BEFORE THE
PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking to Establish Policies and Cost Recovery Mechanisms for Generation Procurement and Renewable Resource Development	R.01-10-024

OPENING BRIEF OF THE CALIFORNIA INDEPENDENT SYSTEM OPERATOR

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In accordance with California Public Utilities Commission ("CPUC" or "Commission") Rule 75, the California Independent System Operator ("CA ISO") respectfully submits its opening brief in this matter. The CA ISO's key interest in this proceeding is definition by the CPUC of a resource adequacy requirement that is clear, effective and enforceable.

I. INTRODUCTION AND SUMMARY

The CA ISO considers that a resource adequacy requirement is needed 1) to provide, in the long-term, a platform for future investment in California's electric infrastructure; 2) to support, in the shorter-term, reliable system operations; and 3) to mitigate the amount and effect of market power in California's wholesale electricity markets by encouraging utilities to enter into long-term contracts. A resource adequacy requirement is necessary to assure that sufficient resources are procured in forward markets, as the CA ISO has no ability to "create" additional resources in the day-ahead/real-time time frames to provide for reasonable spot market prices and to assure sufficient resources to meet load.

In testimony and during the hearings, the CA ISO laid out its ideas for an effective resource adequacy requirement. Such a requirement should include: 1) a well defined requirement that the utilities procure in the forward markets, sufficient resources to meet their projected peak load plus adequate planning reserves, with reasonable limitations on reliance on short-term and spot market purchases for capacity needs; 2) consistent definitions and counting conventions; 3) a process to review utility procurement plans, and an annual process to update them and to ensure they are on-track; 4) an explicit obligation to procure at least one month ahead of time adequate capacity to meet 100% of the projected peak load plus the planning reserve level; 5) a process to make the resources procured by the utilities known and available to the CA ISO for commitment and use, if needed, in the day-ahead, hour-ahead and real time markets; and 6) well defined consequences for a failure by the utilities to meet their resource adequacy obligations.

If necessary to address market power concerns in the capacity market, the CA ISO could support phasing in the target reserve level over the next three years (thus the utilities would achieve compliance with the full target reserve level by the beginning of 2007), provided that during that time, the CPUC puts into place and enforces a requirement that the utilities procure at least one month ahead of time sufficient capacity to meet 100% of their projected peak load plus the applicable target reserve level. The CA ISO notes that its support for the phase-in is based solely on the concern about undue supplier market power if utilities must meet the full target reserve level immediately. As discussed later in this brief, the CA ISO does not believe that the utilities' long term procurement plans are adequate to demonstrate that there are sufficient resources available over the next three years to meet load. Rather, during the phase-in, the sufficiency of resources will have to continue to be explored annually.

In addition to questions of overall supply sufficiency; a resource adequacy mechanism must address deliverability. Resources cannot be counted on to serve load if they cannot be delivered. Thus, the CA ISO considers that the CPUC should, based on the existing record, decide as a threshold matter that deliverability must be shown for resources the utilities propose to rely upon to meet their needs. The deliverability requirement is among the issues to be defined in more detail in the workshops proposed in a Joint Recommendation of a number of key parties. Provided that the CPUC rules deliverability to be a requirement as a threshold matter, the CA ISO considers that the details of how deliverability can be shown should be addressed in workshops.

The testimony has highlighted the need for a better understanding of and coordination between the resource adequacy deliverability requirements and the CA ISO's annual grid planning and interconnection processes. Further, during the time when the hearings were underway, the Federal Energy Regulatory Commission ("FERC") issued Order 2003 in Docket RM02-1-000, establishing interconnection requirements for large generators (above 20MW)("FERC Order 2003"). Standardization of Generator Interconnection Agreements and Procudures, 104 FERC ¶ 61,103 (2003). Some of the concepts in FERC Order 2003 could provide for, or support the development of, a mechanism to assure deliverability of new resources.

Provided that the CPUC addresses the key elements of a resource adequacy requirement as threshold matters, the CA ISO supports a workshop process to develop the details. The CA ISO considers that the work plan for workshops introduced by the Joint Parties (Pacific Gas and Electric Company ("PG&E"), Southern California Edison Company ("SCE"), San Diego Gas and Electric Company ("SDG&E"), the California Energy Commission ("CEC"), the Office of

Ratepayer Advocates ("ORA"), The Utility Reform Network ("TURN")), Exh. 137, Workplan Requested by Administrative Law Judge, sets forth fairly comprehensively the issues that must be addressed to establish an effective resource adequacy requirement. Judge Walwyn suggested that she intends to rule on a good number of the issues listed in the Joint Parties' work plan as threshold matters, and proposed a significantly scaled back work plan for the workshop process which was distributed electronically on August 5, 2003.

Upon review, the CA ISO is largely supportive of the approach proposed by Judge Walwyn. Thus, the CA ISO asks the Commission to determine as threshold matters that:

1) The utilities have an obligation to serve their load, which includes an obligation to procure sufficient capacity in the forward market to serve their forecasted load plus a planning reserve margin of 17%, which may be phased in over three years;

2) The utilities must minimize their reliance on short-term and spot market purchases to meet their capacity needs. In the year-ahead time frame, utilities must demonstrate that they have built or procured sufficient capacity to meet 90-95% of their projected peak load plus the applicable planning reserve margin; in the month-ahead time frame, utilities must demonstrate that they have built or have procured sufficient capacity to meet 100% of their projected peak load plus the applicable planning reserve margin;

3) The utilities must demonstrate that the resources they have procured are deliverable to their load;

4) The utilities must update their procurement plans annually, and must report, on a monthly basis, the resources procured pursuant to the above requirements to the CPUC and to the CA ISO;

5) The plans and the reports submitted by the utilities must be prepared using consistent reporting formats and information;

6) All resources procured by the utilities must be made available to the CA ISO, in the day-ahead timeframe, consistent with the scheduling and unit commitment rules ultimately adopted by FERC for the CA ISO.

The CPUC could direct the parties to further define the following details of the resource adequacy framework in workshops:

1) The calculation of load and resources;

2) The details of how deliverability will be shown;

3) Standard format and reporting requirements for the annual plan updates and monthly reports.

One significant concern the CA ISO does have with Judge Walwyn's work plan is the suggestion that it would be premature for the CPUC to address issues associated with coordination among the CPUC and the CA ISO, and integration of the resource adequacy process developed by the CPUC and the CA ISO's market redesign effort ("MD02"). During the hearings the CA ISO stressed the importance of a seamless process from long-term planning, through to the annual, monthly and day ahead and real time, time frames, to ensure that there are sufficient supplies available to meet load. Most parties agree that the resource adequacy requirement developed by the CPUC must be coordinated with the CA ISO's market and operational rules and requirements. This is because the CA ISO is responsible for reliable operation of the system in real-time and compliance within its control area with national and regional reliability criteria, including the Minimum Operative Reserve Criteria ("MORC") of Western Electricity Coordinating Council ("WECC" formerly the Western Systems Coordinating Council or "WSCC") and the North American Electric Reliability Council ("NERC"). See Pub. Util. Code § 345.

To maximize the value and effectiveness of the utilities' procurement activities, there needs to be a well-understood hand-off between the utilities procurement activities in the forward markets, and the CA ISO's activities in the day-ahead and real-time periods. At a minimum, there must be 1) an *obligation* to make resources procured by the utilities available to the CA ISO for possible commitment and use by the CA ISO, consistent with the rules and procedures established by the CA ISO; and 2) a *mechanism* to ensure that the resources procured

by the utilities to meet their resource adequacy requirements are available for use by the CA ISO in the appropriate time frames. The CA ISO's proposed unit commitment procedures, as defined in its Revised Comprehensive Market Design proposal filed at the FERC on July 22, 2003 ("July 22 Filing"), is such a proposed mechanism or tool. Nonetheless, it will be necessary to ensure that the appropriate contractual provisions are in place to require resources procured by the utilities to make their capacity subject to those unit commitment procedures.

Further, it will be important to ensure that going forward, contracts entered into by the utilities are designed taking into account the CA ISO's proposed locational marginal pricing ("LMP") regime. Absent such recognition and conformance, resources deemed economic at the time of procurement could be rendered uneconomic or not suitable for dispatch by the utilities to serve load.

Adjustments to MD02 may be appropriate once the CPUC has established resource adequacy requirements for the utilities, in order to provide for consistency between those requirements and MD02, or to fill in the gaps. To ensure this occurs, the CA ISO committed, in its July 22 Filing, to reevaluate the MD02 proposal once the state establishes a resource adequacy framework. If the CPUC fails to adopt elements of a resource adequacy requirement because of uncertainty associated with MD02, this would set up an unhelpful "chicken and egg" dynamic. The CA ISO has not included elements of a resource adequacy requirement in its MD02 proposal in order to give the CPUC the opportunity to address resource adequacy in the first instance. This is because as to aspects of MD02 that relate to resource adequacy, the resource adequacy regime adopted by the CPUC provides the foundation for adjustments in the CA ISO tariff. However, if the CPUC now opts to delay such a decision because MD02 is not yet final, progress will never be made. Coordination and the hand-off between CPUC

jurisdictional resource adequacy activities and CA ISO operations is a key component of a comprehensive and effective resource adequacy regime. The CA ISO invites the CPUC to address these issues in the first instance, and is prepared to undertake whatever level of dialogue and communication is necessary to provide for consistent requirements. There is, however, no justification for delay.

The CA ISO reviewed the utilities long-term procurement plans and part of the record pertaining to the utilities 2004 short-term plans. As to the long-term procurement plans, the CA ISO is generally supportive of the recommendation of the Joint Parties, that the utilities should be required to re-file long-term procurement plans in time for a Commission decision on the plans by the end of 2004. The plans should be filed after the rules for resource adequacy are defined in more detail by the Commission, following these hearings and the workshop process. In this manner, a consistent evaluation can be made since such an evaluation was not possible given the disparate material included by each of the utilities' April 15 long-term procurement plans. See Exh. 3, Opening Testimony of Mary Jo Thomas Regarding the Long-Term Procurement Plans of the Investor owned Utilities on Behalf of the California Independent System Operator ("Thomas Opening") at 2-4.

While it did not undertake an in-depth review of the utility 2004 short-term procurement plans, upon review of the record regarding the plans, the CA ISO has the following concerns: 1) two of the three utilities propose an undue reliance on short-term and spot market purchases, and none of the utilities has committed to firming up these purchases before the hour ahead market; and 2) the short-term plans in combination with the long-term procurement plans fail to indicate how the current level of reserves will be kept from eroding. The CA ISO considers that even while the details of resource adequacy are being defined, progress can and should be made in

these areas in 2004. For example, the utilities could and should be required to firm up their capacity purchases at least a month ahead of time.

In her May 30, 2003 ruling, Judge Walwyn asked the parties to address in their testimony the provision of reserves for direct access, community aggregation and self-generation customers. The CA ISO has not and does not take a position on the entity that should provide reserves for these customers; although the CA ISO strongly supports consistent reserve requirements for all Load Serving Entities ("LSEs"), including those that serve direct access, community aggregation and self-generation customers. However, the CA ISO urges the CPUC to put into place the requirements that would allow the CA ISO to continue to verify that the appropriate entity has met its responsibilities for procuring sufficient operating reserves. Finally, the CA ISO notes that there is insufficient information in the record to determine a priori that all firm liquidated damages contracts include sufficient reserves to meet resource adequacy requirements.

During the hearings, the Cogeneration Association of California and the Energy Producers and Users Coalition ("CAC/EPUC") expended significant hearing time on the question of whether operating and planning reserves should be procured for load served by a distributed generator, on a net or gross load basis. The CA ISO continues to believe that given the physical nature of interconnected system operations, operating and planning reserves should be procured on a gross load basis, because the system must be available to meet the needs of gross load in the event that the distributed generator ceases to operate. Nonetheless, on August 12, 2003, the FERC affirmed an initial Administrative Law Judge decision, which determined that operating reserves should be procured on a net load basis. See California Independent System Operator Corporation, 104 FERC ¶ 61,196 (2003). The CA ISO has determined that it

will not seek rehearing of the FERC order. The CA ISO is not aware of what steps if any WECC will take as a result of the FERC order; and whether these will require the CA ISO address the issue further.

In sum, the CA ISO urges the CPUC to put into place an effective resource adequacy regime that effectively provides for the forward procurement by the utilities of the resources needed to meet their loads. This requirement is indispensable to assure reliable and cost-effective electric service to the utilities' customers.

II. THE CPUC SHOULD ADOPT A CLEAR, EFFECTIVE AND ENFORCEABLE RESOURCE ADEQUACY REQUIREMENT TO SUPPORT RESOURCE SUFFICIENCY AND RELIABLE REAL TIME OPERATIONS AND TO MITIGATE MARKET POWER.

There was little disagreement among the key stakeholders that participated in these proceedings about the need for the Commission to define a clear and effective resource adequacy mechanism. Parties as diverse as PG&E, SCE, SDG&E, the CEC, ORA, TURN, the Alliance for Retail Energy Markets ("AreM") and the Western Power Trading Forum ("WPTF") support a well-defined resource adequacy requirement. The CA ISO considers that a resource adequacy requirement is needed 1) to provide, in the long-term, a platform for future investment in California's electric infrastructure, Exh. 87, Opening Testimony of Philip Pettingill and Anjali Sheffrin Regarding Long-Term Procurement Plans of the Investor Owned Utilities on Behalf of the California Independent System Operator ("Pettingill/Sheffrin Opening") at 2; 2) to support, in the shorter term, reliable system operations, id.; and 3) to mitigate the amount and effect of market power in California's wholesale electricity markets by encouraging utilities to enter into long-term contracts, Id. at 30.

A resource adequacy mandate is a key but missing component to put into effect the utilities' obligation to serve; the CA ISO is not a supplier of last resort. Moreover, the CPUC should put into place a resource adequacy mandate for the utilities notwithstanding the possibility of somewhat different requirements on different LSEs. Although the CA ISO supports consistent requirements for all LSEs within the control area, and ideally the region, work on this objective cannot proceed if the CPUC, which has jurisdiction over the utilities, delays or reduces resource adequacy requirements for the utilities which are the biggest LSEs within California.

A. A well-designed resource adequacy requirement will support development of needed new resources and maintenance of existing resources.

A well-designed resource adequacy mechanism "would provide incentives for the LSEs . . . to enter into long-term contractual arrangements with suppliers to satisfy their capacity obligations. Such a mechanism would provide benefits to both consumers and suppliers. Consumers would benefit since there would be sufficient resources available to serve load. Suppliers would also benefit by having a revenue source to finance their capital investments." Exh. 87, Pettingill/Sheffrin Opening at 30. To achieve this objective, a resource adequacy requirement should have a process for review of the utilities' plans for how they will meet their customers needs in the short, medium and long-term and requirements for sufficient specificity to permit on-going monitoring of the progress on the key elements of the plan and to make the modifications as needed.

