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

CHAPTER 24

Prepared Rebuttal Testimony

of

MARK F. GAINES

SAN DIEGO GAS & ELECTRIC COMPANY

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

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I. Introduction

The purpose of this testimony is to respond to various claims and assertions made by witnesses representing the Utility Consumers Action Network (UCAN) and the Division of Ratepayer Advocates (DRA) in prepared testimony submitted on August 14, 2006 in the matter of San Diego Gas & Electric's (SDG&E) advanced metering infrastructure (AMI) application, A.05-03-015. My testimony is divided into three sections to address the issues raised by both UCAN and DRA and those that were unique to each party.

II. Joint UCAN and DRA Rebuttal Issues

A. SDG&E's AMI deployment is complementary to its existing and proposed Demand Response (DR) programs by creating greater opportunities across a broader range of customers, contrary to UCAN's and DRA's assertions.

Both UCAN and DRA make assertions in their testimony questioning the costs and benefits of SDG&E's AMI DR programs compared to its existing DR program options. The discussion below demonstrates that the DR programs SDG&E proposes to keep after AMI is installed are actually enhanced by the information and time-differentiated rates that AMI enables. In addition, the new DR programs SDG&E proposes to implement with AMI are fair, comprehensive and effective in delivering DR benefits unavailable with current programs.

Presented below are SDG&E's responses to the program specific comments from UCAN and DRA.

Comverge Program

At page 23 of his testimony, UCAN witness Marcus argues that SDG&E should pursue various energy efficiency programs, such as the Comverge program and other technologies targeted toward air conditioning load and combined heat and power production, before pursuing AMI. Mr. Marcus asserts that these technologies provide savings on 50 to 100 days per year rather than just the 13 CPP program days.

SDG&E does not dispute UCAN's contention that energy efficiency is an important part of reducing peak demand and that air conditioning efficiency is a primary target for peak load reduction. Moreover, SDG&E agrees that energy efficiency is a significant component of an integrated demand side management (IDSM) portfolio. However, what UCAN fails to present is any evidence that SDG&E is reducing its focus on energy efficiency, air conditioning or peak load management with its AMI program. In fact, just the opposite is true. By providing proper, time-differentiated price signals to all customers through AMI, SDG&E is attempting to enhance its energy efficiency, demand response and peak load management programs. Time-differentiated rate structures send a clear economic message to customers that high efficiency concentrated during peak summer hours, results in the highest return on investment. SDG&E's AMI proposal sends that exact message to customers.

UCAN Witness Marcus also claims (page 23)" The Comverge platform provides higher quality savings that can be measured immediately (rather than statistically estimated after the fact) …" To the contrary, Comverge's technology does not have two way communication capabilities, so it is impossible to know if a specific customer was running their A/C at the time the cycling event was triggered.

SDG&E is in the process of installing load monitors on a representative sample of Summer A/C Saver Program participants to monitor actual load reduction and when that installation process is complete, the effectiveness of the program will be "statistically estimated after the fact". However, preliminary data is available from 45 Comverge customers monitored during the July 21st and July 24th events from the current summer. That data indicates that of the participants 24% were not using their air conditioners during either event (potential free-riders), another 22% did not have their air conditioner on during the July 21st event but did during the July 24th event (intermittent responders)

and 20% did not have their air conditioner on during the July 24th event but did during the July 21st event (intermittent responders). The remaining 34% were full participants in the program on both days. While it is true that one measure of the immediate success of the Comverge program is reflected in the enrollment data, the true measure of success lies in the DELIVERY of actual load reductions during program events.

Without AMI, the Comverge program cannot provide "savings that can be measured immediately", as Mr. Marcus contends. SDG&E's AMI infrastructure will be able to provide the higher quality load response measurement that Mr. Marcus and UCAN value.

Despite the limitations of the A/C Cycling technology, SDG&E is assisting Comverge in aggressively promoting the Summer A/C Saver program and will be launching similar technology to cycle pool pumps and electric water heaters as soon as Comverge's equipment is ready for deployment (expected by end of year 2006). This program support is not expected to decline when AMI meters are installed because, as explained in witness George's Rebuttal Testimony (page 20), the Summer A/C Saver program is complementary to the demand response anticipated with SDG&E's proposed PTR program. With both programs in place, all customers are encouraged to turn-off lights and shift their use of appliances under PTR and if they have a central A/C system, they can manually set back their thermostat or automatically reduce their cooling load during critical peak periods using Summer A/C Saver.

In addition, on August, 30, 2006 SDG&E filed proposals aimed at enhancing the Summer A/C Saver program in response to Commissioner Peevey's August 9, 2006 ACR[1] and increasing the rate of participation among both residential and small commercial customers. Specifically, the proposed enhancements include the introduction of additional alternative cycling options (100% for residential, 30% for commercial) to the existing 50% cycling and a weekend participation option to respond to SDG&E's unexpected Saturday system peak in July. Incorporation of water heater and pool pump cycling programs is also discussed for roll-out in 2007. These proposals demonstrate

[1] See SDG&E's August 30, 2006 response to the Assigned Commissioner's Ruling Requiring Utility Proposals To Augment 2007 Demand Response Programs (ACR dated August 9, 2006).

SDG&E's commitment to the Summer A/C Saver program and our confidence that it complements our AMI proposal.

