  
27 sources and points of communication. In order to achieve a high level of  
28 customer awareness, SDG&E's AMI communication and assistance plan  
29 consists of the following specific elements:

30 **i. Bill Inserts.** Two inserts in customer bills will be utilized to  
31 inform customers about AMI deployment and the transition to

1 dynamic pricing. The first bill insert will occur prior to AMI  
2 installation, informing customers about what to expect during the  
3 meter installation process, dynamic pricing, tools and information that  
4 will be available to help them manage and control their energy  
5 consumption and costs, instructions on how to sign up for electronic  
6 notification of DR events, as well as to help direct customers to  
7 additional sources of information, and more targeted or specialized  
8 communications. The second bill insert will be planned to occur just  
9 prior to the implementation of the dynamic rates/DR programs  
10 applicable to their segment (residential, small C&I). This insert will  
11 announce the implementation of the specific DR rate or programs  
12 available to them and will repeat the energy management assistance  
13 information and instructions on how to sign up for electronic  
14 notification of DR events.

15 **ii. Direct Mail.** Two direct mail pieces will be sent to each customer  
16 in advance of their specific AMI meter installation. The first direct  
17 mail piece will be sent near the time of their meter installation. The  
18 second will be sent just prior to the implementation of the dynamic  
19 rates or DR programs applicable to that customer. These letters will  
20 provide a point of direct contact to help customers become aware of  
21 AMI, dynamic pricing, and the tools and information that will be  
22 available to them. The content will be the same as described for the  
23 bill inserts above

24 **iii. CBO Outreach.** SDG&E plans to work closely with Community-  
25 Based Organizations (CBOs) to help in the communication of  
26 information to segmented groups of customers as the AMI installation  
27 activity moves into their sphere of influence. Often, CBOs reach  
28 smaller, more targeted groups of customers, such as residential or  
29 commercial and industrial, or subgroups within those classes, offering  
30 a greater degree of success, through their grassroots community  
31 involvement and activities than through mass media or other

1 communication efforts. CBOs can also provide a forum to enhance  
2 communications with customers who might not have seen or read  
3 SDG&E's bill inserts and direct mail material. SDG&E anticipates  
4 working closely with these CBOs during the AMI installation process  
5 and transition to new rate structures.

6 **iv. Special Event Outreach.** SDG&E will also utilize such activities  
7 as trade association meetings and conferences, street fairs, public  
8 meetings and rallies, and other similar activities to make information  
9 on AMI and dynamic pricing available, which will provide an  
10 additional forum for targeted, specialized customer interactions.

11 **v. Mass Media.** Use of mass media, both print and electronic, has  
12 proven to be an effective way for SDG&E to provide information to  
13 customers. Although limited in the scope of the message that can be  
14 delivered, mass media generates customer interest and encourages or  
15 facilitates follow-up activities and inquiries. Ongoing messages are  
16 expected to be placed in print and broadcast media that will be  
17 designed and intended to reinforce with customers the value of AMI  
18 by saving on their energy costs during critical events. This general  
19 message effort will be more concentrated during the AMI roll-out  
20 period and is expected to decrease as customer awareness increases  
21 over time.

22 **vi. Customer Call Center Services.** Through its Customer Call  
23 Center, SDG&E has a readily-accessible resource available to  
24 customers to provide information, answer questions and allow for  
25 customer-specific and focused feedback and education. SDG&E  
26 expects to rely heavily on these resources to provide a link in  
27 responding to direct customer inquiries and requests for additional  
28 information.

29 SDG&E's Customer Call Center is the primary point of contact  
30 with SDG&E for the vast majority of customers, essentially all  
31 customers who do not have assigned Account Executives (AE). The



1 Call Center typically receives and responds to an average of 10,000  
2 customer calls each weekday, covering a wide range of topics, such as  
3 service initiation, transfer or disconnection, rate and billing inquiries,  
4 and a host of other issues.

5 It is anticipated that the Call Center will respond to customer  
6 inquiries of a general nature related to AMI, questions relating to  
7 specific AMI meter installations, and questions related to customer  
8 information and related rate and billing issues generated by AMI and  
9 dynamic pricing and DR programs. The expected impacts of these  
10 calls include an increase in customer call volume and new types of  
11 customer inquiries related to:

12 1. AMI Installation

13 Incremental Call Center costs related to the installation of AMI  
14 meters are based on additional training requirements for Call Center  
15 personnel, covering the AMI installation process, and the proper  
16 procedures to handle customer calls related to installation.

17 Incremental Call Center costs also include the additional customer  
18 calls and incremental average call time related to these calls.

19 SDG&E expects one hour of additional training for customer  
20 contact personnel related to AMI deployment and installation of AMI  
21 meters. SDG&E estimates that 10% of its customers in the first year  
22 of installation will contact the Call Center with miscellaneous inquiries  
23 or concerns regarding the AMI installation process. SDG&E assumes  
24 that these calls will average two minutes. SDG&E anticipates the  
25 percentage of customer calls to decrease to 5% of customers in  
26 subsequent years throughout the installation process. These estimates  
27 are based on professional judgment and experience with customer calls  
28 regarding rescheduling, complaints, requests for general information  
29 and higher bills in the month following a meter change.  
30  
31

1                   2. AMI Rates/Programs

2                   The incremental costs associated with continuing operation and  
3 maintenance of AMI include one hour of additional training for Call  
4 Center personnel on the billing, dynamic rate and optional rate  
5 structures and DR programs. In addition, incremental costs have been  
6 included for anticipated additional talk time associated with the new  
7 dynamic rate structures, and additional calls related to customers  
8 electing an optional rate or program.

