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

ERRATA TO

Chapter 23

Prepared Rebuttal Testimony

of

DR. STEPHEN S. GEORGE

ON BEHALF OF

SAN DIEGO GAS & ELECTRIC COMPANY

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

SEPTEMBER 7, 2006

Revised: SEPTEMBER 19, 2006

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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. This testimony is organized as follows.

Section II addresses various claims by UCAN that it is inappropriate to use price elasticities developed through California's Statewide Pricing Pilot (SPP) to predict the impact of SDG&E's proposed Peak Time Rebate (PTR) program. This section also addresses UCAN's claim that, even if the SPP elasticities were valid, they represent short-run impacts that would not be sustained over time. DRA makes a similar claim, although couched more in terms of dwindling participation rates rather than falling elasticities. Finally, we address UCAN's claim that SDG&E should not have used the price elasticities representing the inner summer months in the SPP experiment but, instead, should have used elasticities representing the entire summer period. Section III addresses UCAN's claim that SDG&E double counted savings from the PTR and the A/C Saver Program. In Section IV, we address DRA's claim that we have overstated participation rates in the medium and large C&I sectors.

II. We Disagree with UCAN's Claim that the SPP Elasticities should not be used to estimate PTR Benefits

UCAN makes a variety of claims and assertions challenging the appropriateness of using the SPP elasticities to predict impacts for SDG&E's PTR program. Specifically, UCAN claims:

- It is inappropriate to use either the SPP elasticities or impact estimates from the Anaheim Public Utility Spare the Power Days rebate program to predict impacts for SDG&E's proposed PTR program because both the SPP and APU programs are

based on an affirmative, opt-in decision by participants and therefore are not representative of the general population of customers to which the PTR program applies. (UCAN, Chapter 3, Sections A and B3)

- People respond differently to carrot-stick incentives such as a critical peak pricing tariff than they do to a carrot-only incentive such as a peak time rebate and, therefore, the SPP elasticities will over estimate demand-response associated with the PTR rebate program even if it offers the same marginal price incentive as a CPP tariff. (UCAN, Chapter 3, Section B3)

- Even if the SPP elasticities accurately represented demand-response for PTR participants in the short run, customers will not continue to provide the same reduction in energy use on critical days because the savings are so small that customers will loose interest over time and cease to respond to the rebate offer. (UCAN, Chapter 3, Section B5)

- Even if the SPP elasticities were appropriate for predicting demand response for a PTR program, SDG&E over estimated reductions by using SPP elasticities representing the inner summer months of July, August and September rather than all six summer months included in the SPP. (UCAN, Chapter 3, Section B4)

As shown below, UCAN's analysis and/or evidence in support of each claim is misleading, incorrect or both.

IIa. UCAN's Claim That the SPP and APU Populations Are Biased Is Unproven

Starting on page 66, UCAN challenges the appropriateness of the SPP population with the following claims and assertions:

> "One critical error not recognized in SDG&E's logic is that participants in the SPP were enrolled in the program. They do not represent the average customer of the SDG&E proposed PTR program who has not been asked to participate in the demand response program, has not consented, and who has not enrolled. It must be remembered that the SPP program participants were a select group, and represent customers who have *opted in* to a demand response program, not the population at large. For the SPP 8,679 enrollment packages were mailed out promising a fairly lucrative $175 participation payment, followed up by phone calls, to enroll 1,741 participants (1 out of 5). Even ignoring the SPP appreciation payment, the SPP participants only therefore represent the behavior of 20% of the general population—i.e. the fraction that is interested in participating in demand response activity. While it might be argued that SPP elasticities can mirror the response by customers who have been enrolled in a similar demand response program and consent to the goals and activities required by the program, it is completely erroneous to expect that the SPP behavior will predict actions from the general population, 80% of which rejected participation completely even when offered the opportunity to earn $175."

The above paragraph not only distorts the facts and draws inaccurate and misleading conclusions, it also ignores evidence to the contrary that is known to UCAN's witness.

In asserting that the SPP participants do not represent the population at large, UCAN's witness, Ms. Schilberg, in spite of being on the evaluation advisory committee to the SPP, ignores the empirical analysis that was done as part of the SPP evaluation showing that there was no statistically significant difference in daily energy use between program participants and the population at large. This evidence, which was produced by Southern California Edison, is presented in Appendix A to this testimony. The statistical tests were conducted by climate zone, dwelling type, and usage level and, in all cases, no statistically significant difference was found.

