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 TESTIMONY OF PHILIP PETTINGILL AND ANJALI SHEFFRIN REGARDING THE LONG-TERM PROCUREMENT PLANS OF THE INVESTOR OWNED UTILITIES ON BEHALF OF THE CALIFORIA INDEPENDENT SYSTEM OPERATOR

Submitted by the California Independent System Operator

Jeanne M. Solé, Regulatory Counsel
Charles F. Robinson, Vice President and General Counsel
California Independent System Operator
151 Blue Ravine Road
Folsom California 95630
Telephone: (916) 351-4400
Facsimile: (916) 608-7296

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Our names are Philip Pettingill, Manager of Policy Development in the Regulatory Policy Department of the California Independent System Operator Corporation (CA ISO), and Anjali Sheffrin, Director of Market Analysis for the CA ISO. Our duties on behalf of the CA ISO and our qualifications are submitted as attachments to this testimony. We are submitting this testimony on behalf of the CA ISO. The purpose of our testimony is to set forth the CA ISO's recommendations and comments regarding the long-term procurement plans of the Investor Owned Utilities (IOUs or utilities) with respect to the following topics:

- The adoption and enforcement by the California Public Utilities Commission (Commission or CPUC) of an obligation on the IOUs to assure that the IOUs procure, in advance, sufficient resources to meet their customers' needs;
- The provision of reserves for direct access customers, community aggregators, and distributed and self-generation customers;
- How the CA ISO's proposal for an IOU resource adequacy obligation will help mitigate market power in California's wholesale electricity market; and
- The potential perverse outcomes that could result from the implementation of a procurement incentive mechanism unless it is properly designed.

I. THE CA ISO'S POLICY RECOMMENDATIONS TO DEFINE AND ENFORCE AN OBLIGATION ON THE INVESTOR OWNED UTILITIES TO ASSURE

THAT THE IOUS PROCURE AND MAKE AVAILABLE SUFFIENT RESOURCES, IN ADVANCE TO MEET THEIR CUSTOMERS' NEEDS.

A. OBJECTIVES AND OVERVIEW.

The CA ISO strongly supports defining and placing upon all Load Serving Entities (LSEs) an obligation to ensure that an adequate quantity of electrical resources (generation, transmission and demand-side) has been procured in advance and is available to meet their anticipated peak load and reserve requirements.

From the CA ISO's perspective, there are two temporally distinct objectives of resource adequacy. First, on a long-term basis, a resource adequacy mechanism would provide a platform for future investment in California's electric infrastructure. Such a mechanism, if properly designed, would provide incentives for the LSEs (in this instance the IOUs) 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.

The second objective of resource adequacy is to support reliable system operations. This is obviously a real-time benefit and, from the CA ISO's perspective, is a primary objective of resource adequacy. While maintaining reliable system operation is the statutory responsibility of the CA ISO, the CPUC's policies – especially those regarding resource adequacy - should support that objective. It must be emphasized at the outset that the concept of "resource adequacy", and the measure of success of any resource adequacy program, are driven by the need to serve load in real time. The CA ISO's ability to serve load in real-time is dependent on having adequate resources available in real time.

All 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. For example, if the reliability standard is the traditional "no more than one day [of involuntary load curtailment] in ten years," the resource adequacy program must start with an assessment of what

is needed to achieve and maintain that standard day-in and day-out, and then develop policies that will ensure that those needs are met. Since reliable real-time operation of the transmission grid is central to the CA ISO's mission, the testimony presented here will focus on, and propose mechanisms to ensure, the development of longer-term resource adequacy requirements and activities that will support the CA ISO's real-time operating requirements and provide for load to be served in real-time.

There are additional benefits to establishing a resource adequacy requirement. By procuring adequate capacity (without necessarily forward purchasing the energy from all such capacity), the utilities would support the emergence of a competitive spot energy market resulting in lower spot energy prices. Furthermore, by purchasing such capacity on a forward basis – three to five years in advance of the need – LSEs can avoid and substantially mitigate the exercise of market power. For example, the LSEs' advance purchase of capacity allows them to effectively retain the option to buy from available or offered resources or to build the capacity themselves. Such options practically limit the ability of suppliers to demand a very high price for supply.

The obligation to procure sufficient capacity should include a concomitant obligation to ensure that such resources are deliverable to load. Therefore, when procuring resources to satisfy a resource adequacy obligation, the IOUs should consider the impact of major transmission constraints on the deliverability of resources. By acknowledging the operating and physical constraints of the system, the CPUC will ensure that there are adequate resources to serve load and will assist the CA ISO in its responsibility to operate the grid reliably.

This testimony sets forth recommendations on:

1) A process to enforce the utilities' obligation to assure resource adequacy, including annual updates of utility long-term procurement plans, and monthly submissions demonstrating achievement of the requirement;

2) Components of an adequate long-term procurement plan, including deliverability assessment, the appropriate target reserve level, and the appropriate treatment of short term and spot market purchases;

3) Implementation and enforcement of a requirement that the utilities procure, at least one month in advance, capacity sufficient to meet their projected monthly peak load and an appropriate reserve margin.

In conclusion, the CA ISO firmly believes that imposing a resource adequacy obligation on LSEs (in this proceeding the utilities) is necessary to support reliable operation of the system. This obligation should include a clear responsibility for the utilities to procure, in the forward market, the resources necessary to serve their forecast load. This obligation should be implemented and enforced by the CPUC on an ongoing basis.

B. ONGOING PROCESS.

The CA ISO understands this proceeding to be the mechanism by which the CPUC will ensure that the utilities it regulates procure adequate resources to meet their customers' load. In D.02-10-062, the CPUC required the utilities to file long-term procurement plans to cover anticipated needs between 2004 and 2023. D.02-10-062 at 47. The CPUC indicated that the utilities should use a mix of resources as described in section V of D.02-10-062, and adopted provisionally a reserve level of 15%, subject to consideration of utility specific requirements and reexamination once the Power Authority proceeding comes to a final recommendation. D.02-10-062 at 29.