No party disputed the importance of a resource adequacy requirement, or the need for adequate contracting to provide for sufficient capacity to meet loads. See e.g. Tr. (Mobasheri) at 3782; (Stern) 5100: 20-28; 5101:1-2. Perhaps the most compelling witness on the matter was Dr.

Mobasheri on behalf of ORA. As the representative of ratepayers, ORA must balance cost and reliability considerations. Yet, throughout the proceedings, ORA stressed the importance of adequate forward contracting to assure adequate and reasonably priced resources to meet demand. See e.g. Tr (Mobasheri) at 3782; 3799-3801; 5545.

As Dr. Mobasheri explained, in the current market circumstances, it is unlikely that new resources will be constructed without long-term contracts around ten years in length. Tr. (Mobasheri) at 3782. Moreover, existing resources may not remain in operation without adequate forward contracting to cover ongoing capital and maintenance costs. Tr. (Mobasheri) at 5545: 3-15. Dr. Mobasheri identified one issue as creating particular concerns: generating units that require additional emission control equipment in the near future in order to continue to meet air quality rules. Tr. (Mobasheri) at 3799-3801; Exh. 56, ALJ Request for Information Regarding Retrofitting Units. As Dr. Mobasheri noted, some 1600 MWs are at risk in Northern California. Id. Mr. Woodruff also admitted on cross that "there is a cost to keeping power plants in working order so that they are available . . . ." Tr. (Woodruff) at 5513: 8-10.

Thus, the record clearly shows that to ensure resource sufficiency going forward, it is important to have a resource adequacy requirement that provides for sufficient forward contracting by the utilities. Forward contracting is needed to provide a revenue stream that will support the development of new resources and the continued operation of existing resources.

B. A well-designed resource adequacy requirement will support reliable real-time system operations.

A well-defined resource adequacy requirement will also support, in the shorter-term, reliable system operations. Exh. 87, Pettingill/Sheffrin Opening at 2. As Mr. Pettingill and Dr. Sheffrin emphasized "[a]ll activities related to resource adequacy – from 20-year plans to real-

time emergency procedures – must form an integrated program whose purpose is to serve load in real-time." Id. While this aspect of a resource adequacy requirement was emphasized less during the hearings, it is of great importance to the CA ISO as the control area operator responsible for reliable real time system operations for a large portion of California. See Exh. 87 Pettingill/Sheffrin Opening at 26. An appropriate resource adequacy requirement can support reliable real-time system operations in three ways: 1) by supporting development and maintenance of necessary resources, and thus minimizing the need to rely on involuntary load curtailment to balance supply with load; 2) by assuring that the CA ISO has information ahead-of-time regarding the resources that have been procured by the utilities to meet their load; and 3) by providing for use of these resources by the CA ISO when needed to balance supply with load.

1. A well-designed resource adequacy will minimize the risk of very high prices and of involuntary load curtailment to balance supply with load.

As the control area operator, the CA ISO "has the responsibility to assure that sufficient operating reserves are maintained within the control area that it operates". Exh. 87 Pettingill/Sheffrin Opening at 26. "Further, the CA ISO must continuously balance connected load with the available resources and, if inadequate resources are available, the CA ISO may have to shed load to maintain compliance with applicable reliability criteria." Id. The section above discusses the fact that a well-designed resource adequacy requirement will support the development of needed new resources and maintenance of existing resources.

By encouraging forward contracting and hence an adequate level of resources, a well-designed resource adequacy requirement should provide for adequate resources and reduce the risks 1) of high prices in short-term markets and 2) that to balance supply with load the CA ISO would have to drop load. In addition, a requirement that the utilities procure 100% of their

needs plus a planning reserve no later than a month ahead of time would further reduce the risk that unexpected changes in system conditions such as high loads or low hydro levels around the West would result in insufficient or scarce resources in real time. See Tr. (Sheffrin) at 4412: 22-28; 4413: 1-5.

2. A well designed resource adequacy requirement should assure that the CA ISO has information ahead-of-time regarding the resources that have been procured by the utilities to meet their load.

A well-designed resource adequacy requirement should assure that the CA ISO, as control area operator, has information ahead of time of the resources that have been procured and will be made available by the utilities to meet their load. With this information, the CA ISO can more accurately determine whether it needs to take supplementary steps to assure that there are sufficient resources to meet loads in up-coming days, such as committing units through the existing must-offer obligation process or other available unit commitment processes (such as the proposed residual unit commitment ("RUC") process), or if the must offer obligation is no longer in existence and insufficient resources bid into the day-ahead market and are available in RUC, by taking aggressive steps to procure additional power and encourage conservation by consumers.

The CA ISO has proposed a monthly reliability obligation, which would be enforced in part through a report setting forth the resources that have been lined up by the utilities to meet their load in the coming month. The report would be provided to the CA ISO at the same time that it is provided to the CPUC. Exh. 87 Pettingill/Sheffrin Opening at 17-18, 23.

Monthly information on the resources that utilities have lined up to meet their load is very important to the CA ISO. As Mr. Jaske explained, pre-operating day reporting to the CA ISO "is an important dimension to the ISO moderating, changing its practices on the basis of knowledge about the level of advance commitments that LSEs have made so that the ISO doesn't remain in the position that the ISO is in, which is ignorance prior to day ahead and sort of gets antsy and anxious about what it ought to do to take actions with what it perceives to be problems, which may or may not be problems simply because it does not know." Tr. (Jaske) at 5549: 18-26. Thus, the CA ISO must take actions with insufficient information that could either unnecessarily increase costs, or place reliability at risk.

The CA ISO notes that it often cannot wait until operation of its day ahead, and hour ahead ancillary service markets before taking action to ensure that there are adequate resources plus reserves to meet projected load given the long-lead times for starting up certain generators, particularly the large ones. See Tr. (Pettingill) at 4478: 15-17. Start up lead times can be quite long, 24 hours or more. Id. Moreover, as Mr. Pettingill explained, currently when the CA ISO receives utility day ahead schedules it has no way of knowing whether schedules that it perceives to be unduly low are the result of a market strategy (such as an intent to rely on the hour ahead market) or a failure to secure sufficient resources. Tr. (Pettingill) at 4476: 26-28, 4477:1-6.

To address these concerns, the CA ISO requires information about the resources that have been procured by LSEs ahead of time in a manner that is not influenced by particular market strategies. Tr. (Pettingill) at 4477: 7-11. Unless it has this information on a pre-operating day basis, the CA ISO will have to continue to take action without critical information. The results will likely be less than optimal both in terms of reliability and in terms of costs.

3. A well-designed resource adequacy requirement should provide for use of resources by the CA ISO when they are needed to balance supply with load.

A well-designed resource adequacy requirement should provide for use by the CA ISO of the resources procured by LSEs to meet their load. See Exh. 87 Pettingill/Sheffrin Opening at 12-13. In this manner, to the extent that such resources are not scheduled by LSEs to meet their loads, but become necessary in the day-ahead or real time-time frames to balance resources with load, the CA ISO could use the resources for this purpose. Tr. (Pettingill) at 4359-60.

Currently the must-offer obligation ensures that existing supply can be called upon to meet load if it is available and necessary. Exh. 87 Pettingill/Sheffrin Opening at 12. The CA ISO considers that the must-offer obligation is an important mechanism to preclude the exercise of market power through physical withholding. Id. Nonetheless, there has been significant resistance to the must-offer obligation by suppliers, and the CA ISO has a concern that FERC may in the future lift the requirement. Id. Tr. (Sheffrin) at 4440: 16-23; Tr. (Stern) at 5784:13-16. Moreover, the must-offer obligation serves a different function from resource adequacy and should not be used as a substitute for a comprehensive and effective resource adequacy requirement. See tr. (Sheffrin) at 4442: 22-28.

As Dr. Mobasheri pointed out, the must-offer obligation cannot assure that new resources will be built or that existing plants continue to operate. Tr. (Mobasheri) at 5545:11-14. This is because the must-offer obligation does not provide a platform for existing or new resources to recover their costs. Only a resource adequacy requirement that provides a stable and adequate revenue stream to support recovery of the costs of constructing and maintaining resources in

California and to thus to assure that adequate resources are available to serve load. Thus, the must offer obligation should not be viewed as a substitute for resource adequacy requirements.

Leaving the must-offer obligation aside, from a resource adequacy standpoint, the point is that if utilities procure resources to meet their loads, these resources should be made available to meet real-time needs. "[T]he procurement of adequate capacity in the forward market is critical, yet, that capacity is of little value to load if it is not available to serve load when needed." Exh. 87 Pettingill/Sheffrin Opening at 12-13. Thus, the CA ISO does not believe it is prudent or appropriate to wait and see whether the FERC retains the must-offer obligation before putting into place a requirement that resources procured by the utilities be made available to the CA ISO if needed to meet real time needs.

The CA ISO agrees that in designing rules for such use by the CA ISO, utilities should be allowed to indicate restrictions on energy limited resources. Tr. (Pettingill) at 4439: 9-22. In fact, the CA ISO already has mechanisms to allow for restrictions on the use of certain units in its current must-offer regime, which it intends to retain going forward. Id. The CA ISO notes, however, that it operates as a pool, and that the purpose of having resources made available to the CA ISO would be so that the CA ISO could use them to meet system needs rather than merely the needs of the LSE that made the resources available. There are benefits to operating as a pool; if the utilities were not part of a larger control area, larger reserve margins might be needed (certainly operating reserves would have to be calculated taking into account the single largest contingencies in the service areas of each of the utilities). Thus, there is a need to balance the benefits of pooled operation, with the needs of LSEs to garner the benefit of their energy limited resources. The CA ISO acknowledged this need in its MD02 proposal with respect to

the specific requirements and functioning of its day-ahead scheduling and commitment procedures. (July 22 Filing, Transmittal Letter at 109-11.)

In sum, a well-designed resource adequacy requirement should include a mechanism to ensure that supplies procured in forward markets by the utilities are made available to the CA ISO in the day-ahead and real-time markets for use as needed to meet load. The must-offer obligation is not an adequate substitute for such a requirement.

C. A well-designed resource adequacy requirement will help mitigate the amount and effect of market power in California's wholesale electricity markets.

The CA ISO's recommendations for a resource adequacy requirement will reduce the incentive of suppliers to exercise market power by engaging in either physical or economic withholding. Exh. 87 Pettingill/Sheffrin Opening at 30. Physical withholding involves a deliberate withholding of capacity from the market even though a plant could operate, with the purpose of increasing or spiking market prices; economic withholding involves bidding generation into the market at prices significantly higher than the marginal cost of production from that generation, also with the purpose of increasing market prices. Id. Physical and economic withholding can occur on both a system–wide and on a locational basis and result in market prices above competitive levels. Id.

By limiting undue reliance on short-term and spot market purchases, a well-defined resource adequacy requirement would encourage forward contracting. Forward contracts in turn reduce the benefit to sellers of very high spot market prices, and hence of increasing prices through economic or physical withholding. Exh. 87 Pettingill/Sheffrin Opening at 30. For example, with regards to energy sales and purchases, forward contracts tend to create incentives for suppliers to ensure that spot market prices are competitive, as suppliers will have an

obligation under the contract to supply energy at the prearranged fixed price. Id. Long-term contracts have the additional benefit of reducing the impact of high spot prices on customers, since a smaller quantity of short-term and spot-market purchases would be required to meet the needs of load. Id.

Further, forward capacity sales and purchases allow the utilities to obtain a diverse portfolio of resources and to increase competition in the energy market. Id. at 31. Greater competition in the energy markets encourages suppliers to bid their energy competitively in the day-ahead/hour-ahead and real-time markets. Id. In addition, if a resource adequacy requirement includes a requirement that contracted capacity be bid into the real time energy markets if it is not scheduled, the capacity obtained to meet the resource adequacy requirement would be contractually precluded from engaging in physical withholding. Id.

Finally, a resource adequacy requirement that includes appropriate deliverability requirements would also reduce the ability of suppliers to exercise local market power. Id. A requirement that utilities obtain capacity that is deliverable, or purchase capacity locally in transmission constrained areas to serve load within the constrained area, encourages the utilities to consider and compare over the long-term a variety of options to meet local reliability needs including purchase of energy/capacity, development of new utility-owned generation, investment in transmission upgrades, or demand side management. Id. By addressing locational needs proactively, utilities would be in a stronger bargaining position since suppliers would know utilities have alternatives available to meet local load such as transmission upgrades or putting into place alternative generation.

In sum, a resource adequacy requirement could significantly limit the opportunity and incentive of suppliers to exercise market power.

D. The CA ISO cannot assure that supplies will match load in real time unless LSEs in its control area contract with sufficient capacity.

One particularly disturbing implication that arose during the hearings is that load-serving entities can legitimately rely on the CA ISO as the supplier of last resort for procurement of sufficient capacity. This suggestion was not stated explicitly by any party. Nonetheless, it is an implicit corollary of rejecting a requirement that utilities procure sufficient capacity to meet their load in the forward markets (as opposed to relying on last minute spot and real time energy markets to meet their capacity needs). While the CA ISO has and will continue to satisfy its responsibilities with respect to 1) assuring that the control area meets the WECC requirements for operating reserves, and 2) balancing generation and load in real-time consistent with WECC requirements, it cannot and should not be responsible for forward procurement of the resources necessary to serve load.

In making its decision on the design of a resource adequacy requirement, it is very important that the CPUC understand and consider that the CA ISO is not a provider of last resort for procurement of sufficient capacity to reliably serve load at a reasonable cost. See Tr. (Anjali) at 4464: 18-25; 4471: 7-13. The CA ISO operates day ahead and real time markets for Ancillary Services and Real Time Energy and balances supply with load in real time. See Exh. 87, Pettingill/Sheffrin Opening at 26-27. As Mr. Pettingill indicated " From our perspective in being able to operate a reliable grid, what we will do is balance resources to load or load to available resources, but we have to make sure that the integrated grid maintains itself . . . ." Tr. (Pettingill) at 4392: 23-27. Moreover, as Dr. Sheffrin explained "if the utilities have an obligation to serve their load and a number of contingencies can occur that need to be factored in reliably serving the load, they need to plan for it. We can't invent resources at the last minute. Only they can bring resources to the market and assure that it's there to meet their load obligations." Tr. (Sheffrin) at 4471: 7-13.

Because the CA ISO operates very short-term markets rather than securing capacity ahead of time, relying on CA ISO markets to meet customer needs means taking the risk of insufficient supplies. If the CPUC declines to require utilities to "firm-up" the capacity they need to meet their load in the forward markets (for example a month ahead of time as the CA

ISO suggests) it must be with the clear understanding that the CA ISO cannot make up for a failure on the part of the utilities to procure sufficient capacity.

In sum, the CA ISO cannot ensure that sufficient resources will be available in real-time to serve load at a reasonable cost. Rather, it should be the objective of a resource adequacy requirement to ensure that LSEs procure sufficient capacity in the forward markets such that there will be sufficient supplies to serve load in real-time. If utilities are excused from procuring in the forward markets sufficient capacity to meet their needs, the CPUC and LSEs must understand that the CA ISO may be faced with the need to either pay high prices for scarce resources in the day ahead or real-time time frames, or if there is insufficient capacity available, to institute involuntary load interruptions.