UCAN's witness also ignored the fact that the methodology used to develop the price elasticities from the SPP utilized both a control group and pretreatment data (i.e., data on treatment customers prior to the treatment going into effect) to control for any significant differences between treatment and control customers. The control group consisted of a random sample of customers representing the population at large and was not subject to any self-selection or "opt-in" bias.

UCAN claims (starting on page 66) that the fact that only 1,741 people agreed to participate in the SPP out of a sample of 8,679 who were mailed enrollment packages means that 80 percent of customers rejected participation (and therefore the 20 percent who agreed must somehow be different). Details about the 80 percent of customers who, according to UCAN, rejected participation indicate that this claim is both inaccurate and misleading.

First of all, the numbers quoted by UCAN regarding the number of enrollment packages mailed and the number of participants represent the entire range of SPP treatments. These numbers include not only the residential CPP-F treatment that was recruited from the general population, which is the only treatment group that is relevant to our analysis, but also the residential CPP-F treatment from the special Track B experiment that applied to a very targeted low income population that was not at all representative of the general population, the TOU treatment, the residential CPP-V

(Track A and Track C) treatment, the information only treatment, and even the C&I TOU and CPP-V (Track A and Track C) treatments. That is, UCAN used numbers representing many more customers that are not relevant to the analysis than customers that are relevant. The correct values for the residential CPP-F treatment are 2,966 enrollment packages mailed out and 610 participants enrolled.[1] Thus, based on UCAN's definition of rejection, the rejection rate is still roughly 80 percent (79.4 percent precisely), although this estimate is based on a very different underlying set of numbers.

However, UCAN's definition of enrollment and rejection is very misleading, as explained below. Participation in the SPP required an affirmative agreement from customers, so all participants who did not respond to the enrollment package by mailing in an agreement card had to be reached via telephone to obtain their agreement. Very few people responded to the initial solicitation. However, this was not, as UCAN would have you believe, because the offer was something they understood clearly and thought was a bad idea. The following excerpt from a study that was conducted by Focus Pointe[2] to better understand the reasons for the low acceptance rate in the SPP, a study that UCAN's witness quotes in her testimony (and was therefore obviously familiar with), indicates that the primary reasons why customers did not respond to the mail solicitation were low readership, lack of clarity and lack of persuasiveness. As summarized on page 6 of the Focus Pointe study,

> "From a marketing standpoint, the printed materials were quite ineffective. Respondents found them neither engaging nor persuasive. The materials made scant reference to any benefit—direct or indirect—that the customer might gain by participating, nor did they leave readers feeling they fully understood the program. Readership appeared to have been unusually low."

In other words, most people ignored the solicitation package and those that actually read it were either confused by it or, due to a poor sales job, not persuaded that there was much if any benefit that they could see. Classifying all (or even many) of these customers as people who carefully considered and then rejected the offer of participation is clearly inappropriate.

[1] Monthly Report on Statewide Pricing Pilot to California Public Utilities Commission and California Energy Commission. Report for Period Ending January 31, 2004.
[2] Focus Pointe, Inc. *Statewide Pricing Pilot: Enrollment Refusal Follow-Up Research*. November 2003.

However, this is not even the clearest example of the misleading information provided by UCAN's witness in characterizing the SPP rejection rate as 80 percent. UCAN not only included people who clearly ignored or were confused by the poor marketing material, but also people who, for various reasons, were rejected by the utilities (e.g., customers that were not eligible to participate because they were planning to move within six months, their account had recently been closed, or because a meter could not be installed on the premise). 343 customers, or 11.6 percent of those who were mailed enrollment packages, fell into this category. And UCAN knew this, as indicated in the response to SDG&E data request Number 2, Question 16, where UCAN states, "For residential customers solicited for CPP-F, as of the end of January 2004 52% of the 4303 customers solicited could not be reached by phone, 19% enrolled in the SPP, 15% refused, and 11% were rejected by the utility." In other words, UCAN knowingly classified 343 customers as ones who rejected the offer to participate but that, in fact, were actually rejected by the utilities.