The Commission directed that there should be an emphasis placed on the next five years because, if new resources need to be developed within this time period, long-lead time resources would likely require a decision and commitment in the short term. In addition, the CPUC indicated that the quarterly advice letter process adopted to monitor compliance with the 2003 short term plans should be extended to monitor compliance with the long-term plans. That is, the utilities should file a quarterly compliance advice letter after the end of each quarter detailing all transactions in compliance with the adopted plan. If a transaction falls outside of the approved

plan, the utility should file an expedited application. D.02-10-062 at 49.

The CA ISO supports the initial preparation, review and approval of a twenty-year plan with a special emphasis on the first five years. Moreover, the quarterly advice letter process provides some ability to monitor how the plans are being implemented. However, the CA ISO considers the advice letter process to be insufficient to provide for the implementation and enforcement of a meaningful resource adequacy obligation on an ongoing basis. Accordingly, the CA ISO recommends (as described later here-in) on-going annual updates to the plans, and a process for the utilities to demonstrate on a monthly basis that they have procured sufficient capacity to meet their projected monthly peak load plus reserves.

Before addressing the additional mechanisms that the CA ISO considers necessary to provide for the implementation and enforcement of a meaningful resource adequacy obligation, the CA ISO notes that it supports a periodic long-term review to assess resource adequacy, such as the twenty-year review the CPUC has required in this docket. Such a long-term review and the related studies and evaluations are appropriate from a strategic planning perspective and will bring to light important trade-offs not only between generation, transmission and load, but also within resource categories. For example, a longer-term vision would enable policymakers to examine whether investment in one 500 kV transmission facility is more appropriate than investment in two 230 kV or local demand/generation resources or whether forty year old generators should be repowered, retired or replaced. In essence, a long-term review gives policymakers the opportunity to fashion a vision of the future and to structure a regulatory framework that comports with and supports that vision.

Once this vision is established in this proceeding, the CA ISO recommends that the utilities be required to update their long-term plans annually (as opposed to merely reporting their activities consistent with the approved plan on a quarterly basis). In particular, the more detailed first five years that are initially reviewed and adopted should be updated on an annual basis providing for a rolling five-year plan that is consistent with the twenty-year vision. In this way, as a particular year of need gets closer it will be possible to confirm that the elements that

were in the approved long-term plan to meet customer needs in that year are on schedule. Moreover, the inevitable necessary changes to the long-term plan can be identified and corrections made as more information and certainty is achieved.

Regarding the later years of the plan, such as years four and five, it is inevitable that there will be less certainty as to the plan's elements. For example, utilities could propose to meet customer needs in years four and five with new generation that is not yet under construction, provided such plants have filed for their permits before the California Energy Commission (CEC). However, for closer-in-time years one through three, the resources relied on by the utilities should be required to have much more certainty, including, where appropriate, signed commitments. For example, if utilities are relying on power from a new plant in the second year, that plant should be under construction. The annual update process, and rolling five-year outlook, will ensure that utilities remain on track to obtain necessary resources and that adjustments can be made ahead of time when it is clear that the scheduled availability of resources that a utility was relying on has changed.

The CA ISO recommends that the annual updating process will 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. The updating process should not provide for re-litigation of the basic vision established as a result of the approval of the long-term procurement plans in this phase of the process. The annual updating process would also give the CA ISO and other interested parties updated information regarding the utilities' procurement activities.

In addition, the CA ISO proposes a monthly reliability obligation. This monthly reliability obligation would require that each utility obtain on a month-ahead basis an amount of resources equal to its forecasted monthly peak plus reserves. The purpose of the monthly reliability obligation is to ensure that as real time approaches, there is in fact adequate capacity to meet the utilities load with sufficient reserves. Therefore, resources must be specified by point of delivery into the system and utilities must demonstrate feasibility of delivery of resources to

the utility's load. The monthly reliability obligation is described in more detail below.

Finally, the CA ISO recommends that the CPUC periodically, perhaps in three years, review the general process that it has established for assuring resource adequacy and assess whether it has been effective. In addition, the CPUC may want to periodically review the longer-term vision established in this phase based on the utilities' 20 year plans.

The CA ISO's recommendation for annual updates and a monthly reliability obligation are specifically related to the following two key concerns that the CA ISO has regarding the adequacy of the long-term plans submitted by the utilities:

1) There is a large degree of uncertainty about many of the resources that the utilities indicate they will rely on to meet customer loads. For example, if utilities indicate that load will be met through distributed generation or new power plants, as the year of need gets closer it is important to show that progress has been made towards making the plans a reality. If the schedule has changed, steps must be taken to put alternatives into place to satisfy load requirements. To some degree, such uncertainty is inevitable unless the utilities are required to procure in the first year all the resources needed to meet their projected load in the last year of their plan. Annual updates and a monthly reliability obligation help provide for flexibility to take advantage of more cost effective opportunities, while ensuring that as the time of need approaches the necessary resources are in place; and

2) The utilities propose to rely to varying degrees on short term and spot market purchases. A plan to rely on short term and spot market purchases does not ensure that adequate resources will in fact be available when needed or that they will be available at a reasonable cost. The annual updates and monthly reliability obligation will indicate whether adequate capacity is available such that it is realistic for the utilities to rely on short term and spot market purchases when they propose to do so.

In sum, having reviewed the utilities long-term plans the CA ISO is persuaded that to

address these concerns the additional ongoing reporting mechanisms suggested above are necessary to ensure resource adequacy.

C. POLICY RECOMMENDATIONS REGARDING THE LONG-TERM PROCUREMENT PLANS.

1. REASONABLE AND STANDARDIZED ASSUMPTIONS AND FORMATS

As the CA ISO noted in its February 10, 2003 comments on the utility long-term procurement plan outlines, it is necessary to have some consistency in approach, assumptions and sensitivity analyses among the utilities' plans. For example, it is difficult to assess the plans individually and in relation to each other if they contain markedly different assumptions about key inputs such as future load growth, energy prices, hydrological assumptions and other variables. The CA ISO offers some of its thoughts regarding standardization of assumptions in the testimony of Mary Jo Thomas.

