

**BEFORE THE PUBLIC UTILITIES COMMISSION  
OF THE STATE OF CALIFORNIA**

Order Instituting Rulemaking to Promote Policy and  
Program Coordination and Integration in Electric Utility  
Resource Planning.

Rulemaking 04-04-003  
(Filed April 1, 2004)

**COMMENTS OF SEMPRA GLOBAL ON  
CAPACITY MARKETS WHITE PAPER**

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**I. INTRODUCTION**

In accordance with the *Chief Administrative Law Judge's Ruling Providing Notice of Availability of Staff Capacity Markets White Paper and Providing for Comments* dated August 25, 2005 ("Ruling"), Sempra Global ("Global") submits its opening comments on the Staff Capacity Markets White Paper ("White Paper"). Global has been an advocate of an organized forward capacity market throughout this proceeding as an efficient means of allowing Electric Service Providers ("ESPs") to comply with the Resource Adequacy requirements ("RA" and "RAR") that are expected to be adopted. If the RAR is to be based on physical resources under contract to load serving entities ("LSEs"), then ESPs and other small LSEs need to have a mechanism whereby they can contract for quantities sufficient to meet their RAR, as well as have the ability to buy and sell incremental capacity to keep pace with load migration. Global applauds the Commission and staff for moving forward by issuing the White Paper and initiating discussion on the particulars of a capacity market that is suitable for California.

In the discussion below, Global offers its observations on the general issues raised in the White Paper as well as the specific recommendations of staff. Global bases its comments on

several key concepts that it believes are essential to having successful, competitive electricity markets in California: (1) there must be sufficient capacity available to serve California loads to maintain grid reliability at just and reasonable prices; (2) the RA mechanism must reflect accurate, transparent price signals that lead to timely construction of needed infrastructure; (3) retail customers should be able to freely migrate between LSEs without creating stranded costs that would lead to debates over surcharges or other rate mechanisms that inhibit customer choice; (4) there should be no cross-subsidies between customer groups and no “free riders” on the system; (5) regulatory intervention in the form of price caps and other controls should be minimized to facilitate market-based solutions; (6) the RA mechanism should not impose backstop procurement obligations on the Investor Owned Utilities (“IOUs”), which could present debates over how to spread the costs of such excess procurement fairly; and (7) the RA mechanism should facilitate the entry of newer, more efficient generation into the market.

Sempra Energy (“Sempra”), the parent company of Global, has been advocating a centralized capacity auction across a four-year planning horizon to procure capacity for the entire grid.<sup>1</sup> Global urges the Commission and staff to extend their research beyond the experience of the New York Independent System Operator (“NYISO”) as presented in the white paper. In particular, the recent filing of the proposed Reliability Pricing Model (“RPM”) by the PJM Interconnection, offers further insights into what has and has not worked in the design of capacity markets in the east, along with candid assessments of the shortcomings and failures of the former PJM markets. It then proposes a mechanism for capacity with a centrally run auction four years before the performance year based on a highly refined downward sloping demand curve. PJM, similar to what Sempra has advocated, moves the initial market four years ahead of

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<sup>1</sup> Sempra’s proposal includes a provision that new generation resources being offered into the market, as they compete for commitments within the four-year forward auction, may bid contract durations of up to ten years.

the performance year. The White Paper took notice of the fact that the RPM filing was imminent — now that it has been made, the Commission, staff, ratepayers and market participants would all benefit from an examination of the RPM proposal<sup>2</sup> and the adoption of its design best elements into the discussion in California.

## II. RESPONSE TO GENERAL ISSUES

Global believes that the Staff's proposal to adopt some form of demand curve such as those adopted by the NYISO and PJM may have merit and warrants further discussion. However, it may also be that the demand curve is not the correct concept for California. As discussed in the White Paper and in PJM's RPM proposal, sloping demand curves have proven useful in avoiding volatility in capacity prices. Reducing capacity price volatility can benefit both suppliers and ratepayers by dampening retail price volatility and helping to avoid the boom and bust cycles that characterize generation investment. Adoption of a curve could also help regulators and system operators define the optimal level of investment, theoretically providing the price signals that will entice the appropriate level of investment to sustain reliability.