Lastly, UCAN Witness Nahigian testifies that SDG&E is proposing to "significantly reduce the cost effectiveness of its Summer A/C Saver Program" (page 59) with its AMI application. This faulty conclusion is based on erroneous calculations on the relative incentive payments that customers may receive between the Summer A/C Saver Program and PTR. Specifically, Mr. Nahigian assumes a 100% cycling strategy and a seven hour event, and calculates the Summer A/C Saver incentive at $25 for a 2 kW load reduction. SDG&E's program is actually a 50% cycling program, with a maximum of 4 hours per event, which pays $25 for a calculated load reduction of 1 kW or less. The Summer A/C Saver payment is made once per year regardless of whether any DR events are called and regardless of whether the customer is using their A/C during the event. By contrast, PTR would pay $0.65 for each actual kWh reduced during an event and makes no payments if no events are called, or if no measured load reduction occurs. The table below summarizes the relative incentive payments under the two programs given several likely DR event scenarios.

Table MFG 19-1: Summer AC Saver Incentive Options

Number of Events/yr	AC Saver Payment to Customer per kW installed	PTR Payment to Customer per kW reduced
0	$25	$0
5	$25	$13.00
10	$25	$26.00
13	$25	$33.80

It is evident from these numbers that as long as there are fewer than 10 events in a summer, the PTR incentives are actually less than the current Summer A/C Saver

payment. More importantly, PTR incentives would be going only to those customers that actually reduce load rather than to customers who simply sign up for the program but never really use their air conditioners.

PTR Program

DRA Witness Liang-Uejio, states (page 5-3, line 8) "… recently published research shows that the 20/20 program was not cost effective, was expensive, and attracted a much smaller percentage of active participants than policymakers had anticipated.[2] SDG&E's PTR program is likely to face the same problem."

Much of the criticism leveled at the 20/20 program results for 2005 was based on conclusions that the program rewarded customers for energy savings throughout the month rather than just during critical periods, and both targeted and rewarded customers who were not actively trying to save energy, or who may have received benefits without any conscious load reduction efforts (the so-called "free-riders"). These issues are either eliminated or greatly reduced through the structure of PTR.

Specifically, the proposed PTR program is focused entirely on defined on-peak periods, in contrast to the monthly average usage measured in the 2005 20/20 program. This focuses the customer's behavior changes on specific critical peak demand periods rather than on general conservation throughout the day or month. In addition, free riders are greatly reduced because customers must achieve a measured load reduction during a program event in order to receive a bill credit. Under PTR, if no measured load reduction is achieved during the program event, no incentive is paid to the customer.

DRA also argues in its testimony that SDG&E's proposed Peak Time Rebate (PTR) program is not cost effective as a stand alone program, and that SDG&E should perform PAC and TRC cost-effectiveness evaluations on the program in order to evaluate its cost effectiveness. As stated by DRA, "The Commission's guideline for the energy efficiency program (emphasis added) cost-effectiveness evaluation is to use both the Program Administrator Costs (PAC) and Total Resource Costs (TRC) tests." (Witness Liang-Uejio, Chapter 5, page 5-11). UCAN makes similar arguments (pages 119 – 120).

[2] "Evaluation of the California Statewide 20/20 Demand Response Reduction Programs" prepared by Wirtshafter Associates, Inc. on June 6, 2006."

SDG&E does not dispute that an important element of the evaluation of any demand response program is its cost effectiveness (SDG&E envisions that PTR would ultimately fall within the portfolio of SDG&E's demand response programs). SDG&E does not agree with DRA that, at this point in time, an appropriate evaluation of PTR would include the PAC and TRC tests recommended by DRA. As DRA's own testimony acknowledges, the current guidelines for the application of those tests only apply to energy efficiency programs. No such guidelines, or Commission-adopted tests currently exist for demand response programs, nor have the PAC and TRC tests been evaluated for their applicability to demand response programs. Demand response programs are different than energy efficiency programs, have different design parameters, different costs and benefits, and produce different kinds of results. For those reasons, SDG&E believes that it is premature, at best, to apply the PAC and TRC tests to the proposed PTR programs. At worst, applying these tests is likely to produce erroneous and misleading results and conclusions. The Commission and the California Energy Commission (CEC) are pursuing research to develop a methodology to value demand response.[3]

SDG&E notes that in D. 06-03-024, dated March 15, 2006, which approved the Amended Settlement addressing the portfolio of demand response programs for 2006 – 2008, the issue of cost effectiveness was a topic of discussion. The settling parties agreed and recommended that the issue of cost effectiveness evaluation of demand response programs be deferred, and D. 06-03-024 agreed.[4] Until such time as the parties and the Commission have fully explored the issues surrounding the cost effectiveness evaluation of demand response programs, and the Commission has adopted protocols for the application of such tests, SDG&E believes that it is simply premature to apply the tests as DRA has suggested, or to rely on the results of any such tests as accurate measures of the proposed PTR.

[3] Specifically, the CPUC and through the electric IOUs (SCE, PG&E and SDG&E) are funding research Demand Response Research Council, Public Interest Energy Research Programs and California Energy Commission. Summit Blue completed a report in March 2006 "Development of a Comprehensive/Integrated DR Value Framework" under Contract #500-03-026 and LBNL subcontract #6803562 for the DRRC, CEC and PIER.

