APPENDIX A

UTILITY DEMAND RESPONSE PROGRAM SURVEY

Utility Demand Response Program Survey

Organization _____
Contact Person _____
Title _____
Phone # _____
E-mail address _____
Survey date _____

INTRODUCTION

1. Is your company conducting DR programs?
    a. Yes (skip to #3)
    b. No

2. Why isn't your company conducting DR programs?
    a. Tried them in the past and found they were not cost effective
    b. Tried them in the past and found that customers were not interested
    c. Company has excess capacity and does not need to reduce peak demand
    d. Other: _____

RESIDENTIAL DR PROGRAMS (IF OFFERED)

3. I want to start by asking about your company's residential DR programs. What types of residential DR programs is your organization conducting, if any? What are the program names?
    a. No residential DR programs
    b. DLC: _____
    c. TOU rates: _____
    d. CPP: _____
    e. RTP: _____
    f. Other _____

4. About what year did these programs start?
    a. Direct load control: _____
    b. Time-of use rates: _____
    c. Critical Peak Pricing: _____
    d. Real-Time Pricing: _____
    e. Other _____

5. What are the eligibility criteria for these programs? (Could be location, equipment ownership, or other factors.)
    a. Direct load control: _____
    b. Time-of use rates: _____
    c. Critical Peak Pricing: _____
    d. Real-Time Pricing: _____
    e. Other _____

6. How do you primarily market the programs to customers?
    a. Direct mail
    b. Bill inserts
    c. Telemarketing
    d. Other _____

7. What is the program pricing structure and when are the different prices in effect?
    a. DLC rate discount: _____
    b. Critical peak price: _____
    c. Regular on-peak price: _____
    d. Shoulder period price: _____
    e. Off-peak price: _____
    f. Hourly prices: _____

8. What are your company's average residential summer and winter rates per kWh?
    a. Summer: _____
    b. Winter: _____

9. Does your company provide special load control equipment to help customers manage their loads, or do customers do so on their own?
    a. Load control equipment provided by utility: _____
    b. Load control equipment purchased by customer: _____
    c. Customers reduce their loads manually

10. How are customers' loads monitored for this program?
    a. Interval data recorder paid for by utility
    b. Most customers loads are not monitored, just controlled by utility
    c. Other_____

11. How is load monitoring/recording equipment read?
    a. Manually by a utility meter reader
    b. Through a phone connection paid for by the utility
    c. Through a phone connection paid for by customers
    d. Power line carrier or other wireless method
    e. Other: _____

12. About how many customers are currently participating in your DR programs?
    a. DLC _____
    b. TOU rates_____
    c. CPP rates_____
    d. RTP rates_____
    e. Other _____

13. About how many residential customers does your company have, and how many are eligible for DR programs?
    a. Total residential: _____
    b. Eligible for DR programs: _____

14. About how much peak load reduction do you realize from your DR programs?
    a. DLC: _____
    b. TOU rates: _____
    c. CPP rates: _____
    d. RTP rates: _____
    e. Other: _____

15. How does your company determine the amount of load that individual customers reduce during a peak period or load reduction period?
    a. Analysis of household hourly electric loads
    b. Analysis of CAC hourly electric loads
    c. CAC running time metering analysis
    d. Monthly billing data analysis
    e. Only calculate peak demand reductions of customer groups/classes.
    f. Other_____

16. Approximately what is your company's annual peak demand, when does it occur, and about what percent of the total peak do residential customers cause?
    a. Annual peak demand and season: _____
    b. Approximate residential percent of peak: _____

17. Is your company trying to expand these programs, or are they in maintenance mode, or are they in decline/been discontinued? Why?
    a. DLC: _____
    b. TOU rates: _____
    c. CPP rates: _____
    d. RTP rates: _____
    e. Other: _____

18. Has your company tried to estimate the long-term market potential for these programs, and if so, how? Are the results available?
    a. Yes: _____
    b. No

19. What type of benefit-cost analysis does your company do for these programs?
    a. Class cost of service studies: _____
    b. DSM style B/C analysis: _____
    c. Other: _____
    d. Little/no B/C analysis: _____

20. What models, if any, does your company use for DR benefit-cost analysis?
    a. Class COS model: _____
    b. Production cost model: _____
    c. DSManager or similar: _____
    d. Other: _____
    e. No formal computer model: _____

21. How does your company incorporate DR programs into long-term system planning?
    a. Include in IRPs. Last filed: _____
    b. Include in generation planning/certificates of need. Last filed: _____
    c. Not included in system planning
    d. Don't know/confidential

22. How satisfied are you with each of the following aspects of the program on a scale of 1-5, where 5 is very satisfied and 1 is very dissatisfied?

a.	Ease of signing customers up	1	2	3	4	5
b.	Pricing/discount amounts	1	2	3	4	5
c.	Load reduction procedures/estimates	1	2	3	4	5
d.	Billing and payments	1	2	3	4	5
f.	Customer relations	1	2	3	4	5

23. If you could start over from scratch, how would you re-design the programs/rates?

_____
_____
_____
_____
_____

RESIDENTIAL CONCLUSION

24. Are your Company's residential DR programs described in detail on your organization's web site, in a report of some type, or by brochures on the programs?
    a. Web site: address _____
    b. Report: type _____
    c. Brochures
    d. None of the above

Please send copies of the report or program brochures. Thank and end survey.
(The summary report will be available in about a month.)

COMMERCIAL/INDUSTRIAL/INSTITUTIONAL DR PROGRAMS

Contact info, if different than residential contact:

Contact Person _____
Title _____
Phone # _____
E-mail address _____
Survey date _____

25. What types of CII DR programs is your organization conducting? What are the program names?
    a. Interruptible rates: _____
    b. Direct load control: _____
    c. Time-of use rates: _____
    d. Critical Peak Pricing: _____
    e. Real-Time Pricing: _____
    f. Demand Buy Back (Voluntary): _____
    g. Demand Buy Back (Mandatory): _____
    h. Other _____

26. About what year did these programs start?
    a. Interruptible rates: _____
    b. Direct load control: _____
    c. Time-of use rates: _____
    d. Critical Peak Pricing: _____
    e. Real-Time Pricing: _____
    f. Demand Buy Back: _____
    g. Other _____

27. What are the eligibility criteria for these programs? (Location, minimum demand reduction, equipment ownership, or other factors)
    a. Interruptible rates: _____
    b. Direct load control: _____
    c. Time-of use rates: _____
    d. Critical Peak Pricing: _____
    e. Real-Time Pricing: _____
    f. Demand Buy Back: _____
    g. Other _____

28. How do you primarily market the programs to customers?
    a. Contact by account reps
    b. Direct mail
    c. Telemarketing
    d. Other _____

29. What is the program pricing structure and when are the different prices in effect?
    a. IR rate discount: _____
    b. DLC rate discount: _____
    c. Critical peak price: _____
    d. Regular on-peak price: _____
    e. Shoulder period price: _____
    f. Off-peak price: _____
    g. Hourly prices: _____

30. What are your company's average CII summer and winter rates?
    a. Summer: _____
    b. Winter: _____

31. Does your company provide any special load control equipment to help customers manage their loads, or do customers do so manually/with their own equipment?
    a. Load control equipment provided by the utility_____
    b. Customers reduce their loads with EMS systems or manually
    c. Customers use on-site generators to reduce loads
    d. Other: _____

32. How are customers' electric loads monitored for this program?
    a. Interval data recorder paid for by utility
    b. Interval data recorder paid for by customers
    c. Other_____

33. How is load monitoring/recording equipment read?
    a. Manually by a utility meter reader
    b. Through a phone connection paid for by the utility
    c. Through a phone connection paid for by customers
    d. Power line carrier or other wireless methods

34. About how many customers are currently participating in these programs?
    a. Interruptible rates: _____
    b. Direct load control: _____
    c. Time-of use rates: _____
    d. Critical Peak Pricing: _____
    e. Real-Time Pricing: _____
    f. Demand Buy Back (Voluntary): _____
    g. Demand Buy Back (Mandatory): _____
    h. Other _____

35. About how many CII customers does your company have, and how many are eligible for DR programs?
    a. Total CII customers: _____
    b. Eligible for DR programs: _____

36. About how much peak load reduction do you realize from your DR programs?
    a. Interruptible rates: _____
    b. Direct load control: _____
    c. Time-of use rates: _____
    d. Critical Peak Pricing: _____
    e. Real-Time Pricing: _____
    f. Demand Buy Back: _____
    g. Other _____

37. What is the ratio of actual to expected load reductions for these programs (realization rates)?
    a. Interruptible rates: _____
    b. Direct load control: _____
    c. Time-of use rates: _____
    d. Critical Peak Pricing: _____
    e. Real-Time Pricing: _____
    f. Demand Buy Back: _____
    g. Other _____

38. How does your company determine the amount of load that individual customers reduce during a peak period or load reduction period?
    a. Analysis of hourly electric loads
    b. Difference in load on peak days before, during, and after the peak period.
    c. Difference in load on peak days/times versus recent non-peak days/times.
    d. Do not calculate peak demand reductions of individual customers
    e. Other_____

39. Approximately what is your company's annual peak demand, when does it occur, and about what percent is caused by CII customers?
    a. Annual peak demand and season: _____
    b. Approximate CII percentage of system peak: _____

40. Is your company trying to expand these programs, or are they in maintenance mode, or are they in decline/been discontinued? Why?
    a. IR: _____
    b. DLC: _____
    c. TOU rates: _____
    d. CPP rates: _____
    e. RTP rates: _____
    f. DBB: _____
    g. Other: _____

41. Has your company tried to estimate the long-term market potential for these programs, and if so, how? Are the results available?
    a. Yes: _____
    b. No

42. What type of benefit-cost analysis does your company do for these programs?
    a. Class cost of service studies: _____
    b. DSM style B/C analysis: _____
    c. Other: _____
    d. Little/no B/C analysis: _____

43. What models, if any, does your company use for DR benefit-cost analysis?
    a. Class COS model: _____
    b. Production cost model: _____
    c. DSManager or similar: _____
    d. Other: _____
    e. No formal computer model: _____

44. How does your company incorporate DR programs into long-term system planning?
    a. Include in IRPs. Last filed: _____
    b. Include in generation planning/certificates of need. Last filed: _____
    c. Not included in system planning
    d. Don't know/confidential

45. How satisfied are you with each of the following aspects of the programs on a scale of 1-5, where 5 is very satisfied and 1 is very dissatisfied?

a.	Ease of signing customers up	1	2	3	4	5
b.	Pricing/discount amounts/process	1	2	3	4	5
c.	Load reduction procedures/estimates	1	2	3	4	5
d.	Billing and payments	1	2	3	4	5
f.	Customer relations	1	2	3	4	5

46. If you could start over from scratch, how would you re-design the programs/rates?

_____
_____
_____
_____
_____

CII DR PROGRAMS CONCLUSION

47. Are your Company's CII LM programs described in detail on your organization's web site, in a report of some type, or by brochures on the programs?
    a. Web site: address _____
    b. Report: type _____
    c. Brochures
    d. None of the above

Please send copies of the report or program brochures. Thank and end survey.
(The summary report will be available in about a month.)