In addition, in estimating rejection rates, UCAN incorrectly included the Track B, low-income, specialized population participants in the calculation.[3] The correct numbers for the CPP-F treatment that are relevant to our analysis are 2,966 enrollment packages mailed, 1,518 customers (51.2 percent) that could not be reached by phone, 343 customers (11.6 percent) that were rejected by the utilities, 495 customers (16.7 percent) that refused to participate, and 610 customers (20.6 percent) that enrolled. Using this data, a much less biased definition of rejection is 34 percent (495/(2,966 – 1,518). Put yet another way, of those who were reached and who were not rejected by the utilities, 2 out of 3 agreed to participate in the experiment. As such, it is much more likely that the customers who did participate are reasonably representative of the population as a whole, or at least those who are likely to respond to the PTR rebate offer, than UCAN's witness would have one believe.

[3] Even if one were to argue that these customers should be included because they are part of the general population, the representation of this population in the state is very small and, therefore, a properly weighted average of their responses and those of the general population of CPP-F treatment customers would be very close to that of the CPP-F participants alone.

UCAN also assumes that participants in the SPP must be different from the general population with the following claim: "Even ignoring the SPP appreciation payment, the SPP participants only therefore represent the behavior of 20% of the general population-i.e., the fraction that is interested in participating in demand response activity." (p. 66). This latter statement, "the fraction that is interested in participating in demand response activity," completely ignores the influence of the appreciation payment on participation. In a survey that was done among SPP participants at the end of the first summer, Momentum Market Intelligence (MMI) reported that "the appreciation payment was a significant motivator of program participation for both residential and business customers."[4] Given this, we find it more likely that participants in the SPP represented a broad cross section of the target population, motivated by the $175 incentive payment,

[4] MMI was contracted to complete detailed follow-up surveys with the SPP participants. See SPP End-of-Summer Survey Report, Momentum Market Intelligence, page 9, February 2004

than a narrow cross section of only those who are "interested in participating in demand response activity."

In short, UCAN's claims that the SPP participants are not representative of the population at large are completely unsubstantiated.

1. UCAN ignores statistical evidence from the SPP that the usage characteristics of pilot participants and the population at large are not significantly different.
2. UCAN overstates the rejection rate for the SPP by two and a half times (and, in doing so, knowingly included customers who were actually rejected by the utilities).
3. And UCAN ignores survey data from the SPP indicating that the appreciation payment paid to pilot participants was a key motivator of participation and the logical corollary that this fact may well lead to a more representative sample of the general population rather than one motivated solely by interest in providing "demand response activity."

IIb. UCAN's Claim That People Respond Differently To Carrot-Only Incentives Is Unproven and Is Contrary to Accepted Economic Principles

UCAN claims that the SPP elasticities can not be used to predict demand response for the PTR program because the economic incentive underlying the two options is different in each instance. According to UCAN,

> "Under the SPP the financial impacts of the "stick" are many times greater than the financial impact of SDG&E's "carrot" of the same size per kwh." (UCAN, p. 93).

With this statement, UCAN's witness manages to dismiss 120 years of accepted economic teachings indicating that consumers base their consumption decisions on

marginal price signals.[5] If a customer reduces energy use during the peak period on critical days under a CPP tariff with a 15 ¢/kWh base price and 65 ¢/kWh adder, the customer will save 80 ¢/kWh. If a customer reduces energy use during the peak period on critical days under a PTR rebate program with a base price of 15 ¢/kWh and a rebate of 65 ¢/kWh, the customer will save 15¢ on their bill and will be paid 65¢ as a rebate, for a total savings of 80 ¢/kWh, exactly the same amount as for the CPP tariff. That is, the marginal price signal is exactly the same under the two situations. This fact, combined with the fundamental and well established principle that customers make choices at the margin explains why the quantitative impacts from the SPP and APU pilots, as presented in SDG&E Chapter 6, p. 22, are essentially identical (after controlling for air conditioning and climatic differences between the APU and SPP samples). Interestingly, UCAN illustrates an understanding of economic theory when Ms. Schilberg states that "theoretically the marginal price is the one that would influence customer decisions" (p. 94). However, in the same sentence, the well established theory is dismissed by UCAN's unsupported claim "In practice the applicability of the marginal price in the PTR program is so limited that it will have little weight." Once again, UCAN's baseless claims have gotten in the way of sound, economic reasoning and empirical evidence. UCAN also attempts to support its claim that there is a fundamental difference in the economic signals underlying the PTR/APU rebate programs and CPP tariffs with evidence from a survey and analysis conducted by Momentum Market Intelligence. Specifically, UCAN states:

> "Results clearly showed that a bill increase and bill savings are not symmetrical.
>
> Protection from risk is a bigger customer value than equivalent savings. A 10% bill increase is more negative than a 20% savings is positive. (April 25, 2005, slide 14).
>
> Customers care more about potential bill increases than about potential bill savings. (April 25, 2005, slide 15).
>
> This data affirms that customers do not treat the prospect of a rebate (a bill savings) the same way as a price adder (a bill increase). Thus the customer behavior that is measured by the SPP equations, where customers faced the possibility of a bill increase if they did not save, cannot be considered representative of customer behavior where no such adverse outcome might happen—the case of the PTR (rebate only)." (p. 94-95).

[5] See Alfred Marshall's seminal work on the topic in *Principles of Economics*, 1890.

Once again, UCAN has misunderstood the available evidence. First, the referenced analysis that was conducted by MMI is focused on the decision of whether or not to select a CPP rate, not the decision about how to adjust usage once a customer is on a CPP or PTR rate. The survey data shows that customers are risk averse and that, when choosing from among several options, customers will focus more on the down side than on the upside. This well established fact of risk aversion by most customers has little or nothing to do with how a customer will respond to a marginal price signal once they decide to go onto a CPP rate. The MMI survey data primarily indicates that it will be harder to get customers to choose a CPP tariff where there is a significant risk of a bill increase than it will be to get them to choose a PTR rebate program that only has an upside (which, of course, is one of the primary reasons why SDG&E has proposed the PTR program in lieu of a CPP tariff). The MMI survey data does not say that a customer will respond differently to a carrot-only incentive than to a carrot-stick incentive—but Marshallian economics says customers will respond similarly to an avoided expense (as the CPP) or an equivalent lower incentive payment for lower consumption (PTR).

In short, UCAN has not made a credible case that the SPP elasticities can not be used to predict impacts for a rebate program such as the PTR. The fallacy of their arguments is evident by the testimony presented above. Even more significant is the empirical finding presented in our original testimony showing the striking similarity in the demand response impacts from the APU pilot compared with those predicted by the SPP elasticities, indicating clearly that customers do respond in a similar manner to the same marginal incentive.

IIc. UCAN's Claim That Demand Reductions Will Not Be Sustained Over Time is Unproven and There Are Many Reasons to Believe Just the Opposite

UCAN claims that, even if the SPP elasticities were valid for estimating demand response in the short run, the demand reductions will not be sustainable in the long run because the financial savings associated with the PTR rebate program are trivial. UCAN's discussion on this issue drones on for many pages (from page 69 through page 77) and is too lengthy to repeat here. As discussed below, SDG&E disagrees with UCAN's approach and conclusions.

A fundamental flaw in UCAN's analysis of this issue is its focus on the average consumer. SDG&E finds this somewhat surprising in light of the following admission by UCAN that is contained earlier in its testimony:

> "It is understood that some customers in this group will save more and some less (or nothing at all) than the average predicted by the pilot results." (p. 68).

It is exactly this fact that undercuts UCAN's primary argument.

In Table 5 on page 70, UCAN shows that total savings for the average customer across the entire summer is only $4.45 in the Coastal climate zone and $9.36 in the Inland climate zone. This translates into only $0.68 and $1.44 per customer per month in the Inland and Coastal zones, respectively, if there are two events per month as UCAN claims is the likely average. If there are four events each month, which we believe is more likely since the events will be concentrated in the inner summer months, average monthly savings would equal $1.37 and $2.88, respectively. Clearly, these small bill savings might be problematic in sustaining customer interest in reducing demand during the peak period on critical days if every customer (large and small) were to experience these levels of bill savings.[6] However, as we explain below, these average values are absolutely irrelevant to the issue of ongoing participation and demand response.

