BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking on policies and practices for advanced metering, demand response, and dynamic pricing.	R.______________

ORDER INSTITUTING RULEMAKING

I. Summary

We open this rulemaking proceeding to address, in a comprehensive manner, policies to develop demand flexibility as a resource to enhance electric system reliability, reduce power purchase and individual consumer costs, and protect the environment.

Through this proceeding, we hope to craft a comprehensive policy in the three investor-owned utility territories of Pacific Gas and Electric (PG&E), San Diego Gas and Electric (SDG&E), and Southern California Edison (Edison), to provide options to individual consumers for reducing cost, while providing overall system benefits. We also encourage the other IOUs in California, including small and multi-jurisdictional IOUs, to participate in this rulemaking proceeding.

We emphasize that demand-responsive capabilities are important regardless of the ultimate electricity market structure that emerges in the next few years. A perfectly functioning wholesale and/or retail electricity market is not a precondition for development of demand response. On the contrary, demand-responsive capability can be a significant tool in mitigating the effects of a dysfunctional market, as well as for controlling costs, even in a completely vertically integrated and regulated market. We also acknowledge, however, that efforts occurring in parallel with this proceeding to determine future market structure, both at the state and federal level, may impact our activities here. We expect that impact primarily at the operational level and less in terms of policy; still, we will endeavor to coordinate with those efforts wherever possible.

In Section II below we outline the issues we expect to address in the course of this rulemaking. Section IV also includes a preliminary procedural schedule.

II. Preliminary Scoping Memo

Development of a strategy to build demand-responsive capability at the customer level must involve a coordinated approach to matching available infrastructure at the customer site (beginning with meters) to pricing or programmatic options available for customer participation. Our goal in opening this rulemaking proceeding is to outline policies to cover a broad spectrum of options to be offered to consumers in return for making their demand-responsive resources available to the system. Table 1 below outlines various traditional program approaches to encouraging customer load reduction. In this proceeding, we intend to focus only on efforts in the “flexible/dispatchable” column of Table 1. We have other proceedings in progress to address both the “emergency” and the “permanent” strategies (see for example, R.00-10-002 on interruptible and R.01-08-028 on energy efficiency policies and programs). The program types listed as “flexible/dispatchable” below are only illustrative, however. We are open to consideration of all program, pricing, and infrastructure options designed to develop demand-responsive capability in the system.

Table 1. Programmatic strategies for customer demand reduction

Customer sector	Short-term ⟷ Long-term		
	Emergency	**Flexible/ Dispatchable**	**Permanent**
Residential	• Direct load control (air conditioners, water heaters, pool pumps)	• Programmable/ smart thermostats • Time of Use (TOU) rates	• Efficiency investment (appliances, building upgrades, etc.)
Small commercial	• Direct load control (air conditioners, water heaters)	• Programmable/ smart thermostats • TOU rates • Energy management control systems (EMCS) • Demand bidding	• Efficiency investment (appliances, building upgrades, etc.)
Medium-large commercial	• Direct load control (air conditioners, water heaters) • Interruptible rates	• Programmable/ smart thermostats • TOU rates • Real-time rates • EMCS • Demand bidding	• Efficiency investment (appliances, building upgrades, etc.)
Industrial	• Interruptible rates • Direct load control (pumping)	• TOU rates • Real-time rates • EMCS • Demand bidding	• Efficiency investment (equipment, process improvement)
Agricultural	• Interruptible rates • Direct load control (pumping)	• TOU rates • Real-time rates • Demand bidding	• Efficiency investment (equipment, process improvement)

As our first task in this proceeding, we will consider a strategic approach to the orderly development of demand-responsiveness capability in the California electricity market over the next 18 months. We are aware that the California Energy Commission (CEC) has initiated work on this, both through their strategic planning and through installation of interval meters at customer sites with average demands of 200kW and above, and we will seek to coordinate our efforts on an ongoing basis.