APPENDIX B

SMALL BUSINESS DLC
DR POTENTIAL TELEPHONE SURVEY

Small Business DLC DR Potential Telephone Survey

Customer Name _____
Respondent _____
Address _____
City, State, Zip code _____
Phone # _____
E-mail address (if any) _____
Survey date _____

Introduction

We are calling on behalf of Utility XYZ about a potential new energy management program that your company could be eligible for. We would like to ask you a few questions about your business, energy using equipment, and interest in this potential new energy program. This survey will take about 10-15 minutes to complete.

COMMERCIAL AIR CONDITIONING SYSTEM INFORMATION (DELETE THIS SECTION IF AIR CONDITIONERS ARE NOT BEING CONSIDERED FOR INCLUSION IN THE PROGRAM.)

1. I'll start by asking about your company's air conditioning system. Which of the following types of air conditioning systems serves your business, if any?
    a. "Rooftop" or ground-mounted unitary electric AC system
    b. Natural gas central AC
    c. Electric heat pump
    d. Building cooling system that serves multiple business
    e. Window or room air conditioners. How many? _____
    f. Evaporative coolers
    g. Other (specify)_____
    h. No AC system of any type (skip to #6)
    i. Don't know

2. About how many air conditioning units serve your business?
    a. 1-2
    b. 3-5
    c. 6-10
    d. 11 or more
    e. Don't know

3. About how old is your average air conditioner?
    a. 1-2 years
    b. 3-5 years
    c. 6-10 years
    d. 11-20 years
    e. More than 20 years
    f. Don't know

4. How do you operate your air conditioner during working hours (8 am to 6 pm)?
    a. Set the thermostat to about _____ degrees
    b. Set the control switch to "on" and let it run
    c. Only run the AC on hot days. About how many days per month? _____
    d. Shut it off most of that time
    e. Other (specify) _____

5. How do you operate your air conditioner during evening and nighttime hours?
    a. Set the thermostat to about _____ degrees
    b. Set the control switch to "on" and let it run
    c. Only run the AC on hot days. About how many days per month? _____
    d. Shut it off most of that time
    e. Other (specify) _____

HEATING SYSTEM INFORMATION (DELETE THIS SECTION IF ELECTRIC HEATING SYSTEMS ARE NOT BEING CONSIDERED FOR INCLUSION IN THE PROGRAM.)

6. Next I want to ask about your company's main heating system. Does the main heating system serve only your business or other businesses as well?
    a. Heating system serves only this business
    b. Heating system serves multiple businesses
    c. No heating system serves the business (skip to # 12)
    d. Don't know

7. What type of fuel does your heating system use? (Check all that apply)
    a. Electricity
    b. Natural gas (skip to #12)
    c. Propane (skip to #12)
    d. Oil (skip to #12)
    e. Don't know (skip to #12)
    f. Other (specify): _____(skip to #12)

8. Which of the following best describes your electric heating system?
    a. Central forced air furnace
    b. Central furnace with hot water heat distribution
    c. Radiant heaters
    d. Air source heat pump
    e. Ground source heat pump
    f. Individual baseboard heaters located near the floor
    g. Individual wall heating units with fans
    h. Boiler
    i. Portable heaters
    j. Other (specify)_____

9. About how old is your heating system?
    a. 1-2 years
    b. 3-5 years
    c. 6-10 years
    d. 11-20 years
    e. More than 20 years
    f. Don't know

10. How do you operate your heating system during working hours (8 am to 6 pm)?
    a. Set the thermostat to about _____ degrees
    b. Set the control switch to "on" and let it run
    c. Only run it on cold days. About how many days per month? _____
    d. Shut it off most of that time
    e. Other (specify) _____

11. How do you operate your heating system during evening and nighttime hours?
    a. Set the thermostat to about _____ degrees
    b. Set the control switch to "on" and let it run
    c. Only run it on cold days. About how many days per month? _____
    d. Shut it off most of that time
    e. Other (specify) _____

HOT WATER HEATER INFORMATION (DELETE THIS SECTION IF HOT WATER HEATERS ARE NOT BEING CONSIDERED FOR INCLUSION IN THE PROGRAM.)

12. Next I want to ask about your business' hot water heater. Does your water heater serve only your company or other businesses as well?
    a. Hot water heater serves only this business
    b. Hot water heater serves multiple businesses
    c. No hot water heater serves the business (skip to # 16)
    d. Don't know
    e. Other (specify)_____

13. What type of fuel does your water heater use?
    a. Electricity
    b. Natural gas (skip to #16)
    c. Propane (skip to #16)
    d. Oil (skip to #16)
    e. Don't know (skip to #16)
    f. Other (specify): _____(skip to #16)

14. Is your hot water heater a regular stand-alone tank/system, or another type of system?
    a. Stand-alone tank/system (standard water heater)
    b. Tankless "instantaneous" hot water heater
    c. Heating system furnace also heats hot water
    d. Other (specify)_____

15. About how old is your water heater?
    a. 1-2 years
    b. 3-5 years
    c. 6-10 years
    d. 11-20 years
    e. More than 20 years
    f. Don't know

SWIMMING POOL INFORMATION (DELETE THIS SECTION IF POOL PUMPS OR POOL HEATING EQUIPMENT IS NOT BEING CONSIDERED FOR INCLUSION IN THE PROGRAM.)

16. Does your business have a swimming pool at this location?
    a. Yes
    b. No (skip to # 20)

17. Is the swimming pool heated?
    a. Yes
    b. No (skip to #19)

18. What type of fuel does the swimming pool heater use?
    a. Electricity
    b. Natural gas
    c. Propane
    d. Oil
    e. Don't know
    f. Other (specify): _____

19. Does your swimming pool have a pump that circulates the water?
    a. Yes
    b. No

INTEREST IN DIRECT LOAD CONTROL PROGRAM (SKIP IF NO OWNERSHIP OF MAJOR ELECTRICAL EQUIPMENT PREVIOUSLY ASKED ABOUT)

20. Utility XYZ is considering starting an energy management program for businesses like yours that would include a rate discount or free programmable thermostat (depending on the utility's plans). To qualify for this program, you would agree to allow the utility to cycle your AC, water heater or other major electrical equipment on very hot/cold "peak demand" days. This cycling would not harm your electrical

equipment or cause much of a change in the temperature of your business. Would you be interested in participating in such a program?

a. Definitely yes
b. Depends of the amount/type of incentive offered
c. Definitely no
d. Other response: _____
e. Don't know

21. Would receiving a free programmable thermostat that's installed for you be sufficient incentive to sign up for such a program?
    a. Yes (Skip to # 23)
    b. No
    c. Don't know

22. About how much of an annual rate discount would you require to sign up for such a program? Would you require a…
    a. 5%-15% reduction in your summer/winter electric bill
    b. 16%-30% reduction in your summer/winter electric bill
    c. More than a 30% reduction in your summer/winter electric bill
    d. Other response: _____
    e. Don't know

BUSINESS AND FACILITY INFORMATION

23. Which of the following business /facility type best describes your organization?
    a. Office—financial, insurance, real estate, legal, consulting
    b. Office—government or other
    c. Retail store
    d. Grocery store
    e. Restaurant
    f. Warehouse/wholesale
    g. Health care
    h. Education
    i. Lodging
    j. Other commercial (specify) _____
    k. Manufacturing (specify type) _____

24. Does your company own your building or do you rent it?
    a. Own or buying
    b. Rent or lease
    c. Other (specify) _____

25. Is this facility usually occupied year-round, or only part of the year?
    a. Occupied year-round
    b. Occupied just during the _____ season
    c. Occupied just on weekends or for vacations

26. About how large is this facility?
    a. Less than 5,000 square feet
    b. 5,000-9,999 square feet
    c. 10,000-19,999 square feet
    d. 20,000-29,999 square feet
    e. 30,000 square feet or more
    f. Don’t know

27. About what year was this facility constructed?
    a. 1949 or earlier
    b. 1950-1969
    c. 1970-1979
    d. 1980-1989
    e. 1990-1999
    f. 2000 or more recently
    g. Don’t know

28. How many people work in this business?
    a. _____ Number of full-time employees
    b. _____ Number of part-time employees

29. What category best describes the business’ total annual revenues at this location?
    a. Less than $1 million
    b. $1 million to 5 million
    c. $6 million to 10 million
    d. $11 million to 20 million
    e. Over $20 million

Thank and end survey.

APPENDIX C

WORKING GROUP 2 DEMAND RESPONSE PROGRAM EVALUATION NONPARTICIPANT MARKET SURVEY REPORT EXECUTIVE SUMMARY

WORKING GROUP 2 DEMAND RESPONSE PROGRAM EVALUATION - NONPARTICIPANT MARKET SURVEY REPORT

FINAL

Prepared for

Working Group 2 Measurement and Evaluation Committee

Prepared by

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In Association with

Summit Blue LLC.

P1996

1. EXECUTIVE SUMMARY

This report is the second report of the Working Group 2 (WG2) Demand Response (DR) evaluation. In this second report, we present results from a quantitative survey of the eligible market of non-participants for the WG2 DR programs that was conducted in March 2004. The goal of the evaluation is to provide feedback to program managers and policy makers to help improve programs in the short-term for PY2004 and PY2005 and in the long-term to meet the DR goals established under ruling R.02-06-001 for PY2007. The first WG2 evaluation report, entitled *Summary of Phase 1 Research,* was distributed on April 8, 2004. The complete WG2 DR program evaluation scope includes process, market, and impact evaluation activities, as well as a sub-metering task. An interim process and impact evaluation report is currently in progress and is targeted for completion in late August as its own volume. The final project report will be completed after the summer 2004 programs have ended and all of the relevant data has been collected and analyzed.