E. The CA ISO supports consistent requirements for all LSEs but this goal should not delay adoption of a resource adequacy requirement for the utilities.

In her questioning of CA ISO witnesses, Judge Walwyn raised the concern that imposing resource adequacy requirements on the utilities without similar requirements on municipal utilities ("the munis"), could result in the munis leaning on resources procured by the utilities and escaping a fair share of the cost of reliable system operations. Tr. (Walwyn) at 4480. To avoid this concern, the CA ISO supports consistent requirements for all LSEs. Exh. 87, Pettingill/Sheffrin Opening at 13. The CA ISO has recognized that "if there are disparate target reserve levels within a region, areas with less stringent target reserve levels could 'lean on' areas with more stringent target reserve levels." Exh. 87, Pettingill/Sheffrin Opening at 13.

However, given that the CPUC and the state specifically requested the CA ISO to refrain from including resource adequacy requirements in its MD02 filings, the possibility of disparate requirements cannot justify the CPUC delaying the imposition of or reducing resource adequacy requirements for the utilities. When the CPUC requested that the CA ISO forbear from including a resource adequacy requirement in the CA ISO's MD02 filings, see Tr. (Sheffrin) at 4437: 5-11, it was aware of the limits on its jurisdiction to apply resource adequacy requirements on some of

the LSEs within the CA ISO's control area. If the approach of establishing resource adequacy requirements in the CA ISO tariff is unacceptable, then the CPUC is the only other place in which resource adequacy requirements can be put into place for the utilities.

Moreover, the CEC is examining the issue of promoting resource adequacy requirements for the munis. Tr. (Jaske) at 5010: 7-16. In addition, the CA ISO has offered to consider modifications to its MD02 effort to provide for consistency and/or fill-in gaps as necessary once the CPUC had finalized the rules for utility resource adequacy. See (Sheffrin) at 4480:11-21. However, in order to work on consistency, it is necessary for the CPUC to establish resource adequacy rules so as to provide a benchmark for others.

In sum, the CA ISO continues to strongly support consistent requirements for all LSEs and will do what it can to provide for such consistent requirements, while respecting its governing board's direction to work with the state in the first instance to try to get resource adequacy requirements in place. However, a concern about possible differences in resource adequacy requirements among all LSEs provides no justification for a failure by the CPUC to impose the requirements that are needed for the utilities to meet their obligation to serve.

F. The possibility of a core/non-core program does not justify delay in the creation and enforcement of a resource adequacy requirement.

WPTF and PG&E raise the possibility that there will be a core/non-core program in California, and imply or suggest that utility procurement activities should avoid locking in too many resources and undermining a potential core/non-core approach. See Exh. 100, Testimony of the Western Power Trading Forum on Utility Long-Term Resource Plans at 14-15; Exh. 24, Pacific Gas and Electric Company's Long-Term Procurement Plan at 1-32 – 1-34. The CA ISO certainly acknowledges that prudent planning should consider potential policy changes that could impact procurement activities. However, the CA ISO is also concerned to the extent that the possibility of policy changes is used to delay progress toward assuring sufficient resources to meet customer needs in California.

The CA ISO notes that its proposals allow the utilities to rely on short, medium, and long-term options to meet their resource adequacy needs. See Tr. (Pettingill) at 4426: 16-28; 4427: 1-3. Thus, the utilities can and should review potential regulatory and other risks and adopt strategies to reduce the risks of potential changes. However, these risks need to be balanced against the risk that if no mid-to-long term commitments are made, there will be insufficient resources in California to meet the needs of customers. Thus, the CA ISO would be very concerned if the possibility of the implementation of a core/non-core program is used as justification for delaying commitments to resources that will be needed to meet load in the coming years.

The CA ISO is supportive of the position of the utilities that to the extent they make prudent commitments to meet the resource needs of their customers, there must be adequate mechanisms for recovery of the costs of the commitments from those customers. See e.g. Exh. 24, Pacific Gas and Electric Company's Long-Term Procurement Plan at 1-30 – 1-32. Reasonable cost-recovery policies are a better way to address the possibility of future policy changes than a failure to contract for needed resources. This is because a failure to contract for needed resources creates the risk that needed resources will not remain in service or will not get built which in turn puts upward pressure on prices and degrades reliability.

Finally, the CA ISO notes that, in principle, direct-access and other mechanisms for changing suppliers need not create concerns for resource sufficiency, as long as there are effective resource adequacy requirements in place that apply consistently to all the LSEs.

III. ELEMENTS OF A WELL-DESIGNED RESOURCE ADEQUACY REQUIREMENT.

To garner the benefits listed in the section above, a well-designed resource adequacy should include the following key elements: 1) a well defined requirement that the utilities procure in the forward markets sufficient resources to meet their projected peak load plus adequate planning reserves, with limitations on allowed reliance on short-term and spot market purchases for capacity needs; 2) consistent definitions and counting conventions; 3) a process to

review utility procurement plans, and an annual process to update them and to ensure they are on-track; 4) an explicit obligation to procure at least one month ahead of time adequate capacity to meet 100% of projected peak load plus the planning reserve level; 5) a process to make the resources procured by the utilities known and available to the CA ISO for commitment and use, if needed, in the day-ahead and real time markets; 6) well defined consequences for a failure by the utilities to meet their resource adequacy obligations. In addition, utilities should be required to demonstrate that the resources they procure are deliverable, and should consider the design of the wholesale market in designing the long-term procurement contracts. The CPUC's decision should, as a threshold matter, adopt a resource adequacy requirement that includes these key elements. The rest of this section explains each of the key elements.

Judge Walwyn suggested during the hearings that she will decide most issues associated with a resource adequacy requirement as threshold matters, but expressed some support for a work shop process to develop the details on: 1) how the load obligation would be determined for purposes of a resource adequacy requirement; 2) how resources should count towards meeting that load; and 3) deliverability requirements. The CA ISO supports a work shop process to develop these details and considers that, in addition, it may be helpful for the parties to discuss during the workshops standard format and reporting requirements for the annual plan updates and monthly reports.

A. An Acceptable Planning Reserve Level and Limitations on Reliance on Spot Market Purchases.

In establishing a resource adequacy requirement, two of the most important questions to be determined by the Commission are the appropriate planning reserve level and an appropriate limit on spot market purchases. The CA ISO considers that these issues are related. A very high planning reserve level would provide little better assurances of adequate resources to serve load than a very low planning reserve level if utilities are allowed to show that they can meet the reserve level by an unbounded reliance on spot market purchases. See Exh. 87

Pettingill/Sheffrin Opening at 16. In fact, as Dr. Stern testified, in the past the level of capacity available for purchase in the market was a factor considered by SCE in determining an appropriate planning reserve level. Tr. (Stern) at 5583: 18-24. For purposes of simplicity the CA ISO will discuss each of these concepts in turn. Nonetheless, the one provides little benefit without the other.

Based on the record in this case, the CA ISO considers that pending further analysis, the CPUC should adopt the planning reserve level suggested by the California Power Authority. If the CPUC is concerned about market power, it could phase the level in over the next three years provided that utilities are still required to procure 100% of their projected peak load plus the applicable planning reserve on a month ahead basis.

Further, the CA ISO considers that the CPUC should amend its current guideline regarding reliance on spot market purchases. At the year ahead time frame, utilities should demonstrate that they have sufficient capacity to meet between 90-95% of their peak load, plus the applicable planning reserve. Moreover, the utilities should be required to "firm-up" 100% of the capacity they need to meet their load and the applicable planning reserve level at least one month ahead of time.

1. The record supports adoption of a 17% planning reserve level based on dependable capacity to be applied on a monthly basis.

In its testimony, the CA ISO supported a 17% planning reserve level based on dependable capacity and calculated monthly consistent with the final recommendation of the California Power Authority ("CPA"). See Exh. 87, Pettingill/Sheffrin Opening at 13-16. The CA ISO strongly supports the use of dependable capacity (or unforced capacity) as the measure for the planning reserve level, as opposed to the use of installed capacity, which is a much less meaningful measure. The CA ISO also strongly supports a month-by-month determination. Further, although it is open to further analysis on the matter, the CA ISO considers that the

record supports a 17% planning reserve level. The CA ISO considers that, if the CPUC is concerned about market power, it could phase the planning reserve level in over the next three years provided the utilities are precluded from undue reliance on spot market capacity purchases during that time frame. Finally, the CA ISO notes that it is important to clearly distinguish between a planning reserve level and an operating reserve level and to understand the purpose of each.

In D.02-10-062, the CPUC endorsed, on a provisional basis, a target reserve level of 15% subject to consideration of utility specific requirements and reexamination once the CPA comes to a final recommendation. D.02-10-062 at 29. D.02-10-062 did not specifically state whether this level is 15% of installed capacity or some other measure although in adopting the requirement it noted that historically, installed reserves have been 15-18% of system peak load. The CPA has now finalized its recommendation on a target reserve level; the CPA recommended: "Each utility should demonstrate to its appropriate regulatory body, and to others as required, that the utility owns, controls or reliably can acquire capacity that is expected to be available to the utility to reliably serve its load. ('Dependable Capacity') Each utility should be able to demonstrate using appropriate criteria how it will achieve Dependable Capacity in an amount equal to no less than 17% in excess of its peak needs (i.e. 117%), as measured against its projected monthly peak." D03-001 at 5-6 in the CPA Rulemaking: Establishment of Target Reserve Level, Docket 2002-07-01 (January 17, 2003). The CA ISO considers that the CPUC's initial recommendation merits further definition and refinement based on the record developed in this matter and the CPA's final recommendation.

a. The CPUC should base any planning reserve level on dependable capacity or unforced capacity.

The CA ISO strongly supports the CPA's use of dependable capacity, rather than installed capacity as the measure of a target reserve level. Exh. 87 Pettingill/Sheffrin Opening at 14. As the CA ISO commented in the CPA's rulemaking regarding the establishment of a target reserve level, the CA ISO strongly disfavors use of installed capacity as the measure for determining whether there are adequate reserves. Id. Use of installed capacity as the measure can significantly overstate the level of reserves that will actually be available to operate because it does not internalize any information about the particular characteristics (such as fuel-type, historical availability, condition, etc) of the resources in question. Id. at 14-15. The CA ISO strongly prefers use of dependable capacity or unforced capacity as these measures include some consideration of the actual output that can reasonably be expected from particular resources based on historic production and known and recurrent system conditions (such as the hydrological cycle). Id. at 15.

There does not appear to be much debate among the parties about use of dependable capacity as the measure for determining compliance with a planning reserve level. While the question is not addressed at all in most of the testimony, the Joint Recommendation recommended adoption by the Commission of a planning reserve margin computed as ((dependable capacity/peak load) – 1) x 100%. Exh. 69, Joint Recommendation of California Energy Commission , Office of Ratepayer Advocates, The Utility Reform Network, Southern California Edison Company, San Diego Gas and Electric Company and Pacific Gas and Electric Company Addressing Reserve Requirements, Energy Efficiency Funding, and Long-Term Commitments ("Joint Recommendation") at Point I.1. Although the Joint Recommendation provides that the term "Dependable Capacity" should be defined in the workshop process, it

suggests that "Dependable Capacity" should not be reduced to reflect reasonably expected outages. Id. However, this definition is consistent with the CPA's recommendation as follows:

> "Many capacity calculations use a base of *dependable capacity*. The Power Authority proposed to calculate reserves based on this approach. As described above, dependable capacity represents an average derate for each resource based on the capacity actually historically available from that resource compared to nameplate capability. This excludes planned and forced outages."

D03-001 at 27 in the CPA Rulemaking: Establishment of Target Reserve Level, Docket 2002-07-01 (January 17, 2003).

Thus, the CPUC should adopt dependable capacity (or unforced capacity) as the measure for applying the planning reserve level and should allow the workshop process to provide recommendations for how resources should be counted towards that measure.

b. The planning reserve level should be applied monthly.

The CA ISO also strongly supports a planning reserve requirement that applies monthly, rather than merely annually. Aside from the question of a monthly reliability obligation, this means that utility long-term procurement plans should be required to show how utilities would meet their projected monthly peak for each month in the planning horizon.

Dr. Mobasheri provided the most detailed explanation for this requirement. He explained that in the past, it was reasonable for a utility to focus its planning efforts on meeting the annual peak load because utilities largely relied on their own resources to meet their needs. These could be expected to be available at lower load times of the year, because the utilities would schedule their planned outages to coincide with low load time periods. Tr.(Mobasheri) at 4505-06. Dr. Mobasheri noted that in contrast, in the current environment, utilities rely heavily on contracted capacity to meet their needs. Id. Dr. Mobasheri explained that many contracts are for particular

periods only, for example only particular months of the year. Id. Dr. Mobasheri stressed that in this context it is important for utilities to demonstrate how they will meet monthly peaks in addition to annual peaks because contracts available to meet annual peaks might not be available to meet monthly peaks. Id. Dr. Stern also testified that a requirement to demonstrate adequate resources to meet monthly peaks makes sense. Exh. 17, Southern California Edison Company's Long-Term Resource Plan Rebuttal Testimony – Redacted version at 22.

For the reasons described by Drs. Mobasheri and Stern, the CA ISO considers that it is very important that utilities be required to show in their long-term procurement plans, how they will meet their monthly peak loads plus planning reserves for the planning period under consideration.

c. The record supports use of a 17% level pending further analysis.

The level of reserves is a policy matter to be determined by the CPUC weighing the relative risk and cost of different reserve levels. However, the record provides little information about the relative risks of one reserve level or another. See. Tr. (Stern) at 5582-3; (Alvarez) at 5763: 24-28. In the absence of such information, the CA ISO considers that the CPA's recommended 17% level based on dependable capacity is the only one supported by any level of analysis.

Several of the Joint Parties have criticized the CPA's 17% recommendation as unsupported and the Joint Recommendation offers 15% as an appropriate interim level instead. However, on cross examination, the witness for the Joint Parties critiquing the CPA recommended reserve level, Dr. Stern, admitted that there is no adequate analytical support for the 15% number either.

Dr. Stern argued that "[r]eliability targets should be established based on probabilities of being unable to serve load, and not based on the probability of dipping below operating reserve margin levels. As such, the sum of outages, uncertainties, and operating reserve levels does not provide a usable measure of reserve margins." Exh. 140, Supplemental Testimony of Gary Stern Re: The CPA's January 6, 2003 Rulemaking on the Establishment of Target Reserve Level and Comparison between the CPA Rulemaking and The Joint Recommendation at 1. Dr. Stern explained on the stand "I'm not saying that 17 percent is the wrong number. I am saying that we don't yet have an analytical basis to decide what the right number is." Tr. (Stern) at 5570: 4-7. Later in his testimony, Dr. Stern went on to explain "I have not seen a full or close to full analysis of the reliability of the system on a planning basis in order to establish a reserve margin that is consistent with achieving our reliability goals." Tr. (Stern) at 5582: 21-24. He explained that the 15% number included in the Joint Recommendation was purely an interim measure until additional analysis could be undertaken. Tr. (Stern) at 5582-3.