[4] See D. 06-03-024, mimeo, at page 20.

HVAC Programs

UCAN witness Marcus states that SDG&E should include HVAC efficiency as an integrated part of its peak demand solution and that SDG&E should focus on "a significant ramp-up of this program (its quality HVAC installation program) in conjunction with market-transforming cash rebates to promote even higher efficiency equipment, should be at the top of SDG&E's priority list – above meters that only save peak energy for a few days per year." (page 24) SDG&E believes that energy efficiency programs implemented in conjunction with AMI is a much more effective method of changing customer behavior than either initiative on its own.

Energy efficiency programs provide customers with financial incentives at the time of purchase to maximize efficiency. Time-differentiated rates, enabled by AMI, provide on-going incentives to properly operate and maintain the high efficiency equipment throughout their useful life.

In order to achieve this integrated approach, SDG&E is contracting with two different third party vendors to implement both upstream and midstream HVAC program strategies.

The first program is marketed upstream to HVAC & Motor equipment manufacturers, distributors and dealers. The program ensures that high efficiency HVAC equipment and motors are stocked and available to SDG&E customers. The program also provides incentives to trained HVAC contractors for the quality installation of high efficiency HVAC equipment that exceed the requirements of Title 24 or Title 20 of the California Code of Regulations: California's Energy Efficiency Standards for Residential and Nonresidential Buildings for eligible residential and commercial Customers, respectively.

The second program achieves energy and peak demand savings through improved maintenance, installation and commissioning of packaged unitary HVAC systems in the commercial and residential markets. The program will provide incentives to participating/trained HVAC contractors to perform air conditioner maintenance and duct testing and sealing services. The program will target commercial HVAC market sectors such as small commercial buildings and owner operators of multi-site facilities, and includes residential customers as well.

Pool Pump Program

Mr. Marcus claims that "SDG&E should take immediate steps to see that at least new if not existing residential swimming pools are equipped with load control devices…" (page 24). In July 2006, SDG&E launched a campaign targeted at single-family homes with swimming pools, offering a cash incentive to reset swimming pool filtration time clocks to off-peak hours and reduce the daily filtration by two hours. Customers who are currently filtering their in-ground swimming pool for at least two hours during the highest electricity demand times (12:00 PM to 6:00 PM), may be eligible for a one-time $25 cash incentive. Over 84,000 homes with pools in SDG&E's service territory were targeted under this initial campaign. In conjunction with this effort, SDG&E is providing rebates for energy efficient single and two speed pool pumps. The following rebates are currently being offered for the purchase and installation of energy efficient pump and motor:

1) Single Speed - $30.00 rebate

2) Two speed with automatic controller - $250.00 rebate

In addition, as referenced above, Comverge will be launching their pool pump and electric water heater cycling program later this year which is expected to provide even more demand response opportunities from this customer segment.

Integrated Demand Side Management

In total, SDG&E's AMI proposal is designed to provide complementary rates, data and communications to enhance our aggressive Demand Response and Energy Efficiency programs for all customer segments. UCANs' assertions that SDG&E should focus on "low hanging fruit" (UCAN, pp 22-24) fails to recognize that the State of California and the Public Utilities Commission have already designated energy efficiency as the first priority or resource in the Energy Action Plan's loading order with an objective of implementing all cost effective energy efficiency and demand reduction efforts, not just "low hanging fruit". Moreover, as shown in Witness George's table SSG-6-4, SDG&E's on-peak bundled load for the top 13 days is composed of 43%

residential load and 15% small commercial load. Apparently, UCAN would recommend that SDG&E ignore demand response opportunities from this combined 58% of its load.

Contrary to UCAN's apparent recommendation, the CPUC has already authorized and funded SDG&E's Summer A/C Saver program (Comverge), 3rd party HVAC programs and pool pump energy efficiency programs at very aggressive levels and targeted at the very customers UCAN would have SDG&E ignore.

SDG&E's AMI proposal fully integrates with those aggressive programs by providing long-term rate incentives for customers to efficiently maintain and operate the equipment once it is installed.

B. The magnitude and acceptability of avoided demand response benefits from AMI are accurately portrayed and appropriately included in SDG&E's AMI case, contrary to UCAN's and DRA's assertions.

UCAN and DRA challenge SDG&E's inclusion of avoided demand response programs costs as an AMI benefit for several reasons. They argue that the programs are not cost effective, that the assumed participation rate in the DR programs is overstated, that the Commission did not recognize avoided demand response programs as an AMI benefit and that SDG&E's calculation of avoided costs should be reduced to reflect actual historical expenditures. Each of these claims is addressed in the discussion below.

Cost Effectiveness

UCAN claims that some of SDG&E's existing demand response programs proposed to be scaled back or eliminated with the implementation of AMI are not cost effective and should be eliminated independent of AMI. Since there is currently no CPUC-adopted cost effectiveness methodology for the evaluation of demand response programs, SDG&E is at a loss to understand what reference UCAN is using to draw their conclusions. Moreover, the Commission most recently approved SDG&E's existing Demand Response program portfolio and associated budgets for the 2006 – 2008 program cycle by D. 06-03-024, dated March 15, 2006. Adopting the Settlement Agreement, and addressing the issue of cost effectiveness, D. 06-03-024 notes at page 13: "The parties agree that a number of different methodologies could be used to evaluate the

cost-effectiveness of demand response programs, that the adoption of demand response cost-benefit models should be deferred to another proceeding or another phase of this proceeding;"

DRA claims that the proposed PTR program is comparable to the statewide 20/20 program and therefore likely to be not cost effective. As stated above in Section II A., PTR is significantly different than the 2005 statewide 20/20 program and is designed specifically to avoid the significant problems identified with that program.