1.1 SCOPE OF THIS REPORT

One of the key objectives of the WG2 Demand Response Evaluation is to carry out an end-user market assessment that focuses on demand response familiarity, receptivity, barriers, opportunities, and potential. Current participants in WG2 DR programs represent a fairly small portion of the potential market for these programs. These customers are being studied through a variety of evaluation tasks focused on program participants. To complement this participant research, several data collection and research activities have been designed to focus on non-participants, which comprise the vast majority of the market. In the Phase I evaluation effort, in-depth interviews were conducted with a small sample of non-participants.

As part of the Phase II evaluation, the evaluation team conducted a quantitative survey of non-participants. A telephone survey was conducted with a total of 500 non-participant customers among the PG&E, SCE, SDG&E (IOU) service territories. This survey seeks to improve our understanding of large non-residential customers (the greater than 200 kW market for PG&E and SCE, greater than 100kW for SDG&E) that were not participating in the Demand Bidding Program (DBP), Critical Peak Pricing (CPP), or SDG&E-only Hourly Pricing Option (HPO) as of March 2004. Note that the population of eligible customers for this survey does not include direct access (DA) customers, as these customers were ineligible for the DBP, CPP, and HPO [1]programs at the time of this research.

1.2 OVERVIEW OF KEY FINDINGS

The market survey of non-participants in the DBP and CPP programs provides a wealth of information that can be used to better understand both barriers and opportunities for demand response. When reviewing and interpreting the survey results, it is important to consider that the market for the current DR programs is still in an early, developmental stage, and that customers' responses to the questions asked are influenced by a wide variety of factors including their experience with the recent California electricity crisis,

[1] CPP and HPO are technically tariffs but are commonly referred to as programs throughout the R.03-06-032 proceeding.

their experience with other related programs (e.g., interruptible programs), and their previous exposure to time-of-use rates. The results of the survey have both positive and negative implications with respect to the near-term prospects for increasing participation in the current DBP and CPP programs. Because this survey is one part of an overarching evaluation effort, and because the programs are still relatively new and evolving, we believe these results should be used to better understand the potential market for DR and develop ways of improving program offerings and customer support, rather than being used to pre-maturely assess whether the programs are destined to succeed or fail relative to current overall DR load reduction goals. With that perspective in mind, highlights and implications of our key findings are discussed below. The full report and appendices provide details on survey methodology and detailed survey results.

DR Potential

Several questions were asked of customers to develop inputs for estimation of the potential load reduction associated with the large nonresidential market for demand response in the service territories of the three IOUs. It is important to note that the resulting estimates of potential are based on customer self-reports and have not been independently confirmed with on-site engineering analyses. **The average *technical* potential reported from the market was 16 percent**, however, the average varied widely by market segment. Based on rough initial estimates of the range of coincident peak demand for this population, the total **MW reduction potential** is likely **in the range of 1,200 to 1,800 MW**. Note, however, that this estimate of potential contains partial overlap with the IOUs' current interruptible participants. The size of the DR potential drops when customers are asked to report how much they would require in bill savings to deliver DR load reductions. **At bill savings similar to those associated with the current DBP and CPP programs** (less than three percent of annual bills), the **potential decreases by almost an order of magnitude, to 100 to 200 MW**. At the same time, somewhat surprisingly, the vast majority of the market says they are willing to consider taking specific DR actions on a limited number of hot summer afternoons**.** Also of note is the fact that significant DR potential was reported across all eligible size groups, including the smallest customers.

Familiarity with DR Programs

Overall, familiarity with the demand response *concept* was quite high with 92 percent of the market[2] indicating some level of familiarity and half reporting they were "very familiar". **Levels of familiarity reported for the DBP and CPP programs were reasonably high** and similar (64 percent versus 61 percent of the market, respectively). **Familiarity with the CPA-DRP program was significantly lower**, with only one-third of the market reporting some level of familiarity. The main source of information about these programs came from personal contact with their utility.

DR Barriers

Customers indicated that there are numerous barriers that limit their ability and willingness to participate in DR programs. In rating potential barriers to participation and

[2] "Market" here refers to the energy-weighted customer survey results. See Appendix C for weighting details. Un-weighted and Premise weighted results are presented in Appendix D.

implementation, **the number one concern** for the market as a whole **was "Effects on Products or Productivity"**. **The next largest concerns were "Amount of Potential Bill Savings", "Level of On-peak Prices or Non-performance Penalties", and "Inability to Reduce Peak Loads".** The least significant concern reported was "Inadequate program information". The rating of barrier importance varied greatly by market segment, for example, Institutional and Office customers ranked concerns over occupant comfort very high, while industrial customers considered this a relatively insignificant issue. **Barriers that were more of a concern for those** who said they were ***very likely*** **to participate** in DBP or CPP **included** "Amount of Potential Bill Savings", **"Complexity of Program Rules", "Uncertainty over Future Program Changes",** and "Level of On-Peak Prices or Non-Performance Penalties" all of which indicate concerns with program design, economics and change associated with a developing market rather than actual load reduction.

Likelihood of Participating in DBP/CPP

Somewhat surprisingly, 19 percent of the market indicated some likelihood that they would participate in one of the programs and **10 percent said they were "highly" likely**. The percentage of customers reporting they are going to participate in either the DBP or CPP program is much larger than the number of customers that have signed up for the programs since the survey. One would expect self-reports of participation intent would over-report actual participation, however, the gap between self-reported likelihood to participate and current participation is much larger than one would expect. If these self-designated "likely" participants do not end up signing up for the programs, it would be useful to assess their reasons for not doing so later in this evaluation.

Likely participants reported the main reason they may participate was to lower their energy bills (54 percent). **Other significant reasons** reported for considering participation were because there were **no risks or penalties associated with program participation** and because they believed it would **help mitigate power outages**. It is important to note that customers mainly participating to avoid outages may be less likely to enter a DBP bid based solely on high market prices unless it seems a blackout is looming. A fairly sizable portion of the market (13 percent) indicated they were likely to participate since doing so fit easily within their normal business operations. **Customers who indicated they were unlikely to participate** in any of the new DR programs **said the main reason was their inability to shed load** (53 percent). Financial reasons, conflicts with other program participation, lack of information and concerns over comfort were also reported as reasons for low likelihood to participation.

Effects of Existing TOU Rates and CA Energy Crisis

Roughly half of the market on existing TOU rates reported they had already shifted their usage from higher priced to lower priced hours. The main action taken to reduce on-peak usage was to reschedule staff or equipment to off-peak periods. These actions were reportedly taken in significant numbers both before and after the recent California energy crisis. Fifty-seven percent of the market reported they have made other significant changes in electricity usage since the crisis. The average self-reported peak load reduction from these actions was nearly 10 percent.

General Electricity Market and Cost Perceptions

Customers were asked several questions aimed at assessing their level of attention to and assessment of electricity market trends. **Only a quarter of the market said that their organization analyzed electricity markets and prices very closely** and 32 percent reported following these markets somewhat closely. **The majority** of the market **believes** that **it is unlikely** that California's **power supply will be adequate to meet the expected power demand** over the next three years. A third of the market reported having no idea how much the wholesale market price of electricity varies from the lowest daytime price to the highest on high demand days. The rest of the population was evenly distributed between expecting the price to increase by 10 percent, 50 percent and more than 100 percent. **Nearly three-quarters** of the market stated their organization **is very concerned about energy costs relative to other costs of** running their business. **Roughly half of the market expects electricity prices to increase** over the next three years, a quarter expect them to stay the same and the remainder expect them to decrease.

Enhanced/Building Automation

Because building automation and energy information systems can help to facilitate demand response, customers were asked several questions about the relevance and use of such systems currently**. Three-quarters** of the market **indicated** that information about **building automation and controls was relevant to their business**. **One-third** of the market **said they had installed automation investments to manage their energy use** within the past two years. The level of building automation reported was moderate with 59 percent of the market reporting being able to view hourly demand on their utility's website, 54 percent stating they could automatically control a portion of their energy load on an in-house energy management system, and 41 percent able to view hourly demand on an in-house energy information system. Industrial customers reported having increased access to usage information, but less control capability, and institutional and commercial customers reported having increased control capability, but limited usage information.

1.3 IMPLICATIONS OF SURVEY FINDINGS

The results of this market research effort point to both opportunities and challenges associated with achieving significant levels of participation in the DBP, CPP, or similar voluntary, price-responsive programs. On the one hand, almost twenty percent of the market reported they are somewhat or very likely to participate in the DBP or CPP (as of March 2004, the time of our survey); yet since then, actual participation increases have been significantly less than what these self projections would suggest. This could be due to a number of factors, for example, as suggested by our Phase I research: customers may not believe the level of financial compensation for program participation is acceptable; they may believe it is too difficult to get final internal approval to participate; they may believe participation itself is too complicated or entails significant hassle costs; or they may believe that there is no immediate need for them to participate because power supplies are adequate in the short term. In the case of the CPP, there are additional complexities. For example, customers may not fully understand or trust that they can save money without significant changes in their load profiles (this barrier may have been adequately addressed in recent changes to the Bill Protection plan).

Despite limited increases in participation in the DBP and CPP since this survey was conducted, our survey results indicate that there is a significant pool of DR potential available as well as a broad willingness to take specific DR actions on a limited basis. What is still somewhat unclear is the extent to which financial versus civic duty or reliability-related motivations are the key to tapping this potential and, concomitantly, how to convert these DR motivations into reliable DR resources.

Specific actions that should be considered in response to the findings from this survey and the Phase I research are presented below:

- Consider increasing the financial benefits of program participation (though only if cost-effectiveness can be maintained) or making it even easier for customers to participate in programs (e.g., lower customers' decision making and hassle costs).

- Aggressively market the recent changes in the Bill Protection Plan for the CPP to ensure customers understand that they can try the tariff with no initial risk.

- Consider reducing the 100 kW DBP bid minimum or otherwise facilitating the participation of chains or other aggregation groups.