A related topic is the use of appropriate assumptions. It is important to have reasonable assumptions about load levels (including when and where loads will be located), about the availability and location of resources, and about deliverability (this topic will be discussed further below). In addition the CA ISO believes two areas need to be considered more proactively: older generation retirement/repowering and the future of QFs.

a. Retirement/Repowering

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. Thus, a significant number of generating plants may either have to retire or require significant additional investment because they currently are too inefficient to compete against newer units, or because they require significant capital additions to continue to meet environmental requirements. This give rise to a fundamental question as to whether continued investment in old inefficient plants, repowering, or additional new generation makes the most sense. Further, prudent planning cannot assume these older units will remain on-line indefinitely. Therefore, the

CPUC should develop specific criteria for the inclusion and exclusion of significantly aged units in the utilities long-term resource plans. Moreover, it is important to assess whether certain of the older plants should be replaced by new, clean, and more efficient plants.

The CA ISO is directly affected by these questions because it administers the reliability must run (RMR) agreements many of which relate to older, inefficient units. Unless new efficient generators replace these old plants, or unless transmission reinforcements are made, the CA ISO faces the potential of significant RMR cost increases. Additional RMR issues are described in the testimony of Robert Kott.

Each of the utility plans discusses the possibility of certain plant retirements. However, there is no consistent evaluation of whether existing plants should be replaced and/or repowered to reduce the costs of meeting customer loads. The CPUC should direct the utilities to undertake a more comprehensive review of this question and to present the results in their first annual update.

b. The future of Qualifying Facility contracts

Utility long-term procurement plans should accurately assess the output that can be expected from Qualifying Facilities (QFs) going forward. There are approximately 10,000 MWs of QF resources in California. The CA ISO is aware that the purchase power agreements (PPAs) between the utilities and a significant proportion of these QFs will expire over the coming several years. It is not certain whether and to what extent QF plants with expired PPAs will continue to operate. Thus it is important for the CPUC to fashion a sensible QF policy to ensure that significant resources, especially in transmission constrained areas, are not lost without adequately planning for necessary local area reliability reinforcements.

2. DELIVERABILITY

In order for resources to be able to meet utility customer needs, the resources proposed to serve load must be deliverable. Thus, the utilities must demonstrate the deliverability of the resources identified in their procurement plans.

The deliverability of a resource can be satisfied in a number of ways. In the context of traditional integrated planning, utilities satisfied this requirement by either building generation close to load centers or by building sufficient transmission to get the power from remote generating stations to the load centers. In the context of this proceeding, to the extent that a utility proposes to meet loads within transmission-constrained areas (Local Reliability Areas or LRAs) from resources that are located within the area, deliverability issues are minimal. However, in cases where the utilities intend to meet loads in an LRA from resources that are located outside of the area, the utilities must be able to show that the resources are not constrained by the transmission system between the generation interconnection point and the LRA.

As is discussed in the testimony of Robert Sparks, the utilities should be required to provide evidence in the form of transmission studies demonstrating that their resources are deliverable. These studies should be closely coordinated with the existing CA ISO transmission expansion planning process. This may require additional, confidential transmission studies that are not made available to all stakeholders, but that are included in the utilities' annual updates and monthly reliability obligation reports. Furthermore, the utilities should be required to identify the location of the resources that they intend to rely on to meet their needs with sufficient specificity to allow the CA ISO to perform in its annual grid planning process an accurate assessment of transmission needs for the CA ISO Controlled Grid.[1]

Further, the CA ISO cautions the CPUC against allowing the utilities to show that projected resources are "deliverable" by relying exclusively on the procurement of congestion revenue rights (CRRs) or by assuming that the utilities will simply pay any applicable congestion revenues. In the first instance, as currently envisioned by the CA ISO in its Market Design 2002 (MD02) proposal, CRRs are primarily a financial instrument and, thus, do not ensure scheduling or curtailment priority for the generation portion of a day-ahead balanced transmission schedule.

[1] The CA ISO realizes that it may be necessary to maintain the confidentiality of certain information and is willing to work with the Commission and the utilities to address this question.

Second, while the aggregate amount of CRRs to be issued is in part determined by conducting a "simultaneous feasibility test", such a test in no way guarantees that, on any given day, sufficient transmission capacity will exist to deliver all energy scheduled by CRR holders. Similarly, even if a utility elects to become a "price taker" for congestion (i.e., it agrees to pay whatever price is necessary to not have their preferred schedule reduced), the CA ISO does not believe that such status is sufficient to ensure the deliverability of a utility's scheduled resource. While "price-taker" status increases the likelihood that a utility's schedule will be accepted, it does not guarantee that on any given day a utility's scheduled resources will be deliverable.

Therefore, the CA ISO believes that the CPUC should establish a locational resource adequacy requirement, to maximize the deliverability of resources necessary to serve load. This requirement should be defined in terms of LRAs, which are clearly specified transmission constrained areas. The LRAs would reflect the constrained areas within an IOU's transmission system that require individual designation of sufficient resources to meet load and provide reserves within the area.

The CA ISO also recommends that, should the IOUs propose to rely on firm imports from, or physical resources located, outside of the CA ISO's control area, the Commission should require that the IOUs be required to demonstrate that they have procured sufficient firm transmission capacity to deliver power from the resource to an interconnection point within the CA ISO system.

3. INTEGRATION WITH THE WHOLESALE MARKET DESIGN

The Commission's resource adequacy rules should work seamlessly with the CA ISO's operating and market rules. The CA ISO's MD02 proposal should be considered and reflected in the structure and terms of any long-term contracts entered into pursuant to the rules established in this proceeding. Thus, among other things, the scheduling requirements under such long-term contracts should be compatible with and reflect the specific source-to-sink scheduling rules under the CA ISO's proposed Locational Marginal Pricing (LMP) design.

Furthermore, any such contracts must carefully consider the financial consequences (i.e., congestion costs) of operating under an LMP regime. For example, the CPUC may want to require that the IOUs contract with resources to ensure that the delivery and scheduling requirements comport with the IOUs own CRRs. While CRRs do not ensure physical delivery, they will be important considerations when evaluating the overall cost-effectiveness of an IOUs procurement plan since the availability of CRRs to hedge congestion cost exposure will be an important cost consideration.