Program Participation Rates

DRA recommends reducing the participation rate for residential customers to compensate for "structural non-participants" who "will have no incentive to reduce load …" (Witness Liang-Uejio, Chapter 5 page 5-5. DRA's argument is largely based on the fact that under a non-adjusted 5-day baseline, 31% of customers will have baselines 15% lower than their actual usage. Under the 5-day adjusted per event baseline recommended by SDG&E subsequently in this testimony (see Section II. C. below, at page MFG-18) only 14% of customers have average error greater than 0.2 kW.

However, even with this lower percentage, SDG&E disagrees with DRA's assertion that none of the customers in this segment will be able to participate in the PTR program. Some of these customers may have an accurate baseline for one month and an inaccurate baseline for another month. Accordingly, these customers will still be able to receive a PTR payment some months and, therefore, will have a tangible incentive to participate in PTR. Additionally, residential customers in this segment have high use appliances such as air-conditioners and pool pumps and are capable of reducing large amounts of load, both on an absolute and a percentage basis and, thus, can still earn a PTR credit, even with a lower baseline.

Finally, DRA fails to account for any offsetting increases in responsiveness that could occur from customers who receive a higher PTR payment due to a positive baseline error. Identifying specific negative errors without recognizing potentially offsetting errors associated with a baseline provides a distorted view of the potential PTR benefits. SDG&E believes the 70% participation rate for residential customers is an accurate representation of what can be expected upon implementation.

Moreover, SDG&E strongly believes that there is considerable opportunity for increased PTR participation beyond the 70% estimate through community support marketing efforts (contributing rebates to schools or charities, participating in PTR to avoid additional power plant construction and other environmental benefits) rather than strictly focusing on monetary benefits. These opportunities are not quantified in this filing but have been demonstrated in other community-based programs, such as California's recycling campaign ("it's good for the can, it's good for the bottle") and Flex Your Power.

UCAN claims that SDG&E's forecasts indicate "that it would achieve more demand response from its demand response programs…by 2008 than its entire AMI deployment will achieve over the next 30 years." (page 38) In addition, UCAN claims that SDG&E's 2008 program budget is $15.9 million while the AMI costs to achieve 7 MW less in demand response in 2038 (384 MW in 2008 with existing programs, 377 MW in 2038 with AMI) for a cost of $741 million (NPV). UCAN's claims are a complete distortion of the facts.

The 2008 program goals quoted by UCAN include all of SDG&E's current demand response programs (including interruptible programs), even though less than one third (114 MW of day-ahead programs) are anticipated to be scaled back or eliminated because of AMI. As a result, with the broad application of DR programs enabled by AMI, SDG&E forecasts an increase of 263 MW of demand response, not the 7 MW decrease claimed by Mr. Marcus.

More importantly, Mr. Marcus compares the <u>one year</u> cost of the existing DR programs ($15.9 million) with the NPV of <u>30 years</u> of AMI costs ($741 million). This is obviously a ridiculous comparison. To make a fair comparison, one would have to first adjust the 2008 program budget to reflect only the programs being eliminated and continue those annual costs for 30 years. Next, the AMI costs would need to be reduced to only reflect those costs associated with DR benefits (net of operational benefits O&M and capital, theft benefits, and deferred T&D capital). At that point, the avoided DR

program costs over the 30 year life of AMI could appropriately be compared to the predicted AMI DR benefits and costs. The correct comparison is shown below.[5]

NPV in $2006 for avoided DR programs = $97.6 million for 114 MW = $85/MW

NPV in $2006 for AMI DR costs = $299.4 million for 377 MW = $79/MW

The correct comparison clearly shows that the cost to achieve DR with AMI is less on a per unit basis than the cost under the current DR programs and also results in far greater demand response, resulting from the broader participating customer base.

Not a Recognized AMI Benefit

UCAN argues, at pages 34 – 35 of its testimony, that the Commission must reject SDG&E's calculation of avoided demand response programs costs as an AMI benefit, on the basis that "…This alleged benefit was never discussed within WG 3 subcommittee tasked with developing the framework for AMI business case analysis and therefore, was never adopted (or even considered) by the Commission in the July 21, 2004 ACR." UCAN further argues that because PG&E never proposed, or the Commission never considered avoided demand response programs costs as an AMI benefit in issuing D. 06-07-027, SDG&E should somehow not be permitted to include this benefit in its AMI business case. UCAN supports its argument with a statement that "…the Commission should not allow SDG&E to make up as it goes and claim benefits that simply to not exist or are not connected to the proposal to deploy advanced meters."

UCAN's claim that SDG&E has created a phantom category of AMI benefits, and that those benefits either do not exist or are somehow not connected with the deployment of AMI is unsupported by the pure language of the July 21, 2004 ACR that it cites, is extremely short sighted, and simply ignores the evidence that SDG&E has presented in its business case.