9                   SDG&E anticipates receiving a call from approximately 10% of its  
10 small commercial customers during the year they change to the new  
11 dynamic rate structures, and expects that these calls will average 250  
12 seconds in length. This time estimate is related to SDG&E's prior  
13 experience and call durations for similar types of calls.

14 **vii. Direct Outreach Customers.** SDG&E's larger, assigned-account  
15 customers will continue to receive their communications through their  
16 Account Executives (AEs). AEs will provide information regarding AMI  
17 meter installation and education on the dynamic rates that will affect their  
18 customers' businesses. Among other communication or notification  
19 avenues, such as Interactive Voice Response (IVR) or a centralized  
20 communications / messaging system, AEs will notify their customers  
21 when a DR program or dynamic pricing event is called.

22                   During the AMI meter deployment phase, SDG&E expects to add  
23 resources to facilitate meter installations at the largest and most critical  
24 assigned account customer facilities. SDG&E will coordinate between the  
25 installation vendor (see Mr. Carranza's testimony (Chapter 12)) and the  
26 customer in cases where access to the customer premise is restricted or  
27 where the meter installation must be scheduled at specific times.

28                   SDG&E also expects to add support staff to assist the AEs with  
29 additional rate analysis and response to increased billing and other AMI-  
30 related questions from assigned account customers. The majority of these

1 staff additions would take place during the AMI installation phase, as  
2 customers are transitioned to new rate/program options.

3 Commercial customers below 20 kW will be experiencing time-  
4 differentiated rates for the first time with the deployment of AMI. C&I  
5 accounts above 20 kW are already operating under time differentiated  
6 rates but the CPP rates proposed for AMI customers are anticipated to  
7 generate questions on both program requirements and bill impacts. These  
8 customers will receive bill inserts and direct mail material discussed in  
9 Section II.C.1.b.i & ii, above. In addition, these rate changes are expected  
10 to generate increased call center questions from unassigned accounts. The  
11 resource requirements for this effort are discussed in Section II.C.1.b.vi,  
12 Customer Call Center Services, above.

13 **viii. Technology Assessment and Assistance.** The Statewide Pricing  
14 Pilot, as well as DR programs in other states, indicates that utilization of  
15 enabling technology, for instance programmable/controllable thermostats  
16 (PCT), to automatically implement DR at customer sites increases the  
17 level of demand response from customers.<sup>3</sup> SDG&E has an ongoing DR  
18 Technical Assistance (TA) and Technology Incentives (TI) program for  
19 C&I customers to help identify and capture these benefits.<sup>4</sup> SDG&E also  
20 has an air conditioner cycling program for residential and small  
21 commercial customers that automatically cycles central air conditioning  
22 units during DR events. While these specific programs are projected to  
23 continue into the future, the recently published evaluative data from the  
24 SPP has prompted SDG&E to also propose a new PCT program targeting  
25 small and medium C&I customers. Through a broader deployment of  
26 PCT's to these customers, the data indicates a significantly greater degree  
27 of demand response will be enabled and achieved.

28  
29  

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<sup>3</sup> George, Stephen S, Ahmad Faruqui and John Winfield. *California's Statewide Pricing Pilot: Commercial & Industrial Analysis Update*, Final Report. June 28, 2006.

<sup>4</sup> See SDG&E's A. 05-06-017, dated June 1, 2005, Appendix B, pages 44-51.

1                   **a. PCT Program Description**

2  
3                   The PCT Program is designed to promote the use of PCTs within a  
4                   targeted subset of C&I customers with demands below 200 kW. The  
5                   specific subset of C&I customers that will be targeted are all customers  
6                   with peak demands between 20 and 200 kW and a subset of customers  
7                   with peak demands below 20 kW, specifically those with annual energy  
8                   use greater than 20,000 kWh. This targeting of high users among the  
9                   below 20 kW segment is necessary because the magnitude of demand-  
10                  response generated by the smallest customers is not large enough to offset  
11                  the cost of the PCTs.

12                 These customers will be offered PCTs free of charge and with free  
13                 installation through a variety of outreach efforts described in the next  
14                 section. Incentives will also be provided to direct installers for sales and  
15                 installation of the PCTs.

16                 This program provides the customers with a no-cost, no-hassle,  
17                 automated demand response solution that enables savings under SDG&E's  
18                 proposed time dependent rates and programs.

19  
20                 **b. PCT Marketing and Awareness**

21                 SDG&E has incorporated an estimated marketing and awareness  
22                 budget for the PCT program in its cost estimates associated with achieving  
23                 enhanced demand response through the PCT enabling technology.

24                 Highlights of the PCT marketing and awareness effort include:

- 25                 ➤ Integration of both customer and contractor incentives to maximize  
26                     customer access and program acceptance.
- 27                 ➤ Enabling customers to control their PCT remotely through the  
28                     SDG&E website
- 29                 ➤ Implementing a focused direct marketing effort on high potential  
30                     industry-specific segments, such as fast food restaurants, mini  
31                     markets, laundromats, nail salons and similar businesses.