On the other hand, the demand curve seems to be more important to the eastern markets because of their short-run nature. In a longer term market, the procurement timeframe allows for more competitive outcomes by providing sufficient time for new entry. Sempra believes that resource adequacy must be addressed far enough forward to allow new resources to participate. Thus, in a market with a longer term RA orientation a demand curve might prove less valuable or necessary. A capacity auction conducted four years ahead of the contracting year seems like a reasonable starting point, and is the timeframe contemplated by both the Sempra proposal and by

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<sup>2</sup> Additional proposals have been made in California, including the recently filed Reliability Capacity Services Tariff ("RCST") proposed to FERC by the Independent Energy Producers. Since many of these proposals are characterized as transitional or interim proposals, Global is not focusing on them in its Comments.

RPM. Moving RA four years out would have some of the same benefits of reducing volatility and avoiding the boom and bust cycles. Sempra strongly urges the Commission to not overlook this important element of a functioning resource adequacy proposal.

It is essential that the capacity market that is developed for California integrate well with the California Independent System Operator ("CAISO")'s redesigned markets. By adopting a locational premium or otherwise recognizing the value that capacity can provide to mitigate constrained areas, the capacity market can dovetail with the energy locational market prices to accurately reflect the costs of serving a particular area. At the same time, as discussed below concerning Recommendation No. 3, a price cap or other regulatory intervention on capacity prices, when energy prices are already capped, could dampen or mute the same price signals that the Commission is trying to encourage with a capacity market. Such consequences should be avoided.

Global believes it is essential for the CAISO, rather than the Commission, to take the lead in designing the market. The CAISO is tasked by law with operating the grid in a reliable manner, and the CAISO has the independence and necessary expertise to develop appropriate locational requirements and so forth to ensure compatibility with the operational realities of the California grid. The Commission, as the agency regulating procurement by the three IOUs and enforcing the RAR on all LSEs, has the expertise and responsibility to ensure that LSEs are procuring sufficient capacity to meet the demand of all ratepayers at just and reasonable prices. Having the Commission establish a price (and possibly, a demand curve) for capacity is fraught with peril. Administratively determined prices invariably impair the development of market solutions, and market solutions should be the end state. The Commission, in coordination with the ISO, should determine rules for qualifying capacity, planning horizons, etc. The CAISO

should determine the amount of capacity required under the adopted standards and be responsible for the operation of the markets. Close cooperation between the CAISO and the Commission will be the key to devising a workable and effective market.

Time is of the essence. California has been working to implement an RAR for well over a year. Given the projections of tight supply conditions in the next few years, the supply-demand dynamics are likely to change dramatically. In order for the markets to have time to respond to the capacity needs, the initial auction should be conducted as soon as possible.

### III. RESPONSE TO STAFF RECOMMENDATIONS

**Recommendation 1: Adopt a short-run organized capacity market approach with a downward sloping capacity-demand curve for the CAISO.**

*(Staff Commentary).<sup>3</sup> California should take advantage of the lessons learned in the eastern markets by adopting a downward sloping demand curve.*

Global agrees that California should take advantage of the lessons learned in the eastern markets, but believes that the main lesson is that organized capacity markets should be adopted on a four-year-forward basis. A review of the "lessons learned" should include a review of the RPM Proposal put forward by PJM. This proposal represents at least a second generation, longer term, approach to capacity markets and the Commission, CAISO and stakeholders could benefit from the hindsight incorporated into the proposal. Under PJM's approach, deriving the curve was the most critical task performed. The PJM proposal sets forth in detail the rigorous methodology used by PJM to derive a curve that provided optimum benefits to both suppliers and ratepayers in terms of capacity prices and energy prices.

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<sup>3</sup> Additional staff commentary from the White Paper is reproduced in italics following each issue.

PJM also developed and adopted curves that captured the locational requirements of its territory, and adopted a plan that phases those locational requirements in over a couple of years, to help mitigate the rate shock that might otherwise occur.

As stated above, Global believes that the Commission should not jump in with both feet in seeking to adopt a demand curve. Holding an initial auction four years prior to the year in which the capacity is under contract allows ample time for bidders to permit and construct new generation in time to meet the demand. With bidders competing in this way, the competition itself will be sufficient to discipline prices. Since the RPM proposal adds both the demand curve and the four-year-forward commitment, there is no prior experience in PJM with the four-year-forward commitment standing alone. Given the complexities involved in deriving the correct demand curve, California might do better to proceed with the initial auction without presuming that both a forward auction and a demand curve are needed to mitigate volatility.