First, a reading of the language in the July 21, 2004 ACR[6] indicates that the Commission did not simply take the discussions of Working Group 3 and the resulting

[5] All values obtained from Scot Kyle's Direct Testimony, Chapter 13, pg SC-14

[6] Administrative Law Judge And Assigned Commissioner's Ruling Adopting A Business Case Analysis Framework For Advanced Metering Infrastructure, in R. 02-06-001, dated July 21, 2004.

Staff Report at face value, or as the final directive for the development of the AMI business case analysis. As the ACR plainly states, at page 2:

> "The Staff Report is highly detailed, and lays out a number of scenarios, different assumptions to he analyzed and considered within scenarios, and the rationale behind the various recommendations. *After reviewing the report and the comments thereto, we have prepared a revised document (attached) that lays out the requirements for the utility AMI applications*." (emphasis added)

In addition, in Attachment A of the ACR, at page 1, the ALJ and Assigned Commissioner note that "The following sections (of the ACR Attachment) lay out the minimum requirements for successfully completing the preliminary benefit cost analysis of AMI…".

Taking the above provisions of the ACR, and, perhaps just as importantly, applying common sense to the business case analysis framework, SDG&E strongly disagrees with UCAN's argument that the avoided demand response programs costs be excluded from the business case, and disagrees with UCAN's contention that SDG&E has somehow abused the business case analysis process by making up as it goes a phantom category of AMI benefits. The avoided demand response benefits are real and therefore should be included in the AMI business case. More importantly, in 2004, when the ACR was issued, the costs of demand response programs were not of the same magnitude as for today's programs. No one disputes that AMI-enabled demand response (e.g., CPP and PTR) will effectively reduce or eliminate many of the current demand response programs.

Recorded Program Expenditures

Both DRA (at pages 5-16 and 5-17) and UCAN (at pages 36 - 37) discuss SDG&E's historical expenditures on its demand response programs, and argue that because the results show that SDG&E has historically under-spent its authorized demand response programs budgets, the value of SDG&E's calculated avoided demand response programs costs is overstated and requires an adjustment.

SDG&E believes that under-spending in the past is not an indication of what is likely to occur in the future for several reasons. First, since DR programs are relatively

new as a utility offering, it is not unreasonable to expect that historical customer participation is significantly lower than it will be in future years. Customers are still learning about DR programs, how they can benefit from them and what operational and equipment changes are needed to take advantage of them. Even the State of California recognizes that demand response is in its early stages of development. The Energy Action Plan II, signed less than one year ago in October 2005 by the CPUC and the CEC, stated:

> " California is in the *process* (emphasis added) of transforming its electric utility distribution network from a system using 1960's era technology to an intelligent, integrated network enabled by modern information and control system technologies. This transformation can decrease the costs of operating and maintaining the electrical system, while also proving customers with accurate information of well-designed dynamic pricing tariffs and demand response programs for *all customer classes*, (emphasis added) California can lower consumer costs and increase electricity system reliability. To achieve this transformation, state agencies will ensure that appropriate, cost-effective technologies are chosen, emphasize public education regarding the benefits of such technologies, and develop tariffs and programs that result in cost effective savings and inducements for customers to achieve those savings."

SDG&E agrees with the CPUC that DR is part of the ongoing "process of transformation" and to assume they are even close to maturity in implementation and costs simply does not accurately reflect that fact.

Second, the 2005 programs are not representative of future DR programs. SDG&E regularly modifies its programs based on market experience and customer feedback. In fact, in 2006 SDG&E has already submitted three advice letters[7] to modify nine of its DR programs (Peak Day 20/20, Capacity Bidding, Demand Bidding, Demand Bidding – Emergency, Base Interruptible, Critical Peak Pricing, Technical Assistance/Technology Incentives, Summer Saver) to increase incentives, reduce penalties, modify participation requirements and create entirely new programs. Each of these changes is intended to create more attractive programs for various customer segments and ultimately to increase participation and as a result spending.

[7] Advice Letter 1799-E, filed June 1, 2006, Proposed Capacity Bidding Program (CBP); Advice Letter 1811-E, filed July 27, 2006, Emergency Filing for Expedited Approval to Revise SDG&E's Schedule 20/20-TOU (Commercial & Industrial Peak Day 20/20 Program): San Diego Gas & Electric Company Proposal to Augment 2007 Demand Response Programs submitted August 31, 2006

The CPUC also recognized the need for and likelihood of change in program design in its recent approval of SDG&E's DR programs (D. 06-03-024, March 15, 2006, page 6) where it stated "Many demand response programs are somewhat experimental in nature and may require change over the course of the funding cycle in order to make them more responsive to customer requirements and more efficient from the standpoint of net cost. We expect to hear from the parties and the utilities over the course of the funding if the programs we adopt today are not successful or cost-effective so that they may be modified or eliminated in favor of better programs." SDG&E has followed that guidance with its recent proposed program adjustments and expects to continue refinement of the programs to increase their size and effectiveness. Again, UCAN and DRA are not reflecting reality when they assume historical DR participation and costs will represent the future state.

Third, the CPUC is committed to creating substantial and reliable sources of DR resources as evidenced by the August 9, Assigned Commissioner's Ruling Requiring Utility Proposals to Augment 2007 Demand Response Programs with its objective to "make the most of existing opportunities to protect the state's electrical system from compromises to its reliability…". With increasing expectations from the CPUC, program expenses will rise accordingly.