The CPA recommendation in contrast is based on a review of historical information. According to Mr. Fluckiger, a great deal of analysis and experience went into the CPA recommendation for a 17% reserve margin. Tr. (Fluckiger) at 5266: 14-28. He indicated "historic outages rates, historic levels of planning reserve and the behavior of market participants during the electricity fiascoes of early 2000, and all of those relevant facts were considered in the recommendation and the rule that was adopted by the board of the Power Authority." Tr. (Fluckiger) at 5266. Moreover, the 17% level recommended by the CPA is only slightly below the target reserve level initially proposed by the CA ISO when it first considered creating a resource adequacy requirement, which was intended to assure compliance with WECC's operating reserve criteria. Exh. 87 Pettingill/Sheffrin Opening at 14.

Given this record it is apparent that the 15% requirement proposed by the Joint Parties has less analysis associated with it than the recommendation of the CPA. Moreover, while the CA ISO agrees that it is possible to establish a reserve margin based on some measure other than meeting operating reserve criteria, such as a one-in-ten year probability of unserved load, the CA ISO believes that meeting operating reserve criteria is an important concern. As Mr. Fluckiger pointed out, the CA ISO has already been fined by the WECC for a failure to meet operating reserve criteria. Tr. (Fluckiger) at 5268: 9-15. Thus, complying with operating reserve criteria should not be dismissed so cavalierly particularly where no analysis has been undertaken to support a reserve requirement based on a different criteria.

Finally, the CA ISO must address Dr. Stern's idea that the target reserve level could vary periodically, based in part on the availability of excess capacity in the market. The CA ISO notes that the historic practice which Dr. Stern cited in discussing the idea, was to use the availability of excess supplies to adjust the target reserve level, but then not to count the excess supply toward meeting the lower reserve level. Tr. (Stern) at 5583:18-28; 5584:1-6. During the hearings, none of the utilities appeared inclined to commit to a reserve level without short-term and spot purchases being counted to meet that level. This being the case, the CA ISO is not persuaded that an approach that revises the reserve level periodically based on the availability of excess supplies serves much purpose.

In sum, while the CA ISO certainly accepts that another level could be shown to be appropriate based on additional analysis, the record clearly demonstrates that no such additional analysis has been conducted for the 15% level proposed by the Joint Parties. Given that it appears that an interim number must be selected pending further analysis, the CA ISO considers

that adoption of the CPA recommendation which was developed based on some historical analysis is better than adoption of a lower level based on no credible analysis at all.

d. The planning reserve level could be phased-in over the next three years, provided that the utilities are required to procure on a month ahead basis 100% of their projected peak load plus the applicable planning reserve during that time frame.

The Joint Recommendation supported a four-year phase in of the planning reserve level. The rationale given for a four-year phase-in is a concern that utilities might be at a competitive disadvantage if they are required to ramp up too quickly from the current substantial net open position to a fully resourced one. See e.g. Tr. (Woodruff) at 5058: 7-15. The Joint Parties suggest that because there are excess resources now, allowing a ramp up to a fully resourced position will not unduly affect reliability. At the same time, the Joint Parties suggest that in 2004 the utilities should be allowed to rely, to the extent they have proposed, on spot market purchases for capacity, and that beyond 2004 utilities should be allowed to rely on some yet to be determined but non-zero amount. See e.g. Tr. (Stern) at 5629:12-18; (Woodruff) at 5619:3-4. It is difficult to understand how these recommendations taken together will assure that in the next four years, the resources needed to meet load and the adopted planning reserve will be developed or maintained.

The CA ISO is sympathetic to the concern that utilities should not be placed at a competitive disadvantage vis a vie suppliers. To address this concern, the CA ISO could accept a three-year phase in of the 17% target reserve level, such that full compliance is achieved by the beginning of 2007. However, the CA ISO believes that the availability of excess resources at this time argues for a shorter phase-in period than that proposed by the Joint Parties, no more than three years. A three year limit is also appropriate since it is possible to build a generating plant in that time frame, see tr. (Jaske) at 4180: 7-12; thus utilities would not necessarily have to

make purchases from suppliers in order to achieve the full planning reserve by the end of three years. Moreover, the CA ISO considers that, during the phase-in, utilities should be required to meet appropriate guidelines for minimizing spot market capacity purchases, and should be required to procure on a month-ahead basis 100% of their projected monthly peak load plus the applicable reserve level.

The CA ISO considers that the four-year phase in proposed in the Joint Recommendation combined with an undetermined level of reliance on the spot market is not supported by logic or the record. The Joint Parties suggest that because there are excess resources now, reliability would not be unduly compromised by allowing a phase-in to a fully resourced position combined with a continued significant reliance on spot market purchases. However, the CA ISO is very much concerned that by allowing an extended phase-in AND on-going significant reliance on spot market capacity purchases, the CPUC would allow the current resource balance condition which the utilities claim is relatively favorable to degrade. The result would be that the full planning reserve margin would become effective precisely when supplies become tighter and consequently more expensive.

As Ms. Sheffrin emphasized, it makes sense to lock in resources during times such as now when, according to the testimony of the Joint Parties, there is considerable excess. Tr. (Sheffrin) at 4473: 7-11. If the Joint Parties expect that supply margins will narrow and become unacceptably low in 2008, it is all the more important for the utilities to take steps in the intervening four years to prevent that from happening.

Moreover, the CA ISO is concerned that unless the utilities take steps in the relatively near term to enter into mid-to-long-term commitments with existing and potential new resources, the excess the Joint Parties project will be available through 2008 may narrow considerably well

before 2008. As Dr. Mobasheri noted, new plants that have been permitted and are assumed by the CEC to contribute towards resources going forward are unlikely to get built without long-term contracts. Tr. (Mobasheri) at 3772: 5-21. Moreover, existing plants that require significant capital expenditures to continue to operate may close down without some medium term contracts. Tr. (Mobasheri) at 5545: 3-15. Thus, if utilities postpone entering into mid and longer-term commitments over the next four years and hence accelerate the time when supplies become tight, they may well be firming up supplies for their customers in much less favorable market conditions. This approach makes little sense.

A review of exhibits 52 and 78 illustrates the problem. Page 7 of exhibit 52 shows the levels of new capacity additions that support the CEC's projections. New additions that exceed 3,000 MW are expected in 2005, 600 MW in 2006, and 200 MW in 2007 and 2008 respectively. Thus, the CEC's projections depend on the addition of over 4000 MW of new generation; yet, this generation is unlikely to materialize without long-term contracts. Similarly, the retirements set forth on page 7 of exhibit 52, do not appear to include the 1600 MW of generation that Dr. Mobasheri indicated could be at risk because of the need for new emission control equipment. Tr. (Mobasheri) at 3799-3801. Once again, this generation may not continue to operate without forward contracts. Id. Thus, the CEC's projections that there will be sufficient capacity through 2008 will depend to a large extent on whether or not forward contracts are available to support the development and/or maintenance of some 5,600 MWs of generation.

Further, if CEC information such as that set forth in exhibits 52 and 78 is used as the basis for the conclusion that sufficient resources are available until 2008, it is worth noting in addition that reserves only appear robust beyond the 2005-6 time frame in the 1-in-2 demand scenario, which represents only an average year. In 1-in-10 demand scenarios, operating

reserves are already below the reserves typically purchased by the CA ISO of 8-9% (7% contingency and 1-2% regulating reserves) in exhibit 52, and by 2006 in exhibit 78. Thus, the CEC data shows that, even if the new resources come on line, and existing generators continue to operate, the state is still at risk during peak times in a high load year.

Finally, the CEC information includes an assumption that there will continue to be significant on-going imports available. However, unless these resources are contracted to California, they could be purchased by other entities. See e.g. Tr. (Pettingill) at 4363: 22-28; 4364: 1-5; 4408: 9-14. Moreover, as Dr. Sheffrin testified, the Northwest has tended to grow into its surpluses and load is growing very fast in the Southwest as well. Tr. (Sheffrin) at 4410: 22-24.

The CA ISO notes moreover that to the extent utilities are allowed to continue to rely on short-term and spot market capacity purchases, the CA ISO will continue to face the potential need to take what measures are available to it in the pre-day ahead, day ahead and real time time frames to seek to assure that sufficient resources are available in real time to meet load. It is hard to reconcile the claim that it is an undue hardship for utilities to firm up their capacity needs a month ahead of time – with no restrictions on how far in advance they can do this – with the claim that it is not problematic at all to rely on the CA ISO to find sufficient capacity to backstop under procurement by the utilities in the day ahead and real time time frames in which the CA ISO operates. See. e.g. (Stern) at 5785-88.

Finally, the CA ISO considers that during the phase in period, the applicable planning reserve level should be a floor rather than a ceiling. The CPUC should make it clear that the goal is to achieve a 17% planning reserve level as promptly as possible (and should provide cost-recovery for achievement of this goal). Utilities that are able to find reasonably priced resources

should not be precluded from locking up the full planning reserve level in advance of the three year phase-in period; rather, they should be encouraged to do so.

In sum, the CA ISO could accept a three-year phase in of a target-reserve level, provided that during that time frame, the utilities procure capacity on a month ahead basis to meet 100% of their peak load plus the applicable planning reserve.

e. The Joint Recommendation fails to recommend a clear use for an Operating Reserve Margin level other than to assess 2004 short-term procurement plans.

Because the Joint Recommendation defined an Operating Reserve Margin as well as a Planning Reserve Margin, these two terms deserve further definition. The CA ISO notes upfront that operating reserve requirements are established by the WECC and there is a reasonable system in place for assuring in real time that these criteria are met. See Exh. 87, Pettingill/Sheffrin Opening at 26-28. Neither the Joint Parties, nor the CA ISO, nor the CPUC can unilaterally change WECC requirements. See e.g. tr. (Jaske) at 4185: 6-10. What is not in place is a process to ensure that, consistent with the utilities' obligation to serve, utilities will procure sufficient capacity such that there will be sufficient resources available to meet load and needed operating reserves in real time. Tr. (Sheffrin) at 4464; 4471. Without such process, the risk remains that in real time, the CA ISO could be forced to assure compliance with WECC requirements using involuntary load curtailment.

The Joint Recommendation suggests that an "Operating Reserve Margin" could be used to assess sufficiency for shorter-term time frames such as a year or less. Exh. 69, Joint Recommendation at Point I.1. The Joint Recommendation indicates that the "Operating Reserve Margin" should be based on dependable capacity minus reasonably expected resource outages. Exh. 69, Joint Recommendation at Point I.1. However, it is not apparent what the measure was

to be used for going forward, other than to indicate that the utility 2004 short-term procurement plans are adequate. See Exh. Exh. 69, Joint Recommendation at Point I.2; tr. (Woodruff) at 5619: 11-28; 5620: 1-7. The CA ISO's concerns with the utilities' 2004 short-term procurement plans are set forth in section V of this brief and will not be repeated here.

The CA ISO notes that when it proposed a resource adequacy obligation, it proposed use of "unforced capacity" rather than "dependable capacity" to count resources. See Exh. 87, Pettingill/Sheffrin Opening at 15. Unforced capacity was defined as "the dependable capacity derated by the average annual forced outage rate", id. at footnote 3, which is not dissimilar from the definition given by the Joint Recommendation to the "Operating Reserve Margin". The CA ISO could support counting resources either using "dependable capacity" or "unforced capacity" but 1) the CPUC needs to be clear about which of the two terms it will use and for what purpose; 2) the planning reserve level would have to be adjusted depending on which term is used (an 18% level defined in terms of dependable capacity is close to a 12% level defined in terms of unforced capacity, id.); and 3) it is important to avoid confusion between operating reserves which are defined by the WECC and a planning reserve level defined by the CPUC.

On cross-examination, Judge Walwyn elucidated that for 2004 the effect of using "Operating Reserve Margin" to define adequate reserves merely translates a 7% reserve (for PG&E and SDG&E) using the Operating Reserve Margin definition which includes an adjustment for reasonably expected outages, to something like a 9% reserve using a Planning Reserve Margin definition which does not include an adjustment for reasonably expected resources outages. Tr. (Woodruff) at 5626:5-7. The CA ISO notes for the record that it is unaware of any valid basis to use a factor of 2% to account for reasonably expected outages. As the CPA Final Decision in D03-001 indicates, forced outages typically range between 5-10%.

D03-001 at 12 in the CPA Rulemaking: Establishment of Target Reserve Level, Docket 2002-07-01 (January 17, 2003). If the utilities are ascribing a 2% factor for reasonably expected outages to their portfolio of resources, this factor severely underestimates the level of outages that can legitimately be expected.

Since the Joint Parties provided no concrete recommendation for use of the Operating Reserve Margin, other than for assessment of the 2004 short-term procurement plans, the CA ISO considers that to avoid confusion, the Commission should avoid use of the term Operating Reserve Margin and should focus instead on defining and applying a consistent planning reserve level. Provided that the level is sufficient, the CA ISO could support a planning reserve level defined either in terms of dependable capacity or unforced capacity.

2. Reasonable limitations are needed for Short-Term and Spot Market Purchases.

In D. 02-10-062, the Commission adopted a guideline for reliance on spot purchases as follows: "[w]hile we wish to provide utilities with timing flexibility in meeting their residual net short [("RNS")] needs, it is not our intention to have the entire RNS met in the spot market. Though we do not set an explicit limit on spot market purchases, utilities should plan to minimize their spot market exposure and should justify their planned spot market purchases if they exceed 5% of monthly needs." D.02-10-062 at 32. The record in this case illustrates the need to refine this guideline. The CA ISO considers that 1) the definition of "spot market purchases" needs to be clarified; 2) utilities should show that they have procured or have adequate plans to procure between 90-95% of their capacity needs one year ahead of time; and 3) the guideline should be tightened on a month ahead basis to assure that in that time frame, utilities have procured sufficient capacity to meet 100% of their needs (peak load plus a planning reserve margin).

a. Capacity should be defined as the ability to call on energy.

Recognizing a lack of clarity on the matter, Judge Walwyn sought the opinion of various witnesses regarding their definition of spot capacity or spot purchases. See Tr. (Walwyn) at 5527: 4-9. In distinguishing between capacity and energy, the CA ISO agrees with the clarification proposed by Mr. Alvarez as follows: "I think it would be easier to stay with the simple definition of capacity as just the ability to draw energy, and energy is the actual product that was taken . . . ." Tr. (Alvarez) at 5532: 21-24. This clarification is useful. It illustrates the point made by the CA ISO that once sufficient capacity is procured and made available to the market, there is no need for restrictions on use of a competitive spot market for energy to minimize the operating costs of serving load. See Exh. 87, Pettingill/Sheffrin Opening at 17. Once sufficient capacity has been procured and made available to the market, the CA ISO is very much supportive of use of spot energy markets to optimize the dispatch of resources. See e.g. Tr. (Sheffrin) at 4470: 1-12. Accordingly, the Commission should clarify that it's guideline for minimizing "spot market purchases" relates to purchases of the capacity needed to meet a utility's monthly peak load plus planning reserve requirements. Utilities should be encouraged to use spot market energy purchases to the full extent necessary to maximize value for their customers.

b. Utilities should be required to justify reliance on short-term and spot capacity purchases greater than 5-10% in the year ahead time frame.

