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Opinion on the Capacity Procurement Mechanism and Compensation and Bid Mitigation for Exceptional Dispatch

by

Frank A. Wolak, Chairman
James Bushnell, Member
Benjamin F. Hobbs, Member
Market Surveillance Committee of the California ISO

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Summary

This opinion comments on the ISO's Capacity Procurement Mechanism (CPM) proposal, which is the successor to the backstop Interim Capacity Procurement Mechanism (ICPM). The CPM has many features of the ICPM. Most notably, both mechanisms procure generation capacity that is not currently designated as Resource Adequacy (RA) capacity to meet certain specified operating needs for which there is insufficient RA capacity. Capacity designated through the CPM mechanism would have obligations similar to RA capacity in terms of being available to the ISO for scheduling and dispatch during the period covered by the CPM designation. The ISO is proposing that the CPM be a permanent backstop capacity mechanism to procure capacity from existing generation units.

This opinion considers the three major aspects of the CPM proposal: (1) whether the ISO should have a permanent backstop capacity procurement mechanism, (2) the terms and conditions under which it should make backstop capacity purchases, and (3) the price it should pay for this capacity. We strongly support the need for the ISO to have the authority to make backstop capacity purchases. The circumstances under which the ISO can procure backstop capacity under the CPM proposal represents, in our opinion, a reasonable method to balance the need to maintain reliable system operation against the need to limit the amount of intervention by the ISO in market mechanisms. Although we generally support the ISO's proposal, we believe that the CPM payment should be set above going-forward fixed costs in areas where the local capacity requirement is greater or equal to the amount of available capacity. However, we recognize that the need for the ISO file a replacement for the current ICPM in a timely manner is inconsistent with the need for a potentially lengthy stakeholder process to design a scarcity pricing mechanism for the CPM product. We also note that if the quantity of CPM procurement does rise dramatically above current levels, this could be a signal that the RA process is procuring the wrong type of capacity for reliable system operation.

1. Introduction

The Resource Adequacy (RA) process is designed to ensure that sufficient generation capacity is made available to the ISO markets during all hours of the year, so that the system can be reliably operated. All load-serving entities are required to a make

a showing to the California ISO that they have procured sufficient generation capacity in each of the Local Capacity Areas (LCAs) where they serve load obligations during peak hours of the year (as well as all hours of the year), and that they have procured sufficient capacity on a system-wide basis to meet their total RA requirements. This showing is first done on an annual basis, with a monthly true-up.[1] Because the local and system-wide RA capacity demands are determined from forecasts of demand and transmission and generation capacity availability, it is possible that because of unexpected demand levels or outages of generation units or transmission lines, there may be inadequate RA capacity in a LCA or on a system-wide basis for the ISO to operate the system reliably. The CPM proposal is designed to play two roles: first it provides a framework for the ISO to purchase additional RA-like capacity in the event that load-serving entities did not purchase sufficient RA capacity to meet forecast needs; second it allows for procurement of non-RA capacity in circumstances where actual needs diverge from forecasted needs.

In preparing this opinion, the MSC has discussed this topic at several Market Surveillance Committee meetings, most recently on October 8, 2010. In addition, individual MSC members have participated in conference calls and meetings with ISO staff, market participants, and state regulatory staff to discuss the CPM proposal. We would like to acknowledge their very helpful input. Finally, we would like to thank, in particular, Ellen Wolfe of Resero Consulting and Jeff Nelson of Southern California Edison for their comprehensive presentations on this topic at the October 8 MSC meeting.

2. A Permanent Capacity Procurement Backstop Authority for the CAISO

Because the RA procurement process will increasingly involve resources such as intermittent renewable generation and demand response whose performance is less predictable than conventional fossil fuel generation resources, we expect that there will be periods when an insufficient amount of RA capacity has been made available to the ISO. Under these circumstances, it is reasonable for the ISO to have the authority to procure the necessary backstop capacity to ensure that it can maintain system reliability. We also expect that high short-term energy prices to provide a strong signal for non-RA generation unit owners to make their capacity available to the ISO operators, even if these units are not given a CPM designation.