1                   ➤ Distribution of specific marketing materials and messaging to  
2                   ensure customer awareness and adoption of the PCT enabling  
3                   technology. Additional focus will be placed on customer  
4                   education and awareness as an ongoing reminder to the identified  
5                   target market.

6                   The costs to implement the marketing and awareness campaign is  
7                   assumed to total \$150/customer for large C/I customers and \$50/customer  
8                   for small C/I customers. In addition there will a \$5/customer annual  
9                   maintenance effort to ensure long-term participation and finally  
10                  approximately \$100,000 per year for program management.

11  
12                  **c. PCT Program Participation Rates**

13                  SDG&E estimates that approximately one-third of the target group of  
14                  small C&I customers (those with demands below 20 kW but with annual  
15                  energy use greater than 20,000 kWh) and one-third of the medium C&I  
16                  customers (20 to 200 kW) will accept the installation of a PCT. These  
17                  estimates are based on the SPP results for C&I customers less than 200  
18                  kW. The SPP evaluation showed that approximately 33% of the  
19                  participants with peak demands less than 20kW accepted the free smart  
20                  thermostat technology and approximately 60% of those with peak  
21                  demands greater than 20kW did so. SDG&E has incorporated the lower,  
22                  more conservative assumption of 33% acceptance for both customer  
23                  groups. An additional incentive will be offered to program contractors if a  
24                  direct install is implemented, ensuring that this group of customers is  
25                  actively pursued. With these estimated acceptance rates, over a five-year  
26                  period, the PCT Program will reach approximately 11,000 small C&I  
27                  customers (under 20 kW and greater than 20,000 kWh) and approximately  
28                  5,600 medium C&I customers (20 to 200 kW).

29                  In addition, SDG&E anticipates that the proposed new Title 24  
30                  building standards, if ultimately adopted and implemented in October  
31                  2008, will increase the penetration of PCTs by requiring their inclusion in

1 all new buildings. This significantly increases the penetration among the  
2 20 to 200 kW segment, where projected customer growth rates are higher  
3 than among the below 20 kW segment.  
4

## 5 **2. Phase 2—DR Event Notification**

6 The second phase of communications will be DR event day notification.  
7 The success of customer participation in SDG&E's DR program portfolio  
8 depends not only on customer enrollment in various programs, and use of  
9 enabling technologies, but also on timely and accurate communications with  
10 customers about the operation of the programs and, specifically, the  
11 notification of the activation of a DR event.

12 Virtually all DR program events are activated during the summer months.  
13 Over the past several years SDG&E has utilized a variety of methods to  
14 educate and prepare customers for the bill impacts due to higher energy  
15 consumption during summer months, and higher energy prices during peak  
16 and critical peak periods, and to inform them of the need for energy  
17 conservation and load reduction during DR event periods.

18 Among the methods used have been mass media advertising, direct mail  
19 and bill inserts for education, and working with local news outlets, pagers and  
20 telephone calls for event notifications. With the advent of AMI and a more  
21 broadly-applicable dynamic pricing structure, similar summer awareness  
22 campaigns will be necessary to notify customers of DR events.

23 To reach the maximum number of customers possible during event  
24 notification, SDG&E proposes to use a variety of communications channels  
25 simultaneously. SDG&E will utilize advertising on broadcast media, local  
26 news outlets and electronic notifications via pager and text messages to  
27 announce Day-Ahead and Day-Of of events to customers.

### 28 **a. Broadcast Media**

29 Based on initial media evaluations conducted by an SDG&E  
30 advertising agency, radio advertising can be used to provide a day-ahead  
31 notice and reach approximately 70 percent of adults in the area two to

1 three times. The exact media schedule would depend on the number of  
2 radio stations that could “clear” time to run the ads.

3 In addition, SDG&E would purchase Traffic Reports (the 15 second  
4 announcements adjacent to the radio traffic reports). On non-event days,  
5 these messages would support general AMI message and the availability  
6 of information on its web site. On event days, these messages would be  
7 changed to provide an alert of the event.

8 **b. Electronic Notification**

9 Customers will also be given the option of receiving notification of  
10 DR events through email, text messaging, paging or automated phone  
11 calls. Participation in these notification channels is estimated based on  
12 previous program results.

13 When an initial offer of on-line enrollment for notification of  
14 blackouts was made in 2001 to businesses and medical baseline customers  
15 (approximately 65,000 customers), slightly over 2,500 customers, or 3.8%  
16 of those notified, signed up for the service. (Note that the 65,000 figure  
17 represents the number of people, rather than the number of meters, which  
18 is slightly over 120,000.) This level of enrollment was achieved without  
19 mass media promotion of the availability of the service.

20 More recently, an offer of on-line billing was made to residential  
21 customers that resulted in enrollment of over 100,000 customers, or almost  
22 10%. A projected level of participation is between the 3.8% achieved with  
23 the blackout message and the 10% resulting from on-line billing.  
24 Assuming 5% to 7%, SDG&E would reach between 50,000 and 70,000  
25 customers with electronic notifications.

26 **c. News Coverage**

27 It is anticipated that both the importance and the rarity of the DR  
28 events will cause general news programs to publicize the message as well.  
29 Experience with rolling blackout and other emergency type messages  
30 suggest that the DR notification message would be carried by the news  
31 media.