We are also aware that there are already existing programs available in the marketplace or under development for consumers, including, but not necessarily limited to:

- The investor-owned utilities' (IOUs') AB970 demand-response programs, as required by D.01-03-073
- The IOUs' demand bidding program
- SDG&E's rolling blackout reduction program
- The Santa Clara County pilot base interruptible program
- The California Power and Conservation Financing Authority's (CPA's) Demand Reserves program, in coordination with the California Department of Water Resources (DWR) and the California Independent System Operator (ISO)

We invite the CEC and CPA and any other involved State agencies to participate fully in this proceeding. Despite these strong efforts already underway, significant gaps may exist in maximizing demand-response resources available in California. To facilitate our investigation into and discussion of where those gaps exist and how to fill them, we request that parties submit to us in this proceeding a brief description of their existing or planned efforts. We request the following information on existing efforts:

- Description of target customer segment(s)
- Type of strategy (infrastructure development, demand-response program, etc.)
- Parties involved (utility, ISO, customer, CEC, etc.) and respective roles
- Hardware and/or software requirements

- Resources delivered or planned (kW, kWh, information, etc.)
- Cost (per customer, per meter, per kW and/or kWh – include description of financial incentives to customer, if any)
- Funding source
- Status (fully operational, under development, etc.).

Once we have identified any gaps in existing program efforts and initiated the development of our strategic approach to addressing those gaps, we will divide the scope of our proceeding into two distinct tracks: A) infrastructure development, and B) program and pricing options. These phases are discussed in more detail below.

A. Infrastructure Development

In the context of demand-response, infrastructure can be defined in multiple ways. We prefer a broad definition, including the following:

- Advanced metering hardware
- Metering software, including communications capability with the utility and/or the customer
- Energy management control systems, smart thermostats, or other controls at the customer site
- Any necessary software or communications to facilitate integration of customer systems with the metering system.

The first step in development of demand-response capability for any customer starts with the meter. Thus, metering hardware and software will be our initial focus in this proceeding.

In March 2002, the California Consumer Empowerment Alliance (CCEA) filed a petition to modify D.97-05-039, a revenue cycle services unbundling decision emanating from Rulemaking 94-04-031, our old restructuring docket.

As this petition points out, our metering policies have not been updated since 1997, and therefore do not take into account current electricity market realities. Because we believe that our metering policies deserve a comprehensive reassessment, we will consolidate the CCEA petition into this new rulemaking proceeding we open today. In developing a new policy on advanced metering deployment, we will take into account the following issues, as discussed in more detail below.

- Advanced metering installation and deployment: voluntary or mandatory
- Appropriateness of metering hardware and software options by customer class: real-time, hourly, time-of-use, etc.
- Conditions required for expanded and innovative service offerings utilizing advanced metering (including information services)
- Cost-effectiveness issues
- Ownership options
- Cost allocation policies
- Financing options

1. Metering deployment: voluntary or mandatory

The CCEA petition envisions requiring utilities to undertake universal installation of advanced meters to all customers on a mandatory basis, in order to take advantage of economies of scale to reduce meter costs. While we generally have not favored mandatory approaches in the past, we would like to take evidence in this proceeding on the various benefits and costs that could be associated with universal advanced meter deployment.

We also note that universal deployment need not imply or require that competitive metering policies be revoked. Universal deployment, if desired, could be achieved through a variety of means, only one of which is as a monopoly service by the distribution utility. We discuss this issue further in Section A.5 on ownership below.

2. Metering hardware and software options

We use the term "advanced meter" throughout this order to encompass a wide variety of metering options that would facilitate different levels of demand-response by customers. Included in the category of advanced meters would be a set of technologies beginning with the most basic (a TOU meter) and extending to the most sophisticated (a meter with built-in communications capable of recording and transmitting instantaneous data), and including all types of technologies in between.

In this proceeding, we will consider the development of a plan for deployment of advanced metering that is appropriate to the needs and capabilities of different types of consumers. We will investigate the merits of allowing the individual consumer to have universal choice of metering technology or having the Commission and/or utilities select appropriate metering solutions for particular customer segments.