In addition, in overseeing the design of long-term contracts between IOUs and suppliers, the CPUC can assist the CA ISO in ensuring that adequate capacity is available at reasonable prices in real time. The CA ISO's MD02 proposal includes both a day-ahead Must-Offer Obligation and a Residual Unit Commitment process. The day-ahead Must-Offer Obligation would require suppliers to schedule or bid into the market capacity that is available. The Residual Unit Commitment process would allow the CA ISO to commit capacity as the final step of the day-ahead scheduling process, if insufficient capacity has already been committed to meet the CA ISO's forecasted load.

Although the CA ISO considers that a day-ahead Must-Offer Obligation is critical to ensure that suppliers do not engage in *physical* withholding[2], there has been on-going opposition to the Must-Offer Obligation on the part of suppliers. Because of this the CA ISO is concerned that FERC may lift the current must-offer obligation without accepting the CA ISO's proposed day-ahead Must-Offer Obligation. Accordingly, the CA ISO urges the CPUC to ensure that the procurement rules require that resources procured by the IOUs be made available to the CA ISO in the day-ahead market for possible commitment to serve the next day's forecast load. This requirement would satisfy the objective outlined earlier – enabling the CA ISO to operate the electric system in a manner that reliably serves real-time load. The procurement of adequate

[2] The CA ISO also proposes, as a necessary complement to the day-ahead Must-Offer Obligation, certain price mitigation measures and mechanisms in order to prevent *economic* withholding from the market.

capacity in the forward market is critical, yet, that capacity is of little value to load if it is not made available to serve load when needed.

Further, the CA ISO notes that, as explained earlier, pursuant to its MD02 proposal, it would have the ability to commit resources as the final step in the day-ahead scheduling process. If LSEs (including the IOUs) fail to schedule sufficient capacity to meet the CA ISO forecasted load, the CA ISO may have to exercise its discretion to commit additional capacity, even at relatively high prices, or if insufficient capacity is available for commitment, to shed load. Nonetheless, the CA ISO considers that from a consumer's perspective, it is far preferable to rely on an effective resource adequacy program, enforced by the CPUC to ensure that sufficient capacity is on-line and operating to serve load, than on the CA ISO's residual unit commitment process.

Finally, the availability and dispatch provisions of the long-term IOU contracts with suppliers should be compatible with the structure and timing of the CA ISO's day-ahead scheduling and resource commitment procedures as well as the CA ISO's real-time dispatch protocols. In other words, the nature of the long-term contracts should be seamlessly integrated with the structure, timing and functioning of the CA ISO's proposed wholesale market design. Absent this integration, market anomalies and discontinuities will arise that may undermine the fundamental economics of both the long-term contracts and the CA ISO's markets.

4. TARGET RESERVE LEVEL

The CA ISO supports use of a target reserve level that will assure that sufficient resources are available to operate the system reliably in real-time, including compliance with national, regional and local operating reserve requirements. As an initial matter, the CA ISO supports imposition of a uniform reserve requirement across all LSEs. Otherwise, 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.

The CA ISO considers it to be an important first step for the CPUC to establish an adequate target reserve level for the utilities along with an adequate process for the

implementation and enforcement of resource adequacy obligations as set forth in this testimony. The CA ISO remains open to discussions with the CPUC, other state agencies, the utilities and stakeholders about how similar responsibilities can be defined and applied for other LSEs in California.

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 California Power Authority (CPA) comes to a final recommendation. D.02-10-062 at 29. D.02-10-062 does not specifically state whether this level is 15% of installed capacity or some other measure although in adopting the requirement it notes that historically, installed reserves have been 15-18% of system peak load.

The CPA has 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 supports the CPA's recommendation and urges the CPUC to adopt the revised level along with the CA ISO's recommendations for implementation and enforcement of the resource adequacy obligation.

First, the CA ISO strongly supports the CPA's use of dependable capacity, rather than installed capacity as the measure of a target reserve level. 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. Use of installed capacity as the measure can significantly over or understate 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. The CA ISO strongly prefers use of net dependable capacity or unforced capacity as these measures include some consideration of the actual output that can be expected from particular resources based on historic production.

Second, the CA ISO supports for now a 17% level based on dependable capacity. This level is only slightly below the target reserve level initially proposed by the CA ISO when it first considered creating a resource adequacy requirement. The CA ISO has recommended a capacity reserve level of 10% to 12% based on "unforced capacity" in the forward (month-ahead) time frame and about 10% based on "available capacity" in the day-ahead time frame. These levels were intended to assure compliance with Western Electricity Coordinating Council's (WECC's) operating reserve (and North American Electric Reliability Council's (NERC's) regulation control performance) criteria. The CA ISO calculates that a 12% reserve level based on "unforced capacity" translates to an 18% level based on "dependable capacity"[3]. Thus, until further experience is obtained about the adequacy of the 17% of "dependable capacity" figure, the CA ISO considers that it is a reasonable starting point.

Finally, the CA ISO strongly supports making the target reserve level applicable on a monthly basis based on a utility's peak monthly load. As described elsewhere in this testimony, to ensure that adequate resources will be in place in real time, the CA ISO recommends that, at least one month prior to the operating month, the utilities be required to demonstrate that they have procured sufficient capacity to meet their peak load and target reserve level.

In sum, consistent with D.02-10-062, the CPUC should now revise the target reserve level to adopt the final recommendation of the CPA that each utility be required 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

[3] The dependable capacity is the operable capacity of the resource given the ambient and other operational conditions such as environmental or seasonal conditions. For example a thermal unit with a nameplate capacity of 500 MW may be able to produce 450 MW on a continuous basis on a hot summer day. The unforced capacity is the dependable capacity derated by the average annual forced outage rate. As an example, assume an average annual forced outage rate of 5% and a reserve margin of 18% based on dependable capacity; the corresponding reserve margin based on unforced capacity would be 12%: 1.18 * (1-0.05) = 1.12.

peak." In addition, the CPUC should adopt formal reporting requirements that require the utilities to submit to the Commission, at least one month prior to the operating month, information to demonstrate that they have procured sufficient capacity to satisfy their monthly peak load requirements plus 17% reserves.

5. SHORT TERM AND SPOT MARKET PURCHASES

An important issue that arises in reviewing the utilities long-term procurement plans is the appropriate role of short term and spot market purchases. In D.02-10-062 the CPUC warned "[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.