1 News coverage would provide the potential exposure to the message  
2 an additional two to three times. Through the combination of these news  
3 and advertising efforts, it is projected SDG&E will reach a minimum of  
4 70% of adults living in the region with the message a minimum of 3  
5 times.

### 6 **3. DR Program Results Notification**

7 Equally as important as awareness campaigns and event notification is the  
8 communication and feedback to customers of program performance and  
9 results following a DR event. The “how are we doing” messages are  
10 important for both the individual customers as well as the entire SDG&E  
11 community.

12 SDG&E plans to make information available on the customer’s monthly  
13 bill to explain their DR program results and impacts. In addition, customer-  
14 specific information reflecting the prior day’s energy consumption history will  
15 be available on the internet through the AMI network. SDG&E will also work  
16 with local news media to make this information available for follow-up  
17 reports after events. Finally, exemplary customer and community DR results  
18 will be incorporated in SDG&E’s ongoing general media message to  
19 recognize significant contributors and to reinforce the sense of community  
20 involvement for the success of demand response.

## 21 **III. DEMAND RESPONSE RATE REVIEW AND PROGRAM** 22 **PARTICIPATION ESTIMATES**

### 23 **A. Background**

24 SDG&E is proposing three types of dynamic pricing structures for customers  
25 equipped with AMI meters. The first is the Peak Time Rebate (PTR) for  
26 residential and small C&I customers (< 20 kW). The second is Time of Use  
27 (TOU) rates for small C&I customers (< 20 kW) and the third is Critical Peak  
28 Pricing (CPP) with an optional Capacity Reservation Charge (CRC) for medium  
29 and large C&I customers (20 kW and larger). The PTR program is explained in  
30 my testimony while the CPP rates are explained in detail in the testimony of  
31 SDG&E’s witness Hansen, in Chapter 14.  
32



1 **B. PTR Program Description**

2 The PTR program is designed to be compatible with AB1X restrictions  
3 limiting rate changes, simple for customers to participate in, easy to administer  
4 and available to all segments of the residential and small C&I (< 20kW)  
5 population. Key provisions of the PTR are listed below:

- 6 1. All residential, as well as all small C&I customers, with a peak demand of  
7 less than 20 kW are eligible to participate without the need for a contract  
8 or special enrollment.
- 9 2. Customers receive a rebate or bill credit of \$.65/kWh for every kWh that  
10 they reduce their electricity usage below their 'PTR baseline'<sup>5</sup> usage  
11 during a DR event. (As noted below, the \$.65/kWh PTR credit may  
12 change over time).
- 13 3. There are no penalties for non-participation. That is, the customer is billed  
14 just as they otherwise would have been billed if the customer did not  
15 reduce usage below their PTR baseline.
- 16 4. Customers will receive notice of an impending PTR or CPP event through  
17 TV and radio and can also receive notice through an electronic channel of  
18 their choice (pager, text message, email, or telephone).
- 19 5. PTR rebates will be included in customer's next bills as line item credits.

20 PTR is proposed for residential and small C&I customers because of the  
21 simplicity of the program, the absence of penalties associated with participation in  
22 the program and the ability for all customers in the segment to benefit if they  
23 change their energy consumption behavior during DR events. Each of these  
24 attributes closely matches the customer expectations identified in SDG&E's focus  
25 groups and in the lessons learned from other utilities.

26 The simplicity of the program will allow SDG&E to easily explain the  
27 benefits of the program to our customers through mass media information  
28 channels and to easily remind customers of their opportunity to save money each  
29 time a DR event is announced. Further, the simplicity of a \$.65/kWh credit

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<sup>5</sup> Prior to implementation, SDG&E will investigate methods for estimating baseline usage and will select an approach that strikes an appropriate balance between practicality, accuracy and achieving an incentive payment sufficient to maintain customer interest in providing demand reductions.

1 for the reduction in electricity usage during an event period makes the result of  
2 program participation very visible and measurable for customers. Through its  
3 measurement and evaluation of the PTR program, SDG&E will evaluate the need  
4 to raise or lower the \$.65/kWh incentive rebate amount or to adjust the baseline  
5 estimation method in order to manage customer participation and the level of  
6 demand response achieved through the PTR program.

7 The absence of penalties encourages all customers to participate and earn their  
8 rebate regardless of their energy usage profile, their economic status or their  
9 location in the service territory. Also, with broad potential to participate, the  
10 program may capitalize on a sense of community spirit and support where  
11 everyone helps during periods of critical energy shortages to prevent blackouts  
12 within the community. There are other options that SDG&E will explore with the  
13 PTR rate to further enhance its value to the community, including allowing  
14 customers to designate their rebates to their local school, church or other charities.  
15 Alternatively, SDG&E will explore translating the rebate dollars into “rewards”  
16 type programs similar to those offered by credit card companies and airlines. The  
17 purpose of these efforts, if deemed feasible, would be to encourage higher PTR  
18 participation rates than currently estimated in SDG&E’s demand response impact  
19 analysis (see Dr. George’s testimony (Chapter 6)).<sup>6</sup>

20 Finally, PTR does not conflict with AB1X restrictions, so all customers can  
21 participate immediately and automatically. Marketing and implementation costs  
22 are minimized, since specific target marketing is not required. Overall, the  
23 program minimizes implementation costs while maximizing participation  
24 opportunities.