3. Expanded service offerings

We also wish to encourage and facilitate the development of related value-added services to metering and billing through the deployment of advanced meters. The experience of Puget Sound Energy also suggests that consumers may derive a significant benefit and modify their behavior solely through increased access to information about their energy use. Additional services beyond information include aggregation of usage information from multiple sites, automatic integration of metering and building system control functions, etc. We would like to explore ways in which our policies can facilitate and encourage development of these types of value-added services to customers.

4. Cost-benefit analysis

In the development of policies on advanced metering, we will require an understanding of the relative costs and benefits of meter deployment for a variety of different types of customers under different program and pricing scenarios. On the cost side, we will need to consider:

- Typical hardware and software costs
- Installation costs
- Operations and maintenance costs
- Integration costs with utility billing systems

We will also need to consider the following benefits, as appropriate, depending on the program or tariff rate in use by or available to the consumers:

- Value of avoided costs of electricity purchases during peak times or events
- Avoided T&D upgrade costs
- Value of any net reduction in air emissions (and other environmental externalities)
- Lower customer electric bills
- Lower technology costs produced through bulk meter purchases.

5. Ownership

Our future policies could allow for several options for ownership of advanced metering: by customers, utilities, or third parties. This portion of the policy will have consequences for cost, maintenance and control of the infrastructure, as well as options for financing the installation of advanced meters. In general, we have favored keeping all options open, but will take parties' comments and evidence in this proceeding to determine the appropriateness of continuing this policy.

6. Cost allocation

Regardless of the approach chosen for encouraging the deployment of advanced metering, the Commission will need to formulate a policy for allocating the costs of the deployment. Options include:

- Individual customer pays for his/her own meter directly
- Costs allocated within rate classes
- Cost allocated across all bundled customers
- Costs allocated to all customers as part of distribution charge.

The Commission will take input on the appropriateness of all of these options.

7. Financing options

In addition to the cost allocation issues outlined above, we need to develop our policies on options for financing the installation of advanced meters. Currently, policies and activities on financing meter installation are ad hoc. In 2001, the CEC financed the installation of $35 million worth of meters with money allocated from the State's General Fund (allocated in Abx1 29). Direct access electricity providers currently finance the installation of meters through direct arrangements with their customers. The CPA is in the process of financing the costs of meter installation through a maximum of four bidders who responded to their request for proposals for metering providers, using the CPA's bonding authority. Some of the providers participating in the CPA program require action from the CPUC to facilitate their arrangements. We will address those requirements, to the extent they meet our goals, in this proceeding.

B. Program and Pricing Options

To the extent that installation of an advanced meter as discussed in Section A above is voluntary, the availability of a dynamic (time-based) pricing option or a demand-response program may spur consumer interest. Although a meter alone may deliver some benefits such as better information about consumption, to make demand-responsiveness a truly robust resource, dynamic pricing options or demand-response programs are essential.

We use the terms “program” and “pricing” to signify two different strategies for achieving demand response. In a program approach, a customer would be paid a pre-set financial incentive or “credit” for reducing demand during a certain period. Under a pricing approach, a customer would be charged a higher rate for electricity consumed during a certain period. Both approaches are aimed at encouraging demand reductions during specific time periods.

In this proceeding, it is our intent to explore the introduction of both types of options for all types of consumers. As discussed above, some programs and tariffs are already in place or under development; however, there are infinite potential program and tariff designs available for us to entertain and consider adopting. We will explore adopting a significantly more robust set of choices for all consumers, from TOU pricing to real-time pricing, and from smart thermostat programs to aggregated demand bidding programs, with a number of pricing and program options in between.

As a starting point, the three large IOUs filed in August of 2001, real-time pricing proposals in docket A.00-11-038 et al. We will move consideration of those proposals, along with any comments filed on them by parties, into this new rulemaking.