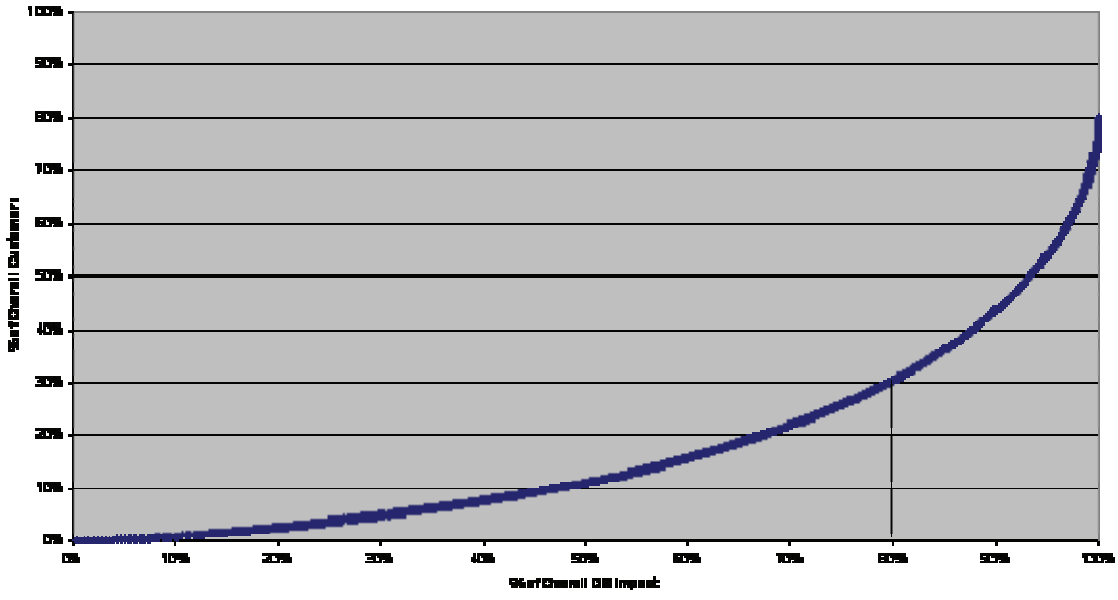
As UCAN acknowledges in the above quotation, the average demand response for a sample of customers is comprised of a distribution of responses across the sample population. For example, the summer-long savings estimate of $9.36 for the Inland zone presented by UCAN does not mean that each customer saved that amount. The same average value would result from a sample of customers in which half did nothing at all on critical peak days and the other half took enough action to reduce their bills by $18.72. Alternatively the same average value would result from a sample of customers where 75 percent took no action and 25 percent reduced their bills by $37.44. Spread across a three-month period (over which most critical events are likely to occur), average monthly savings of this magnitude are much more likely to sustain consumer interest than those associated with the average customer. Furthermore, they would exceed the $5/month

[6] Of course, UCAN finds it convenient to argue against minor bill increases when convenient to their position.

threshold that UCAN's witness Ms. Schilberg seems to think is the minimum threshold for sustaining significant savings.[7]

In reality, the average values that Ms. Schilberg incorrectly embraces are based on the savings associated with hundreds of customers and perhaps only a handful of these customers would have saved something close to the average amount. All the remaining customers would have saved either more or less than the average amount, and a subset of those would have saved more than enough to keep most people's interest from a financial perspective. Figure 1, below, which was presented in response to question #12 from UCAN's 8th data request, shows that, in the SPP, 80 percent of the total demand reduction on critical days was provided by 30 percent of customers. It also shows that 50 percent of the total demand reduction was provided by only 10 percent of the population. It is these high responders, for whom the bill savings are substantially greater than Ms. Schilberg's assumed minimum threshold, that will make the PTR program cost effective and that will sustain the impacts over time.

Figure 1
Cumulative Demand Response Relative to Percent of Population for CPP-F Treatment in California's SPP



[7] See footnote 61 of UCAN's testimony, page 77.

Perhaps realizing that using average values makes little sense, UCAN also examines the average bill savings for the high responders in the above figure that produce 80 percent of the demand response. UCAN claims that the savings for these customers is not even large enough to sustain their interest. UCAN claims that the average savings for these high responders, equal to $30 over 13 events, or $2.33 per event, is less than the price of a cup of coffee and that customers will not make the "lifestyle changes that will be required for residential customers to save" this amount over the long haul. I will ignore the fact that the coffee I buy each morning and afternoon costs only $1.30 for a very nice medium-sized cup. I will also ignore the fact that the average savings of $2.33/event will produce monthly savings exceeding the $5.00 per month threshold set by UCAN's witness if there are slightly more than two events per month (and will save nearly $10 per month given the more likely fact that, on average, there will probably be four events in a typical summer month when events occur). I will also ignore the fact that even the high responder bill savings represents an average over nearly 30 percent of the population and, as shown in Figure 1, the distribution is quite skewed even among this customer category. What I will focus on instead is the kind of behavioral changes that customers would have to make to support savings estimates of $30 or more.