### 25 **1. CPP Rate and Description**

26 For C&I customers with demands greater than 200 kW demand, SDG&E  
27 proposes that the “preferred approach” outlined in Assistant Chief  
28 Administrative Law Judge Michelle L. Cooke’s Proposed Decision<sup>7</sup> issued  
29 March 23, 2006, in Application 05-01-016 et al, be implemented after an

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<sup>6</sup> SDG&E has not quantified or included in its AMI Business Case analysis any anticipated costs or corresponding benefits associated with the concept of these kinds of potential program enhancements.

<sup>7</sup> As modified, however, as specified in SDG&E’s pending comments on that Proposed Decision.

1 initial 2-year transition period to allow customers to become more familiar  
2 with the rate options and to learn how to achieve savings under a CPP rate  
3 structure. Following that 2-year transition period, SDG&E proposes that the  
4 Proposed Decision's "preferred approach" be implemented for all of these  
5 customers.

6 SDG&E's small commercial customers with demands below 20 kW will be  
7 placed on a default TOU rate schedule along with the PTR program. SDG&E's  
8 medium and large C&I customers greater than 20 kW will be defaulted on to a  
9 CPP rate. The CPP rate is the default rate and customers will have the option to  
10 choose other comparable time differentiated rates. For example, the customers  
11 will have the option under the CPP rate to protect a portion of their load from the  
12 CPP rate by paying a capacity reservation charge (CRC). The CRC enables  
13 customers to reserve and pay for capacity costs on a monthly basis when they  
14 have loads that cannot be curtailed during a CPP event. The CRC benefits  
15 customers by spreading out CPP payments over the entire year resulting in a more  
16 predictable bill.

### 17 **C. PTR and CPP Participation Estimates**

18 As discussed above, SDG&E assumes that all residential and small  
19 commercial customers will be eligible for the PTR program benefits once their  
20 AMI meters are installed. Therefore, the usual notion of a participation rate as the  
21 number of customers who choose to sign up or remain on a rate or program does  
22 not apply (all customers with meters installed will be 'participants'). However, in  
23 order for demand reduction to occur customers must be notified that a PTR event  
24 has been called for a particular day.

25 As described previously, SDG&E expects to reach 70% of customers with the  
26 message of PTR events delivered multiple times, using a combination of paid  
27 radio advertising, news media coverage and on-line notifications. The  
28 communications will be triggered day ahead and run through event start time.  
29 The level of customer reach achieved is dependant upon how many radio stations  
30 can run the ads in the time frame between the event being initiated and the event  
31 start time. Because there can be some variation in the number of customers

1 reached with the alert message, SDG&E has included a range of participation  
2 rates in its analysis. Table MG 5-1 shows the minimum, expected and maximum  
3 percentage of customers reached for its residential customers (averaging 70%).

4 Under SDG&E's new proposal all of the small commercial demand response  
5 benefits are provided solely by small commercial customers with PCTs. The  
6 PCTs will automatically receive a signal to setback the thermostat on CPP days,  
7 so small commercial customers will not need to be aware of the PTR alerts for  
8 demand response to occur. Therefore the small commercial demand response  
9 benefits are not discounted by an estimated awareness level.

10 Beginning in 2011 for medium C&I and in 2009 for large C&I, customers will  
11 be defaulted onto a CPP rate with the option of reserving capacity through a  
12 capacity reservation charge.<sup>8</sup> As explained in Steve George's Testimony (Chapter  
13 6) both the CPP rate and the CRC payment provide the customer equal economic  
14 incentives to provide demand response. Therefore the participation rate for  
15 medium and large commercial customers is assumed to be 100%. In 2009 and  
16 2010 medium C&I customers will still have the option of opting out to a TOU  
17 rate. The participation used for these years is 69% which is the average of the  
18 number of customers who would save money on the rate without demand  
19 response and the number of customers who would save money on the rate with  
20 demand response.

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<sup>8</sup> Other comparable time differentiated or dynamic rate options could emerge by 2009, SDG&E is not precluding such options such as 2-part Real Time Pricing (RTP), hourly pricing (single part RTP), TOU with interruptible firm service levels, etc..

1

Table MG 5-1 Awareness / Participation Rates Used to Define the Probability Distributions for each Class			
Rate Options (%)	Parameter		
	Minimum	Mode	Maximum
Residential PTR	50	70	85

2

These participation rates are utilized in the demand response calculations discussed in the testimony of Dr. George in Chapter 6.

3

4

**IV. AVOIDED DEMAND RESPONSE PROGRAM COSTS**

5

**A. Background**

6

Prior to 2006, the vast majority of SDG&E's DR program authorization and funding has been determined by the Commission on an annual basis.

7

8

Commission Decision (D.) 05-01-056, issued on January 27, 2005, approved

9

SDG&E's 2005 portfolio of programs, and an associated budget of approximately

10

\$20 million. These costs are not reflected in SDG&E's currently authorized rates,

11

but are recorded in SDG&E's Advanced Metering and Demand Response

12

Memorandum Account (AMDRMA) and ultimately are recovered through

13

SDG&E's Rewards and Penalties Balancing Account on an annual basis, and only

14

to the level of actual expenditures, not to exceed the authorized funding levels.