In addition, PG&E and Edison are currently involved in general rate cases (GRCs) at the Commission. The development of new pricing or tariff options in this rulemaking may supplement or replace a portion of the rate design phase typically undertaken in GRCs. In this proceeding, we intend to adopt a consistent statewide policy on demand-response, rather than designing territory-specific policies in the GRCs.

Because we are expressly working towards restoring the IOU’s capability to procure their customers’ full electricity requirements through our procurement rulemaking (R.01-10-024), we specify that we expect all proposals to be considered in this proceeding to involve the three large IOUs.

We expect the three large IOUs, with the help of other parties, to develop the specific proposals for demand-response program and dynamic pricing options in this rulemaking for our consideration. Other parties are also welcome to file their own proposals, but should assume an explicit role for the IOUs. The smaller and multi-jurisdictional IOUs (other than PG&E, SDG&E, and Edison) may also participate in this proceeding to develop demand-responsive policies and programs in their territories, though we will not require them to do so at this time.

As with the infrastructure development section above, there are several issues that will need to be addressed in more detail in the development of program and pricing options for demand-responsiveness. These include:

- Appropriateness of program / pricing options by customer type
- Coordination / integration with appropriate infrastructure
- Cost-effectiveness.

1. Program/pricing options by customer type

Though countless studies have shown that all types of customers can and will adjust their consumption patterns to respond to price signals, not all types of tariffs or programs are likely to be attractive to all types of consumers. A customer's load shape, as well as their end uses and operating constraints, can help determine an appropriate program or pricing option for that customer. We would like to develop a broad set of options for each customer class to take advantage of for shifting load and/or engaging in conservation.

2. Coordination/integration with infrastructure

The pricing or program options available to individual consumers will need to be considered alongside the metering and other infrastructure deployment as outlined in Section A above.

3. Costs and benefits

Any program or pricing option will need to be evaluated to determine whether its benefits outweigh its costs, both from an overall system (or societal) perspective, as well as from the perspective of the individual consumer. If programs or pricing options are voluntary, consumers will most likely only take advantage of them if participation results in cost savings. Thus, all proposals should develop rigorous estimates of costs and benefits.

Prior to deregulation, when utilities undertook load management investments, they were evaluated using the California Standard Practices Manual (SPM) to determine cost-effectiveness. The SPM provides a standard methodology for evaluating multiple programs and pricing strategies. Efforts are underway in two proceedings (R.98-07-037 relative to the self-generation and demand-response pilot programs and R.01-08-028 relative to energy efficiency programs) to update the avoided-costs and other cost-effectiveness inputs to utilize the SPM methodology more effectively. We will take note of those efforts in this proceeding as they progress.

III. Category of Proceeding

Rule 6(c)(2) of our Rules of Practice and Procedure provides that an order instituting rulemaking "shall preliminarily determine the category" of the proceeding. This rulemaking is preliminarily determined to be "ratesetting" as that term is defined in Rule 5(c). We anticipate holding evidentiary hearings.

Any person who objects to the initial categorization of this rulemaking as "ratesetting" must file an appeal no later than 10 days after the date of this OIR.

Commissioner Michael R. Peevey will be the assigned Commissioner, for this proceeding.

IV. Schedule

A preliminary schedule for this proceeding is given below. This schedule will be discussed and further refined after the first prehearing conference (PHC) on June 17 at 10:00 a.m., in the Commission Courtroom, 505 Van Ness Avenue, San Francisco. Consistent with Rule 6(e), we expect this proceeding to be concluded within 18 months.

