UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

California Independent System Operator Corporation	))))	ER01-____-000

DIRECT TESTIMONY OF
JAMES E. PRICE
ON BEHALF OF THE
CALIFORNIA INDEPENDENT SYSTEM
OPERATOR CORPORATION

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is James E. Price and my business address is 151 Blue Ravine Road, Folsom, CA 95630

Q. BY WHOM AND IN WHAT CAPACITY ARE YOU EMPLOYED?

A. I am employed by the California Independent System Operator ("ISO") as Market Planning Engineer.

Q. WHAT ARE YOUR DUTIES AND RESPONSIBILITIES?

A. As Market Planning Engineer, I am responsible for evaluating and planning programs that provide competitive conditions in markets that are administered by the ISO. In addition to these responsibilities, I provide technical support for other ISO operations, such as support of the unbundled pricing proposal in this filing.

Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND.

A. I received my Bachelor of Science degree from the California Institute of Technology, majoring in Engineering and Applied Science, and my Master of Science and Doctor of Philosophy degrees from Stanford University, where I studied Environmental Engineering and Infrastructure Planning and Management in the Department of Civil Engineering. My education included economics and social science in addition to public works planning.

Q. PLEASE DESCRIBE YOUR WORK EXPERIENCE PRIOR TO THE WORK YOU ARE DOING TODAY.

A. I was an engineering associate for Los Angeles County Sanitation Districts in 1975, performing economic and social impact assessments of a 25-year master plan. I was employed by the California Public Utilities Commission ("CPUC") from 1978 to 1981, as a Utilities Engineer and Research Analyst (Economics), working in numerous aspects of applications for nuclear, coal, and hydroelectric power plants. From 1981 to 1984, I was a Research Program Specialist (Economics) in the Office of Economic Policy, Planning, and Research, part of the California Department of Economic and Business Development, performing research on industrial trends, natural resources, energy, benefit/cost analysis, and fiscal impacts.

In 1984, I returned to the CPUC as a Regulatory Program Specialist. I have testified before the CPUC on behalf of the Office of Ratepayer Advocates ("ORA"), which is an independent division of the CPUC staff that represents the interests of ratepayers in proceedings before the CPUC. This work concerned both policy and technical aspects of electric and gas revenue allocation and rate design issues affecting Pacific Gas and Electric Company ("PG&E"), Southern California Edison Company ("SCE"), Southern California Gas Company, San Diego Gas and Electric Company ("SDG&E"), PacifiCorp, Sierra Pacific Power Company, and Bear Valley Electric District. I served as ORA's project manager in a number of these rate proceedings.

I became involved in the electric industry restructuring efforts through my employment with ORA. I represented ORA in both working groups that recommended procedures for implementing retail electric competition and stakeholder processes that led to the formulation of the ISO and then to the refinement of the ISO's markets. I then joined the ISO as an employee in May 2000.

Q. HAVE YOU PREVIOUSLY PROVIDED TESTIMONY BEFORE A REGULATORY COMMISSION?

A. Yes, I have appeared as a witness before the CPUC in a number of proceedings, as described above. This is my first experience testifying before the Federal Energy Regulatory Commission ("FERC").

Q. AS YOU TESTIFY, WILL YOU BE USING ANY SPECIALIZED TERMS?

A. Yes, I will use capitalized terms as defined in the Master Definitions, Appendix A of the ISO Tariff.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?

A. The purpose of my testimony is to support the ISO's application to unbundle the Grid Management Charge ("GMC") that is currently set forth in Section 8 of the ISO Tariff ("Tariff"). My testimony develops estimates of billing determinants for the portion of Control Area Gross Load that is represented by Load served by on-site generation, for example, by Qualifying Facilities ("QFs").

Q. HOW DOES YOUR TESTIMONY RELATE TO OTHER TESTIMONY IN THIS PROCEEDING?

A. The Direct Testimony of Michael K. Epstein, Ex. No. ISO-1, describes the Service Categories being proposed for the ISO's unbundled GMC, explains how the billing determinants were selected to recover the costs assigned to each Service Category, and describes the general estimation procedure to be used for non-metered Loads. Mr. Epstein presents the ISO's proposal that the billing determinant for Control Area Services should be Control Area Gross Load and exports of the Scheduling Coordinator or other appropriate party, and defines Control Area Gross Load as all Demand for Energy within the ISO Control Area, excluding auxiliary load (*i.e.*, Energy used in the power production process) or Load that is isolated electrically from the ISO Controlled Grid.

Mr. Epstein describes the rationale for this definition of Control Area Gross Load as the billing determinant for Control Area Services, and this rationale is further supported by the Direct Testimony of Trent A. Carlson, Ex. No. ISO-10. Mr. Carlson demonstrates that the ISO's responsibilities as Control Area operator require the ISO to obtain complete information on Control Area Gross Load and justify charging entities on a Control Area Gross Load basis for the Control Area Services element of the GMC.

My testimony builds upon the testimony of Mr. Epstein and Mr. Carlson by developing the specific methodology to be used to estimate the portion of Control Area Gross Load that is represented by Load served by on-site generation.