**Recommendation 2: Further investigate alternative availability metrics (e.g. UCAP v. ISO-NE's proposed metric based on performance during shortage conditions) and ensure development of an availability metric that is applicable to hydro, wind, thermal and other generation technologies, and to appropriate demand response products.**

*Any capacity market approach must have some method of counting capacity that is tied to performance. As discussed above, the principal model in use today is UCAP. The Commission's Resource Adequacy work to date takes steps in this direction. ISO-NE has proposed an alternative mechanism that ties capacity payments to performance during low-reserve periods in an effort to provide greater reliability. The accounting mechanism should recognize variations in technology and prevent the substitution of resources that actually provide little reliability for ones that provide a great deal. For example a thermal resource that takes 24 hours to start may provide only half the reliability of a quick-start unit.*

Global disagrees in part with the above commentary. A resource with a longer start time is not inherently less "reliable" than a quick-start unit in terms of its value to the grid. Global does agree that it is necessary for the right combination of both types of resources to be available to the grid operator, but one is not better than the other – they each contribute to maintaining a reliable system.

Global believes that some form of metric that reflects the true value that a resource contributes to reliability is necessary to have a successful RAR and capacity market. The Commission has often stated that its goals in introducing a RAR were to ensure adequate capacity available to serve California with energy and to send price signals that would encourage new investment in generation. In the case of availability metrics, the Commission's task is made more complicated by issues beyond its control, such as the Renewables Portfolio Standard that mandates a set aside for certain types of resources. The metrics developed must fairly account for the capacity provided by varying types of resources, from renewable energy to combined cycle plants to combustion turbine peaking plants.

Technology also plays an important role in the development of measurable, verifiable and reliable capacity. The loading order in the Energy Action Plan prioritizes demand response and energy efficiency near the top, after renewable generation. Global recognizes the need to adhere to public policy, but at the same time, the Commission must be realistic in assessing the true contribution that these resources (along with all others) make to reliability. If a resource cannot be counted on with certainty to meet its capacity or demand obligation, then the resource adequacy value of that resource must reflect that uncertainty.

In the RPM proposal, PJM is offering a premium to quick start resources that is added to the capacity payment. Likewise, it may be necessary in California to recognize operational or locational needs which are not adequately covered in an initial resource adequacy central market. However, such special considerations should be treated as a separate market, i.e., all qualifying resources should be cleared at the same price.

Sempra has proposed that if the central market auction is unable to acquire adequate capacity to meet operational or locational needs in the planning horizon year, an RFP should be



issued calling for 10-year contracts to build and provide capacity where and when it is need to meet the locational requirements. A similar approach is reflected in the RPM proposal, where PJM would request authority from FERC to serve as a backstop in the case of an unmet deficiency.

**Recommendation 3: Consider subtraction of peak energy rents from the capacity payment.**

*In the development of the capacity curve, consider controlling market power by subtracting actual peak energy rents from the demand curve when computing capacity payments, as ISO-NE has proposed. Fixed-cost recovery is made up of net revenues from all sources, including the energy market, the ancillary services market and any capacity market revenues. Consequently it is wrong to ignore revenues from other sources when designing a capacity market. Moreover, consumers are sensitive to this correction, and it can play an import role in reducing market power and risk in the energy market.*

Global strongly disagrees with this recommendation. Suppliers structuring bids into a capacity auction will have already taken into account their expected energy revenues when developing their bids, and so there should be no need for a regulatory “deduction” for those same anticipated revenues. Also, as the White Paper discusses, the theory behind capacity markets is to send price signals for new generation because there are other measures mitigating the price volatility that would be required in order to send those same signals in a pure energy market. In the proposed redesigned energy markets of the CAISO, there will be price caps and significant local market power mitigation measures in place already, to control volatility during periods of scarcity. Deducting “scarcity rents” from the prices incorporated into the demand curve produces a double whammy on suppliers by suppressing price signals in both the energy and capacity markets. Such a mechanism would in fact work against the very purpose the capacity market is trying to achieve – new supply.

Moreover, this recommendation seems to presume that scarcity rents always result from the exercise of market power. In fact, it can be extremely difficult to separate market power

from legitimate behavior and pricing during times of scarcity. Again, the bids into the capacity market from generators should already have taken account of any expected scarcity rents from the energy markets in calculating their total expected energy revenues.