Finally, 2005 was not a representative year for DR events. Table 2 presents the history of program events for the period of 2001 through July, 2006. It is clear that the number of program events in 2005 was less than what has occurred so far in 2006 and far less than the design parameters for each program. SDG&E's budgets supporting its authorized demand response programs are prepared based on the design parameters of each program, and include an explicit assumption that the programs will be called and will operate at their design parameters. Most of the programs contain provisions that specify the maximum number of program events that can be called during a week, month or season, as well as the maximum duration of each program event. These program limitations have been designed to reflect coverage from the programs, as a resource, during the top 100 peak hours of the year. The combination of increasing customer participation in DR programs and the likely increase in DR events above the '05 level

will have a compounding effect on actual program expenditures resulting in rapid increases over historical levels.

Table MFG 19-2: Historical DR Program Event Summary

Program Name	2001	2002	2003	2004	2005	2006	Program Totals (2001-2006)
AV-1(Currently AL-TOU-CP)	1	1	0	0	0	0	2
AL-TOU-CP	see above	see above	4	6	4	8	22
Critical Peak Pricing	0	0	4	6	5	9	24
Critical Peak Pricing - Emergency	0	0	0	0	0	2	2
Demand Bidding Program	0	0	0	4	12	3	19
CPA -Demand Reserves Partnership	0	0	0	0	6	7	13
C&I - 20/20	0	0	0	0	4	9	13
Base Interruptible Program	0	0	0	0	0	1	1
Smart Thermostat	0	1	0	1	0	6	8
Summer AC Saver	0	0	0	0	0	6	6

In total, the DR program costs can reasonably be expected to climb to the current budget and quite possibly beyond due to growing market acceptance, enhanced program marketability and aggressive CPUC DR goals. Reducing the AMI avoided DR program costs below current allocated budgets would not accurately reflect these hard trends.

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C. Acceptable baselines are available for use in the PTR program that result in appropriate price signals to customers contrary to UCAN's and DRA's assertions.

Both UCAN and DRA challenge the effectiveness of SDG&E's proposed PTR program, arguing that "The major problem with the PTR approach is defining the 'PTR Baseline'" (DRA testimony, page 5-5). UCAN discusses a number of issues related to the baseline—UCAN uses the term "reference level" in place of baseline, due to other connotations of that term with respect to tariffs—at pages 69 – 79 of its testimony). DRA provides, at pages 5-5 through 5-8 of its testimony, a discussion of the issues surrounding the baseline determination, and offers several alternative suggestions for consideration. DRA stops short, however, of making a specific recommendation for a baseline determination.

SDG&E concurs with DRA that the establishment of the proper baseline in the ultimate design of the PTR program is a key consideration. DRA has identified several possible approaches to establishing a baseline that SDG&E believes are worthy of further consideration. SDG&E also notes that, of the many possible baseline approaches, none is likely to be completely free of the bias factors that both DRA and UCAN have identified. However, similar bias factors (i.e. free riders, structural benefitors, savings measurement error, customer operational variations) are inherent in all Demand Response and Energy Efficiency programs adopted by the CPUC. That is exactly the reason measurement and evaluation studies are conducted and why energy savings estimations are developed, reviewed and approved for each program. However, these inherent errors are not viewed as mandatory conditions to disqualify a program.

Similarly with the PTR program, SDG&E believes that numerous, credible baselines have been analyzed which can indeed be implemented with PTR and appropriately measure the load reductions and corresponding energy savings and customer incentive payments within acceptable error boundaries. However, similar to the issues discussed above regarding cost effectiveness evaluation of demand response programs, the issue of the determination of the proper baseline for these programs is an ongoing subject that the Commission and interested parties are addressing. SDG&E expects to fully participate in that process, and ultimately to receive direction from the

Commission regarding the establishment of the appropriate baselines for its demand response programs, including PTR. Further, SDG&E believes that it is just as important that the baseline issue be addressed in the broader context of ALL demand response programs, and not in the limited context of the proposed PTR program in this proceeding.