Having defined the product that should be subject to a limitation, the next question becomes temporal, at what point in time are particular limitations appropriate. At the annual update stage, the CA ISO considers that utilities should be required to demonstrate "that they have procured (or have a reasonable plan to procure) sufficient capacity to meet at least 90-95% of their needs." Exh. 87, Pettingill/Sheffrin at 16. This affords utilities the option to rely in

their plans on short-term purchases to meet between 5-10% of their capacity needs. The 90-95% guideline could be similar to the guideline set forth by the Commission regarding spot market purchases in D.02-10-062. Utilities would be required to identify in the annual update process how they will procure at least 90-95% of their capacity needs, by identifying the defined activities they are on track to undertake (e.g. building or contracting for capacity), the specific resources targeted, and the deliverability of these resources. Moreover, as Mr. Pettingill and Dr. Sheffrin explained in their Opening Testimony

> [I]f the utilities indicate that they will rely on short-term purchases within California, they should be required to show that there will be excess resources available within California, after the loads of other LSEs in California are deducted from available resources. If utilities indicate that they will rely on short-term purchases from the west, they should be required to show that there will be excess resources available within the West, after the loads of other LSEs in the West are deducted from the available resources. Further, the utilities must show that there will be adequate transmission capability in California to support the projected imports after accounting for the imports of other LSEs in California.

Exh. 87, Pettingill/Sheffrin Opening at 17. In sum, the CA ISO proposes that on a year ahead basis, utilities should be allowed to rely on short-term capacity purchases for 5-10% of their needs (peak load plus planning reserves); and 2) to the extent they propose such reliance, utilities should be able to show that there are excess resources available and deliverable to justify that level of reliance on short-term purchases.

c. Utilities should be required to firm up the supplies they need a month ahead of time.

At the month ahead time frame, the CA ISO considers that utilities should be required to procure capacity sufficient to meet 100% of their projected peak load plus the applicable planning reserve for the following month. There are a number of reasons for this requirement. First, the CA ISO remains concerned about waiting until the day ahead or real time time frames for firming up capacity, even in the context of excess supplies available in the market. As Mr.

Pettingill testified, the fact that there are supplies available in the market does not ensure that these will be made available to California. Tr. (Pettingill) at 4363: 22-28; 4364: 1-5; 4408: 9-14. California LSEs are only one of many potential purchasers who could be vying for the "excess capacity". Thus, waiting until the last minute to procure resources creates the risk that at the last minute resources may not be available or may be available only at a very high price. As Dr. Sheffrin testified even fairly high levels of excess capacity can quickly evaporate in adverse conditions, such as dry hydro conditions or a West wide heat wave. Tr. (Sheffrin) at 4412: 22-28; 4413: 1-5.

A requirement to procure adequate capacity on a month ahead basis would still permit the utilities to optimize energy requirements through spot trades. Hence utilities could still benefit from low priced resources available closer to real time without risking resource insufficiency or unduly high prices. Tr. (Pettingill) at 4363: 2-6; 4415: 4-13; 4419: 16-28; (Sheffrin) at 4423: 22-28. As Mr. Pettingill stressed the cost of lining up capacity is only a fraction of the cost energy. Tr. (Pettingill) at 4468: 1-21.

Moreover, the CA ISO's proposal for some leeway to rely on short-term purchases at the year ahead time frame with a requirement to firm up their capacity purchases a month ahead provides the utilities with significant flexibility while greatly minimizing the potential for problems in the day ahead and real time time frames. As Mr. Pettingill and Dr. Sheffrin explained, up to the month ahead deadline, the utilities would have substantial flexibility as to when to make their capacity purchases, and as to the length of time of any commitments they make. Tr. (Pettingill) at 4426: 16-28; 4427: 1-3; tr. (Sheffrin) at 4425. Utilities could and should make their purchases when market conditions are optimal. Tr. (Sheffrin) at 4425: 1-12. And because all necessary commitments would be made at least a month ahead of time, there

would be a significantly reduced risk that either the utilities or the CA ISO would be scrambling for power under adverse conditions at the last minute. See Tr. (Sheffrin) at 4423: 22-28.

Moreover, at the month ahead time frame, if concerns were identified, there would be time to take more measured emergency actions, than those available in the day ahead/real time time frames. A month ahead requirement allows for an orderly and timely process of identification by the utilities of the resources they will rely on to meet their load, communication of this information to the CA ISO and to the CPUC, and an opportunity before the fact to identify any deliverability or other concerns. As the CA ISO noted, it intends to review any monthly reports ordered by the CPUC and to advise the CPUC if it considers that there are problems brewing. Tr. (Pettingill) at 4433:11-25; 4434: 11-21. Thus, the month ahead requirement significantly reduces the likelihood that shortfalls will have to managed at the last minute in a crisis mode.

In fact, in resisting a requirement to procure all capacity needs a month ahead of time, the utilities are in essence seeking to shift on to the CA ISO, what is the utilities' obligation to serve. There appeared to be general consensus that spot purchases are those that occur in the day-ahead, hour-ahead and real-time time frames. See e.g. tr. (Alvarez) at 4-7. If this definition is adopted, and assuming that the Commission retains its current guideline to procure no more than 5% of monthly needs through spot market purchases, this would mean that utilities could procure 5% of their monthly needs in the day-ahead, hour-ahead or real time markets. In other words, the utilities could rely on the CA ISO for this amount of their customers needs without having taken any steps to ensure that resources would be available in the hour ahead and real time markets. As noted by Dr. Mobasheri, 5% of the load of the utilities is a significant amount of energy. Tr. (Mobasheri) at 5533: 2-6.

This result is inconsistent with state law, and the position taken by the State and the CPUC before the CA ISO governing board and the FERC. California Public Utilities Code Section 454.5(d) provides that a procurement plan approved by the Commission shall accomplish each of the following objectives: "(1) Enable the electrical corporation to fulfill its obligation to serve its customers at just and reasonable rates." This section clearly provides that the utilities, not the CA ISO, have the obligation to serve utility customers.

Further, the CPUC argued emphatically to the FERC:

> The ISO's entry into resource planning represents an extension of the ISO's (and by extension federal jurisdiction) into areas not envisioned when the ISO was originally created. AB 1890 and California's restructuring effort envisioned a limited role for the ISO focusing mainly on ensuring the reliability of the grid in real time. Therefore the ISO's focus should be on ensuring workable and reliable operation of the transmission grid and reliable and competitive spot energy and ancillary services markets.
>
> The creation of an ACAP obligation represents a significant expansion of the ISO's role into resource procurement, traditionally a State function. There is a significant difference between dispatching the system in real-time, and thereby meeting the WSCC daily operating reserve requirements that govern ISO operation, and planning how to ensure long-term capacity additions are undertaken.

Protest and Comments on ISO Market Redesign Proposal Submitted by the Public Utilities Commission of the State of California on Behalf of the State of California Inter-Agency Working Group at 41, filed in FERC docket Nos. EL00-95-001 and ER02-1656-000 (May 30, 2002). As Dr. Sheffrin testified, the CPUC subsequently argued to the CA ISO governing board that resource adequacy is within the CPUC's jurisdiction. Tr. (Sheffrin) at 4437: 5-11. Having determined that it is not the CA ISO's responsibility to assure the availability of sufficient capacity, the CPUC should not permit the utilities to rely on CA ISO markets as the sole mechanism by which 5% of the capacity needs of their customers will be met.

Finally, the CA ISO notes that it is necessary to give utilities adequate incentives to forward procure sufficient resources. Having all spot market transactions procured through the CA ISO markets deemed prudent could have the opposite effect. As Mr. Pettingill and Dr. Sheffrin testified, the CA ISO is not opposed to incentive mechanisms. Exh. 87, Pettingill/Sheffrin Opening at 32. However, the CA ISO is concerned about potential "perverse outcomes that may arise due to poorly designed cost recovery mechanism. This includes such issues as cost recovery mechanisms that could result in the utilities relying too heavily on spot-market purchases or resources that are less reliable or available to meet their load requirements." Id.

In sum, the CA ISO considers that the utilities should be required to procure sufficient reserves to meet their projected load plus an adequate planning reserve by a month ahead of time and should receive appropriate cost recovery for their efforts. This requirement is needed to ensure that the utilities meet their obligation to serve.

3. There is a need for consistent definitions and requirements.

As Ms. Thomas explained in her testimony, the long-term plans of the utilities were very difficult to understand and assess on a consistent basis because there is no consistency in the methodology to determine load forecasts, or to report resources. Exh. 3, Thomas Opening at 3-4. While the CA ISO acknowledges that assumptions may change from utility to utility, the CA ISO is concerned because there is no consistency even on fundamental issues such as whether the load forecast to be used to determine resource adequacy is a 1-in-2 year load forecast or a 1-in-10 year load forecast, or whether capacity is reported as installed capacity, dependable capacity or some other measure. See Tr. (Pettingill) at 4454: 4-10. As most parties in the case

agreed, to put into place a well-understood resource adequacy requirement, it is necessary to better define loads, how resources are counted, and deliverability requirements.

The CA ISO's initial thoughts on conventions for counting resources are set forth in the Opening Testimony of Mary Jo Thomas. Exh. 3, Thomas Opening at 4-6. Nonetheless, the CA ISO supports a workshop process to develop a more detailed requirements for load forecasts, counting conventions and deliverability analyses.

In sum, consistent conventions are needed for the calculation of load forecasts, counting resources, and demonstrating deliverability. The CA ISO supports the Commission making decisions on the threshold issues listed in section I above, and allowing workshops to develop details on the calculation of load and resources; the details of how deliverability will be shown; and standard format and reporting requirements for the annual plan updates and monthly reports. The CA ISO looks forward to participating in the workshop process to develop better details on these matters.

B. A well-defined resource adequacy requirement should include an annual process to update utility procurement plans.

D. 02-10-062 required the utilities to prepare long-term (20) year procurement plans, and set forth a process for review of these plans but did not detail the process by which the plans would be updated going forward. Public Utilities Code Section 454.5(e) provides that "[t]he commission shall provide for the periodic review and prospective modification of an electric corporation's procurement plan." To comply with state law, and for practical reasons, it is important that the CPUC define the process by which utility procurement plans will be updated and revised.

As explained in the CA ISO's opening testimony, the CA ISO was supportive of the initial preparation, review and approval by the CPUC of twenty-year plans with a special emphasis on the next five years. Exh. 87, Pettingill/Sheffrin Opening at 5. Moreover, because the CA ISO agrees that review and analysis of utility long-term plans would be substantially enhanced by the establishment of a consistent framework and counting conventions, the CA ISO supports the point in the Joint Recommendation that requires the utilities to file revised long-term plans in 2004 that comport with the new framework and counting conventions. See Joint Recommendation Point I.2 and III.2. The proceedings to review the updated plans in combination with the instant proceeding will provide an opportunity for a long-term review, strategic planning, and an assessment of trade-offs between generation, transmission and load, as well as alternatives within each of these categories. Exh. 87, Pettingill/Sheffrin Opening at 5.

Nonetheless, it is also important to establish the process to periodically update and revise the plans. As noted in the testimony of Mr. Pettingill and Dr. Sheffrin, long-term procurement plan details will inevitably be less certain as to later years. Exh. 87, Pettingill/Sheffrin Opening at 5. Thus, it is necessary to have a process to ensure that activities planned by the utilities in out years of the plan remain on track, and to make modifications in the event of changed circumstances. Id.

The CA ISO recommends an annual updating process, with a rolling five-year outlook. The annual updating process would "focus specifically on ensuring that planned elements are still on schedule, considering and addressing changed circumstances, and further developing the requirements for the new final year." Id. The process should not provide for a re-litigation of the basic vision established based on review of the utilities' twenty-year plans. As Mr. Pettingill clarified, the annual update process would not require development of a new "full-blown 20-year

plan, but would rather be a method to track progress toward the plan adopted based on review of the twenty year plan and to update of the more detailed components of the next five years." Tr. (Pettingill) at 4452.

In their testimony, the utilities also appear to support the need for some kind of annual update process. Edison recommended a full review every three years after each general rate case, but noted that "[s]hort/medium term procurement plans would be updated annually and would receive Commission approval on their own separate tracks." Exh. 10, Southern California Edison Company's Long-Term Resource Plan Testimony – Volume 2 (Redacted) at 78. SDG&E also appears to support an annual process for assuring there are adequate resources, although SDG&E would have an annual solicitation process to obtain necessary capacity undertaken by the CA ISO. Exh. 120, Rebuttal Testimony of James P. Avery at 2. PG&E expressed the view that utilities "are already required to submit to the Commission annual procurement plans as well as monthly forecasts of net open position for a rolling 12-month period." Exh. 29, Pacific Gas and Electric Company's Rebuttal Testimony PG&E's Long-Term Procurement Plan and 2004 Short-Term Procurement Plan, Redacted, at 7-16.

In sum, the CA ISO considers that an annual update process is needed to make sure that utility plans are on track and to make modifications needed to address changed circumstances.

C. A well defined resource adequacy requirement should include a monthly obligation to demonstrate that adequate capacity has been procured by the utility and a process to make those resources known and available for the CA ISO to use if needed in the day-ahead/real time context.

In addition to annual updates, the CA ISO is also proposing a monthly reliability obligation whereby the utilities demonstrate that they have procured adequate capacity, and a process to make the resources procured by the utilities known to the CA ISO and available for

the CA ISO to use if needed in the day-ahead/real time context. These requirements are closely related to the discussion above regarding the rationale for requiring utilities to procure capacity sufficient to cover the monthly-expected peak load plus planning reserves on a month ahead basis. These requirements also support a hand-off from the procurement role by the utilities, subject to CPUC regulation, to the CA ISO and its operation of the day ahead, hour ahead and real time ancillary services and energy markets, and its operation of the grid.

The CA ISO will not repeat here the rationale for requiring the utilities to procure on a month ahead basis 100% of their monthly peak load plus the applicable planning reserves. Instead, the CA ISO will describe in this section the mechanism it proposes to implement the recommendation and the options for and importance of a "hand-off" to the CA ISO. These issues are related.

As described in the testimony of Mr. Pettingill and Dr. Sheffrin, "the utilities should be required to provide to the CPUC a monthly compliance report setting forth a calculation of their monthly reliability obligation (based on their monthly peak load, along with the applicable target reserve level), and the resources that the utilities have procured to meet their obligation." Exh. 87, Pettingill/Sheffrin Opening at 23. The report would be provided to both the CPUC and to the CA ISO. Id. While it would be up to the CPUC to enforce the obligation, the CA ISO proposes to review the report and inform the CPUC if it identifies problem in the service of the utility load or affecting system reliability. Id.