- Take steps to actively mitigate the top customer-perceived market barriers to program participation – for example:
  - "Effects on Products or Productivity" – Continue utilizing existing and develop additional segment-specific case studies that demonstrate successful customer experiences with DR actions and provide strategies for minimizing or eliminating negative effects.
  - "Inability to Reduce Peak Loads" – Develop and test new approaches to providing high-value, customer-specific technical assistance to identify load reduction opportunities and strategies for implementation.[3] Investigate leveraging of energy efficiency program investments in audits and control systems to provide DR benefits at low marginal cost.
  - "Level of On-peak Prices or Non-performance Penalties" – Continue and re-iterate customer communication messages that emphasize the no risk/low risk attributes of the DBP and CPP.
  - "Amount of Potential Bill Savings" – Emphasize significance of bill savings as fractions of monthly or summer bills in addition to annual bills.
  - "Uncertainty over Future Program Changes" – Continue regulatory, utility, and working group efforts to develop and maintain consistency in all peak

[3] The current Technical Assistance Incentives are going unspent. At the same time, there is evidence from the evaluation team's interaction with program participants that a number of them are clearly in need of advice on how best to achieve DR reductions in their facilities. We suggest that new approaches be piloted quickly (during the remainder of this summer, if possible) so that evidence for which approaches are most effective can be developed for future program years.

load reduction programs, including reliability programs, while still making improvements where necessary (possibly by guaranteeing minimum program features for set periods of time).

- Continue utilizing and consider expanding technical support materials and related tools (e.g., Enhanced Automation Guidebooks, DR action cut-sheets, cases studies, on-line software, etc.).

Readers should note that the presence of a suggestion in the list above does not mean that the utilities or other parties are not already pursuing or proposing similar or closely related actions (e.g., recently proposed utility programs such as E-Sav, chain account aggregation, and a customer awareness and education campaign, as well as ASW's program proposal and Infotility's discussion of DR on-line tools).[4]

[4] See presentations from the July 13 and July 27, 2004 WG2 DR Workshops.

APPENDIX D

WORKING GROUP 2 FINAL QUANTITATIVE CUSTOMER SURVEY INSTRUMENT

Final Quantitative Customer Survey Instrument

INTRODUCTION

SCREEN1

[WHEN RECEPTIONIST ANSWERS]:

[LARGE COMPANY]: May I have Plant Engineering, please?

[SMALL COMPANY]: May I speak with the Facilities Manager, please?

[OTHER DEPARTMENTS TO ASK FOR]:

Maintenance	General Services
Operations (Manager)	Public Relations
Plant Services	Purchasing
Building Manager	Planning Department

LEAD IN
INTRO1

Hello, this is _____, calling from Quantum Consulting on behalf of the California Public Utilities Commission and [UTILITY]. We are conducting a study on issues related to energy usage and peak power demand in California. May I speak with the person in your organization who is responsible for energy-related decisions for this facility?

[IF NEEDED:] This is a fact-finding survey only – we are NOT selling anything, and responses will not be connected with your firm in any way. The Public Utilities Commission wants to better understand how businesses think about and manage their summer peak energy usage. Your input is very important to the Commission.

1	Yes	INTRO2_2
2	Respondent not available now	CALL BACK
3	Respondent coming to phone	INTRO2_1
4	No such person	INTRO1A
88	Refused	INTRO1A

INTRO1A

[IF NO SUCH PERSON]: May I speak with the person in your organization who is responsible for decisions regarding construction, renovation, or operation of your physical facilities?

INTRO1B NAME OF CONTACT: _____

INTRO1C TITLE: _____

IF RESPONDENT IS NOT AVAILABLE, GET HIS/HER NAME AND TITLE; MAKE ARRANGEMENTS TO CALL LATER

INTRO2_1

WHEN RESPONDENT GETS ON THE LINE: Hello, this is _____, calling from Quantum Consulting on behalf of the Public Utilities Commission and [UTILITY]. We are conducting a study on issues related to energy usage and peak power demand in California. Are you familiar with your organization's energy-related decisions such as those concerning your utility rate and energy usage?

1	Yes	INTRO3
2	No	INTRO2A

INTRO2_2

WHEN RESPONDENT GETS ON THE LINE: We are conducting a study on behalf of the Public Utilities Commission and [UTILITY] on issues related to energy usage and peak power demand in California. Are you familiar with your organization's energy-related decisions such as those concerning your utility rate and energy usage?

1	Yes	INTRO3
2	No	INTRO2A

INTRO2A

Who would be the best person in your organization to speak with about energy-related decisions for this facility?

_____ ASK TO BE CONNECTED WITH THIS INDIVIDUAL.

INTRO2B

May I please speak with ___(insert from Intro2A)_____

(IF CONTACT COMES TO PHONE, ASK INTRO2_1)

(IF CONTACT NOT AVAILABLE, SCHEDULE CALLBACK)

INTRO3

We are speaking with selected businesses and organizations to learn about their current load management and rate preferences.

The information you provide will be kept in strictest confidence. If you agree to participate in the survey, [UTILITY] will provide energy use and load information for your facility to the evaluation contractor. This information and your survey responses will be shared with the study

team (the Energy Commission and its contractors, and [UTILITY]) only in a form that does not allow the identification of any business, individual or facility.

This interview should take about 15 minutes. Is this a good time for you or is there a better time I can call you back?

1	Yes	SC1
2	No, schedule callback	Call back
88	Refused	T&T

If utility contact information requested, please use the following:

SCE:	Edward Lovelace	(626) 302-1697
PG&E:	Susan McNicoll	(415) 973-7404
SDG&E:	Leslie Willoughby	(858) 654-1262

SC1. First, what is your job title? [DON'T READ]

1	Facilities Manager	SC2
2	Energy Manager	SC2
3	Other facilities management/maintenance po	SC2
4	Chief Financial Officer	SC2
5	Other financial/administrative position	SC2
6	Proprietor/Owner	SC2
7	President/CEO	SC2
SC1_8	Other (Specify)	SC2
88	Refused	SC2

RESP: Are you responsible for any other facilities in the SDG&E service territory other than the facility located at (address)(city)?

HOWMANY: How many facilities in the SDG&E service territory are you responsible for?

I'd like to remind you that unless otherwise stated, all questions pertain to the facility located at (address)(city).

DR AWARENESS AND FAMILIARITY

First I'd like to ask you about your awareness of and experience with demand response programs being offered to (IOU) customers. For the purposes of this interview, Demand Response refers to actions customers take to temporarily reduce electrical load during short periods in response to peak demand shortages or high power supply prices.

F1. How familiar would you say your organization is with the Demand Response concept? Would you say your organization is:

Very familiar	1`
Somewhat familiar	2
Not at all familiar	3
Refused	88
Don't Know	99

F2. Now I would like to ask you how familiar your organization is with several specific demand response programs offered by utilities and energy agencies in California. I'll read a brief description of each program and then ask whether your organization is very familiar, somewhat familiar, or not at all familiar with each program.

F2a. [UTILITY'S] Critical Peak Pricing tariff. The Critical Peak Pricing (CPP) tariff offers lower rates to customers who agree to reduce electricity use during up to 12 critical peak periods per summer. Customers on the CPP tariff pay higher rates during these peak periods, but receive reduced energy rates at other times. How familiar is your organization with [UTILITY'S] *Critical Peak Pricing* (CPP) tariff?

Very familiar	1`
Somewhat familiar	2
Not at all familiar	3
Refused	88
Don't Know	99

F2b. [UTILITY'S] Demand Bidding Program. The Demand Bidding Program is a no-risk program whereby participants earn bill credits for reducing their power usage when contacted. How familiar is your organization with [UTILITY'S] *Demand Bidding Program* (DBP)

Very familiar	1`
Somewhat familiar	2
Not at all familiar	3
Refused	88
Don't Know	99

[IF SDG&E=1 ASK IN1c, ELSE SKIP]

F2c. San Diego Gas & Electric's Hourly Pricing Option. The Hourly Pricing Option (HPO) is a daily-adjusted hourly electric rate that provides potential cost savings for customers who can shift energy usage to lower-priced hours. How familiar is your organization with San Diego Gas & Electric's *Hourly Pricing Option?*

Very familiar	1`
Somewhat familiar	2
Not at all familiar	3
Refused	88
Don't Know	99

F2d. The California Power Authority's *Demand Reserves Partnership* (DRP) Program. Like the Demand Bidding Program, customers provide demand reductions when contacted and receive payments for reductions; however, this program is offered by the California Power Authority. How familiar is your organization with this California Power Authority program?

Very familiar	1`
Somewhat familiar	2
Not at all familiar	3
Refused	88
Don't Know	99

F3. There are also two supporting incentives associated with these demand response programs. How familiar is your organization with each of the following demand response support efforts?

F3a. [UTILITY'S] *Bill Protection Plan* for the Critical Peak Pricing rate

Very familiar	1`
Somewhat familiar	2
Not at all familiar	3
Refused	88
Don't Know	99

F3b. [UTILITY'S] *Technical Assistance Incentive* for the Critical Peak Pricing Rate and Demand Bidding Program

Very familiar	1`
Somewhat familiar	2
Not at all familiar	3
Refused	88
Don't Know	99

[IF FAMILIAR WITH AT LEAST ONE OF DBP, CPP, HPO CONTINUE (F2a, b, c = 1 OR 2), ELSE SKIP TO F6]

F4. How did you and your organization learn about [IOU's] new demand response programs??

1. Personal contact from utility
2. Direct mail
3. Workshops/conferences

4. Other end users/customers
5. Energy service provider
6. Trade or industry group
7. Equipment vendors/consultants, etc.
8. Other (specify)

F5. About when did you first learn about these new demand response programs? Would you say:

1. Within the Past Month
2. Within the Past 3 months
3. Within the Past 6 months
4. Within the Past 9 months (Summer of 2003)
5. Within the Past year
6. More than a year ago
7. Refused
8. Don't know

F6. Do you recall receiving any of the following types of information on [UTILITY'S] new demand response programs?

F6a. General discussion with your utility representative of demand response program features?

Yes	1
No	2
Refused	88
Don't Know	99

F6b. Specific analysis of financial impact of participating in the new demand response programs from your utility representative?

Yes	1
No	2
Refused	88
Don't Know	99

F6c. Brochures and Print Materials about Demand Response Programs?

Yes	1
No	2
Refused	88
Don't Know	99

F6d. Do you recall receiving any other type of information on SDG&E's Demand Response Programs?

Yes	1
No	2

Refused	88
Don't Know	99

F6DOT What other type of information on SDG&E's Demand Response Programs did you receive? Record Verbatim.

[IF F6a, b, c, or d = 1, THEN GO TO F7 ELSE SKIP]

F7. How helpful was this information in determining whether the new demand response programs would be of interest to your organization?