Because we expect that even a well-designed RA process will yield small shortfalls under certain system conditions, there will always be a need for the ISO to have a backstop capacity procurement authority. Therefore, the MSC supports adoption of the CPM without a sunset date. However, this does not imply that the ISO should not revisit the design of the CPM process at a future date if aspects of the RA process change. The form of the backstop capacity procurement mechanism must change to adapt to the new system operation challenges created by revisions to the RA procurement process.

[1] Retailers must procure 100% of their local capacity needs, but only 90% of their system-wide capacity needs on an annual basis. The remainder of their system-wide capacity needs can be delayed until the month-ahead procurement process.

Stakeholders and ISO staff have identified two important sets of issues relating to CPM. The first involves its role as a true "backstop" to the RA process. The second relates to the fact that CPM may play an increasing role in filling a mismatch between RA requirements and true resource needs.

The RA process in California is decentralized and suffers from a lack of price transparency. As a result, the process could yield less RA capacity than the ISO deems necessary for its reliability requirements. This backstop role provides both discipline to the RA market and an added layer of reliability assurance to the ISO. The discipline that it provides helps to ensure that load-serving entities (LSEs) meet their obligations, and mitigates the impact of local market power in markets for local capacity requirements. At the same time, by providing a backstop price that would apply in the absence of adequate procurement, the CPM payment can influence RA prices. Because the RA process involves several steps, each with some level of regulatory uncertainty, the CPM price does not appear to be acting as either a firm cap or floor on the price of RA capacity, but it is reasonable to expect that it has some influence on this bilateral capacity market.

The second set of issues relate to the expanding realm of unanticipated RA needs. In addition to filling a gap in the face of an unexpected shock to the supply or demand for conventional "capacity," CPM may play an increasingly important role of procuring capabilities from resources that are not captured in the definition of capacity. This has long been a problem with capacity-based markets and processes, which define their products in terms of capabilities rather than the provision of specific services. It is a problem that will likely become more acute as the role of intermittent supply and demand resources increases. These factors increase the need for a CPM-like mechanism. Our individual discussions with stakeholders and comments made by them at the October 8, 2010 MSC meeting on the CPM proposal has also highlighted important questions such as whether flexible resources are being sufficiently compensated for providing ramping and load-following capabilities that could be considered "scarce".

An important signal of the severity of this problem will be the quantity of CPM capacity procured. If it remains very small, in the neighborhood of what existed during the first 17 months of operation of the new market design (averaging about 30 MW in each month), then the RA process will appear to be continuing to fill the bulk of the needs. Otherwise, a large increase in the amount of CPM capacity designations will make it difficult to argue that the CPM process is only backstop for the ISO to purchase capacity to meet incremental or unanticipated reliability needs that are missing in the existing RA procurement process. This logic suggests a significant market monitoring function associated with the CPM to compile data on how much CPM capacity is procured, the reasons for its procurement, and at what cost and from which market participants, in order to ensure that CPM remains a small backstop procurement mechanism for all load-serving entities.[2]

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[2] The ISO issues a market notice for each ICPM designation that provides the reason, MW amount, duration, resource ID and cost of each designation. The ISO briefs the CPUC on each backstop procurement following the designation. This will continue under the CPM proposal.

3. Circumstances Governing Backstop Procurement

The CPM proposal provides four ways for a non-RA generation unit to receive a CPM designation. First, a LSE may simply have purchased insufficient generation capacity to meet its RA requirements through the annual or monthly procurement process. Second, unexpected system conditions—what the proposal calls a significant event—may arise that cause the ISO operators to revise the RA capacity requirements for a local area or on a system-wide basis. Under either of these circumstances, the ISO operators would like to guarantee that additional existing generation capacity is available and offering to supply energy and ancillary services to the ISO's markets. The CPM proposal is designed to provide a level of assurance to the ISO operators that this backstop generation capacity will be made available to the day-ahead market that is equivalent to the assurance provided by RA generation units.