Upon review of the utilities' plans, the CA ISO considers that more stringent guidelines need to be provided by the CPUC as to how the utilities can consider and use short term and spot market purchases to demonstrate compliance with their responsibility to obtain sufficient resources in their long-term procurement plans. Otherwise, the utilities could theoretically always "demonstrate" that they will meet their customers' needs by assuming that they will obtain the requisite resources through short-term and spot market purchases.

To address this concern, the CA ISO offers two recommendations. First, the CPUC should limit the level of customer load that the utilities can assume will be met through short term and spot purchases. Utilities should be required to demonstrate on an annual basis that they have procured (or have a reasonable plan to procure) sufficient capacity to meet at least 90-95% of their needs. Provided that adequate capacity is procured, in advance, and made available in the spot market, the Commission and the CA ISO can be assured that adequate supplies will be available when needed. Moreover, there will be less opportunity for suppliers to exercise market power in the spot market. The CA ISO is less concerned about the level of energy purchases that

take place on a short term or spot basis because having the utilities meet adequate capacity obligations will help ensure that adequate energy will be available in the spot market.

Certainly, to the extent the utilities do not procure sufficient capacity to meet their customers' needs and purport to demonstrate that they will meet customer loads through short term and spot purchases, the CA ISO recommends that the utilities be required to demonstrate that resources will be available for purchase and delivery when needed. Thus, if 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 the 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 available resources. Further, the utilities must show that there will be adequate transmission capability into California to support the projected imports after accounting for the imports of other LSEs in California.

Second, as is described in more detail below, the CA ISO recommends that at least no later than a month in advance of the operating month, the utilities should be required to procure capacity to meet 100% of their monthly peak load plus the applicable target reserve level. Again, spot market energy purchases would continue to be permissible provided that the requisite level of capacity is purchased in the forward markets. The CA ISO believes that this recommendation is the only effective way to implement the recommendation of the CPA as to the appropriate reserve level and to assure that sufficient capacity will be in place to meet customer needs in real time.

D. THE MONTHLY RELIABILITY OBLIGATION

As noted above, the CA ISO proposes that each utility be required to demonstrate that it has procured sufficient capacity to meet its peak load plus the applicable target reserve level on a month-ahead basis. In this process, the utilities should be required to identify the specific

resources they will make available to serve their forecast load and reserve obligation for a given month one month prior to that month.

A resource designated by a utility to meet its monthly reliability obligation should demonstrate that it will be fully available to the CA ISO (for the amount of contracted capacity) and must respond to CA ISO dispatch instructions. Further, the obligation can be met via a combination of firm forward energy schedules, and bids to participate in the CA ISO's forward markets (i.e., ancillary services and energy markets). As was discussed in the subsection on integration with the wholesale market design, a requirement that resources be made available for commitment by the CA ISO will complement the CA ISO's proposed MD02, particularly in the event that FERC does not accept the day-ahead Must-Offer Obligation. If this happens, a CPUC sponsored requirement will be critical to ensuring that sufficient capacity is made available through the CA ISO's markets to serve real time load.

The CA ISO proposes that the CA ISO, the utilities, the CPUC and interested parties work together to define the details of how the monthly reliability obligation is to be implemented, building on the work that was undertaken by the CA ISO when it initially proposed a resource adequacy obligation. A framework should include the rules for determining each utility's monthly reliability obligation (based on its monthly peak load plus reserves), the rules for accounting of resources, the rules and process for reporting and review, and the consequences of non-compliance. This section of the testimony will lay out some of the CA ISO's initial thoughts regarding each of these topics. The CA ISO recommends establishing workshops or a working group process to develop the details further.

1. DETERMINATION OF THE MONTHLY RELIABILITY OBLIGATION

The CA ISO supports determining the monthly peak load of each utility for purposes of the monthly reliability obligation by allocating responsibility to each utility based on the utility's historical contribution to the peak load of the system. While not precise, such an approach is fair

and would reduce or eliminate incentives for the utilities to manipulate their load forecasts to reduce their monthly reliability obligation.

Each utility would be responsible to cover its forecast monthly peak load (including the monthly reserve) for a specified number of hours (forecast peak load duration). As an alternative, the forecast monthly load distribution curve could be approximated by a number of blocks with different durations (including one block for the total number of hours of the month, one for the duration of the monthly peak, and one or more blocks with durations between the two).

Under either of the options, the utilities could select the portfolio of resources that best meets their needs, both from a reliability as well as a least-cost perspective. The utility could line up a variety of capacity products, comprised of both owned and contracted for resources with different time durations (base, cycling, peak). Such an approach would facilitate the development of a diverse set of potential new generation and demand-response resources. Construction of such a portfolio, and the flexibility inherent in such a diverse portfolio, would enable the utilities to satisfy a number of objectives – least cost, satisfaction of renewable portfolio standards, reliability, compliance with must-take requirements, etc. Thus, either option will provide a platform for new investment and provide the utilities flexibility when satisfying their capacity obligations.

2. QUALIFYING RESOURCES

The CA ISO proposes that all firm resources – all existing and new generation, including thermal, hydro, renewable, qualifying facility-type generation -- be eligible to provide capacity for purposes of demonstrating compliance with the monthly reliability obligation. In addition, the CA ISO recommends that demand-based products, including load under utility interruptible programs, should be eligible to meet resource requirements. Finally, the CA ISO believes that new and existing firm energy contracts and contracts for imported firm energy also should be eligible to meet the monthly reliability obligation.

Consistent with the CA ISO's view that the target reserve level should be defined as a percentage of net dependable capacity, the CA ISO believes that an important question is *how much* of a resource's "installed" capacity should qualify or count towards satisfying the monthly reliability obligation. For example, the CA ISO does not believe that a 100 MW resource whose historical availability is only seventy percent should qualify to provide the same amount of capacity towards the monthly reliability obligation as a 100 MW resource whose historical availability is ninety percent. The challenge is to develop a policy or accounting methodology that accurately represents the expected contribution from a resource to meet a utility's load but which does not inappropriately discount available capacity and thereby diminish the value of the affected resource, potentially raising costs to LSEs (and consumers) that are required to purchase additional capacity.