Very Helpful	1
Somewhat Helpful	2
Not Very Helpful	3
Refused	88
Don't Know	99

F7a. And why is that?

<VERBATIM>

GENERAL CPP AND DBP PERCEPTION

PE1. How would you describe your organization's attitude toward tariffs such as the Critical Peak Pricing rate that offer lower overall prices to customers who agree to reduce their electric load during limited critical peak periods, but charge more for the power used during those critical peak periods? Would you say:

Very positive	1
Somewhat positive	2
Somewhat negative	3
Very negative	4
Refused	88
Don't Know	99

PE1a. And why is that?

<VERBATIM>

PE2. How would you describe your organization's overall attitude toward programs such as the Demand Bidding Program that pay an incentive to customers who reduce their usage during peak periods without imposing a penalty for failure to do so? Would you say?

Very positive	1
Somewhat positive	2

Somewhat negative	3
Very negative	4
Refused	88
Don't Know	99

PE2a. And why is that?

<VERBATIM>

CPP/DBP/HPO RATE PARTICIPATION DECISIONS

Next I'd like to ask you about your organizations decisions regarding these new demand response programs.

[IF CPP PART FLAG=1 OR CPP ELIGIBLE FLAG=0 OR F2a NE 1 OR 2, SKIP TO DM2]

DM1. Which of the following 5 statements best describes your organization's decision-making about whether to participate in the Critical Peak Pricing program for this location?

1. Have decided to participate in CPP
2. Have decided not to participate in CPP
3. Still deciding on whether to participate in CPP
4. Have not seriously evaluated whether to participate in CPP
5. Didn't think we were eligible
6. Refused
7. Don't know

[IF DBP PART FLAG=1 OR DBP ELIGIBLE FLAG=0 OR F2b NE 1 OR 2, SKIP TO DM2]

DM2. Which of the following 5 statements best describes your organization's decision-making about whether to participate in the Demand Bidding Program for this location?

1. Have decided to participate in DBP
2. Have decided not to participate in DBP
3. Still deciding on whether to participate in DBP
4. Have not seriously evaluated whether to participate in DBP
5. Didn't think we were eligible
6. Refused
7. Don't know

[IF SDG&E FLAG=1, IF HPO PART FLAG=1 OR HPO ELIGIBLE FLAG=0 OR F2c NE 1 OR 2, SKIP TO DM2] [CONSIDER ROTATING HPO WITH CPP?]

DM3. Which of the following 5 statements best describes your organization's decision-making about whether to participate in the Hourly Pricing Program for this location?

1. Have decided to participate in HPO
2. Have decided not to participate in HPO
3. Still deciding on whether to participate in HPO
4. Have not seriously evaluated whether to participate in HPO
5. Didn't think we were eligible
6. Refused
7. Don't know

[SKIP FOR THOSE THAT MADE CPP, DBP, HPO DECISION (DM1=1 OR 2; OR DM2=1 OR 2; OR DM3=1 OR 2)]

DM4. With the information you have as of today, how likely would say your organization is to participate in one of these new demand response programs for this location?

1. Highly likely
2. Somewhat likely
3. Not sure
4. Somewhat unlikely
5. Very unlikely
6. Refused
7. Don't know

[IF DM4=1 OR 2]

DM4a. Which demand response program are you most likely to participate in, is it:

1. Critical Peak Pricing
2. Demand Bidding
3. Hourly Pricing
4. CPA Demand Reserves Program
5. Other, Specify_____
6. Refused
7. Don't know

REASONS FOR PARTICIPATION

[ASK PA1 FOR ALL PARTS (CPP OR DBP OR HPO FLAG=1) AND LIKELY PARTICIPANTS (DM1=1, OR DM2=1, OR DM3=1 OR DM4=1 OR 2)]

PA1_1. What are the reasons /your organization decided to sign up for/organization is likely to sign up/ [CATI LOGIC FOR PHRASE] your for this demand response program for this location? [VERBATIM]

PA1_2 Can you think of another reason?

PA1_3 Can you think of another reason?

PA1_4 Can you think of another reason?

PA1_5 Can you think of another reason?

[IF MORE THAN ONE REASON, ASK PA1A]

PA1_A. And which of those reasons was most important? [VERBATIM]

PA2. How much demand reduction, as a percent of your normal summer afternoon peak demand, is your organization LIKELY to provide this summer during the limited demand response program periods from this location?

1. 0 percent
2. 1 to 5 percent
3. 6 to 10 percent
4. 11 to 20 percent
5. 20 to 50 percent
6. Over 50 percent
7. Refused
8. Don't know

REASONS FOR NON-PARTICIPATION

[ASK NP1 IF DECIDED NOT TO PARTICIPATE OR UNCERTAIN ABOUT, SOMEWHAT OR VERY UNLIKELY TO PARTICIPATE (DM1=2 OR DM2=2 OR DM3=2 OR DM4 = 3, 4 OR 5)]

NP1_1. What are the reasons why your organization is unlikely/uncertain/ [CATI LOGIC FOR PHRASE] to participate in these new demand response programs? [VERBATIM]

NP1_2 Can you think of another reason?

NP1_3 Can you think of another reason?

NP1_4 Can you think of another reason?

NP1_5 Can you think of another reason?

[IF MORE THAN ONE REASON, ASK NP2]

NP1A. And which of those reasons was most important? [VERBATIM]

BARRIERS TO PARTICIPATION

BA1-BA12. Now I'd like to describe some reasons organizations might not participate in demand response programs or would achieve only small demand reductions. On a 1 to 5 scale, where 1 indicates insignificant and 5 indicates extremely significant, please indicate how significant each of the following is as a concern about demand response program participation at this location. [ROTATE RANDOMLY]

B1. Effects on occupant comfort
B2. Effects on products or productivity
B3. Inability to adequately manage and monitor peak reductions
B4. Need for more information on how to achieve demand reductions
B5. Permit regulations that limit the running of backup generators
B6. Amount of potential bill savings
B7. Complexity of program rules
B8. Level of on-peak prices or non-performance penalties
B9. Inadequate program information
B10. Uncertainty over future changes in program price signals and rules
B11. Time and effort it takes to participate
B12. Inability to reduce peak loads

BA2OTC01-BA2OTC11. What other concerns, if any, does your organization have about trying to temporarily reduce summer peak loads at this location through participation in demand response programs?

<VERBATIM>

CURRENT ACTIVITY AND ASSOCIATED MOTIVATIONS

CDR1. Is this location currently on a time-of-use rate where the price you pay varies by time period within summer days?

Yes	1
No	2
Refused	88
Don't Know	99

[IF CDR1 = 1, ELSE SKIP TO CDR3]

CDR1a. Has your firm taken action in the past to SHIFT usage from higher priced to lower priced hours in response to these time-of-use price differences?

Yes	1
No	2
Refused	88
Don't Know	99

[IF CDR1a = 1, ELSE SKIP TO CDR3]

CDR2. What actions has your organization taken to shift usage from these higher priced to lower priced rate periods?

<VERBATIM>

CDRNU. Which of the following best describes WHEN your organization took the majority of these actions to shift usage from higher priced to lower priced rate periods? Would you say:

Primarily before the California Energy Crisis [before Summer 2000] 1
Primarily during or after the California Energy Crisis [after Summer 2000].....2
Significant load shifting actions were taken both before and after the California Energy Crisis.....3
Refused 88
Don't know 99

CDR3. Have you made any /other/ significant changes in the way your organization uses electricity at this site since the California energy crisis began in the summer of 2000?

Yes	1
No	2
Refused	88
Don't Know	99

CDR3a. And what were the principal changes made? [VERBATIM]

CDR4. By roughly how much do you think all of these load shifting and other changes have changed the summer on peak usage at this facility as compared to its summer on peak usage prior to the California energy crisis?

1	0 to 2 percent decrease	
2	3 to 5 percent decrease	
3	6 to 10 percent decrease	
4	10 to 15 percent decrease	
5	16 to 20 percent decrease	
6	More than 20 percent decrease	
7	0 to 2 percent increase	
8	3 to 5 percent increase	
9	6 to 10 percent increase	
10	10 to 15 percent increase	
11	16 to 20 percent increase	
12	More than 20 percent increase	
88	Refused	
99	Don't know	

BILL SAVINGS REQUIRED FOR SINGLE POINT, GENERIC TYPE OF PARTICIPATION

Now I am going ask you a couple of questions about the amount by which your organization would be able to reduce it's electricity demand in response to notification from [UTILITY] due to high utility system demand. Assume for these questions that the reductions at this location would be requested for only a few hours in the late afternoon on roughly four weekdays in the summer and that the days are not sequential.

SA1. What percentage of your annual electricity bill would you need to save as an incentive to reduce your demand at this location by 5% for a few hours on roughly four weekdays in the summer?

1. 0 percent
2. 1 to 5 percent
3. 6 to 10 percent
4. 11 to 20 percent
5. 20 to 50 percent
6. Over 50 percent
7. No amount would be adequate
8. Refused
9. Don't know

SA2. And what percentage of your annual electricity bill would you need to save as an incentive to reduce your demand at this location by 15% for a few hours on roughly four weekdays in the summer?

1. 0 percent
2. 1 to 5 percent
3. 6 to 10 percent
4. 11 to 20 percent
5. 20 to 50 percent
6. Over 50 percent
7. No amount would be adequate
8. Refused
9. Don't know

DR CAPABILITY AND POTENTIAL ACTIONS

CA1. What percentage of your normal summer afternoon peak demand could you reduce for a few hours on roughly four weekdays in the summer, provided you were notified the day before and you were give sufficient financial motivation?

1. 0 percent
2. 1 to 5 percent
3. 6 to 10 percent
4. 11 to 20 percent
5. 20 to 50 percent
6. Over 50 percent
7. Refused
8. Don't know

CA2. If the motivation were sufficient, which of the following temporary demand reduction actions would you be willing to consider for a few hours on roughly four weekdays in the summer?

CA2a. Allow the temperature to rise in the occupied space (from 1 to 5 degrees)?

1	Yes	
2	No	
99	Don't know/refused	

CA2b. Shut off a portion of the air conditioning system, such as ventilation fans in areas with low occupancy (such as storage or warehouse space)?

1	Yes	
2	No	
99	Don't know/refused	

CA2c. Reduce overhead lighting (dim some lights, turn every other lamp off, turn off lights near windows?

1	Yes	
2	No	
99	Don't know/refused	

CA2d. Reduce or shut off some or all production processes?