Besides the above two circumstances, the CPM proposal will also provide any existing non-RA generation capacity that receives an exceptional dispatch instruction with a 30-day CPM contract, if that capacity is not currently under an RA contract or an RMR contract and is not already fulfilling a prior CPM designation.[3] Exceptional dispatch instructions occur because ISO operators issue a dispatch instruction to a generation unit outside of the ISO market mechanism to meet an operating constraint that is not included in day-ahead, hour-ahead or real-time nodal pricing process. Because these dispatch instructions are issued outside of ISO market mechanisms, the generation unit owner is paid the maximum of its default energy bid or the LMP at its location for the energy it provides if the unit is relieving a constraint that is deemed to be non-competitive. For exceptional dispatch instructions issued to relieve competitive constraints, the unit earns the higher of its bid price and the LMP at its location. As additional compensation to non-RA generation capacity for being available to respond to this exceptional dispatch instruction, the CPM proposal issues a 30-day CPM designation for the capacity. Under the ISO's current ICPM system, exceptional dispatch has been the only reason the ISO has issued CPM designations during the first 17 months of market operation.

The CPM proposal provides a fourth and new way (not in the ICPM system) for a non-RA generation unit to receive a CPM payment in the current year. If the ISO determines through operational studies that a generation resource will be needed in the following year to maintain reliable grid operations, but it will shut down in the current year because of insufficient revenues, this unit can receive a CPM designation. This rationale for a CPM payment to a non-RA unit in the current year is problematic to implement because it can create an incentive for non-RA units in the current year that are likely to be needed to provide RA capacity in a future year to threaten to retire. However, the ISO believes that it must have the ability (that the CPM proposal provides) to prevent non-RA generation units from shutting down that it knows are needed to meet demand in future year. Moreover the ISO proposal includes a number of provisions to

[3] A generating resource can be "partial RA" if it commits a portion but not all of its capacity under an RA contract. In such cases the CPM designation would apply–as the ICPM does today–to the non-RA capacity of the resource.

ensure that the resource is in a financial situation that would warrant retirement before providing the CPM payment.

A common theme in all of these rationales for a CPM designation is that the ISO operators have determined that an existing non-RA (or partial RA) generation unit needs to make its non-RA capacity available in order to operate the system reliably. Failure to meet the annual RA capacity requirements, a change in capacity requirements because of a "significant event", a temporary change in a capacity requirement because of the need to meet an unmodeled operating constraint, and paying an existing generation unit to remain in operation are therefore all reasonable uses of backstop capacity procured under the CPM mechanism. .

While we understand that the CPM designation provides the ISO operators with additional financially binding assurances that existing non-RA capacity will continue to offer into the ISO markets, we question why short-term energy and ancillary services markets do not become sufficiently remunerative for these resources as a result of the shortfall in RA capacity that made the CPM designation of an existing non-RA generation unit unnecessary. If the ISO markets appropriately price scarcity and include all constraints in the price calculation, then extra capacity payments would not be necessary to entice those plants to remain in the market.[4] Evidently, these non-RA generation unit owners have decided to continue to participate in ISO markets despite not receiving an RA capacity contract for their unit during the current month. This decision was likely due to the expectation that the unit would earn sufficient revenues during the month to cover its production costs and going forward costs through the energy and ancillary services market. Alternatively, the prospect of a CPM designation and the associated payment stream combined with expected energy and ancillary services market revenue could be the reason these non-RA units participate in ISO markets. However, given the inadequacies in the energy markets that have led to the need for exceptional dispatch and RA mechanisms, we acknowledge that there are likely to be circumstances in which energy and ancillary service market revenues would be insufficient to keep a non-RA unit in the market that is actually needed. We hope that as scarcity pricing is implemented and the constraints that cause exceptional dispatches are included in the market software, these circumstances will become rarer. However, it is possible that the increased penetration of intermittent renewable resources together with inadequate incentives for flexible capacity may instead make those circumstances more frequent. Through its "Renewable Integration Market and New Product Review Initiative," the ISO is current studying what additional products it will need to offer to meet these reliability challenges.