Table 1 contains estimates of the bill savings associated with reducing or shifting specific types of loads assuming a PTR rebate equal to 65 ¢/kWh and an average price equal to 15 ¢/kWh. With these rebates and prices, a customer that reduces energy consumption during the peak period on critical days saves 80 ¢/kWh and a customer that shifts energy use from the peak period on critical days to some other time period saves 65 ¢/kWh.

Table 1

Savings From Possible Actions Taken By Consumers[8]

Demand Response Action	Monthly PTR Payment + Bill Savings
	(assumes 4 events per month)
Turn off 1 100 watt light for 7 hours	$2.24
Turn off 3 100 watt lights for 7 hours	$6.72
Shift Washer (elec water heater) and Electric Dryer to offpeak (1 load)	$14.64
Shift Washer (gas water heater) and Electric Dryer to offpeak (1 load)	$12.04
Shift Washer (gas water heater) and Gas Dryer to offpeak (1 load)	$5.97
Shift Dishwasher to off-peak (1 load)	$6.33
Shift Pool pump to off-peak	$24.27
Switch from Central Air to fan for 3 hours	$27.52
Raise Thermostat 4 degrees	$11.20
Shift Oven use to off-peak (1 hour)	$3.99
Turn off 1 light, shift dishwasher and oven	$12.56

As seen in the table, relatively simple actions that are far from draconian can lead to economically attractive savings. For example, turning off a single light bulb that might be wastefully running during the day would produce average monthly bill savings[9] (assuming four events per month) equal to $2.24 per month (almost half way to that expensive cup of coffee that meets Ms. Schilberg's litmus test). For a customer with a gas water heater and gas dryer that normally does their laundry in the afternoon, simply shifting one load of wash and dry from the peak to the off-peak period on each critical day would save almost $6 per month, or $1.50 per critical event. For a household with electric water heating and an electric dryer, the savings would equal almost $15 per month, or roughly $3.66 per critical peak day. Turning on the dishwasher early in the morning or later in the evening rather than during mid-day would save $1.50 per event, or more than $6.00 per month with four events per month (based on a weighted average of households with electric and gas water heating). Turning the air conditioning thermostat

[8] "Your Energy Costs: A Room-by-Room Guide" http://www.sdge.com/forms/energycosts.pdf

[9] In this context, bill savings means the sum of bill reductions and rebates.

up four degrees would produce bill savings equal to $11.20 across four critical days, or almost $3 per event. And shifting pool pump use out of the peak period on critical days could save $24 per month if the pump normally ran five out of seven hours during the peak period. None of these actions require what we consider to be major lifestyle changes or significant sacrifices. SDG&E thinks it is quite reasonable to think that, with effective education, many customers will embrace these minor inconveniences in light of the substantial economic benefit that a strong incentive like that provided by the PTR program generates, and that these savings will not only be sustained over time, they may even grow as customer awareness and understanding grow.

There are several other reasons to believe that demand response through the PTR program will be sustained or grow over time. One is the likely penetration of Programmable Communicating Thermostats (PCTs) through the Title 24 building standards. The SPP showed that demand response is much greater (almost twice as large) when enabling technology such as a PCT is present. In an attempt to be conservative, we did not factor the likely influence of PCTs driven by Title 24 into the residential analysis, but it could be significant and it would definitely increase both the average and aggregate customer response over time.

Other enabling technology, such as in-home information displays (IHDs), might also help increase demand response over time, as suggested by DRA witness Geilen (DRA testimony, Chapter 10). We find it difficult to quantify the impact of IHDs or other information feedback options at this point in time and, consequently, we have not factored them into our estimates. However, we believe that there is significant potential value that could be derived from information feedback and that these options are yet another reason to believe that demand response will be sustained or grow over time, not diminish as UCAN suggests.