Item	Strategic Planning	Metering Policies	Program/ Pricing Options
Objections to proceeding categorization required to be filed	May 13, 2002		
Prehearing conference statements filed, including any comments on the scope of the proceeding as outlined in this order	June 7, 2002		
First prehearing conference	June 17, 2002		
Workshops on strategic planning for demand response development (potentially jointly, with CEC and/or CPA)	June and July 2002	NA	NA
Parties file details of existing demand-response programs and pricing options	NA	NA	July 10, 2002
Opening comments filed	August 1, 2002	July 1, 2002	October 15, 2002
Reply comments	August 15, 2002	July 15, 2002	November 1, 2002
Testimony and new proposals of respondents served	September 16, 2002	September 2, 2002	December 2, 2002
Testimony of interested parties served	October 1, 2002	September 16, 2002	December 16, 2002
Evidentiary hearings (if necessary)	October 2002		January 2003
Opening briefs filed	November 15, 2002		February 2003
Reply briefs filed	December 2, 2002		March 2003
Proposed Decision mailed	January 2003		April 2003
Final Commission decision	February 2003		May 2003

V. Parties And Service List

We name the three largest investor-owned electric utilities as respondents in this rulemaking: PG&E, SDG&E and Edison. In addition, any of the small or multi-jurisdictional investor-owned utilities under our jurisdiction are encouraged to participate voluntarily in this rulemaking.

We will serve this OIR on members of the service lists for several related proceedings:

- A.00-11-038, et. al., the "rate stabilization" proceeding,
- R.00-10-002, the "interruptible" rulemaking,
- R.01-10-024, the "procurement" rulemaking, and
- R.94-04-031 / I.94-04-032, the electric restructuring docket.

Within 15 days of the date of mailing of this order, any person or representative of an entity interested in monitoring or participating in this rulemaking should send a request to the Commission's Process Office, 505 Van Ness Avenue, San Francisco, California, 94102 (or ALJ_Process@cpuc.ca.gov) asking that his or her name be placed on the service list. The service list shall be posted on the Commission's web site, www.cpuc.ca.gov, as soon as it is practical.

Any party interested in participating in this investigation who is unfamiliar with the Commission's procedures should contact the Commission's Public Advisor's Office in Los Angeles at (213) 649-4782 or in San Francisco at (415) 703-2074, (866) 836-7875 (TTY – toll free) or (415) 703-5282 (TTY), or send an e-mail to public.advisor@cpuc.ca.gov.

We also intend to utilize the electronic service protocols given in Appendix A in this proceeding. Any party requiring paper service of documents in this case should so note that requirement in their request to be added to the service list.

VI. *Ex Parte* Communications

This proceeding is subject to Rule 7(c) of the Commission's Rules of Practice and Procedure, which specifies standards for engaging in *ex parte* communications and the reporting of such communications in ratesetting proceedings. Rule 7(c) also requires parties to report ex parte communications pursuant to Rule 7.1.

Therefore, **IT IS ORDERED** that:

1. A rulemaking is instituted on the Commission's own motion to examine the Commission's policies for advanced metering, demand response, and dynamic pricing.

2. Pacific Gas and Electric Company (PG&E), Southern California Edison (Edison), and San Diego Gas and Electric Company (SDG&E), are Respondents to this proceeding.

3. The petition of the California Consumer Empowerment Alliance to modify D.97-05-039 is moved from consideration in R.94-04-031 to this proceeding.

4. The August 17, 2001 proposals of PG&E, SDG&E, and Edison to implement real-time pricing are moved from A.00-11-038 et. al. for consideration in this proceeding.

5. The Executive Director shall cause this Order Instituting Rulemaking (OIR) to be served on Respondents, the California Energy Commission, the California Power Authority and the parties to the following existing Commission proceedings: Application (A.) 00-11-038 et al., R.00-10-002, R.01-10-024, and R.94-04-031.

6. Within 15 days from the date of mailing of this order, any person or representative of an entity interested in monitoring or participating in this rulemaking should send a letter to the Commission's Process Office, 505 Van Ness Avenue, San Francisco, California 94102, or ALJ_Process@cpuc.ca.gov asking that his or her name be placed on the service list. Parties shall also appear at the first prehearing conference (PHC) in order to enter an appearance in the proceeding.

7. The category of this rulemaking is preliminarily determined to be "ratesetting" as that term is defined in Rule 5(c) of the Commission's Rules of Practice and Procedure.

8. Any person who objects to the preliminary categorization of this rulemaking shall raise such objection no later than 10 calendar days after the Commission issues this OIR.