**Recommendation 4: Adopt reasonable locational installed capacity requirements with locally varying demand curves.**

*Unless and until adequate transmission is constructed, load pockets in the CAISO territory are likely to require special consideration. We note, however, that reflecting locational capacity presents a series of design problems:*

- (1) Specification of zones. The ISO-NE experience suggests that zones smaller than [sic] 4,000 MW become difficult to manage because prices are too sensitive to changes in installed capacity. Hence there is an interaction between the market design and the reality of transmission constraints.*
- (2) Specification of transmission limits on capacity flows.*
- (3) Specification of rights to capacity transmission, if any.*
- (4) Specification of zonal adequacy requirements. NYISO specifies a requirement for the entire state and two requirements for two sub-regions, while ISO-NE specifies requirements for each sub-region, and no requirement for the ISO as a whole.*
- (5) Specification of a price calculation method. Although NYISO and ISO-NE appear to use different approach, they actually use the same economics applied to different styles of specifying the zonal adequacy requirements.*

*Staff is aware that the CAISO's June 2005 Local Capacity Requirements study may raise additional issues. See <http://www.caiso.com/docs/2005/06/28/2005062816522619093.pdf>.*

PJM has dealt with this issue in a number of ways – first, by providing extra payments to suppliers who meet local reliability requirements, but also by integrating transmission planning into its RA process to achieve optimum solutions in the appropriate time frame. Where there is no transmission solution available and no merchant response for generation, PJM's proposal allows for the RTO to exercise a backstop role by making a filing at the FERC requesting authority for backstop procurement. This task seems particularly appropriate for the CAISO to undertake, given its authority and expertise.

Global believes it is important for the California design to give the CAISO authority for such a regulatory backstop. Sempra's proposal for a centrally run resource adequacy auction includes a Stage Two mechanism. If the Stage One auction is unable to acquire adequate capacity to meet operational or locational needs in the planning horizon year, the Stage Two mechanism would conduct an RFP for bids for ten year contracts to build and provide capacity where and when it is needed to meet these locational requirements, subject to the same provisions contained in the Stage One auction.

**Recommendation 5: Consider protecting against capacity exports during times of tight supply through the use of capacity prices that fluctuate seasonally.**

*Capacity is worth more in August than in November. Moreover, unlike the NYISO, for instance, which is largely surrounded by other regional transmission organizations (RTOs), the CAISO is the only organized Western market. Because there will be competition between the Western markets for capacity, the capacity market may need to pay more for capacity in August to make sure California gets what it needs.*

The issue of capacity exports is related to the issue of capacity imports discussed in Recommendation 6. Both must be addressed in the availability aspects of an RA commitment. These issues highlight the fact that RA is not only a California issue, but must be addressed on a west-wide basis. There may be benefits to a seasonal structure if it allows resources to serve different grids at different times; for example, a summer peaking utility and winter peaking utility may be able to share a resource that provides capacity to each at its peak. Seasonal commitments might also allow some types of use limited resources to provide capacity on a basis that is more accommodating of their limitations. For example, hydro could provide capacity only during seasons when it has sufficient water, or emission-limited resources could choose when to provide capacity with the smallest impact on their emission permits. Further exploration of this issue is warranted.

**Recommendation 6: Investigate the dependability of capacity import contracts during times of high West-wide load.**

*In contrast to the eastern RTOs, imports play a significant role in California. If dependability of capacity imports appears problematic, it may be necessary to develop special requirements for capacity import contracts, such as higher penalties for default, and/or a different price-setting mechanism than that used for internal capacity contracts.*

*This part of the design requires a significant research effort with regard to the deliverability of external power during extremely tight supply conditions and emergency supply conditions. There is no point in securing contracts that are 98% effective if they fail during the 20 hours each year when they are needed most. Internal capacity can easily be secured during emergencies. But, by the same token, other venues may choose to secure their capacity during emergencies, and that that may prevent delivery to California.*

This issue presents a dilemma similar to devising a capacity rating reflecting unit performance and availability, especially for renewables and demand response. The reality is that California is dependent on imports, but calculating their value to reliability is difficult and operationally complex. Sempra believes that a physical requirement for capacity is necessary, even across grids, to ensure units are not being double counted as capacity for more than one control area. LSEs utilizing imports to meet their RA obligation should be required to verify that resources are not being double counted and that they have firm transmission before being treated as firm capacity. Again, California will have to work with the rest of the Western Interconnection to ensure resource adequacy for the entire region.