Q. BEFORE DISCUSSING THE SPECIFIC METHODOLOGY THE ISO PROPOSES TO USE TO ESTIMATE A PORTION OF CONTROL AREA GROSS LOAD, COULDN YOU BRIEFLY DESCRIBE HOW THE ISO CURRENTLY OBTAINS ITS LOAD AND BILLING DETERMINANT DATA?

A. Some generators, and a small number of end use customers, are ISO Metered Entities and therefore have ISO Certified meters and are directly poled (read) by the ISO. However, most end-use customers and certain categories of generators, most notably QFs and GEs, are not ISO Metered Entities. In such cases, the ISO must receive settlement quality Load data from Scheduling Coordinators. The Scheduling Coordinators receive the settlement quality Load data from either the UDCs or other Energy Service Providers ("ESPs"). The UDCs and ESPs obtain the Load data certified Meter Data Management Agents. In some cases (primarily large customers) meter data is available by time of use, *e.g.*, using 15-minute intervals, but for a majority of customers only a cumulative value is available. When only cumulative meter data are available, hourly Load values must be estimated using load profiles for settlement of the ISO's markets. One of three types of load profiles is applied to develop interval Load values, depending on the type of end-use customer: (1) dynamic load profiles, which are obtained by statistical analysis of a sample of real time data from interval meters serving the same customer class; (2) static load profiles based on historical averages, for customer classes for which dynamic load profiles have not been developed (*e.g.*, agricultural customers); and (3) deemed load profiles based on engineering estimates of Loads such as streetlights.

Q. CAN THE LOAD SERVED BY ON-SITE GENERATION BE DETERMINED DIRECTLY?

A. The Load served by on-site generation can be determined directly only if the customer agrees to forward actual Load or generation data from a meter that it owns to the ISO, or if the Generating Unit's output and any auxiliary load (*i.e.*, Energy used in the power production process) is metered separately from other Load that exists at the customer premises. The ISO's preference is for the Generating Unit's output (including any auxiliary load) to be metered separately from other Load. Some metering accounts within the ISO Control Area, however, presently meter only the net amount of Energy generated and consumed behind the meter (*i.e.*, generation and Load are not separately metered). Absent the installation of separate meters or the ISO's receipt of the Load information from another source (*i.e.*, from the QF), Load must be estimated for proper allocation of the GMC.

Q. FOR LOAD SERVED BY ON-SITE GENERATION, WHAT ESTIMATION PROCEDURES WILL BE UTILIZED?

A. Two general approaches for estimating maximum on-site Load have been discussed during stakeholder meetings regarding unbundling of the GMC: (1) use of customer-specific non-coincident peak demand incurred over a test period; or (2) use of contract demand reported in the utilities' rate cases. For the reasons stated below, the ISO proposes to use contract demand, with an adjustment for the typical load factor of similar full-service customers (*i.e.*, customers who are served only via the utility, not by on-site generation).

Q. PLEASE DESCRIBE THE NON-COINCIDENT PEAK DEMAND METHOD.

A. This alternative, if used by the ISO, would rely on actual maximum standby loads, as metered by the utilities and billed to customers on standby tariffs. Utilities may not be able to provide this information on an individual basis due to confidentiality or contractual limitations, but may be able to provide estimated maximum standby Load information on an aggregate basis each year. If used, the ISO could attempt to verify this data through third-party blind audits of utility standby tariff billing data.

Q. HOW WOULD LOAD BE DETERMINED USING THE NON-COINCIDENT PEAK DEMAND METHOD?

A. A "load factor" (the ratio between actual electric Energy consumption and the consumption that would have occurred if the Load were sustained at its maximum level over the same period of time) would be applied to the maximum non-coincident standby service to arrive at the basis for allocating GMC charges. In other words, a load factor (*e.g.*, 60 percent) would be applied to customer's maximum non-coincident peak demand and that product would then be used to represent, or act as a proxy for, the customer's portion of Control Area Gross Load. Under this alternative, the ISO would determine the billing determinants for the Scheduling Coordinator representing the UDC (or the QF itself) according to the following formula: the maximum non-coincident peak Standby Service demand (MW) x (8760 (hours in a year) / 12 (months per year)) x the load factor (*e.g.*, 60 percent). The result would be the monthly billing determinant that, in turn, would be multiplied by the GMC Control Area Services rate ($/MWh) to arrive at the charge for Control Area services.

Q. PLEASE DESCRIBE THE CONTRACT DEMAND METHOD.

A. The ISO's preferred approach would be to use the billing determinants for the demand component of the UDC Standby rate tariffs. This method is preferred because it relies on public information provided in the utilities' retail rate cases. In addition, it would avoid the need for audits of utility billing data that I mentioned earlier in discussing the non-coincident peak demand method.