15

In issuing D. 05-01-056, the Commission approved programs and budgets for

16

only one year, 2005, and directed SDG&E to file an application on June 1, 2005,

17

proposing programs and budgets for the period 2006 – 2008. SDG&E filed

18

A.05-06-017 on June 1, 2005, proposing its three year demand response programs

19

portfolio and associated budgets. Subsequently, on December 2, 2005, SDG&E,

20

along with Southern California Edison, Pacific Gas and Electric Company and

21

several other Joint Parties, filed a proposed Settlement Agreement which would

22

establish the portfolio of programs and budgets for the three year cycle of 2006 –

23

2008. Subsequently, on March 15, 2006, the Commission issued D. 06-03-024

24

adopting the Settlement Agreement. SDG&E's proposed portfolio of DR

1 programs is based on maintaining an array of voluntary programs available to  
2 customers, whose participation helps them manage and control their energy  
3 consumption and costs, while at the same time, during periods of critical need,  
4 contribute load reductions which help mitigate periods of high energy prices, tight  
5 energy supplies, or other electric system emergencies or constraints.

6 SDG&E's portfolio of DR programs is designed to achieve a predetermined  
7 annual target of load reductions as adopted by the Commission. These annual  
8 load reductions are intended to be a component of utility resource planning and to  
9 help assure electric system reliability while helping to minimize the costs of  
10 additional resources needed to meet peak and critical peak period demands. With  
11 the establishment of these annual goals and with the current portfolio of voluntary  
12 programs, there is a need for aggressive and ongoing customer education and  
13 awareness in order to maintain customer contact and program participation from  
14 one year to the next. Without this ongoing activity, SDG&E has found customer  
15 interest in program participation to wane.

16 Additionally, while several of SDG&E's existing DR programs are available  
17 to customers with demands as low as 20 kW, the majority of the programs, and  
18 the current outreach efforts, have focused on the larger C&I customers—those  
19 with demands greater than 200kW.

#### 20 **B. Anticipated Reduction in Demand Response Program Costs**

21 With the recent pattern of authorized programs and funding spanning from  
22 annually to only a few years at a time, the short history of DR programs, and with  
23 the dynamics of program participation and program changes resulting in  
24 inconsistent customer participation, it is difficult at this time to anticipate just  
25 which specific DR programs and related costs will be in place during the period of  
26 initial AMI deployment and beyond. Nonetheless, SDG&E has examined its  
27 proposed 2008 DR program portfolio and budget to identify those components  
28 which may be reduced or eliminated with the deployment of AMI and the  
29 associated introduction of dynamic pricing. SDG&E believes that, with the  
30 deployment of AMI, a certain portion of its then-existing 2008 DR program

1 portfolio will be eliminated, or at least scaled back in some fashion, thus resulting  
2 in the estimated cost reductions set forth in Table MG 5-2.

3 SDG&E's planned AMI CCAP is expected to result in an increased customer  
4 awareness of and participation in dynamic pricing and other DR programs due to  
5 the system-wide AMI deployment and establishment of dynamic pricing  
6 structures. It is expected that this will result in a diminished need for separate  
7 demand response program outreach and administration activities. Further,  
8 customer participation in dynamic pricing reduces the customer base from which  
9 DR program participation can be obtained. Of course, the level of DR program  
10 cost reduction depends on the success of the AMI CCAP.

11 SDG&E has assumed that with the deployment of AMI beginning in mid 2008  
12 and rate / program roll-out beginning in 2009, all C&I customers with demands  
13 over 20 kW will participate in some form of dynamic pricing, with day-ahead  
14 notification provisions to activate peak and critical peak pricing provisions as  
15 meter roll out permits. As a result, SDG&E believes that the need for its existing  
16 portfolio of pricing-based Day-Ahead DR programs will be reduced beginning in  
17 2009. SDG&E expects that its portfolio of existing Day-Of, or reliability-based  
18 programs, will continue although the precise mix of programs and costs has not  
19 been determined. Additionally, with the elimination of the Day-Ahead portfolio,  
20 and the anticipated success of the AMI CCAP, a portion of the DR programs'  
21 customer education, awareness and outreach budget is assumed to be eliminated,  
22 as are two specific programs within that category (Community Outreach and  
23 Circuit Savers). With the anticipated success of SDG&E's Technology  
24 Assistance and Technology Incentives (TA/TI) programs during the 2006 – 2008  
25 program cycle, SDG&E believes that a portion of the TA/TI budget also can be  
26 reduced beginning in 2009. And finally, with the completion of the AMI  
27 deployment by the end of 2010, and the assumed full transition to dynamic  
28 pricing by 2011, the need for certain other activities associated with the  
29 evaluation of existing DR programs can be eliminated. Because the full transition  
30 to dynamic pricing will not occur until 2011, SDG&E has not reflected the

1 expected elimination of this relatively small category of other DR program costs  
2 until 2012.