**Recommendation 7: Make the fixed-cost recovery curve explicit.**

*Fixed-cost recovery drives investment. If an approach does not explicitly calculate how fixed-cost recovery varies with the capacity level it is impossible to tell whether too much, too little, or the right amount of investment will be induced. It is also impossible to tell how risky fixed-cost recovery will be and how much of a risk premium will be passed through to consumers. A capacity market approach developed for California should specify its desired fixed-cost recovery curve – i.e. the relationship between the level of installed capacity and the fixed-cost recovery that an investor can expect – and should show that its design comes close to providing this level of fixed cost recovery to investors.*

Global agrees that the concept of demand curve for capacity may have merit. If a curve is adopted, it makes sense that it should be developed and tested under a range of assumptions and sensitivities, as was done by PJM in its RPM proposal. The greatest hazard related to the

adoption of a curve will be the impulse for regulatory intervention if prices rise. This goes to the regulatory credibility discussed below in Recommendation 8. Once a curve is selected and set, the market must be allowed to operate without being impeded by regulatory intervention. If the curve does not deliver the needed investment, it may be appropriate to fine tune it, but impulsive reactions to short term market movement should be avoided.

**Recommendation 8: Strive for regulatory credibility.**

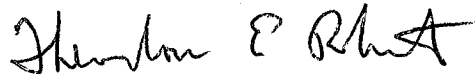
*In addition to the design considerations discussed above, regulatory credibility is crucial to successful implementation of Resource Adequacy. Although this admonition is vague, several considerations are pertinent and helpful. First, experimental designs will almost certainly need to be adjusted, with each adjustment process an opportunity for changes in the level of fixed-cost recovery. Consequently, it is best to start with well established designs and make modifications cautiously. Second, the market should be well defended against the exercise of market power. Investors are not likely to take seriously any market that appears likely to become mired in market-power disputes. Third, high price spikes should be avoided as these also trigger calls for re-design of the market. Fourth, low capacity conditions, even if they are accompanied by good weather conditions and so cause no actual disruption, can trigger market intervention due to reliability requirements. Market intervention generally takes the form of regulatory procurement of capacity. The fear of such interventions can destroy regulatory credibility. Design the market to avoid low-capacity violations of reliability requirements.*

Global agrees that a carefully produced design based on established, successful design elements is a strong start, and that any design, no matter how good, will require future adjustment. Global encourages the Commission not to confuse market power with rational market behavior during periods of scarcity. Market power disputes are complicated and divisive, and the best strategy against these disputes is to avoid them. On the supply side, Global agrees that regulatory interventions should be avoided, but that it is appropriate to have a backstop mechanism in case the market does not respond adequately. As mentioned earlier, the Sempra RA proposal contains a Stage Two mechanism to deal with locational or operational needs not met in the initial capacity auction. Sempra believes that regulatory certainty is critical to attracting investors to build the necessary infrastructure in California.

#### IV. CONCLUSION

Global appreciates the opportunity to offer its comments and to help move the discussion forward. Although there is a sense of urgency associated with implementing the RAR, it is also important for the CPUC to work with the CAISO in developing a capacity market that is compatible with the CAISO energy markets, and that effectively address the unique features of the California markets, to produce the best outcome for both suppliers and ratepayers. Global urges the Commission to move forward with an initial auction as quickly as possible in order to keep sufficient capacity available.

Respectfully submitted,



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September 23, 2005

**CERTIFICATE OF SERVICE**

I hereby certify that a copy of **COMMENTS OF SEMPRA GLOBAL ON CAPACITY MARKETS WHITE PAPER** has been electronically mailed to each party of record on the service list in R.04-04-003. Any party on the service list who has not provided an electronic mail address was served by placing copies in properly addressed and sealed envelopes and depositing such envelopes in the United States Mail with first-class postage prepaid.

Copies were also sent via Federal Express to the Assigned Administrative Law Judges and Commissioner.

Executed this 23<sup>rd</sup> day of September, 2005 at San Diego, California.

  
Adrian Elizabeth Sullivan