The CA ISO fully supports integrating this proposed monthly report with other reports that are already prepared by the utilities to avoid a duplication of efforts as recommended by Mr. Alvarez on behalf of PG&E. Exh. 29, Pacific Gas and Electric Company's Rebuttal Testimony

PG&E's Long-Term Procurement Plan and 2004 Short-Term Procurement Plan at 7-16. The CA ISO notes, however, that to its knowledge, the utilities do not at this time prepare a report to indicate the resources they will rely upon in the upcoming month to meet their needs.

The monthly report serves two purposes. First, it provides a mechanism for enforcing the monthly reliability obligation. In addition, the report provides important information to the CA ISO and provides a basis for the "hand-off" of resources to the CA ISO. As described in section II.B.2. above, making available to the CA ISO information on the resources that the utilities have procured to meet their loads will significantly assist the CA ISO to operate its markets and the grid reliability, without the current guess work as to how many resources the utilities will in fact bring to the table in real time, and what level of additional resources will be required to operate the system reliably.

In addition, as explained in section II.B.3. above, the CA ISO considers that there must a mechanism to make capacity procured by the utilities pursuant to their resource adequacy obligation available for use by the CA ISO in the day ahead and real time time frames. The CA ISO proposed that this be done by having the CPUC require that contracts between utilities and generators include a provision for making the capacity procured under the contract available to the CA ISO. Tr. (Pettingill) at 4438: 21-26. As Mr. Pettingill explained on the stand, pursuant to this requirement, capacity that is not included in a forward schedule by the utility should be required to bid into the CA ISO real-time energy market. Tr. (Pettingill) at 4441: 7-26.

Though proposing different mechanisms to address the problem, SDG&E and SCE have recognized the importance of a mechanism by which capacity procured by the utilities would be made available to the CA ISO. SDG&E recommended that the CA ISO operate a centralized

capacity market in accordance to policies established by the CPUC. See Exh. 119, Direct Testimony of James P. Avery at 12 and Exh. 120, Rebuttal Testimony of James P. Avery at 5. With three years of anticipation, the CA ISO would solicit annual capacity to be made available under Reserve Capacity Contracts ("RCCs"). Id. The RCCs would give the CA ISO the right to call on a specified amount of capacity in real time at a particular strike price. Exh. 119, Direct Testimony of James P. Avery at 12. The CPUC would define the specifics of the RCCs it requires to meet capacity reserve needs, including the strike price and the reliability requirements of resources eligible to participate, locational requirements or transmission right requirements for bidders. Id. The utilities would be required to bid their generation and capacity contracts into the auction as price takers. Id. The result of this proposal would thus be that 1) the CA ISO would be able to dispatch the generation and capacity procured by the utilities in real time as necessary to maintain reliability because these were bid as price takers in the capacity auction; and 2) there would be a market mechanism for procurement of any capacity requirements unmet by the utilities' procurement activities.

SCE in contrast appears more comfortable with a less active role by the CA ISO; thus the utilities would be responsible for security sufficient capacity. Nonetheless SCE also agrees that the capacity secured by the utilities should be made available for dispatch by the CA ISO. As Dr. Stern explained on the stand "I think that resources that are subject to or are part of meeting a resource adequacy requirement should be required to be available to the ISO through their RUC

process . . . ."[1] Dr. Stern opined that the requirement should be included in the CA ISO tariff. Tr. (Stern) at 5783: 13-28; 5784: 1-3. He explained, "In this case here, we're talking about a resource adequacy requirement that's being established and a set of resources to meet that requirement that will be reviewed by the Public Utilities Commission. But I still believe that the ISO can and should put something in its tariff to see that those resources that have been found to be necessary by the load-serving entities to meet their adequacy requirements be subject to something akin to the must-offer requirement, essentially available as units to meet the residual unit commitment that the ISO has proposed under its MD02 . . . ." Tr. (Stern) at 5783: 19-28.[2]

The CA ISO proposed a provision in the contract between the utility and the supplier to make capacity accessible to the CA ISO because 1) the CA ISO believes that there will have to

[1] Dr. Stern went on to set forth in extensive detail his concerns about the current capacity payment proposal for RUC in the CA ISO's MD02 proposal. The place to make these arguments is before FERC, where the RUC proposal is being reviewed and not in this proceeding. Moreover, the CA ISO notes that, as Dr. Stern admitted, the utilities could in their contracts with generators require that any such payments be made to the utilities (although he also expressed the concern that generators would want to be compensated for such a requirement). Tr. (Stern) at 5632. Nonetheless, the CA ISO is open to making adjustments to it MD02 proposal once the structure of the resource adequacy mechanism is known in order to assure consistency and fill in any gaps.

[2] PG&E did not offer a detailed proposal like either SCE or SDG&E or address how capacity procured by the utilities would be made available to the CA ISO. However, PG&E did argue that in lieu of penalties the CA ISO should "provide for a market mechanism for reliability products similar to the imbalance market for real time energy ... which would provide an opportunity for parties to decide whether to self-provide or rely on a provider of last resort for these products." Exh.29, Pacific Gas and Electric Company's Rebuttal Testimony PG&E's Long-Term Procurement Plan and 2004 Short-Term Procurement Plan, Redacted, at 7-9. On the stand, Mr. Alvarez explained "what I had in mind is a way of estimating the actual impact created by deficiencies in the planning reserves, and in a similar way as the ISO calculates or estimates that impact from imbalance energy; so that rather than coming up with an arbitrary penalty which may be higher or lower than the actual impact created, we would have a way of estimating it and of assignation that responsibility to whoever had that deficiency. . . . [I]f you had a market, then it would be easy to just simply determine what was the requirement, what was the actual amount of planning reserves that were provided, what was the deficiency, and the value or the cost of that deficiency because we had a market that provided, you know, price discovery, just in the same way that we do that for imbalance energy." Tr. (Alvarez) at 5762: 2-12. Mr. Alvarez clarified that the market would be implemented through the CA ISO tariff. Thus, PG&E seems to be suggesting that the CA ISO operate a last resort planning reserve capacity market. PG&E did not provide many details so it is unclear whether this market would operate years ahead of the year of projected need as detailed by SDG&E, and PG&E did not address whether or how resources procured by the utilities would be made available for dispatch by the CA ISO if needed.

be some way to contractually bind generators to this requirement and 2) this approach leaves the CPUC in control of the matter, consistent with the wish of the state and the CA ISO governing board to allow the state in the first instance to develop and implement the elements of a resource adequacy requirement. Nonetheless, the CA ISO would be open to further discussion and to inclusion of some elements in its tariff, if there is consensus that this is the better approach. In any event, on this topic in particular, there is a critical need for coordination between the CPUC and the CA ISO. Further, it is important to determine expeditiously which elements of the issue should be addressed through contracts and which through the CA ISO tariff so that there is an opportunity to include the necessary provisions in as many capacity contracts as possible going forward. Once contracts are signed the opportunity to use the contracts to address the issue will be lost.

In sum, a contractual mechanism is needed to make capacity procured by the utilities available to the CA ISO. The CA ISO welcomes dialogue with the CPUC to develop a mechanism that works effectively and is consistent with the requirements of the CA ISO tariff. The CA ISO is prepared to make changes to its MD02 proposal to accomplish this objective.

D. A well-designed resource adequacy requirement must appropriately address deliverability issues.

In addition to assuring that there are sufficient supplies, the CA ISO considers that a well-designed resource adequacy requirement must address deliverability. That is, utilities must be able to show that the supplies they intend to rely on to meet their load can be delivered to their load when needed. Most parties agree that deliverability is a technical question that should be addressed in the workshop process. See e.g. Tr. (Mobasheri) at 5109: 15-20; (Stern) at 5109: 27-

28. Deliverability is listed as one of the issues to be considered during the workshops even in the scaled down work plan circulated by Judge Walwyn.

Nonetheless, the CA ISO considers that the Commission should determine as a threshold issue that utilities must demonstrate the deliverability of the resources they intend to rely upon to meet their needs. The CA ISO supports discussion of how deliverability is to be shown in the workshop process. The CA ISO lays out some initial thoughts on options to demonstrate deliverability here, and brings to the attention of the Commission the potential impact of a recent FERC order on the interconnection of large generators to questions of deliverability.

Mr. Pettingill and Dr. Sheffrin explained, "resources proposed to serve load must be deliverable. Thus, the utilities must demonstrate the deliverability of the resources identified in their procurement plans." Exh. 87, Pettingill/Sheffrin Opening at 9. Mr. Pettingill and Dr. Sheffrin explained that utilities using local resources to meet local loads would have little additional requirements in order to demonstrate deliverability. Id. at 10. They stressed, however, that if utilities intend to meet loads within local areas that are subject to transmission constraints with resources outside the local area, they must be able to show that the resources are deliverable when needed, through transmission studies that should be closely coordinated with the CA ISO. Id. Mr. Pettingill and Dr. Sheffrin cautioned the Commission against allowing utilities to rely exclusively on the procurement of congestion revenue rights ("CRRs") since CRRs are primarily financial instruments that do not provide any assurance of physical delivery. Id.

As Mr. Sparks explained on the stand, to undertake meaningful deliverability analyses of the utilities long-term procurement plans, more specific information is required about the

location of the resources utilities intend to rely on to meet their needs. Tr. (Sparks) at 3858: 14-17. At a minimum, conceptual scenarios would have to be developed where utilities that intend to rely on "generic" resources would identify specific areas where the resources would be located. Tr. (Sparks) at 3864: 27-28; 3865: 1-8. Mr. Sparks noted that a coordinated deliverability analysis is required looking at the plans of all three utilities, and the resulting loadings on various import paths and internal paths within the CA ISO system. Tr. (Sparks) at 3864: 9-15. Mr. Sparks explained that the CA ISO could undertake the analysis and is likely the best entity to do so given that data from all three utilities would be required. Tr. (Sparks) at 3864: 15-22. Mr. Sparks stressed that the CA ISO would make the results of its assessments available to the CPUC. Id.

There appeared to be some agreement on the need for some form of deliverability requirements among the parties, with limited discussion of the mechanics of such a requirement by most. Dr. Stern on behalf of SCE did stress that while SCE supports the need for a deliverability showing for resources imported into the control area, SCE does not support local deliverability requirements. Tr. (Stern) at 5794: 6-28; 5795: 1-10. Dr. Stern explained that local deliverability issues within the control area are addressed through the Reliability Must Run plants and the annual grid planning process coordinated by the CA ISO. Id.

The CA ISO does not agree with Dr. Stern that no local deliverability analysis is needed as to resources within the control area. It has never been the purpose of the annual grid planning process to eliminate all potential constraints within the control area. Rather, as Mr. Sparks explained in his testimony, the annual grid planning process is intended to assure compliance with the grid planning criteria, Exh. 60, Redacted Opening Testimony of Robert Sparks Regarding the Long-Term Procurement Plans of the Investor owned Utilities on Behalf of the

California Independent System Operator ("Sparks Opening") at 4, and to identify upgrades that provide economic benefits to consumers, id.As Mr. Pettingill explained, currently the annual grid planning process does not focus on any aspect of resource adequacy. Tr. (Pettingill) at 4415: 4-13. Thus, the CA ISO considers that utilities should be required to demonstrate the deliverability of all resources that are relied upon by utilities to meet their resource adequacy requirements to assure that the goals for resource adequacy established by the Commission are met for all load, including load in transmission constrained areas.

Nonetheless, the CA ISO is willing to explore during the workshop process, whether and how the CA ISO's current grid planning process could be expanded to include a review of the deliverability of resources identified in the LSE plans to meet their requirements. As Mr. Sparks testified, ideally deliverability should be demonstrated on a system wide basis, and the CA ISO could be ideally suited to undertake the analysis. Tr. (Sparks) at 3864: 15-22. However, for this to happen, it would be necessary to put into place adequate coordination between the CPUC directed resource adequacy process, and the CA ISO's transmission planning process. First, the utilities would have to provide the CA ISO with sufficient information to undertake a reasonable deliverability analysis; i.e. the resources to be proposed in the annual procurement plan updates would have to be made known with sufficient specificity to the CA ISO. Second, there would have to be a process for determining the appropriate solution if deliverability issues are identified. Third, timing considerations would have to be addressed to make sure that utilities do not rely in the short term on resources that are not yet deliverable until planned transmission upgrades are in place.

One outcome could be the identification of a transmission upgrade to resolve the deliverability concerns, but such upgrade would have to be shown to be economic pursuant to the

CA ISO tariff. That is, the transmission project would have to be shown to be cost-effective to ratepayers relative to other resource plan options. See. e.g., Exh. 60, Sparks Opening at 4. If this is the case, CA ISO could approve the upgrade and, if applicable, it would be presented for siting by the CPUC. However, if a transmission upgrade is not the most economic solution to a deliverability problem, there would have to be a process for the utilities to amend their plans to change the resources they will use to meet their load. Moreover, the timing of the various processes would have to be coordinated. The utilities should only be allowed to rely on resources to demonstrate compliance their resource adequacy obligations, after the resources have been shown to be deliverable by an analysis prepared by the utility and approved by the CA ISO or prepared by the CA ISO.

The CA ISO notes moreover that, until some other mechanism is in place to assure local area reliability (as opposed to local resource adequacy), it would also still continue to undertake an assessment of local area reliability needs through the Local Area Reliability Service (LARS) process described in Mr. Kott's testimony; and to assure, through that process, that local area reliability needs are met including use of Reliability Must Run ("RMR") Agreements as necessary. See Exh. 65, Opening Testimony of Robert C. Kott Regarding the Long-Term Procurement Plans of the Investor Owned Utilities on Behalf of the California Independent System Operator ("Kott Opening") at 2-3. The CA ISO has used RMR Agreements historically to maintain local area reliability and to mitigate market power. Exh. 65, Kott Opening at 2; Tr. (Stern) at 5795. The CA ISO disagrees with Dr. Stern, however, that the RMR Agreements are designed to assure sufficient resources to meet resource adequacy requirements. See Tr. (Stern) at 5795: 16-23.

In addition, FERC's recent order on large generator interconnections may provide an opportunity to address deliverability issues for new generating units proposed to be interconnected within the control area through the generator interconnection process. As Mr. Sparks indicated on the stand, currently, although the CA ISO requires studies to examine whether the full output of a generator can be delivered to load under worst-case conditions as part of the interconnection study process, this analysis is undertaken for information purposes only. Tr. (Sparks) at 3862: 7-10.[3] However, on July 24, 2003, FERC issued Order 2003, in Docket No. RM02-1-000, setting forth requirements for interconnection of large generating units ("FERC Order 2003"). Standardization of Generator Interconnection Agreements and Procedures, 104 FERC ¶ 61,103 (2003). This order provides a basis for a change in interconnection rules that could be relevant for showing deliverability for new generating units within the control area.[4]

FERC Order 2003 creates two levels of interconnection service "Energy Resource Interconnection Service" or "ER Interconnection Service" and "Network Resource Interconnection Service" or "NR Interconnection Service". See FERC Order 2003 at Paragraph 752. The distinction between the two levels of service is that ER Interconnection Service does

[3] In fact, under the CA ISO Tariff, interconnecting generators are only responsible for the installation of upgrades to the grid that are needed to maintain reliability. CA ISO Tariff at 5.7.5(c). Such reliability upgrades do not assure the full deliverability of an interconnecting generator's output. See CA ISO Tariff, Appendix A, Master Definitions Supplement, definition of "Reliability Upgrade". Rather, the additional facilities necessary for the full or partial delivery of output are defined in the CA ISO Tariff as "Delivery Upgrades". See CA ISO Tariff, Appendix A, Master Definitions Supplement, definition of "Delivery Upgrade". Interconnecting generators are not required to fund "Delivery Upgrades," but they may choose to do so. CA ISO Tariff section 5.7.5(d). Alternatively, if it is demonstrated that such upgrades are cost–effective to ratepayers, the CA ISO could determine such upgrades to be needed in the context of the annual transmission expansion planning process. CA ISO Tariff sections 3.2.1, 3.2.1.1.3 et. seq. and 3.2.7.3.