Standby contract demand is generally the lower of (a) the nameplate capacity of the customer's generating facility, or (b) the customer's peak demand. This definition is specifically stated in SCE's retail Standby tariff, Schedule S. The amount standby contract demand is the maximum demand that the utility is expected to provide for backup service and is dependent upon the relationship between the two variables (*i.e.*, the capacity of the generating facility and the customer's peak demand). The determination of the maximum demand can be illustrated using the following two scenarios: (A) a customer with a generating facility that has a capacity of 3MW and a peak demand of 10MW, and (B) a customer with a generating facility that has a capacity of 10MW and a peak demand of 3MW. In the first example, the highest amount of generation the UDC would be required to back up would be the capacity of generating unit or 3MW (the remaining 7 MW of peak demand would already be served under another service schedule, *e.g.*, as Supplemental Load). In the second example, the highest amount of generation the UDC would be required to supply would be the customer's peak demand of 3MW.

After the contract demand amount is determined, a load factor would then be applied to derive the actual billing determinants for the billing period. The load factor could be obtained by reference to the particular class of standby customer or could be up to 100 percent of the contract demand. The classes of Standby customers can been seen in my Exhibit (Ex. No. ISO-13). The load factor would be based on the workpapers supporting the standby rate and other aspects of revenue allocation and rate design before regulatory commissions. The ISO is reviewing the use of the alternative load factors, but believes either a load factor based on the class of Standby customers or some other load factor (up to 100 percent) could be reasonable.

Q. WHAT LOAD FACTOR SHOULD BE USED TO IMPLEMENT THE CONTRACT DEMAND METHOD?

A. First, it is important to recognize that each class of Standby customers for PG&E, SCE and SDG&E has a comparable class of full service customers (*i.e.*, customers that do not have on-site generation). These comparable full service classes are contained on the first sheet of my Exhibit (Ex. No. ISO-13, Column C). The ISO proposes that the load factor to be applied to the standby contract demands be determined by reference to the load factors for the comparable full service classes of the three utilities. As shown in my Exhibit, this results in load factors of less than 100 percent (ranging from 7.6 percent to 62.9 percent). These load factors represent a conservative estimate of the Control Area Gross Load that is represented by Load served by on-site generation.

Q. WHY DO YOU BELIEVE YOUR RECOMMENDED LOAD FACTORS RESULT IN A CONSERVATIVE ESTIMATE OF THE CONTROL AREA GROSS LOAD SERVED BY ON-SITE GENERATION?

A. To answer this question, one has to remember the factual scenarios I referred to earlier, *i.e.*, those customers whose on-site generation is a less than their total on-site Load (*i.e.*, their generation primarily serves a portion of their own Load) and those customers whose on-site generation is more than their total on-site Load (*i.e.*, they generally sell generation in excess of their own Load). For customers in the first category (the generation is less than the on-site Load), the contract demand is generally the nameplate capacity of the generating facility and a high load factor would be appropriate. The reason for this is that the generating unit would usually be supplying the full amount of Energy that it was capable of providing (limited only by the capacity factor of the unit itself). Since the load factors I'm recommending for such customers are not high load factors (*i.e.*, they are less than load factors of 70 percent and above), those load factors will produce a conservative estimate of the Control Area Gross Load for such customers. For customers in the second category (the generation is more than the on-site Load), the contract demand is generally the customer's peak demand and establishing load factors based on the load factors of comparable customers is a reasonable approach. The first page of my Exhibit sets forth the load factors I recommend for each Standby customer class and they are based on the load factors of the comparable full service customer classes (adjusted as I describe below).

Q. WOULD ANY ADJUSTMENTS BE MADE TO THE AVERAGE LOAD FACTOR FOR COMPARABLE FULL SERVICE CUSTOMERS?

A. Standby customers receive backup service from their utility from time to time, during scheduled and forced outages. The Energy use associated with this backup service appears in the metered Load data that the ISO already receives for settlement purposes. In order to avoid double-counting this Load (first through the estimate of the Load served by on-site generation, and again metered Load reported for settlements), the load factor of comparable full service customers should be reduced by a factor that represents the backup service that is already reported. The load factors shown on the first page of my Exhibit (column D) represent my recommended load factors *after* making the adjustment to avoid double counting of Load. Data available from PG&E's rate filings before the CPUC provide load factors averaging 4.3 percent for large customers and 27.1 percent for small customers for this component of Load. Until data become available from rate filings by SCE and SDG&E, the ISO will use this amount for these utilities, as well.

Q. ARE THERE ALTERNATIVES TO THE USE OF ESTIMATES OBTAINED BY THESE METHODS FOR THE PURPOSE OF BILLING OF THE GMC FOR THE LOAD REPRESENTED BY ON-SITE GENERATION?

A. Yes. Obviously, if a customer with on-site generation were to agree to forward the actual Load data to the ISO, there would be no need to estimate the billing determinants or Load. In addition, if a meter were installed that would meter the Generating Unit's output (including any auxiliary load) separately from the other meters or the Load itself, then the ISO could rely on actual metered Load to bill the GMC and would not use the formula for estimating that Load.

Q. ARE YOU SPONSORING ANY EXHIBITS IN CONNECTION WITH YOUR DIRECT TESTIMONY?

A. Yes, I am sponsoring Ex. No. ISO-13, which was prepared under my direction and supervision. This exhibit presents estimates of the portion of Control Area Gross Load that is represented by Load served by on-site generation, using the method proposed above.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.