Moreover, it is important to stress that, as in the case of the long-term procurement plans, it is important for the utilities to demonstrate deliverability for resources they nominate to meet the monthly reliability obligation.

In the subsections below, the CA ISO lays out some thoughts on the accounting challenges associated with particular types of resources.

a. Imported Resources

California has traditionally relied on imported power, and that power has served California's needs to maintain the reliability of the system. At present, the CA ISO does not see any need to limit the amount of capacity that is supplied from other control areas, except to the extent such resources are limited by the transfer capability from an external control area to the CA ISO's control area.

How to specify the requirements for an external resource that is identified as a capacity resource is a critical part of determining the amount of capacity that these out-of-control resources will be able to provide. At a minimum a utility using external resources to meet its monthly reliability obligation should be required to:

1) Certify that the control area in which the external resource is located will not recall or curtail, for purposes of satisfying its own control area load, imports from that control area into the CA ISO control area of an amount of energy equal to the capacity that the external resource is supplying to the CA ISO control area;

2) Certify that the control area in which the external resource is located will afford the CA ISO control area the same curtailment priority that it affords its own control area load;

3) Identify the delivery point to the CA ISO system;

4) Verify that it has made all arrangements required by the appropriate control area to ensure that the energy associated with the external resource's sale to the CA ISO control area will be delivered to the CA ISO control area. For example, a utility relying on an external resources located in Bonneville Power Administration's (Bonneville) Control Area must demonstrate that it has acquired firm transmission service from Bonneville from the point(s) of injection on the Bonneville system to the point of delivery identified in (3) above;

5) Verify that it has acquired CRRs from the point of delivery identified in (3) above (source) to the load it is supplying (sink);

6) The nature of the underlying source of the power; and

7) The means of contractual control.

b. Demand Response Resources

The CA ISO recommends that the utilities be allowed to use demand response programs to meet their monthly reliability obligation, provided that the programs meet adequate standards[4]. The principal issue regarding the use of demand response programs to meet the monthly

[4] The testimony of Mary Jo Thomas discusses how energy efficiency and demand response programs can otherwise be considered in the context of the utility long-term procurement plan and the requirements for demand response to be used as operating reserves.

reliability obligation is control. The CA ISO will have to coordinate with the utilities and the CPUC to implement a control structure where individual loads are not accessible to (i.e. controllable by) the CA ISO.

c. New and Existing Contracts

The CA ISO believes that the monthly reliability obligation and process should accommodate and recognize, to the maximum extent possible, new contracts as well as existing supply arrangements (including contracts entered into by the State).

The CA ISO believes that in most circumstances new and existing firm energy contracts, call options, and imports should qualify as resources to meet the monthly reliability obligation. However, the CA ISO believes that, to the extent a form of supply has uncertainty associated with its delivery, such resource may not fully qualify as a resource. For example, to the extent a utility has contracted for the delivery of non-firm energy from another control area, such resource should not qualify as a resource for purposes of compliance with the monthly reliability obligation.

With regard to power purchase agreements (PPAs) with cogenerators and qualifying facilities, the CA ISO believes that utilities should be allowed to use the PPA quantity to meet their monthly reliability obligation provided that the utility incorporates the gross load served by such facilities in the calculation of its monthly reliability obligation.

d. Utility Owned Generation

The CA ISO believes that all utility-retained and owned generation should qualify as resources for purposes of meeting the monthly reliability obligation. The question remains, however, as to whether and to what extent generation should be evaluated to determine a "resource equivalence."

At this point in time, the CA ISO believes that it is appropriate to review the historic availability of such resources for purposes of determining the amount each resource would

qualify to provide. Obviously, there are many different kinds of utility-retained or owned generation – nuclear, hydro, biomass, gas, wind, etc. To the extent that resource-specific availability data is not available, the CA ISO recommends the use of resource-type (i.e., not unit specific) availability data.

3. REPORTING

To enforce a monthly reliability obligation, monthly reporting by the utilities is required. The CA ISO believes 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. This report should also be provided to the CA ISO. The CA ISO does not envision that it will enforce the monthly reliability obligation. However, there should be a process for the CA ISO to inform the CPUC if it identifies problems in the service of the utility load or affecting system reliability so that the CPUC can follow up as it deems appropriate.

4. CONSEQUENCES FOR DEFICIENCY

The CA ISO strongly supports the inclusion of appropriate penalties and/or incentive mechanisms to enforce the monthly reliability obligation. Thus, 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.

Regardless 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 LSEs that did not obtain sufficient 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.

Alternatively, in the event that an LSE, including a utility, does not procure and make available to the CA ISO adequate resources in the forward markets, the CA ISO anticipates that it will secure adequate resources to cover connected load and assure system reliability, and that it will allocate the cost of such purchases to the entity that gave rise to the need to make the purchase. The CA ISO may either commit additional capacity through its forward-market unit commitment procedures (the preferred approach) or may, when necessary, procure the additional energy in real-time. Regardless of the approach, the CA ISO recommends that the CPUC adopt clear, ex ante, procedures that detail the necessary and appropriate actions to be taken should a utility fail to procure adequate capacity in the forward market, as indicated through the monthly reporting requirement. The CA ISO stresses that in instances of a capacity deficiency, the CA ISO may be required to exercise its discretion to either curtail load or to purchase, at potentially high prices, the energy required to serve the load of a capacity-deficient utility.

II. THE MECHANICS OF THE PROVISION OF RESERVE CAPACITY FOR DIRECT ACCESS CUSTOMERS, COMMUNITY AGGREGATORS, AND DISTRIBUTED AND SELF-GENERATION CUSTOMERS.

This section of my testimony responds to the request in Administrative Law Judge (ALJ or Judge) Walwyn's May 30, 2003 ruling (May 30 Ruling) for testimony on how the CPUC could implement three options for assuring adequate reserves capacity for direct access customers, community aggregators, and distributed and self-generation customers. The May 30 ruling lays out the following three options: "The utilities acquire reserves for [Energy Service Providers (ESPs)] and/or direct access customers; The utilities acquire reserves for ESPs and/or direct access customers and charge them for this service; and, ESPs are required by the Commission to acquire necessary reserves." May 30 Ruling at 6.