[4] Of course, if this was true, then a major rationale for the RA capacity procurement process would disappear as well.

4. Pricing of CPM Capacity

A major point of contention among stakeholders is whether the CPM payment should be set equal to the cost of new entry (CONE) or going-forward fixed costs. There are a number of factors that argue in favor of paying the latter to CPM capacity, as the ISO is proposing. First, CPM payments are only made to *existing* non-RA generation capacity on a very short-term basis. Second, particularly in Local Capacity Areas (LCAs), there is likely to be insufficient competition among suppliers to provide RA capacity,[5] so that the level of CPM payment is likely to impact the price that retailers are willing to pay for RA units. However, the uncertainty associated with the process used by the California Public Utilities Commission (CPUC) to determine whether an LSE is excused from paying the penalty for failing to procure RA capacity from a generation unit owner that sets too high of an asking price for its capacity implies the CPM price does not function as a hard cap on RA capacity prices. In fact, a number of stakeholders commented that some load-serving entities had paid above the current ICPM price for RA capacity.

A third reason for paying only going-forward fixed-costs is that the ISO may not wish to provide a signal for new entry within certain LCAs because there is already adequate existing generation *capacity* in those LCAs to meet this demand. Some stakeholders have expressed concern that there is too little investment in California in the type of flexible capacity needed to accommodate high amounts of renewable generation capacity. However, overpaying for all capacity within LCAs with a capacity surplus would do little or nothing to correct that problem.

On the other hand, the case for setting a higher level of payment (such as CONE) for CPM is much stronger in LCAs where there is a clear need for new generation capacity. In other words, it is reasonable to expect RA prices to reflect the scarcity of existing capacity and it would be a concern if the CPM payment were preventing this. However, an important consideration in making this pricing decision is the degree to which higher RA prices could stimulate new entry in a LCA. As an example of this phenomenon, it is extremely difficult, if not impossible, to site and build new generation capacity near the city of San Francisco. If entry is unlikely due to local siting difficulties, higher RA payments imply a transfer of revenues from consumers to generation unit owners, with no accompanying supply-side market efficiency benefits because this higher price for capacity will not cause new investment in these LCAs to occur. On the other hand, it is possible that these higher payments might provide a small but nonetheless appropriate incentive for more demand response, or increase the economic attractiveness of transmission upgrades that could alleviate those high local prices.

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[5] And, for that matter, on the other side of the market among retailers who would be the purchasers of RA. In the short-term, a local RA market resembles a bilateral monopoly market, in that there is likely only one supplier and one purchaser of the capacity. The outcome then depends on the negotiating strength of the parties, which in turn depends on what alternatives they have should negotiations fail. The attractiveness of the alternatives to the parties, and thus their relative negotiating strength, would be affected by the CPUC waiver and CPM; however, this influence is difficult to quantify because of the uncertainties in the waiver process.

Further, if LCAs do not feature excess capacity, energy and ancillary services market revenues should not be as limited as they could be in areas where an RA process ensures sufficient capacity to prevent short-term prices from reflecting scarcity. Even though local market-power mitigation may require default energy bids from units in these areas, the current ISO market allows prices to rise up to $5000/MWh during extreme local scarcity conditions. Therefore, generators are not being denied the opportunity to earn scarcity rents in the energy market. However, we recognize that as long as there remains a general need for an RA mechanism to incent investment, such a mechanism should reflect scarcity, and for the sake of consistency, prices for capacity (including CPM) should reflect that scarcity.

In summary, we believe the proposed CPM payment level is appropriate for the majority of circumstances where capacity is not scarce. In areas where capacity is scarce we would support a mechanism that allows RA prices to rise above going-forward cost levels. Even if this does not stimulate new generation entry it does send a signal to demand. However, we realize that including a variable price mechanism in the CPM would make it more complex and require definition of triggers and price levels; this complexity is hard to justify when the amounts of capacity presently procured are so tiny. The ISO could announce plans to institute such a mechanism if the amounts of CPM capacity procured grow significantly. A mechanism that allows RA prices to rise when capacity is short need not necessarily be the CPM, however. If the CPUC review process made clear that either a higher cap on RA values in capacity-constrained LCAs would be applied, or that waivers of RA obligations in such areas would be viewed more stringently, RA prices could rise above the CPM rate regardless of its level.