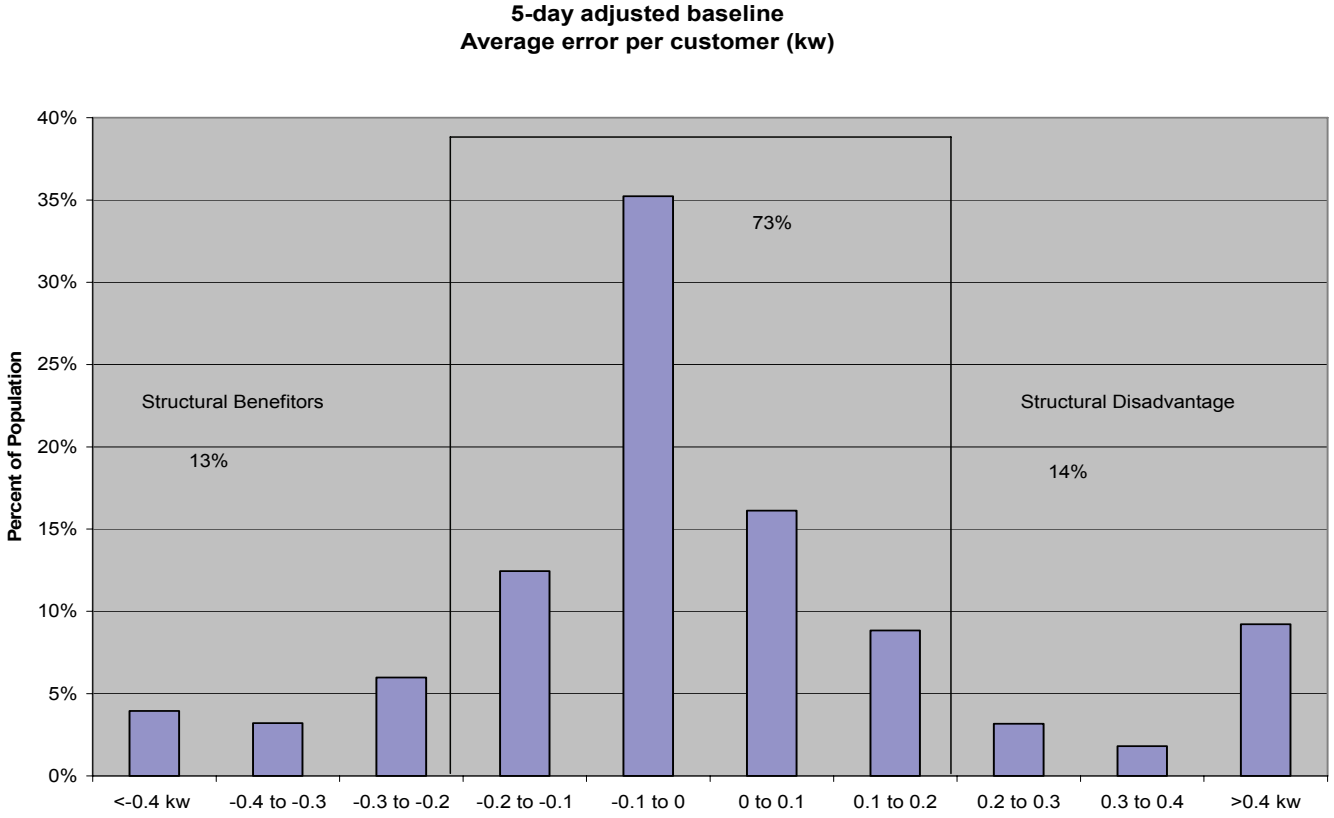
Although SDG&E maintains that this is not the correct proceeding to determine all the details of the baseline of the PTR program, since the PTR is a new concept, it is important to demonstrate that a viable baseline exists for the program. SDG&E performed a preliminary analysis looking at several potential baselines for the PTR program and these results were presented in the response to DRA's data request #20. One of the baselines presented in SDG&E's response to this data request was the 5-day baseline adjusted per event. This baseline is not easily gamed by customers, minimizes structural benefitors and has low average errors per customer. At this time SDG&E recommends this type of baseline for the PTR program but reserves the right to adjust the baseline in accordance with further baseline research and the development of demand response cost-effectiveness standards. The main purpose of the description of the baseline here is to demonstrate that a viable baseline exists and the PTR program concept is workable.

The 5-day baseline adjusted per event is a customer-specific baseline that consists of the average of the previous 5 weekday non-event days for each customer increased by a factor which is the same for every customer but varies for each PTR event. The factor is calculated by taking the total residential semi-peak usage during the event-day and dividing it by the total residential semi-peak usage during the baseline days. For example, on a hot PTR event the factor could be 1.24, and for a cooler event the factor might be 1.03. Varying the factor by event improves the accuracy of the baseline on the warmest event days, without unnecessarily increasing the baseline on cooler PTR days.

The overall average error of this baseline is .05 kW which is nearly unbiased. Average error is not the only important criteria for a baseline, it is also important that a large percentage of customers have errors which are close to zero. With this baseline 73% of customers have an average hourly error less than 0.2 kW, the amount of energy needed to run two 100 watt light bulbs. Thirteen percent of customers have an average error of greater than -0.2 kW which means these customers will benefit financially from

having a baseline higher than their actual usage and 14% have an average error greater than +0.2 kW which puts these customer at a financial disadvantage. A histogram showing the distribution of the individual customer error is shown in Figure MFG 19-1.

Figure MFG 19-1



Another concern raised by DRA and UCAN about the baselines is the issue of structural benefitors. All dynamic rates and demand response programs have structural benefitors. The PTR program was specifically designed to minimize the amount of money paid to structural benefitors by using customer specific baselines rather than average load shapes. The preliminary estimates of the amount of money paid to structural benefitors using the 5-day per event baseline is $5.2 million. The calculation of the money paid to structural benefitors assumes that PTR payments are made by summing all the baselines within a month, summing the on-peak usage for each event within the

month, subtracting these two quantities and then multiplying the result by the 65 cent rebate. This is a more accurate method of calculating load reduction than subtracting the on-peak usage and baseline usage for each event and adding up the kWh for all the events in which the on-peak is lower than the baseline. The monthly versus the per-event approach reduces baseline error because small errors in the baseline are averaged out over the month. The amount paid to structural benefitors by this method is approximately 0.4 % of SDG&E's residential $1.2 billion revenue requirement. Considering that this is a demand response program which will enable all of SDG&E's 1.3 million residential customers to participate this is a relatively low level of payments to structural benefitors. Additionally, as both DRA and UCAN have pointed out in their testimony, the money paid to structural benefitors is not a true cost, it is a transfer payment.