1	Yes	
2	No	
99	Don't know/refused	

CA2e. Are there any other actions you might take (Please Specifiy).

Action #1		
Action #2		

CA3. And which, if any, of the following types of energy information, management, load monitoring, and control capabilities do you currently have for this location?

CA3a. The ability to view hourly demand on an in-house energy information system?

Yes	1
No	2
Refused	88
Don't Know	99

CA3b. The ability to view your hourly demand on your utility's website?

Yes	1
No	2
Refused	88
Don't Know	99

CA3c. The ability to automatically control a significant portion of your electricity load through energy management or other control systems?

Yes	1
No	2
Refused	88
Don't Know	99

DECISION PROCESSES AND GENERAL ENERGY MARKET PERCEPTIONS

Now I'd like to ask some questions about how your organization makes decisions about participating in utility-offered demand response- programs or tariffs.

EM1a. Which of the following best characterizes who has ultimate authority in your organization with respect to participation in a new utility rate or program such as demand response programs? Would you say that it is: [READ LIST]

One individual at this facility	1
One individual at parent organization	2
A group of individuals at this facility	3
A group of individuals at parent organization	4
A group of individuals at both this facility and the parent organization	5
[DON'T READ] Don't Know	98
[DON'T READ] Refused	99

EM2. What is the typical time frame for your organization to make decisions about participating in demand response programs? Would you say:

Less than 1 month	1
1 to 3 months	2
More than 3 months	3

Refused 88
Don't know 99

EM2a. And what are the primary factors that your organization considers when making decisions about utility rate offerings and demand response programs?

<VERBATIM>

Now I have a few questions about electricity markets and prices.

EM3. How closely does your organization monitor and analyze electricity markets and prices? Would you say,

Very closely	1
Somewhat closely	2
Not very closely	3
Refused	88
Don't Know	99

EM4. And over the next three years, does your organization expect wholesale electricity prices to increase, decrease, or stay about the same?

1	Increase	
2	Decrease	
3	Stay about the same	
88	Refused	
99	Don't know	

EM5. In your organization's view, how likely is it that California's power supplies will be inadequate to meet expected power demand over the next three years? Would you say:

Very likely	1
Somewhat likely	2
Somewhat unlikely	3
Very unlikely	4
Refused	88
Don't Know	99

EM6. On hot high demand summer days, how much do you expect the wholesale market price of electricity varies from lowest daytime price to highest?

1. 10% variation,

2. 50% variation,
3. 100% variation,
4. 200% variation,
5. 500% variation,
6. 1000% variation,
7. More than 1000% variation from lowest daytime price to highest
8. Refused
9. Don't Know

EM7. How concerned is your organization about energy costs relative to other costs of running your business?

Very concerned	1
Somewhat concerned	2
Relatively unconcerned	3
Refused	88
Don't Know	99

ENHANCED AUTOMATION MATERIALS

Now I would like to shift the focus and ask you a few questions about building automation and control systems.

EA1. Have you ever heard of the term "Enhanced Automation"?

1	Vendor	
1	Yes	
2	No	**➔GO TO EA3**
99	Don't know/refused	**➔ GO TO EA3**

EA2. What does the term "Enhanced Automation" mean to you?

<VERBATIM>

As you may know, the California Energy Commission is conducting an education campaign, called "Enhanced Automation" to inform customers of building automation and controls upgrades available to save money on their electric bills. Enhanced automation technologies improve the efficiency, comfort and control of buildings. They can provide information on building systems, energy costs, and increase flexibility of building operations. Examples include adding a new energy information system, re-programming an existing energy management system, or expanding a

network of sensors and control devices. The education packet comes in a black and blue folder, and includes case studies of success stories, a Business Case Guidebook and a Technical Options Guidebook.

EA3 Have you ever received or heard about materials from the California Energy Commission, such as a brochure or case studies, discussing Enhanced Automation and advanced building controls?

1	Yes	
2	No	**➔GO TO EA8**
99	Don't know/refused	**➔GO TO EA8**

EA4. How did you hear of the Enhanced Automation campaign?

1	Vendor	
2	Utility Representative	
3	Colleague or Trade Association	
4	Browsing/Searching the Internet	
5	In the Mail	
6	Other➔**(SPECIFY_____)**	
99	Don't know/refused	

EA5. What, if any, information did you receive directly from the Enhanced Automation Program? <READ LIST IF NEEDED; CHECK ALL THAT APPLY>

1	Brochure(s)	
2	Case studies	
3	Business Case Guidebook	
4	Technical Options Guidebook	
5	Guidebooks (don't know which one)	
6	Technical Assistance	
7	Visited website	
8	No materials, just heard about it	**➔GO TO EA8**
9	Other **(SPECIFY____)**	
99	Don't know/refused	

EA6. How valuable were the Enhanced Automation materials or services you received? Would you say they were…

1	Very valuable	
2	Somewhat valuable	
3	Not valuable	
99	Don't know/refused	

EA7. And why is that?

<VERBATIM>

EA8. In the past 2 years, have you considered any automation investments for your control systems to improve your ability to manage your energy use?

1	Yes	
2	No	**➔GO TO EA17**
99	Don't know/refused	**➔GO TO EA17**

EA9. What are the reasons you considered these improvements to your control systems? (DO NOT READ, CHECK ALL THAT APPLY)

1	Save on energy costs	
2	Upgrade old equipment	
3	Increase flexibility of controls systems	
4	Be able to respond to dynamic pricing	
5	To increase occupant comfort	
8	Other **(specify_____)**	
99	Don't know/refused	

EA10. Did you actually install any of these controls improvements for your business?

1	Yes	
2	No	**➔GO TO EA12**
99	Don't know/refused	**➔GO TO EA12**

EA11. Which of these controls improvements have you made in the past few years to help manage your energy use? Anything else?

<RECORD ALL MENTIONS>

EA12. What or controls improvements have you considered to help manage your energy use, but not pursued?

<RECORD ALL MENTIONS>

[IF HAVE NOT CONSIDERED ANYTHING, SKIP TO EA14]

EA13. Why have you not pursued those improvements?

<RECORD ALL MENTIONS>

EFFECT OF EA MATERIALS ON EE/DR ACTIVITY

IF EA3 = (2 or 99) then SKIP TO EA17
(skip if don't recall receiving EA materials)

EA14. Did the Enhanced Automation educational materials or services influence your decision to take any of the energy efficiency or demand response actions or controls improvements you mentioned?

1	Yes	
2	No	**➔GO TO EA17**
99	Don't know/refused	**➔GO TO EA17**

EA15. Please describe which action(s)?

< VERBATIM>

EA16. How have the EA materials influenced your plans? Anything else?

<RECORD ALL MENTIONS>

ENHANCED AUTOMATION INFORMATION

EA17. How relevant is information on building automation improvements and advanced building controls to your business as a way to manage your energy use? Would you say it is…

1	Very relevant	
2	Somewhat relevant	
3	Somewhat irrelevant	
4	Very irrelevant	
99	Don't know/refused	

EA18. What type of information on building automation improvements would be most helpful to you and your business as a way to manage your energy use? (What else?)

< VERBATIM>

EA19. What method of communication would be most likely to get your attention? (For example, if the Energy Commission wanted to inform you of technical assistance or incentives available, what would be the best way to pass that information to you?) DO NOT READ, CHECK ALL THAT APPLY.

1	Contact from a utility representative	
2	Contact from a vendor	
3	Utility bill insert	
4	Email from the Energy Commission	
5	Phone call from the Energy Commission	
6	Letter from the Energy Commission	
7	Information on the Commission website	
8	Other **(specify_____)**	
9	No method, don't pay attention to unsolicited information	
99	Don't know/refused	

EA20. Do you have any other suggestions for how the Energy Commission could best promote investments in automation improvements and advanced controls to customers, such as yourself?

<VERBATIM>

DIFF You mentioned earlier that you are responsible for _____ other facilities in the SDG&E service territory. Overall, wouldyou say that the responses that you have provided for the facility located at (address) (city) are generally representative of all of your facilities that your are responsible for?

Yes	1
No	2
Refused	88
Don't Know	99

DIFFHOW What things come to mind that would make this facility different than the other facilities you manage in the SDG&E service territory, relating to the questions we have discussed today? RECORD VERBATIM.

DIFFHOW2 Anything else?

DIFFHOW3 Anything else?

FIRMOGRAPHIC CHARACTERISTICS

Now I'd like to ask a few quick questions about this facility. Unless otherwise stated, all questions pertain to THIS FACILITY [RESTATE FACILITY LOCATION IF NECESSARY].

EC1. What is the main activity performed at this location?

1	Office	EC2
2	Retail (non-food)	EC2
3	College/university	EC2
4	School	EC2
5	Grocery store	EC2
6	Convenience store	EC2
7	Restaurant	EC2
8	Health care/hospital	EC2
9	Hotel or motel	EC2
10	Warehouse	EC2
11	Personal Service	EC2
12	Community Service/Church/Temple/Municipality	EC2
13	Industrial Electronic & Machinery	EC2
14	Industrial Mining, Metals, Stone, Glass, Concrete	EC2
15	Industrial Petroleum, Plastic, Rubber and Chemicals	EC2
16	Other Industrial	EC2
17	Agricultural	EC2
18	Transportation/Telecommunications/Utility	EC2
77	Other (SPECIFY)	EC2
88	Refused	EC2
99	Don't know	EC2

EC2. Approximately how many square feet does **your organization occupy in this facility?**

1	Less than 10,000 square feet	EC3
2	10,000 but less than 20,000 square feet	EC3
3	20,000 but less than 50,000 square feet	EC3
4	50,000 but less than 100,000 square feet	EC3
5	100,000 but less than 200,000 square feet	EC3
6	200,000 but less than 300,000 square feet	EC3
7	300,000 but less than 400,000 square feet	EC3
8	400,000 but less than 500,000 square feet	EC3
9	Over 500,000 square feet	EC3
10	Ag/Non-facility – Outdoors	EC3
88	Refused	EC3
99	Don't know	EC3

EC3. Does your organization.....

1	Own this space	EC5
2	Lease this space	EC4
3	Own a portion and lease the remainder	EC4
88	Refused	EC5
99	Don't know	EC5

EC4 Does your organization pay its own electric bill directly to [UTILITY] or is electricity provided under your lease arrangement?

1	Pay own electric bill	EC5
2	Part of the lease arrangement	EC5
88	Refused	EC5
99	Don't know	EC5

EC5 What percent of your organization's total annual operating costs do energy costs represent?