5. Price Discrimination between Existing and New Capacity

A final more general issue that has been raised in the context of the discussion of the CPM payment mechanism is the potential price discrimination between new and existing generation units in the price paid for RA capacity. Some stakeholders have asserted that new generation units are typically paid a price close to CONE for providing RA capacity through the CPUC's long-term procurement process. The assertion is also that most existing generation capacity is instead paid close to going-forward fixed costs through the annual RA procurement process. As a consequence many suppliers have argued that a differential pricing structure for RA capacity, which favors new generation at the expense of incumbents, has emerged. We do not dispute or endorse these claims as we have not been able to verify them or refute them due to the lamentable lack of transparency in the RA market.

In thinking about the consequences of price discrimination between new and existing generation units, it important to distinguish between wealth transfers from generation unit owners to consumers and the market efficiency consequences of this bilateral procurement strategy. If paying lower capacity prices to an existing generation unit does not impact its availability, or its incentive to make incremental operating efficiency-improving investments, then this lower price simply represents a wealth transfer from existing generation units to electricity consumers. However, maintenance, upgrading, and life-extension decisions are important in all stages of a generating unit's

life-cycle, and so we would expect significant efficiency impacts of price discrimination, especially for older units.

Another way that market efficiency can be adversely impacted by this price discrimination is if new suppliers know that they will become existing suppliers shortly after they build a new generation unit. Consequently, new entrants will ask for a much higher price to construct the new generation unit in order to compensate for the fact they will receive a much lower capacity price once they enter and their generation unit becomes existing capacity. This logic implies that new suppliers will require higher average bilateral contract prices in order to enter relative to the case that new and existing generation units are paid similar prices. Consequently, in the long run, utilities (and their customers) may pay as much for RA as in a nondiscriminatory system, or even more if the efficiency consequences are large.

While this issue merits serious consideration, we feel that the CPM is too blunt an instrument to correct whatever market dynamics are at play. The fundamental potential for such pricing outcomes lies with the concentration of purchases within a few large LSEs. Extremely large LSEs can have the ability to procure capacity with an eye towards reducing RA prices regardless of the specific market rules for the RA process. This is true even in centralized capacity markets. Whether these LSEs have an *incentive* to do so, depends on their regulatory status and oversight.

6. Conclusion

In summary, we support the ISO proposal, but recognize the need for the CPM price to be allowed to rise above going-forward fixed costs in areas where capacity is scarce. In addition, a dramatic increase in the amount of capacity procured through the CPM process in the future could indicate an insufficient definition of capacity for the RA process.

As long as the California ISO continues with a capacity-based bilateral RA procurement process, it will require a backstop procurement process to ensure that it has sufficient generation capacity that adheres to the terms and conditions of the RA capacity product. The circumstances under which the CPM proposal will procure this backstop capacity are consistent with the goals of reliable system operation and limited interference with existing ISO market mechanisms. A major challenge for the ISO and California Public Utilities Commission will be to restructure the current RA procurement process so that the CPM designation remains a very limited backstop procurement process--as opposed to a mechanism for the ISO to purchase capacity that provides a ongoing and valuable service but that is not purchased in the RA process because the offer price for this capacity is deemed to be too high.

California's ambitious renewable energy goals emphasize the importance of adapting the resource adequacy process and set of products purchased in the ISO markets to ensure that all of the attributes of generation units that enhance system reliability are appropriately valued so that demand at all locations in the California ISO control area can be met in the most efficient manner possible. We look forward to working with the ISO, California Public Utilities Commission and market participants to define these products

and the resource adequacy process that ensures they will be efficiently provided to the California ISO operators.