[4] FERC Order 2003 was issued on July 24, shortly after the hearings on this matter commenced. Thus, the CA ISO did not have the opportunity to assess the order and consider its implications for a deliverability assessment until after the conclusion of the hearings.

not require that the full out-put of the new generating unit be deliverable, whereas as NR Interconnection Service does. As FERC Order 2003 explains regarding the assessments required for NR Interconnection Service: "The Transmission Provider would study the Transmission System at peak load, under a variety of severely stressed conditions, to determine whether, with the Generating Facility at full output, the aggregate of generation in the local area can be delivered to the aggregate of load, consistent with the Transmission Provider's reliability criteria and procedures. Under this approach, the Transmission Provider would assume that some portion of the capacity of existing Network Resources is displaced by the output of the new Generating Facility." FERC Order 2003 at Paragraph 755. This analysis essentially amounts to an assessment of deliverability.

Thus, an amendment to the CA ISO tariff creating two levels of interconnection service, consistent with FERC Order 2003, could provide a mechanism for demonstrating the deliverability of new generating units at the interconnection stage. If such an amendment is made, the utilities could be excused from demonstrating deliverability for new units within the control area that obtain NR Interconnection Service[5].

[5] FERC Order 2003 affords Independent System Operators and Regional Transmission Organizations a degree of flexibility in determining whether to adopt all aspects of the new rule. FERC Order 2003 at Paragraphs 827 and 910. FERC explained "With respect to an RTO or ISO, at the time its compliance filing is made, as discussed above, we will allow it to seek 'independent entity variations' from the Final Rule pricing and non-pricing provisions. This is a balanced approach that recognizes that an RTO or ISO has different operating characteristics depending on its size and location and is less likely to act in an unduly discriminatory manner than a Transmission Provider that is a market participant. The RTO or ISO shall therefore have greater flexibility to customize its interconnection procedures and agreements to fit its regional needs." FERC Order 2003 at Paragraphs 827. The CA ISO is still in the process of developing its compliance filing. Subject to making a final determination, the CA ISO sees some benefits in adopting the two levels of interconnection service as described in this section. The CA ISO's compliance filing is due October 20, 2003. The CA ISO may seek a 90 day extension. The CA ISO has included CPUC staff in discussions about the compliance filing and continues to welcome CPUC input to provide for the maximum possible consistency between CPUC imposed resource adequacy requirements and matters addressed in the CA ISO tariff.

In sum, the CA ISO considers that utilities should be required to demonstrate the deliverability of all resources they intend to rely on to meet a resource adequacy requirement. The CA ISO is willing to explore expanding the current annual grid planning process to include an assessment of deliverability; but such assessments would have to be coordinated with the annual procurement plan update process. Moreover, the creation of Network Interconnection service may provide for a "pre-certification" of the deliverability of new resources that can subsequently be included in a utility's resource plan. The CA ISO will participate actively in the workshop process to help flesh out the technical details of a deliverability requirement based on these ideas and other ideas that may be presented by other parties.

E. A well-defined resource adequacy requirement should include consequences for a failure by the utilities to obtain sufficient planning reserves and/or to provide adequate capacity for use by the CA ISO.

For a resource adequacy framework and a monthly reliability obligation to be meaningful, it is necessary that there be consequences for a failure to meet the obligations. As set forth in the testimony of Mr. Pettingill and Dr. Sheffrin, the "CA ISO supports the adoption by the CPUC of explicit penalties/sanctions for utilities that fail to meet their monthly reliability obligation. The CA ISO believes utilities (and other LSEs) that fail to procure sufficient capacity on a month-ahead basis should be subject either to financial penalties or to being designated for first curtailment in the event of a reserve deficiency." Exh. 87, Pettingill/Sheffrin Opening at 23. There is varying support for some form of consequence from a failure to meet resource adequacy requirements by other parties, and no detailed proposal for what those penalties should look like.

Rather, Mr. Alvarez noted that "the actual definition and quantification of penalties is something that cannot be done in the abstract before we're able to define the framework and how we're going to measure capacity and the contribution of different resources which is something

to be done in the collaborative process." Tr. (Alvarez) at 5110: 11-17. Dr. Mobasheri agreed and suggested that perhaps penalties should be addressed in next year's proceeding before the CPUC (presumably the proceeding proposed in the Joint Recommendation to address revised utility plans filed in compliance with the detailed resource adequacy guidelines). Tr. (Mobasheri) at 5110: 18-22.

Dr. Mobasheri noted, however, "you don't want to wait until real-time and then have a crisis and then start charging penalty. If you want to make this effective, probably you have to start charging the penalties when you see that in advance they are not doing enough and they are not committing enough. You have to start worrying about that at that time rather than wait all the time and then see if the ISO goes and pays a lot of money and buys it. That would be too late and too expensive." Tr. (Mobasheri) at 5110: 23-28; 5111: 1-3.

The CA ISO agrees wholeheartedly with Dr. Mobasheri's comments. As is explained in the testimony of Mr. Pettingill and Dr. Sheffrin, "[r]egardless of whether the CPUC implements incentives/penalties for compliance with the monthly reliability obligation, the CA ISO envisions that there will be consequences vis a vis the CA ISO for a failure by an LSE to procure sufficient resources to meet its load in the forward markets. For example, depending on the outcome of this proceeding, the CA ISO may propose to include in its tariff a surcharge for real-time energy purchased during a Stage 1, 2, or 3 emergency by an LSE that did not obtain sufficiency capacity in the forward markets. Alternatively, the CA ISO may seek to establish a forward-market priority curtailment list, to be utilized in real time if necessary." Exh. 87, Pettingill/Sheffrin Opening at 24. Further, Mr. Pettingill and Dr. Sheffrin explained that if utilities fail to procure sufficient capacity, the CA ISO anticipates that it may either commit additional capacity or

procure additional energy in real time, or if there are insufficient resources available in these time frames, the CA ISO will have to maintain system balance by shedding load. Id.

Thus, it is critical that the CPUC define consequences for a failure on the part of the utilities to meet their resource adequacy obligations. Logistically, it may make most sense to address this matter in the proceedings to take place next year to review revised utility long-term plans. The utilities could be required to include their proposal for consequences in their revised plans, and parties given an opportunity to respond and make their own proposals in their responsive testimony. In any event, all parties should be aware that if insufficient resources are procured in the forward markets, the consequence could be higher real time prices and/or involuntary load curtailment.

F. A well-designed resource adequacy requirement should take account of developments in the wholesale market.

As Mr. Pettingill and Dr. Sheffrin testified, the CPUC's resource adequacy rules should work seamlessly with the CA ISO's operating and market rules. Exh. 87, Pettingill/Sheffrin Opening at 11. Prior sections, describe the need for a hand-off between the utilities' procurement activities and the CA ISO's day ahead and real time activities. In addition, it is important that in undertaking their procurement activities, the utilities take into account the CA ISO's MD02 proposal.

A significant feature of the MD02 proposal is a Locational Marginal Pricing ("LMP") design with specific source-to-sink scheduling rules. Exh. 87, Pettingill/Sheffrin Opening at 11. Under this regime, there could be significantly more precise financial consequences, i.e. congestion costs, depending on the location of resources and loads. Id. at 12. At least on a going forward basis, these features need to be considered and addressed as utilities proceed with long-

term contracting. Otherwise resources deemed economic at the time of procurement could be rendered uneconomic or not suitable for dispatch by the utilities to serve load.

IV. REVISED LONG-TERM PROCUREMENT PLANS SHOULD BE PRESENTED IN A CONSISTENT FORMAT AND SHOULD ADDRESS DEFICIENCIES IN THE APRIL 15 DOCUMENTS.

The Joint Recommendation provides in point I.8. that once the details of a resource adequacy requirement are established, the utilities should be required to revise their long-term procurement plans consistent with the new framework. Exh. 69, Joint Recommendation at I.8.. The revised plans would be filed with the Commission in time for a Commission decision on the plans before the end of 2004.

Generally, the CA ISO supports this approach. As set forth in the testimony of Ms. Thomas, the CA ISO considers that the long-term procurement plans filed by the utilities on April 15 were difficult to analyze and compare because there was no consistent methodology for the determination of a load forecast, counting resources, demonstrating deliverability etc. Even though the CA ISO became aware of additional information after submitting Ms. Thomas' testimony, the CA ISO remains concerned that the long-term procurement plans do not contain sufficient consistent information for the CPUC to make a determination based on the plans that the utilities will obtain sufficient resources to meet their load in the coming years. Exh. 3 Thomas Opening at 2. Moreover, as Mr. Sparks explained, in general the plans contain insufficient information to assess the deliverability of the resources the utilities indicated they would use to meet their needs going forward, tr. (Sparks) at 3858: 14-17, let alone to conclude that such resources are in fact deliverable. .

In addition to providing for more consistency and adequate assessment of deliverability, to the extent the utilities are required to file revised plans in 2004, the CA ISO considers that the CPUC should require the utilities to remedy a number of additional deficiencies in the plans that were filed on April 15. Some areas that would benefit from a more thorough analysis are: 1) the viability of some of the older generation in California; 2) opportunities to reduce RMR costs by encouraging the location of additional resources in transmission constrained areas; 3) the ongoing viability of QFs with expiring Power Purchase Agreements ("PPAs"); and 4) the accuracy of savings estimates from energy efficiency and demand response programs.

"California's fleet of generating plants includes a significant number of plants over thirty years old. Meanwhile, air and water quality requirements have become increasingly stringent." Exh. 87, Pettingill/Sheffrin Opening at 8. These facts support analysis of two separate questions. First, whether opportunities exist to reduce costs by repowering or replacing some of the older existing units. Second, whether some of the existing units are unlikely to remain in operation because they are no longer economic due to poor efficiency or the need for substantial capital investment to continue operations, such as the need to install upgrades to meet air emission requirements. Id. As Mr. Pettingill and Dr. Sheffrin intimated, "prudent planning cannot assume these older units will remain on-line indefinitely." Id.

The CA ISO recognizes that most of the older plants are no longer owned by the utilities, and that the utilities may lack perfect information upon which to undertake an assessment. Nonetheless, as Mr. Alvarez admitted, the older plants were formerly owned by the utilities, and the utilities do have some historical information that could assist them to undertake a reasonable analysis. See Tr. (Alvarez) at 5768: 2-10. Given the vintage of the California fleet, the CA ISO considers that an analysis of the long-term cost-effectiveness and viability of the older plants

would provide important information in making strategic long-term procurement decisions. Thus, the CA ISO considers that the CPUC should direct the utilities to undertake such an assessment and include it in their revised long-term procurement plans.

In addition, and on a related topic, the CA ISO considers that the utilities should consider local area reliability needs as they develop their long-term procurement plans. As Mr. Kott explained in his testimony, in the context of the long-term procurement planning process, utilities should be required to analyze whether some of the older more expensive RMR generating units could be replaced with more efficient and potentially less expensive new RMR generating units or transmission projects. Exh. 65, Kott Opening at 9. Under the RMR Agreement, the CA ISO (and hence the utilities and their customers) pays a significant proportion, if not all, of the fixed costs of the older less economic RMR generating units, including capital additions needed to maintain the units in operation. Id. The CA ISO considers that it is likely that new more efficient and economic units could replace some of the older more expensive RMR units, particularly if the utilities require new resources to meet their resource adequacy requirements in any event. The benefits of encouraging the construction of new generation in constrained local areas should be assessed by the utilities in instances where they propose to enter into long-term contracts for new generation. The Commission should require the utilities to explore opportunities to reduce RMR costs as part of the revised long-term procurement plans to be filed in 2004.[6]

[6] The CA ISO notes that in order for new plants to replace existing RMR units, it will be necessary to put into place the requisite contractual mechanisms for the CA ISO to be able to dispatch the new plants when needed for local area reliability. In addition, timing considerations must be addressed. See Exh. 65, Kott Opening at 5-7 To avoid the need to reinvent the contractual requirements, the CA ISO considers that the existing RMR Agreement can continue to be used, but procurement activities should be coordinated with the negotiation of RMR Agreements to minimize the risk of double payment. Id.

Further, the CA ISO is concerned that as a general matter, the utility long-term procurement plans do not adequately explore the continued viability of Qualifying Facilities ("QF") whose Power Purchase Agreements ("PPA") with the utilities are due to expire. There are approximately 10,000 MW of QF resources in California. For a significant proportion of these, the PPAs will expire over the coming several years. Exh. 87, Pettingill/Sheffrin Opening at 9. It appears that the utilities generally assumed that such QF resources would continue to operate. However, the CA ISO is not persuaded that this assumption is accurate in all cases. As Dr. Mobasheri explained on the stand, whether or not QFs continue to operate after the expiration of their PPAs will be determined by the specific economics of particular projects. Tr. (Mobasheri) at 3817: 26; 3820: 18-19. While the utilities may not be privy to all the information needed to assess these economics, they could at a minimum ascribe some risk factors to different types of QFs.

The CA ISO notes in addition that in relation to an assessment of RMR costs, a substantial reduction in the QF facilities with effective PPAs would also affect the need for RMR units. As Mr. Weingart explained, the CA ISO does not typically offer RMR contracts to units that can be relied on to operate when needed for other reasons, including QFs with effective PPAs. Pacific Gas and Electric Company's Rebuttal Testimony PG&E's Long-Term Procurement Plan and 2004 Short-Term Procurement Plan Redacted, at 10-5 – 10-6. Thus, RMR Agreements will likely have to be signed with QFs needed to meet local area reliability that no longer have effective PPAs.

Thus, the revised long-term procurement plans should include a better assessment of the long-term viability of the QF fleet in the utilities' service territories, including information about when the PPAs are scheduled to expire and whether given the characteristics of different

categories of QFs, there are credible risks that they will cease to operate once their PPAs expire. This assessment could be combined with the assessment of opportunities to reduce RMR costs given the potential impact of PPA expiration on RMR costs.