1	Less than 1 percent	EC5A
2	1 to 4 percent	EC5A
3	5 to 10 percent	EC5A
4	11 to 25 percent	EC5A
5	Over 25	EC5A
88	Refused	EC5A
99	Don't know	EC5A

EC5A Has your organization assigned responsibility for controlling energy usage and costs to any of the following?

1	An in-house staff person	EC6
2	A group of staff	EC6
3	An outside contractor	EC6
4	No one	EC6
88	Refused	EC6
99	Don't know	EC6

EC6. Approximately how many locations does your organization have in California?

1	1	EC7
2	2 to 4	EC7
3	5 to 10	EC7
4	11 to 25	EC7

5	Over 25	EC7
88	Refused	EC7
99	Don’t know	EC7

EC7. What is the approximate number of full-time equivalent workers of all types employed by your organization at this facility?

1	1 to 10	
2	11 to 50	
3	51 to 100	
4	100 to 250	
5	251 to 500	
7	501 to 1000	
8	Or, over 1000	
88	[Don’t read] Refused	
99	[Don’t read] Don’t know	

EC8. What is the approximate daily operating schedule at this location during the summer for weekdays and weekends?

EC8a. Weekdays

Start Cod	Start Time	End Code	End Time
1	1 am	1	1 am
2	2 am	2	2 am
3	3 am	3	3 am
4	4 am	4	4 am
5	5 am	5	5 am
6	6 am	6	6 am
7	7 am	7	7 am
…	…Code 8 am through 11 pm	…	…Code 8 am through 11
24	12 pm	24	12 pm
88	Refused	88	Refused
99	Don’t know	99	Don’t know

EC8b. Weekends

Start Cod	Start Time	End Code	End Time
1	1 am	1	1 am
2	2 am	2	2 am
3	3 am	3	3 am
4	4 am	4	4 am
5	5 am	5	5 am

6	6 am	6	6 am
7	7 am	7	7 am
…	…Code 8 am through 11 pm	…	…Code 8 am through 11
24	12 pm	24	12 pm
88	Refused	88	Refused
99	Don't know	99	Don't know

DAYS Are there any days of the week, Monday through Sunday that you are usually closed?

1	Sunday	EC5A
2	Monday	EC5A
3	Tuesday	EC5A
4	Wednesday	EC5A
5	Thursday	EC5A
6	Friday	
7	Saturday	
8	Open Every Day	
88	Refused	EC5A
99	Don't know	EC5A

EC9A. Which of the following is the LARGEST a end uses in terms of electricity consumption for this facility?

EC9a	First Largest	EC9b	Second Largest
1	Lighting	1	Lighting
2	HVAC	2	HVAC
3	Continuous processing	3	Continuous processing
4	Batch processing	4	Batch processing
5	Refrigeration	5	Refrigeration
6	Other, Specify_____	6	Other, Specify_____
88	Refused	88	Refused
99	Don't know	99	Don't know

EC9B. And which would you say used the SECOND most electricity?

EC9a	First Largest	EC9b	Second Largest
1	Lighting	1	Lighting
2	HVAC	2	HVAC
3	Continuous processing	3	Continuous processing
4	Batch processing	4	Batch processing
5	Refrigeration	5	Refrigeration
6	Other, Specify_____	6	Other, Specify_____

88	Refused	88	Refused
99	Don't know	99	Don't know

EC10. Does this location have any on-site electricity generators?

1	Yes, for backup/standby purposes only	
2	Yes, as an everyday supplement or replacement for electric purchases from the grid	
3	No	
88	Refused	
99	Don't know/	

[IF EC10 = 1 or 2, ELSE SKIP TO CL1]

EC10a. What percent of this location's electricity load can be met by your on-site generation?

_____ Percent (allow > 100%)

EC10b. Are their legal restrictions on the number of hours your on-site system can run during the summer?

1	Yes	
2	No	
88	Refused	
99	Don't know/	

CLOSE

CL1. Do you have any final comments or suggestions about demand response programs being offered by (IOU)?

<VERBATIM>

Those are all the questions I have for you. Thank you very much for your time.

APPENDIX E

CALIFORNIA RTP SUMMARY

Potential Impact of Real-Time Pricing in California[5]

Steven Braithwait and David Armstrong
Christensen Associates

January 14, 2004

SUMMARY

The California energy crisis of 2000/2001 is widely acknowledged to have been exacerbated by the missing link between wholesale power costs and retail electricity prices. Nearly all customers faced fixed retail prices and thus had no incentive to reduce load during capacity-constrained periods in which wholesale costs spiked to high levels, despite the fact that the load reductions would have helped relieve the capacity constraint. In March 2001, the California Assembly (in AB29X) authorized funding to install advanced automatic meter reading devices for all customer accounts with peak demands greater than 200kW in the state. The original intent of the installations was to support the development of RTP rate designs to encourage demand response, particularly load reductions during periods of low reserves and high wholesale electricity costs. However, to date no extensive RTP program has been approved. One of the barriers to potential implementation of RTP has been a lack of solid information on the likely effect of different forms of real-time pricing.

This report contains an analysis of the potential demand response effects of RTP in California. A key source of data used in the analysis comes from the experience of Georgia Power Company's successful RTP program, which serves some 1,600 of its large C & I customers. Specifically, available information on the degree of price responsiveness of RTP customers in various two-digit SIC code business categories was applied to data on similar groups of customers in California. The results were re-weighted to reflect the relative importance of those business types in California. The demand response impacts were calculated using software developed previously for the CEC, after calibration to total energy consumption data by 2-digit SIC groups for California.

Scaling results to the total commercial and industrial load in the state suggests a total baseline load of price-responsive RTP customers of approximately 5,000 MW. Demand response results for a traditional two-part RTP rate structure in which hourly prices exactly reflect wholesale costs suggest aggregate load reductions of 800 MW in the relatively few hours of highest RTP prices. If the market acceptance of RTP were scaled back, the resulting load reductions would be scaled accordingly (*e.g.*, at 50% market acceptance, load response would be 400 MW). Under an alternative case in which prices are unbundled and RTP prices include standard tariff T&D charges as well as wholesale energy costs, the expected load reduction at high prices falls to less than 700 MW.

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[5] This study was funded under contract to the California Energy Commission; a report number is pending.

RTP customers' total annual bill-saving benefits derived from their demand response in the case of GPC-style two-part RTP are estimated to be $10.3 million. In the case of an unbundled RTP rate structure that includes T&D charges, customer bill savings are $3 million. Utility wholesale cost savings in the high-cost scenario are $10.3 million in case in which RTP prices reflect wholesale costs, and $9.3 million in the RTP plus T&D case.

APPENDIX F

QUANTEC DRPRO SUMMARY

Estimating Demand-Response Potentials Using Quantec, LLC's DRPro™

Quantec, LLC is an energy and environmental consultancy headquartered in Portland, Oregon. The firm specializes in strategic planning and analytic services for the electric, gas and water utilities. Quantec's expertise in the area of demand-response includes strategy development, technical and market assessments, implementation support, and evaluation. Quantec has recently completed assignments in demand-response assessment for PacifiCorp, Bonneville Power Administration, Portland General Electric, Puget Sound Energy, Mid-American, and Aquila.

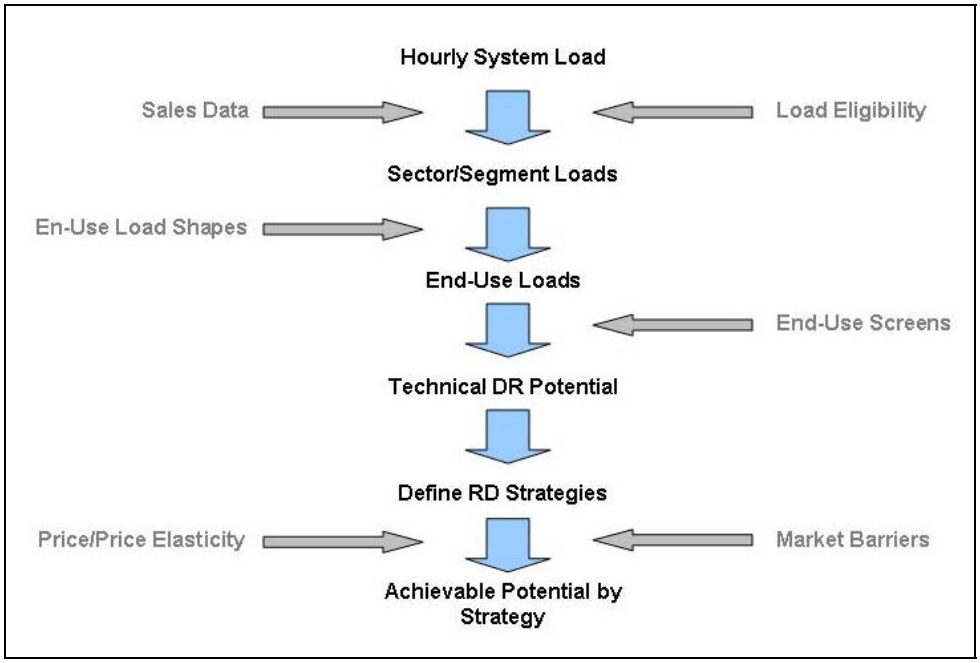
Assessment of demand-response potentials is supported by Quantec's DRPro™, a Microsoft Excel-based model specifically designed for estimating the technical and achievable potentials. ***Technical Potential*** is estimated at a gross level, assuming that all customer load sectors are potentially available for curtailment, except for those which clearly do not lend themselves to interruption. ***Achievable Potential*** is a subset of technical potential and represents that portion of technical potential that is available for curtailment subject to program participation rates and event participation rates. Both program and event participation rate are assumed to be functions of price. The magnitude of achievable potential, therefore, is a function of both market conditions and economic factors of price and price elasticity of response.

Specific demand-response strategies considered fall into two general classes of options depending on the reliability of the committed loads: ***Firm Options*** (Direct Load Control, Curtailment Contracts, and Dispatchable Stand-By Generation) and ***Non-Firm Options*** (Time-Varying Prices and Voluntary Demand Buy-Back).

Since demand-response options are not equally applicable to or effective in all segments of the electricity consumer market and their impacts tend to be end-use specific, DRPro™ employs a "bottom-up" approach, which involved breaking down system load by sector, market segment, and end use; estimating demand response potentials at the end-use level; and then aggregating the end-use demand-response potentials estimates to the sector level.