Yet another reason to believe that demand response will be sustained or possibly grow is the possible influence of community-based programs. As discussed in Mr. Gaines' testimony (Chapter 5, p. MFG-16), SDG&E will examine methods for encouraging participation in the PTR, such as offering customers the opportunity to contribute their rebate amounts to schools, charities or other socially desirable recipients. While we have not had time to examine any research that might allow us to quantify this

impact, personal experience with school-based programs in Lafayette, CA suggests to me that such programs have tremendous potential. For many years, schools in Lafayette benefited significantly from a donation program through Safeway stores in which one percent of the value of grocery sales were contributed to schools designated by Safeway shoppers. My personal experience is that programs that assist or contributes to schools will effectively motivate citizens in most communities and that a school-oriented community program could encourage many customers who would not otherwise bother to reduce and shift load to do so, even if the rebates are relatively modest. These customers are motivated by the belief that a lot of small contributions, driven by relatively painless actions, can make a very large difference for their schools or community.

Another reason to believe that responsiveness will be sustained or grow over time is the fact that, as UCAN points out, economics is not the only reason customers reduce demand on critical days. Starting on page 79 of its testimony, UCAN sites research done under the SPP showing that 26 percent of customers indicated that the desire to conserve electricity or to learn to manage electrical use was the most important motivation to them to reduce demand. With widespread and rapidly growing concern over global warming and the need for US energy independence, we believe that the socially responsible desire to conserve electricity will grow significantly over the next ten to twenty years and become a primary driver of energy usage behavior.

A final reason why we think demand response through the PTR may well grow over time is the clear commitment by SDG&E to monitor and adapt the program in a cost-effective manner in order to address any shortcomings that are found along the way. For example, if the notification method does not reach a sufficient number of customers, adjustments can be made. If customers do not fully understand the economic opportunities afforded by the program and the relatively minor adjustments they can make to achieve attractive savings, customer education programs will be enhanced. It might even be possible to sustain or enhance average demand response by modifying the PTR program to offer a smorgasbord of options offering various combinations of incentive levels, notification lead times and peak-period lengths. For example, the menu might consist of one option offering a higher incentive for longer peak-period coverage

and shorter notification and another option offering a smaller incentive for a shorter peak period and longer notification lead time. This approach recognizes that different customers have different needs and a portfolio of options such as this might lead to greater overall participation and demand response.

In summary, SDG&E believes that UCAN's claim that customers will lose interest in the PTR program over time because of the small financial savings it offers to the average customer is based on flawed analysis and an incomplete understanding of customer opportunities and motivations. UCAN's claim is based largely on analysis of savings for the average customer, which is irrelevant. It is the distribution of savings by all customers that underlie the average that will determine the aggregate demand response and that will sustain response over time. Economically attractive savings for a relatively small percent of all customers is sufficient to produce a cost-effective, average reduction in demand across all customers. Or put another way, the aggregate of individual demand response (some large and some small) will constitute the overall SDG&E demand response. The overall or aggregate demand response is what is important for the final demand response impacts.

UCAN also misinterprets survey data about risk aversion that is relevant to customer acceptance of a carrot-and-stick tariff but that has little to do with whether customers would reduce demand when presented with a carrot-only rebate program. UCAN dismisses 120 years of accepted and proven economic theory in arguing that the marginal price signal associated with a PTR program is somehow different from, and less effective than, the marginal price signal associated with a CPP tariff.

UCAN also fails to do enough homework when it claims that customers must make significant sacrifices to achieve meaningful bill savings. The examples we provide show that relatively modest and marginally inconvenient adjustments by customers can produce attractive bill savings and rebates. As such, with proper education, customers may very well embrace the PTR rebate program and generate more savings than we currently predict. We are also optimistic about the potential impact of community based marketing programs that could support the PTR program, such as donating rebates to schools or charities. We also believe our estimates are conservative in that they do not take into consideration the impact of the likely modification of Title 24 standards that

will lead to a significant penetration of PCTs nor do we account for the potential benefit of information feedback, as suggested by DRA witness Mr. Geilen. In short, not only do we disagree with UCAN's claim that demand response impacts will diminish over time, we see many reasons why they are likely not only to be sustained, but to grow.

IId. We Disagree With UCAN's Claim That All Summer Elasticities Should be Used

On page 97 and 98, UCAN argues that using elasticities representing the inner summer months of July, August and September overstate likely demand response and that average elasticities across all summer months should be used. UCAN argues that the fact that there was one critical day in October in the SPP and five days in October in the Anaheim pilot illustrates that CPP days might be called in October and, therefore, the all summer elasticities are more appropriate.