Finally, the CA ISO remains concerned that savings estimates from energy efficiency and demand response programs should be realistic. Exh. 3, Thomas Opening at 7-8. The CA ISO is supportive of energy efficiency and demand response programs. Id. at 7. However, the CA ISO considers that savings from these programs must be estimated accurately and based on empirical evidence. Id. The CA ISO welcomes the CPUC's ongoing interest in evaluation measurement and verification ("EM&V") of energy efficiency programs and demand-response programs. The Commission's recent order in Docket R.01-08-028 provides regarding evaluation measurement and verification ("EM&V"):

> We will continue to refine the EM&V protocols by way of workshops and through the existing Commission mandated EM&V framework study with TecMRKT Works, overseen by SCE. Until the parties have had an opportunity to work with Commission staff on this issue, we will continue to use the existing EE Policy Manual to provide guidance for 2004-2005 EE program submissions. While we are in the process of revising and updating the EM&V protocols and framework, we will leave the bulk of the evaluation responsibility with the utilities, subject to oversight from this Commission.

D. 03-08-067 at 26. Similarly, in its June 6, 2003 order in docket R.02-06-001, the Commission accepted a working group recommendation for monitoring and evaluating the impacts of demand response programs. D.03-06-032 at 63-6.

In keeping with the emphasis on adequate program evaluation, the CA ISO considers that the CPUC should establish an explicit link between EM&V activities undertaken pursuant to the energy efficiency and demand response dockets and the utility procurement plans. The CA ISO is not suggesting that the design and review of EM&V activities should be shifted to this docket.

Rather, the Commission should direct the utilities to adjust their assumptions about the impacts of energy efficiency and demand response programs in their annual procurement updates to incorporate the results of EM&V efforts. See Exh. 3, Thomas Opening at 8. Careful monitoring and revision of energy efficiency and demand response impacts is particularly important given the aggressive use of energy efficiency and demand response programs proposed in the utility long-term procurement plans. Exh. 3, Thomas Opening at 6.

In sum, the CA ISO found the utility long-term procurement plans to be, in general, insufficient to provide a basis for a determination that adequate procurement will take place to assure sufficient resources in the next several years. Thus, the CA ISO strongly supports the point in the Joint Recommendation that would have the utilities file revised plans in 2004 once the details of a resource adequacy framework are in place. At the same time, the CPUC should direct the utilities to undertake or improve the assessment of a number of issues in their revised plans to remedy deficiencies in particular areas.

V. THE 2004 SHORT-TERM PLANS INCLUDE UNDUE RELIANCE ON SPOT CAPACITY PURCHASES AND DO NOT INCLUDE ADEQUATE STEPS TO ENSURE THAT RESERVE LEVELS DO NOT DEGRADE.

The CA ISO did not undertake a detailed review of the utilities' 2004 short-term procurement plans. However, based on the testimony elicited during the hearings, the CA ISO highlights two concerns with the plans: 1) two of the three utilities propose an undue reliance on short-term and spot market purchases, and none of the utilities have committed to firming these purchases up anytime before the day-ahead/hour-ahead markets; and 2) the short-term procurement plans in combination with the long-term procurement plans fail to indicate how the current level of reserves will be kept from eroding. Both of these concerns relate to issues that are discussed in prior sections of this brief.

The level of reliance on the short-term and spot market purchases by the utilities is confidential. Without discussing specifics, the CA ISO notes that at least two of the three utilities proposes in their short-term plans to rely on spot and short-term purchases in amounts that the CA ISO considers to be excessive, particularly if such reliance is to be acceptable through the hour ahead market. See Exh. 82C, Kevin Woodruff Direct Testimony Confidential Appendix A for PG&E; Exh. 84C, Kevin Woodruff Direct Testimony Confidential Appendix C for SDG&E; and Exh. 86C, Kevin Woodruff Rebuttal Testimony Confidential Appendix B for SCE. Moreover, none of the utilities has indicated a commitment to "firm up" capacity purchases before the day ahead or hour ahead market. For the reasons set forth in prior sections of this brief, the CA ISO believes that the utilities should be required to firm up capacity purchases at least one month ahead of time.

Finally, the CA ISO notes that it is concerned to the extent the 2004 short-term procurement plans, in combination with the long-term procurement plans, fail to demonstrate how adequate planning reserves levels will be achieved and maintained. Again, the CA ISO is constrained from discussing particulars. Nonetheless, the CA ISO notes a significant concern to the extent the utilities are counting on the development of new capacity or maintenance of existing generation to meet an adequate planning reserve level in the next two to four years without plans to enter into the contracts that support these resources. As described earlier in this brief, without mid to long-term contracts, it is unlikely that the new and existing generation numbers will be what they are projected to be.

In sum, the CA ISO is concerned about the 2004 short-term procurement plans to the extent they fail to provide for adequate forward procurement of capacity such that sufficient

resources will be available in the real time, and such that adequate planning reserve levels will be achieved over the next three years.

VI. THE RULES FOR PROVISION OF RESERVES FOR DIRECT ACCESS, COMMUNITY AGGREGATION AND SELF GENERATION CUSTOMERS SHOULD BE CONSISTENT WITH THE ALLOCATION OF RESPONSIBILITIES AS TO OPERATING RESERVES SET FORTH IN THE CA ISO TARIFF.

The CA ISO has not and does not take a position on the entity that should provide reserves for direct access ("DA"), community aggregation and self-generation customers. However, the rules for the provision of reserves for these customers should be consistent with the process for the allocation of responsibilities for operating reserves set forth in the CA ISO tariff. Exh. 87, Pettingill/Sheffrin Opening at 26-29. Moreover, the CA ISO notes that, while it did not address the matter in its testimony, the CA ISO is not persuaded from the record in this case that all liquidated damages contracts should be assumed to substitute for the demonstration that sufficient planning reserves have been procured by suppliers. Finally, the CA ISO notes that it will abide by FERC's recent decision regarding the provision of operating reserves for load served by on-site generation on a "net" rather than "gross" load basis even though the CA ISO continues to believe that this outcome fails to account for the physics of interconnected system operations.

A. The CPUC should ensure that in assigning responsibility for operating reserves it provides for consistency with CA ISO Tariff requirements.

On April 18, 2003, the CA ISO filed a "Reply Brief on the Prehearing Conference Issues of ALJ Walwyn" which discussed the provision of planning reserves and operating reserves for DA, community aggregation and self-generation customers. Judge Walwyn asked parties to include discussion of these issues in their testimony and the CA ISO did so, in the opening

testimony of Mr. Pettingill and Dr. Sheffrin. The CA ISO is not aware of anything in the record that changes the CA ISO's views on these matters, as set forth in the April 18, 2003 reply brief. Accordingly, the CA ISO will merely summarize its position here, and refers the parties, the Judge and the Commission to its April 18, 2003 reply brief for a fuller discussion of these matters.

The CA ISO is the control area operator for all of California, except the areas that comprise the control areas of Los Angeles Department of Water and Power, the Sacramento Municipal Utility District, and the Imperial Irrigation District, as well as the extreme northern portion of the state, which is within the Pacificorp control area. Exh. 87, Pettingill/Sheffrin Opening at 26. Accordingly, the CA ISO has the responsibility to assure that sufficient operating reserves are maintained within the control area that it operates. Id.

The CA ISO undertakes its responsibility to assure that there are adequate operating reserves within its control area by permitting participants to self-provide the operating reserves associated with their load requirements and, for those that elect to purchase operating reserves from the CA ISO, operating markets for Ancillary Services. Id. at 26-27. On a daily basis the CA ISO estimates the level of Ancillary Services that will be needed within the CA ISO control area based on the CA ISO's forecast of the next day's load; and this amount is allocated to Scheduling Coordinators based on the load they represent, in accordance with the Ancillary Service Requirements Protocol ("ASRP") that is part of the CA ISO tariff approved by the FERC. Id. at 27. All loads within the control area are represented to the CA ISO by a Scheduling Coordinator that is responsible for scheduling that load with the CA ISO and submitting (or causing to be submitted) to the CA ISO accurate metering data for the load. In this manner, the CA ISO can operate the system reliably and allocate its costs, including Ancillary Services costs, accurately. Id.

When direct access was implemented, some care was taken to ensure consistent requirements between Scheduling Coordinator obligations at the CA ISO/wholesale level and those of utilities and Energy Service Providers ("ESPs") at the retail level. Id. For example, the direct access rule adopted by the CPUC, Rule 22, requires ESPs to have one or more Scheduling Coordinators for purposes of reporting all of the ESPs end-use meter readings to the CA ISO. Rule 22, B, 3, c. This requirement helps ensure that all loads within the service territories of the IOUs are represented at the CA ISO. Further, Rule 22 states that there can be only one Scheduling Coordinator per service account; a requirement that is mirrored by a requirement in the CA ISO tariff, at SCAP 2.3. These requirements minimize the possibility of incomplete or inaccurate accounting for load before the CA ISO. Utilities act as the Scheduling Coordinator for the customers that do not opt for direct access, otherwise known as the utility supply customers. Id. Thus, the Scheduling Coordinator selected by the ESP is responsible for the operating reserves of a DA customer, and the utilities are responsible for the operating reserves of the utility supply customers.

The CA ISO's system for assuring that adequate operating reserves are maintained within the control area does not necessarily predetermine who, as between the ESP and the utility or any other entity, should be responsible pursuant to retail rates and rules, for operating reserves for DA load, aggregated customer load, or load served by self-generation or distributed generation. Id. Rather, the entity that is the Scheduling Coordinator for such loads would be the entity responsible for the operating reserves for such loads.

Thus, however the CPUC determines to assign responsibilities for operating and planning reserves associated with DA and other customers, it should also require that the entity that will be responsible for operating reserves for a load be the Scheduling Coordinator for the load. The entity should be required to submit to the CA ISO accurate metering information for the load and to undertake all other responsibilities of a Scheduling Coordinator for that load in

accordance with the CA ISO tariff. Id. at 28. Moreover, the CPUC should maintain the requirement that there be only one Scheduling Coordinator per service account. Id.

B. Suppliers Have Not Demonstrated that Liquidated Damages Contracts Should be Deemed to Meet Resource Adequacy Requirements.

Mr. Fulmer, on behalf of the Alliance for Retail Energy Markets ("AreM"), testified that ESPs rely on Firm Energy Liquidated Damages ("Firm LD") contracts to serve their customers needs. Exh. 93, Prepared Testimony of Mark Fulmer on Behalf of the Alliance for Retail Energy Markets at 9. Mr. Fuller testified, "[t]o the extent that adequacy requirements are determined to apply to all LSEs, the enforcing body must grandfather existing DA contracts; provide a reasonable transition period for ESPs to conform their new contracts to this requirement, and/or permit ESPs to offset any requirement by its LD contracts." Exh. 93, Prepared Testimony of Mark Fulmer on Behalf of the AReM at 10.

The work plan for the workshop process developed by Judge Walwyn, includes under "Resource Eligibility" two relevant items; "nature of commitment" and "treatment of system purchases". The CA ISO considers that the treatment of Firm LD contracts could be discussed under these topics. Further discussion is appropriate. Without further information, the CA ISO cannot agree with AreM that all Firm LD contracts should be deemed to meet new resource adequacy requirements. While Mr. Fulmer testified that the contracts are "fully hedged and backed by a resource portfolio and purchasing power of its suppliers, with appropriately harsh financial consequences for non-performance", Exh. 93, Prepared Testimony of Mark Fulmer on Behalf of the AReM at 9., Mr. Fulmer admitted on the stand that he had not seen any of the contracts in question. Tr. (Fulmer) at 4526: 25-27. Given this record, there is insufficient

information from which to conclude that all Firm LD contracts can be deemed to meet resource adequacy requirements.

C. CA ISO Will Abide by FERC's Recent Decision Regarding the Provision of Operating Reserves for Load Served by On-site Generation.

During the hearings, there was substantial cross examination about the propriety of calculating the responsibility for operating and planning reserves for load served by distributed generators on a "net" or on a "gross" basis.[7] The CA ISO's position has been that such reserves should be calculated on a gross basis. Tr. (Pettingill) at 4378: 3-12; 4381: 28; 4487: 4-22. As Mr. Pettingill explained, this is because the system is expected to serve such load in the event that the distributed generator ceases to operate. Tr. (Pettingill) at 4378: 21-23; 4383: 6-10. As Mr. Pettingill explained, since reserves are only a small proportion of the on-site load served by the distributed generator, the assumption is that most of the time the load will be served by the distributed generator. Tr. (Pettingill) at 4488: 3-12. However, because distributed generators can be subject to forced outages, the CA ISO considers that to maintain system reliability, reserves should be maintained for the load served by on-site generators, even while the distributed generators are operating. Tr. (Pettingill) at 4378: 3-12; 4381: 28; 4487: 4-22. CAC/EPUC has argued strenuously that reserves should only be carried for net load; that is the load that appears on the system when the generator ceases to operate. See Exh.122, Prepared Direct Testimony of James A. Ross on Behalf of the Cogeneration Association of California and the Energy Producers and Users Coalition at 11-12.

On August 12, 2003, FERC at long last issued a final order in docket Nos. ER98-997-000; ER98-997-002; ER98-1309; ER02-2297-001; and ER02-2298-001, where the issue of gross

[7] The distinction between "gross" and "net" load is that "gross" load includes load served by the distributed generator while it is operating, whereas "net" load excludes the load serve by the distributed generator while it is operating. Tr. (Pettingill) at 4378-4381.

versus net determination of operating reserves was litigated. California Independent System Operator Corporation, 104 FERC ¶ 61,196 (August 12, 2003). In its order, FERC ruled "[w]e affirm the judge's finding that the long-standing practice in the CA ISO control area of scheduling, metering and procuring reserves on a net load basis should be permitted to continue, so long as a QF has contracted for standby service with a [Utility Distribution Company ("UDC")], i.e. a contract that provides for the immediate replacement of energy in case of the QF's forced outage." Although, the CA ISO disagrees with FERC's decision, the CA ISO has determined that it will not seek rehearing of the decision**.** The CA ISO notes that it is not aware of what steps if any WECC will take as a result of the FERC order; and whether these will require the CA ISO address the issue further.

The CA ISO notes that while the FERC decision does not address resource adequacy requirements directly; it does limit "netting" to those resources that take standby service from the utilities. Thus, the CPUC will still have to ensure that the resources procured by the utilities are sufficient to serve stand-by customers when their distributed generator ceases to operate.

VII. CONCLUSION

Creation of a resource adequacy requirement is of overriding importance to provide for reliable and cost-effective electric service to customers in California. A resource adequacy requirement should provide the framework for the addition of needed resources in California and for an effective hand-off to the CA ISO so that resources procured in forward markets are made available to the CA ISO to ensure reliable system operations and to serve load in real-time. The CA ISO will continue to participate actively in this matter to further the goal of a clear, effective and enforceable resource adequacy requirement.

Respectfully submitted,

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PROOF OF SERVICE

I hereby certify that on September 15, 2003, I served by electronic and U.S. mail, the Opening Brief of the California Independent System Operator Corporation in Docket # R. 01-10-024.

DATED at Folsom, California on September 15, 2003.

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