3 All of these anticipated DR program cost reductions, beginning in 2009, are  
4 reflected in Table MG 5-2.

## 5 **V. AMI IMPACT ON SDG&E'S LOAD RESEARCH FUNCTION**

### 6 **A. Background**

7 SDG&E's load research function shows significant incremental benefits  
8 associated with the AMI project due to avoided load research metering and  
9 communication requirements. The avoided metering and communication benefits  
10 are, however, somewhat offset by an expected incremental increase in labor  
11 associated with the additional load research analysis that will be associated with  
12 the significant increase and availability of interval data as a result of AMI. By the  
13 end of 2010, all SDG&E customers will have interval load data available for load  
14 research and analysis. Many requests to analyze particular customer segments  
15 and geographic areas are made to load research. Many of these requests cannot  
16 be fulfilled because of current sampling restrictions. This limitation will nearly  
17 be eliminated once AMI is implemented and the value of the benefit of having the  
18 information to analyze will be realized.

### 19 **B. Base Assumptions**

20 SDG&E assumes load research benefits will begin in 2009; during the roll-out  
21 years, however, the benefits are phased in to be consistent with the expected  
22 portion of the AMI roll-out to be completed in each of those years. All of the load  
23 research sample sites require the replacement of the standard electro-mechanical  
24 meters or standard Time-of-Use meter with a 15 minute interval data recorder  
25 (IDR meters). Depending on the type of Load Research sample the meters may or  
26 may not require communications.

#### 27 **1. Avoided Load Research Metering Projects/Avoided Costs Due to AMI**

28 These avoided metering projects/load research benefits are categorized  
29 into five groups:  
30  
31



1                   **a. Load Research/Tariff Sample**

2                   The largest sample load research sample is associated with the creation  
3 of load studies. This required<sup>9</sup> sample supports SDG&Es rate design  
4 proceedings. The assumptions around the benefit associated with this  
5 sample include over 1,000 non-communicating meters that SDG&E would  
6 not need to field every third year beginning in 2009 (note that this benefit  
7 in 2009 is scaled to include only ~ 60% of the benefit in future iterations  
8 due to roll out progress assumptions). Avoided meter and labor  
9 installation costs are also included in these benefits.

10                   **b. Dynamic Load Profile (DLP) Sample**

11                   The DLP sample requires approximately 575 communicating IDR  
12 meters. This sample also requires fielding every third year, with the first  
13 avoided sample beginning in 2009. Benefits in 2009 are about 60% of  
14 those expected during later iterations due to the scaling issue mentioned  
15 above.

16                   **c. Title 20 California Code of Regulations Section 1344**

17                   Title 20 requires medium and large utilities to provide annual hourly  
18 California Energy Commission defined sector estimates. This sample  
19 requires approximately 300 non communicating interval data meters in  
20 addition to the tariff class sample. This sample requires fielding every  
21 third year with the first avoided sample beginning in 2009. Benefits in  
22 2009 are about 60% of those expected during later iterations due to the  
23 scaling issue mentioned above.

24                   **d. Special Projects Measurement and Evaluation (M&E)**

25                   These special project samples vary in size. Currently SDG&E  
26 estimates that it will require up to 400 IDR sample sites every three years.  
27 In the past, load research has been called upon to create sampling plans,  
28 and coordinate installations of, and verify data collected for, special  
29 measurement and evaluation (M&E) projects. These projects include

---

<sup>9</sup> One of the by products of the Public Utility Regulatory Policies Act of 1978 (PURPA) is that it requires utilities to produce statistically valid class load estimates for its tariff classes that are used to support cost allocation in rate design.

1 requests for sample design and metering in connection with Measurement  
2 and Evaluation for Energy Efficiency, Demand Response, Distribution  
3 Planning, new technologies and other areas within SDG&E. These  
4 projects typically have an analytical focus that includes the requirement of  
5 understanding customer consumption/demand behavior at the 15 minute  
6 interval level. SDG&E assumes slightly less than one half of these meters  
7 require communications.

8 In addition to M&E and Special projects, SDG&E expects to analyze  
9 customer usage behavior for various end-uses and technologies. These  
10 smaller samples are assumed to range from 100 to 400 IDR meters. These  
11 samples are required for anticipated projects for which an understanding  
12 of customer consumption behavior at the end-use level or an interval level  
13 is necessary. These samples require fielding every third year with the first  
14 avoided sample being in 2009.

15 **e. Avoided Communications Costs**

16 As mentioned above, many of the meters required for the above  
17 samples are communicating meters. In the absence of AMI, an expensive  
18 communications approach is necessary, such as a landline to each meter or  
19 a digital cellular device for each meter. With AMI, these communications  
20 costs would be avoided.

21 **2. Additional Load Research Labor (Incremental costs due to AMI**  
22 **within the Load Research area)**

23 Because AMI will result in increased volume of interval data available to  
24 SDG&E, it is anticipated that the Load Research function will require three  
25 additional analysts to process and analyze this information. Table MG 5-2  
26 shows present value costs (in 2006 dollars) for O&M that is associated with  
27 Load Research, Mass Markets, and CCC. These costs are more than offset by  
28 the estimated benefits associated with avoided load research capital projects,  
29 future CCC and DR program O&M costs.

30  
31  
32

1 **C. Operation and Maintenance Costs (O&M)**

2 SDG&E has estimated costs associated with its CCAP and Load Research  
3 functions to support the deployment of AMI and dynamic pricing. Table MG 5-2  
4 presents a summary of the costs.

5 **1. O&M Costs—Customer Call Center**

6 SDG&E has estimated costs of \$195,000 to provide communications and  
7 other information to its customers through its Customer Call Center as  
8 described above. A breakdown of these costs is presented in table MG 5-2.