SDG&E disagrees with this perspective. The timing of critical days in the SPP and in the Anaheim pilot are not necessarily indicative of when critical days would actually be called, as the criteria used in a pilot and the criteria that will be used in actual operations will be different. Indeed, in the Anaheim pilot, it was clear that there was a need to fit some critical days in before the end of the pilot and the days in October were cooler than what a typical critical day would likely be. As such, SDG&E contends that using the whole summer elasticities would underestimate demand response much more so than using the inner summer elasticities overestimate response. This approach is strongly supported by an examination of the timing of the top 13 system load days in SDG&E's service territory over the past 12 years.

This examination shows that 147 of the 156 highest system load days over the last 12 years occurred in July, August and September and only 9 of the top days occurred in May, June and October. That is, 94% of the high load days during the summer occurred in the inner summer months. Clearly, using elasticities representing the inner summer period will be closer to the overall average value across all critical days than would using elasticities representing the entire summer.

III. We Disagree With UCAN's Claim That Benefits Should Be Reduced Because of Double Counting With the SDG&E A/C Saver Program Benefits

UCAN claims that SDG&E's A/C Saver Program, an air conditioning cycling program administered by Comverge, is duplicative with the PTR program, and the savings associated with customers participating in that program should be subtracted from the benefit estimates made by SDG&E. This argument is made starting on page 81 of UCAN's testimony.

As discussed in Mr. Gaines' testimony, most of UCAN's testimony about the A/C Saver Program is incorrect (e.g., UCAN does not accurately or completely explain the payments associated with this program, nor does it accurately compare the relative cost effectiveness of the PTR program with the A/C Saver Program, which is actually quite comparable). In the claim addressed here, UCAN does not consider the evidence from the SPP, as explained below, that supports SDG&E's claim that the programs are largely complementary, not duplicative.

Section 6 of the SPP Final Report[10] summarized the demand reductions associated with households that had PCTs along with a variable CPP tariff. These estimates were based on households in the SDG&E service territory, all of which had central air conditioning (as do the A/C Saver Program households). Table 6-5, p. 109 of the SPP report shows that, on average, households with PCTs reduced demand on critical days by 27 percent. The SPP analysis also showed that roughly 60 percent of that reduction could be attributed to the enabling technology, and about 40 percent to behavioral changes made by consumers. In other words, roughly an 11 percent reduction (e.g., 40% of 27%) was made in energy use during the peak period on critical days ***in addition to*** the 16 percent reduction attributable to the enabling technology. The 11 percent reduction not attributable to the technology is approximately equal to the average reduction of households without enabling technology that underlies our estimates of the benefits associated with the PTR program. Put another way, this evidence indicates that customers with central air conditioning and enabling technology reduced demand by roughly 16 percent through the enabling technology and an additional 11 percent through

[10] George, Stephen S., Ahmad Faruqui and John Winfield. *California's Statewide Pricing Pilot: Impact Evaluation of the California Statewide Pricing Pilot Final Report ,March 16,2006*

other behavioral changes. In other words, a household that accepts the Comverge technology to control air conditioning load and chooses to get paid through the PTR incentive rather than the Saver Program incentive, can be expected to provide incremental, not duplicative, reductions in peak period energy use.

IV. We Disagree With DRA's Claim That The Participation Rates for Medium and Large C&I Customers Should be Reduced

In Chapter 5, Section IV, DRA claims that SDG&E bases it's analysis on the assumption of a 100% participation rate for the CPP tariff for medium and large C&I customers. While it is true that we based our analysis on the assumption of a 100 percent participation rate for the CPP tariff, underlying this assumption is an important fact that customers would continue to have choice among at least two rate options, the CPP tariff and a TOU tariff with a Capacity Reservation Charge (CRC). As noted in footnote 6 on page SG-8 of the July 14th Supplemental testimony, additional options may also be considered over time. However, as also noted on page SG-8, and again on page SG-29, starting at line 19, we believe that all of these options will present the same economic incentive with regard to demand reduction and, therefore, can be modeled as if only a CPP tariff was being offered.

This concludes my prepared rebuttal testimony.