As shown in the diagram below, DRPro™ uses a seven-step process in calculating technical and achievable potentials.

DRPro™ Methodology for Estimation of Demand Response Potential



1: Define Customer Sectors and Market Segments: System loads are System loads are disaggregated into five sectors: 1) residential 2) commercial, 3) industrial, 4) utilities and transportation, and 5) agricultural. The industrial sector and commercial sectors are further broken down into relevant market segments.

2- Adjust Customer Sector and Market Segment Loads by Load Eligibility Thresholds.

3: Create Sector and Segment Load Profiles: Using the utility's annual hourly interval data, total sales are broken down by sector and segment.

4: Develop Seasonal Sector- and Segment-Specific Typical Peak Day Load Profiles.

5: Estimate End-Use Shares by Sector and Market Segments: End-use shares are derived by applying annual end-use load profiles provided by the utility or obtained from Quantec's load shape library.

6: Estimate End-Use Technical Potential: For each demand response strategy (except dispatchable standby generation), technical potential is estimated at the end-use level as the fraction of appropriate end-use loads, which may be curtailed or interrupted in terms of both mean hourly loads during seasonal peaks and critical peak period. "Critical Peak" is generally defined as loads corresponding with the top one percentile (87 hours) of the system load duration curve. Total technical potential estimates for each sector and market segment are then derived as the sum of end-use-specific potentials.

7: Estimate Achievable Potential: Achievable potential is derived by adjusting technical potential by expected program participation and event participation rates. Both program and event participation rates are derived as logistic functions of price. For each demand-response strategy, the parameters of the logistic function are derived using empirical market data available from the experience of similar demand-response options.

Data requirements of DRPro™ fall into three general categories: 1) Demand-Response Program Data (options and strategies, applicable customer class, eligibility requirements), 2) Utility Data: (hourly system load profile, customer class load shapes, sales by customer class, and end-use load profiles, customer count by class and load size, costing periods), and 3) Market Data (market or avoided utility capacity and energy costs, expected program and event participation rates).

APPENDIX G

XENERGY DEMAND RESPONSE ASSESSMENT METHODOLOGY SUMMARY

DEMAND RESPONSE ASSESSMENT METHODOLOGY

OVERVIEW OF FORECASTING METHODS

The crux of any DSM forecasting process involves carrying out a number of systematic analytical steps that are necessary to produce accurate estimates of demand response effects on system load. To conduct this analysis we developed a model to forecast demand reduction from demand response (DR) programs. We modified this model slightly to address Time Of Use (TOU) programs, and have discussed each approach separately below.

The supply curve method used to forecast DR impact is a simpler process than the measure-based models used to forecast energy efficiency. Information on the characteristics and penetration of potential DR measures did not exist in sufficient fashion to justify a measure-based modeling approach. We therefore relied on the professional judgment of a panel of experts to reach a consensus on key inputs to the supply curve models based on their experience in designing, managing, and evaluating DR programs.

The Delphi Approach

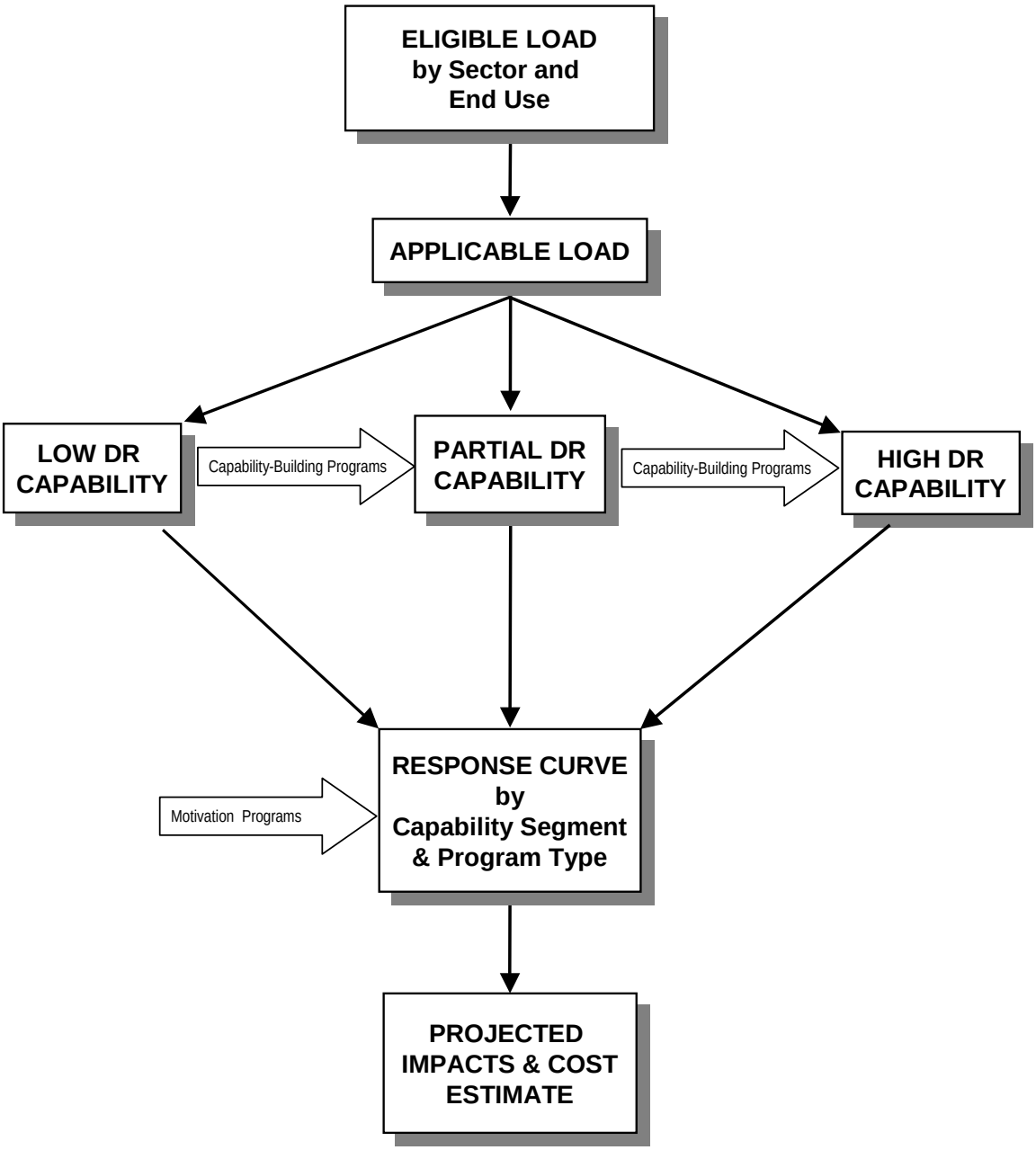
Relying on a panel of experts to develop the key inputs of a forecasting model is known as a Delphi estimation process. The power of this process comes from forcing the experts to reach a consensus. Although the opinion of any one expert is potentially biased, the Delphi process tends to reduce the effect of this bias by causing experts to convince their colleagues of their perspectives. Our expert team included the following.

- David Reed, Manager Product/Project, Pricing and Tariff, SCE
- Richard Barnes, Senior Vice President of Demand-Side Services, KEMA-XENERGY
- Fred Coito, Senior Consultant, KEMA-XENERGY
- Miriam Goldberg, Vice President of Planning and Evaluation, KEMA-XENERGY
- Bernie Neenan, Principal, Neenan Associates
- Frank Schultz, Principal Consultant, Far West Services
- Charles Goldman, Principal Investigator of Electricity Markets and Policy Group, Lawrence Berkeley National Lab (LBNL)
- Michael Rufo, Senior Vice President, Quantum Consulting

Overview of Demand Response Method

The forecast of demand reduction from potential demand response programs was produced using a series of DR supply curves that varied by program type and market segment. An overview of the DR modeling framework used is shown in Figure 2-1.

Figure 0-1
DR Forecasting Model Framework



Overview of Time of Use Method

In addition to the various demand response concepts, SCE was also interested in assessing the potential impacts of a voluntary Time-of-use (TOU) rate program directed at residential and non-residential customers that are not on a mandatory TOU rate schedule. Although an optional TOU rate has been available to most of these customers,

it is not a concept that has been promoted by SCE, and thus there is a very low market penetration and awareness of TOU rates.

A Bass Diffusion Curve, along with electricity usage data by market segment and time periods, was used to forecast the amount of load that would voluntarily sign up for a TOU rate over time. The Bass Curve is commonly used to forecast the market acceptance of new concepts or existing concepts with very low market awareness.

The Bass curve produces forecasts of market penetration for a given point in time based on three parameters and on the total market penetration that had occurred before the time period being forecasted. The specific functional form of the bass curve is provided later in this section. The bass curve takes into consideration that only a portion of the market will eventually accept the concept, that a certain portion of the market are innovators, and that "word of mouth" recommendations from previous adopters have an influence on the amount of penetration that will occur in the future.

The Bass Curve was applied to seven market segments of electric accounts (5 residential and 2 non-residential). The five residential segments were based on average annual electric usage and dwelling type. The two non-residential segments were based on rate schedule, which is a function of maximum electric demand. Information on the number of accounts in each segment and on the average electric demand during the "peak" summer period[6] was provided by SCE based primarily on class load research data. The three parameters of the Bass curved were estimated by the expert panel and varied somewhat by segment. The experts also took into consideration the market acceptance of PG&E customers during the late 1980s and early 1990s where about 15,000 accounts per year voluntarily switch to a TOU rate as a result of comprehensive marketing by PG&E.

The Bass model resulted in an estimate of the number of accounts and thus the amount of load that would choose to be on a TOU rate each year. The final step to forecast the load impacts from a TOU rate was to estimate the load shifting that would occur from TOU pricing. The expert panel recognized that the amount of load shifting was highly dependent on the peak to off-peak price ratios. The assumption was made that the ratio of the peak to off-peak price would likely be about 3 to 1 and that this could result in the shifting of about 10%-15% of the peak period load to the off-peak period. It was felt by the panel that residential customers would be able to shift a higher percentage of peak load than non-residential customers. It was assumed that there would be no significant change in annual electric usage from TOU rates. The specific load-shifting estimate by market segment is provided later in this section.

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[6] Peak period is defined as 12 noon to 6 p.m. on weekdays during June through September.