9 **2. O&M Costs—Load Research**

10 SDG&E has estimated costs of \$5.771 million for additional personnel  
11 and activities to perform the Load Research functions as described above. A  
12 breakdown of these costs is presented in table MG 5-2.

13 **3. O&M Costs—Mass Markets**

14 SDG&E has estimated costs of \$37.8 million for additional personnel and  
15 activities to perform the Mass Market functions as described above. A  
16 breakdown of these costs is presented in table MG 5-2.

17 **4. O&M Costs—Programmable, Communicating Thermostats (PCTs)**

18 SDG&E has estimated costs of \$7.187 million associated with the PCT  
19 program described herein. A breakdown of these costs is presented in table  
20 MG 5-2.

1  
2  
3

**Table MG 5-2**

**Marketing Load Research, Demand Response Programs, CCC  
Direct Dollars (Dollars in Thousands)**

						Average Annual
<b>Costs</b>	<b>Total</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011- 2038</b>
<b>O&amp;M</b>						
Total CCC O&M Costs	195	0	34.0	25.0	25.0	4.0
Total Load Research O&M Costs	5,771	0	64.8	129.7	129.7	194.5
Total Mass Mrkts O&M Costs	37,772	0	1,045.20	2,764.40	2,730.4	1,115.4
<i>Total PCT O&amp;M Costs</i>	<i>7,187</i>	<i>0.0</i>	<i>0.0</i>	<i>222.8</i>	<i>440.7</i>	<i>233.0</i>
<i>Total O&amp;M Costs</i>	<i>43,967</i>	<i>0</i>	<i>1,194.00</i>	<i>2,955.10</i>	<i>2,921.1</i>	<i>1,317.8</i>
<b>Total Costs</b>	<b>50,925</b>	<b>0</b>	<b>1,144</b>	<b>3142</b>	<b>3326</b>	<b>1,547</b>

						Average Annual
<b>Benefits</b>	<b>Total</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011- 2038</b>
<b>Capital</b>						
Total Avoided LR Capital Benefits	16,813	0	0	883.7	295.2	558.4
<i>Total Capital Benefits</i>	<i>16,813</i>	<i>0</i>	<i>0</i>	<i>883.7</i>	<i>295.2</i>	<i>558.4</i>
<b>O&amp;M</b>						
Total Avoided LR O&M Benefits	7,107	0	0	147.1	240	240
Total CCC O&M Benefits	2,156	0	14	38	63.2	72.9
Total DR Programs O&M Benefits	210,520	0	0	6,776.7	6,776.7	7,034.5
<i>Total O&amp;M Benefits</i>	<i>219,783</i>	<i>0</i>	<i>14</i>	<i>6,961.8</i>	<i>7,079.9</i>	<i>7,347.4</i>
<b>Total Benefits</b>	<b>236,596</b>	<b>0</b>	<b>14</b>	<b>7,846</b>	<b>7,375</b>	<b>7,906</b>

4 **VI. AMI PROJECT RISK AND SDG&E MITIGATION**

5 There are three risks to highlight in this chapter. First and most importantly, AMI  
6 could negatively impact SDG&E's overall customer satisfaction – particularly during the  
7 installation and hardware replacement years. To safely install the advanced metering  
8 infrastructure, SDG&E will need safe access to every customer premise. Service  
9 outages, more aggressive revenue protection activities, and rates that require more  
10 customer education will impact customer satisfaction. SDG&E believes that in the long-  
11 run, AMI will improve customer satisfaction by improving system reliability, increasing  
12 demand response into our energy portfolio, and decreasing long-term rates. SDG&E's  
13 customer contact cost estimates reflect an increase in CSRs and Account Executives  
14 during the deployment period to manage customer service.

15 The second risk is related to the avoided Demand Response Programs benefit.  
16 Given the anticipated demand response of AMI as well as existing demand response

1 programs, SDG&E believes that the current MW target reductions are achievable.  
2 However, if SDG&E is unable to meet the target MW reductions for demand response  
3 established by the CPUC and Energy Action Plan, SDG&E may not be able to avoid as  
4 many costs related to these programs.

5 Finally, the third risk is related to costs required in developing customer systems  
6 and processes for demand response events. In order for customers to participate in  
7 demand response, customers must be notified a day ahead of the demand response event.  
8 Advertising costs could increase in the future due to increased cost to advertise on the  
9 radio, new advertisement methods, or costs to notify individual customers for events;  
10 however, these costs are just as likely to decrease due to technological innovations.

11 This concludes my prepared testimony.

1 **VII. QUALIFICATIONS OF MARK GAINES**

2 My name is Mark F. Gaines. My business address is 8330 Century Park *Court*,  
3 San Diego, California, 92123.

4 I am employed by San Diego Gas & Electric Company as Director Customer  
5 Programs. My responsibilities include Energy Efficiency and Demand Response program  
6 development and implementation for the Sempra Energy Utilities. I have been employed  
7 by the Sempra Energy Utilities since 1983..

8 I have a BS in Civil and Environmental Engineering, a Masters in Business  
9 Administration and am a registered professional engineer in Mechanical Engineering in  
10 California.

11 I have previously testified before this Commission.  
12