9. Those who wish to file comments on the issues identified in this OIR shall file and serve their initial comments as part of their pre-hearing conference statements by June 7, 2002. Subsequent comments and/or testimony shall be filed in accordance with the schedule developed at the first PHC, or in a subsequent ruling, as applicable.

10. All parties shall abide by the Electronic Service Protocols attached as Appendix A hereto.

11. The first PHC shall be held on May 30, 2002, at 10:00 a.m. in the Commission's Courtroom, State Office Building, 505 Van Ness Avenue, San Francisco.

12. The scope and schedule set forth in this order may be modified by the assigned Commissioner or Administrative Law Judge, as necessary.

13. Commissioner Michael R. Peevey is designated as the assigned Commissioner for this proceeding.

This order is effective today.

Dated ________________________, at San Francisco, California.

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Party Status in Commission Proceedings

These electronic service protocols are applicable to all "appearances, interested parties," And other members of the service list. In accordance with Commission practice, by entering an appearance at a prehearing conference or by other appropriate means, an interested party or protestant gains "party" status. A party to a Commission proceeding has certain rights that non-parties (those in "state service" and "information only" service categories) do not have. For example, a party has the right to participate in evidentiary hearings, file comments on a proposed decision, and appeal a final decision. A party also has the ability to consent to waive or reduce a comment period, and to challenge the assignment of an Administrative Law Judge (ALJ). Non-parties do not have these rights, even though they are included on the service list for the proceeding and receive copies of some or all documents.

Service of Documents by Electronic Mail

For the purposes of this proceeding, all appearances shall serve documents by electronic mail, and in turn, shall accept service by electronic mail.

Usual Commission practice requires appearances to serve documents not only on all other appearances but also on all non-parties in the state service category of the service list. For the purposes of this proceeding, appearances shall serve the information only category electronically as well since electronic service minimizes the financial burden that broader service might otherwise entail.

Filing of Documents

These electronic service protocols govern service of documents only, and do not change the rules regarding the tendering of documents for filing. Documents for filing must be tendered in paper form, as described in Rule 2, *et seq.*, of the Commission's Rules of Practice and Procedure. Moreover, all filings shall be served in hard copy (as well as e-mail) on the assigned Commissioner's office and the assigned ALJ. All e-mails shall be sent by 5:00 pm on the due date.

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Electronic Service Standards

As an aid to review of documents served electronically, appearances should follow these procedures:

- Merge into a single electronic file the entire document to be served (*e.g.* title page, table of contents, text, attachments, service list).
- Attach the document file to an electronic note.
- In the subject line of the note, identify the proceeding number; the party sending the document; and the abbreviated title of the document.
- Within the body of the note, identify the word processing program used to create the document. (Commission experience indicates that most recipients can open readily documents sent in Microsoft Word or PDF formats).

If the electronic mail is returned to the sender, or the recipient informs the sender of an inability to open the document, the sender shall immediately arrange for alternative service (paper mail shall be the default, unless another means is mutually agreed upon).

Obtaining Up-to-Date Electronic Mail Addresses

The current service lists for active proceedings are available on the Commission's web page, www.cpuc.ca.gov. To obtain an up-to-date service list of e-mail addresses:

- Choose "Proceedings" then "Service Lists."
- Scroll through the "Index of Service Lists" to the number for this proceeding.
- To view and copy the electronic addresses for a service list, download the comma-delimited file, and copy the column containing the electronic addresses.

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The Commission's Process Office periodically updates service lists to correct errors or to make changes at the request of parties and non-parties on the list. Appearances should copy the current service list from the web page (or obtain paper copy from the Process Office) before serving a document.

Pagination Discrepancies in Documents Served Electronically

Differences among word-processing software can cause pagination differences between documents served electronically and print outs of the original. (If documents are served electronically in PDF format, these differences do not occur.) For the purposes of reference and/or citation in cross-examination and briefing, all parties should use the pagination found in the original document.

(END OF APPENDIX A)