In its April 18, 2003, Reply Brief on the Prehearing Conference Issues of ALJ Walwyn (CA ISO Reply Brief), the CA ISO laid out some of the CA ISO requirements that must be addressed in assigning to the utilities, or to ESPs (or other LSEs) the responsibility to acquire reserves for direct access and similarly situated customers. The CA ISO sets forth in this testimony much of the same information to assure a complete evidentiary record as to these issues.

In addressing the responsibility to acquire reserves, it is important to distinguish between the provision of operating reserves in real-time, and the provision of planning reserves and/or resource adequacy. Operating reserves are comprised of capacity that is reserved to respond in real time in the case of contingencies, such as the loss of a power plant or a transmission element. Operating reserve requirements applicable in the West are most clearly set forth in the Minimum Operating Reliability Criteria (MORC) of the WECC available at http://www.wecc.biz/MORC_Pages_9-02.pdf.

Currently, there is a well-developed system for assuring that adequate operating reserves are in place within the CA ISO control area, and the other control areas within California, and for the allocation of the responsibility for and cost of operating reserves among the loads within the CA ISO control area. This system does not predetermine whether ESPs, the utilities or some other entity should be responsible for the operating reserves for Direct Access load, community aggregators, or load served by distributed, or self-generation. However, the entity with the responsibility to provide operating reserves must interact appropriately with the CA ISO – pursuant to the responsibilities of a Scheduling Coordinator (SC) under the CA ISO's rules - and provide the requisite information and metering to allow the CA ISO to continue to assure that adequate operating reserves are obtained and to allocate cost responsibility for such reserves accurately.

Planning reserves and/or resource adequacy requirements are, among other issues, the subject of these proceedings. It is important that as part of this proceeding, the CPUC address the planning reserves and/or resource adequacy requirements for Direct Access, community

aggregation, distributed/self generation customers as the CA ISO is not aware of any other entity with the authority to define such obligations (unless resource adequacy obligations are made part of the CA ISO tariff).

A. THERE IS CURRENTLY A WORKABLE SYSTEM FOR DEFINING RESPONSIBILITIES FOR OPERATING RESERVES AND ALLOCATING THEIR COSTS; THE CA ISO SHOULD REMAIN ABLE TO ACCURATELY CALCULATE THE OPERATING RESERVES THAT ARE REQUIRED AND ALLOCATE RESPONSIBILITIES AND COSTS FOR SUCH OPERATING RESERVES AMONG THE WHOLESALE ENTITIES WITHIN THE CA ISO CONTROL AREA.

Under state and federal law, the CA ISO has the responsibility to "ensure efficient use and reliable operation of the transmission grid consistent with achievement of planning and operating reserve criteria no less stringent than those established by the Western Systems Coordinating Council and the North American Electricity Reliability Council." Cal. Pub. Util. Code section 345; CA ISO Tariff section 2.3.1.3 as approved in 81 FERC ¶ 61,122 (October 30, 1997). Both the WECC and NERC have identified control areas as the primary entities responsible for ensuring the secure and reliable operation of the interconnected power grid. 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. Accordingly, the CA ISO has the responsibility to assure that sufficient operating reserves are maintained within the control area that it operates (i.e., most of the state, except in the control areas mentioned above). 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.

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. 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. As noted above, Scheduling Coordinators may either self-provide the requisite Ancillary Services or these will be procured by the CA ISO in the Day Ahead and Hour Ahead Ancillary Services markets, and the costs of such procurement is passed on to the Scheduling Coordinators that did not fully self provide their Ancillary Services requirements.

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.

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 ESPs at the retail level. 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.

As described above, the Scheduling Coordinator is responsible for the operating reserve responsibilities of the loads it represents. Thus, the Scheduling Coordinator selected by the ESP

is responsible for the operating reserves of a direct access customer, and the utilities are responsible for the operating reserves of the utility supply customers.

However, 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 direct access load, aggregated customer load, or load served by self-generation or distributed generation.[5] Rather, as explained earlier, the entity that is the Scheduling Coordinator for such loads would be the entity responsible for the operating reserves for such loads. It is very important, however, that the CPUC be clear about which entity has the responsibility for providing operating reserves and to put into place the appropriate requirements to ensure that the CA ISO can continue to provide for accurate accounting of loads, and operating reserves within the control area in real-time.

In particular, the CPUC should require that the entity that will be responsible for operating reserves for a load be the Scheduling Coordinator for the load, and submit to the CA ISO accurate metering information for the load (and undertake all other responsibilities of a Scheduling Coordinator for that load in accordance with the CA ISO Tariff). Moreover, the CPUC should maintain the requirement that there be only one Scheduling Coordinator per service account.

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[5] The CA ISO Tariff requires the CA ISO to provide open and non-discriminatory access to the CA ISO Controlled Grid to Eligible Customers, CA ISO Tariff section 2.1.1; an Eligible Customer is defined as any utility, Federal power marketing agency, or any person generating Energy for sale or resale, and any retail customer taking unbundled transmission service pursuant to a state retail access program or pursuant to a voluntary offer of unbundled retail transmission service by the Participating TO. CA ISO Tariff, Appendix A, Master Definitions Supplement. The CA ISO Tariff also provides that the eligibility of an End-Use Customer for Direct Access will be determined in accordance with the Direct Access eligibility and phase-in procedures (if any) adopted by the Local Regulatory Authority, and that disputes as to eligibility must be resolved by the Local Regulatory Authority. CA ISO Tariff section 2.1.2. As explained in the body of the brief, if the CPUC places upon the utilities the responsibility for operating reserves for Direct Access loads, community aggregations and loads served by distributed or self generation, it will be necessary for the utilities to be the Scheduling Coordinators for these loads. As a result, the CPUC will essentially have made these loads ineligible for Direct Access to the transmission system in the classic sense. Instead, the CPUC will have created some form of "virtual" direct access. In any event, the CPUC rules in this regards should be made clear so that the CA ISO can, in accordance with its tariff, carry out its responsibility to provide open and non-discriminatory access to the transmission system to customers eligible for such access.