Two other points mentioned in DRA's testimony need further attention - bias against large customers and non-participants. DRA claims that customers with large on-peak usage will be unable to participate in the PTR program because the baselines are biased against higher use customers. There is a small bias against larger customers in the baseline; 76% of customers with monthly usage above 1000 kWh have a baseline error of less than 15% whereas 90% of customers with monthly usage below 400 kWh have a baseline error less than 15%. This is a concern, but the majority of large users are able to save with the current baseline, and this minor issue could likely be addressed with some minor adjustment to the baseline by allowing the baseline factors to vary by tier.

The other point mentioned by DRA is their concern about their so called "non-participants". DRA claims in chapter 5 of their testimony that 31% of customers are non-participants due to baseline errors and uses this number to lower the participation rates for the PTR program. Their argument is largely based on the fact that under a non-adjusted 5-day baseline 31% of customers will have baselines 15% lower than their actual usage. Under a 5-day adjusted per event baseline only 16% of customers fall in this category. However, SDG&E disputes DRA's assertion that none of these customers will be able to participate. Some of these customers may have a reasonable baseline for one month and an inaccurate baseline for another month. Some customers with high use appliances such as air-conditioners and pool pumps are capable of reducing large

amounts of load, both on an absolute and a percent basis and can still earn a PTR credit, even with a low baseline. Finally, DRA's argument fails to account for any increase in participation that might occur for customers who receive a higher PTR payment due to a baseline error.

The relevant point regarding baseline for this proceeding is that an appropriate baseline for the PTR program exists. The proposed program is not flawed, nor should it be rejected outright because the final baseline is still open for refinement. The work that SDG&E has done in this proceeding makes use of a baseline calculation, for illustrative purposes, that demonstrates that the PTR program can be designed in such a fashion that it will produce the expected demand response, consistent with the evaluative findings of demand response impacts discussed by witness Dr. George.

III. UCAN Specific Issues

A. The Demand Response benefits for > 200 kW customers are appropriate to include in the AMI case contrary to UCAN's assertion.

UCAN asserts that the demand response benefits for customers > 200 kW must be excluded from the AMI proceeding because "these customers already have interval meters… regardless of whether SDG&E deploys or does not deploy AMI." (Pages 55 – 56) This assertion is incorrect because, as stated in Witness Fong's Rebuttal Testimony, the existing interval meter communication system is not capable of delivering the large volume of data required when all of these customers are on CPP rates. Witness Fong addresses the benefits for the greater than 200 kW customers in Chapter 17.

B. SDG&E can provide payments for partial kWh saved by customers under the PTR program contrary to UCAN's assertion.

UCAN refers to SDG&E's response to UCAN Data Request #4, Question 23 that "SDG&E's billing system is not capable of processing fractional kWh measurements into either billing amounts or PTR rebate amounts." and claims that "If SDG&E cannot credit fractions of kWh saved, the majority of customers will receive no PTR credits and will not even attempt to participate in the program." (Page 79) Despite the fact that this claim is inconsistent with data that shows relatively simple actions by customers can save

far more than 1 kWh per event (Witness George's table 1, Savings From Possible Actions Taken By Consumers), SDG&E's billing system is capable of rounding fractions of kWh to whole numbers and providing rebates based on the rounded figure. Therefore, any reduction of .5 kWh or more will receive a rebate. Also, if it is decided that any fraction of kWh saved by a customer should be rewarded, the billing system can be programmed to round any fraction of kWh up to the nearest whole number for calculating rebates. SDG&E does not propose this rounding approach but offers the example to demonstrate the capabilities of the system.

IV. DRA Specific Issues

A. The CPUC is likely to implement TOU rates for small customers and CPP rates for large customers with the implementation of AMI contrary to DRA's assertion:

DRA asserts that "it is unreasonable to assume that the Commission will impose a mandatory TOU rate on these customers" (<20 kW) (Liang-Uejio, page 5-14, line 1) and "There is no evidence indicating that the Commission will eliminate the current TOU rates and make CPP mandatory" (Liang-Uejio, page 5-14, line 18). On the contrary, as discussed in Witness Fong's rebuttal testimony (Chapter 17), the Commission has provided clear direction to the utilities to propose in other proceedings time-differentiated rates and to align these rates with the cost of service.

B. DRA and SDG&E are in agreement that there should be greater use of Programmable Controllable Thermostats (PCTs) in the future

DRA witness Quiroz concludes that although performance specifications for PCTs are still under development by the California Energy Commission, they have the potential to attract increased participation in DR programs and greater response to those programs. (DRA Chapter 9) SDG&E is in complete agreement. We view PCTs as valuable tools to achieve demand response within the small and medium commercial segment today due to their high cooling loads and valuable in the future for residential customers once standards are complete, mass production begins and prices fall. SDG&E

intends to take every advantage of this technology as it develops and believes AMI is ideally suited to facilitate PCTs by enabling time dependent rates for all customers.

This concludes my rebuttal testimony.