B. THERE IS A NEED TO DEFINE RESPONSIBILITIES FOR PLANNING RESERVES/RESOURCE ADEQUACY, INCLUDING WHAT THE RESPONSIBILITY IS, WHO HAS IT, AND HOW THE RESPONSIBILITY WILL BE MONITORED AND ENFORCED.

Unlike in the case of operating reserves, as to planning reserves/resource adequacy, there is presently no well defined system within the West, or California, that defines the responsibilities, what they are, who has them, or how the responsibilities will be monitored and enforced. This proceeding is intended in part to address these requirements for the utilities. The CA ISO's position on these matters is set forth in the testimony above. The CA ISO considers that, unless the CPUC determines to support a planning reserve/resource adequacy requirement in the CA ISO tariff, as the CA ISO initially proposed, the CPUC must address in this proceeding whether or not the utilities will have the responsibility to as to planning reserves/resource adequacy for direct access customers, community aggregators and distributed/self generation load.

This is because unless resource adequacy requirements are put into the CA ISO tariff, with regard to Direct Access loads, loads served through community aggregation programs, and loads served by distributed or self-generation, the CA ISO is not aware of any other entity besides the CPUC and/or local regulatory authorities (e.g. municipal boards) that can currently impose planning reserve/resource adequacy requirements. Accordingly, the CA ISO considers that the CPUC should clearly define planning reserve/resource requirements for these loads in a manner that is equitable and assures consistent treatment and requirements.

Moreover, the CA ISO believes that the responsibility for planning reserves/resource adequacy must have fair associated cost recovery rules. The entities with the responsibility to provide for resource adequacy should have a reasonable opportunity to recover their investments to carry out their responsibilities without undue risks of creating stranded investments.

III. THE CA ISO'S PROPOSALS FOR AN IOU RESOURCE ADEQUACY OBLIGATION WILL HELP MITIGATE MARKET POWER IN CALIFORNIA'S WHOLESALE ELECTRICITY MARKET.

Two key ways in which market power can be exercised are through physical withholding and economic withholding. 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. Physical and economic withholding can occur on both a system–wide and on a locational basis and result in market prices above competitive levels.

The CA ISO's proposed enhancements to the procurement planning process will help reduce the incentive of suppliers to engage in physical and economic withholding. The CA ISO's proposal for limits on how much the utilities can rely on short-term and spot-market purchases encourages long-term contracts. Long-term contractual arrangements reduce the incentives of sellers to exercise market power by fundamentally changing their profit maximizing mechanisms away from reliance on spiking prices. Moreover, the smaller the quantity of short-term and spot-market purchases, the smaller the impact on load of any short-term or spot-market price spikes.

Long-term contracts reduce economic withholding as follows:

- With regards to energy sales and purchases, long-term forward contracts 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. This aligns the incentive of suppliers to provide at least cost, with the interest of load to procure any residual unexpected demand at competitive prices. For example, if a supplier having an energy contract cannot meet its obligation under the contract from generating plants that it controls, it would be required to purchase the replacement power from the market.
- With regards to capacity sales and purchases, long-term forward contracts allow the utilities to obtain a diverse portfolio of resources. By doing so, utilities can increase competition in the energy market and create incentives for suppliers to bid their energy competitively in the day-ahead/hour-ahead and real-time markets.

Also, the component of the monthly reliability obligation that requires that the capacity used to fulfill the obligation be made available for dispatch by the CA ISO limits the ability of suppliers to engage in physical withholding.

The combination of the timing and locational requirements for supply that is procured by the utilities also reduces the ability of suppliers to exercise local market power. The requirement to obtain capacity that is deliverable, or to purchase capacity locally in transmission constrained areas, 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[6].

In sum, the CA ISO's proposal for an enforceable resource adequacy obligation on the IOUs will reduce market power by ameliorating incentives for physical and economic withholding. The proposal will also encourage utilities to proactively limit locational market power.

IV. THE NEED TO AVOID PERVERSE OUTCOMES FROM POORLY DESIGNED INCENTIVE MECHANISMS

The section of the testimony identifies unintended perverse outcomes that could result from the implementation of a procurement incentive mechanism unless it is properly designed.

The CA ISO is not against the establishment of a procurement incentive mechanism. In fact, the CA ISO supports the adoption of a penalty or financial incentive structure that supports the forward procurement of capacity. Moreover, the CA ISO sees merit in the adoption of incentive rates that establish a level playing field between resource options (e.g., generation, transmission or demand-based) or that further development of resources deemed preferable from a state public policy perspective (e.g., renewable resources). If structured correctly, incentive mechanisms can be an effective means of aligning the shared interests of the utilities and their customers, to ensure that load is served in accordance with the CA ISO's responsibility to

[6] The CA ISO's MD02 proposal also seeks to reduce locational market power by allocating to utilities CCRs to meet the utilities' locational needs. In this manner, CRR demand-side scheduling priority into a utility's service territory enables the utility to use limited transmission capacity into the local area to serve the local load as opposed to use of the capacity by Market Participants for purposes of wheeling through the area.

operate the system reliably, and at minimum cost. The CA ISO's concerns lie in the area of perverse outcomes that may arise due to poorly designed cost recovery measures.

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. Furthermore, the CA ISO is concerned about incentive mechanisms that would cause the utilities to focus on hedging regulatory risk and away from the primary goal of ensuring that there will there be enough resources available to meet load in real time. It is important when designing an incentive based cost recovery mechanism to identify all of the possible perverse incentives that may arise. For instance, a poorly designed incentive mechanism may not encourage the utilities to use their retained generation resources as effectively as possible to maintain system reliability if such a mechanism provides disincentives for the provision of ancillary services from resources that could most efficiently provide these services. Moreover, strong incentives need to be in place to ensure that the utilities procure sufficient resources to meet their loads in real time.

The CA ISO is not suggesting that adverse outcomes are likely from a procurement incentive mechanism. The CA ISO is simply listing these concerns as issues that should be addressed when designing an effective procurement incentive mechanism. Without a specific proposal to comment on at this time, it is not possible to judge the specific merits of a particular procurement incentive mechanism. Once a specific plan has been proposed, the CA ISO will provide further more detailed comments on whether the proposed design is likely to produce outcomes that will both minimize instances of withholding and maintain system reliability by effectively using the resources available to meet system needs.