



California ISO
Your Link to Power

Straw Proposal on Alternative Central Capacity Market Designs

Department of Market and Product Development

October 11, 2007

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1. Introduction and Summary

This document presents the CAISO's initial views and preferences regarding design principles and features that should characterize a Central Capacity Market (CCM), if the CPUC reaches a decision to adopt a CCM in the current Resource Adequacy Phase 2 Track 2 proceeding. To be perfectly clear, in this paper the CAISO is not taking a position that the CPUC should or should not adopt a CCM. Rather, the CAISO is offering its response to the much narrower hypothetical question, "If the CPUC decides that a CCM should be implemented for California, what would be the preferred conceptual design of such a CCM?" By responding to this question, the CAISO is complying with the CPUC's May 25, 2007 "Assigned Commissioner's Ruling on Staff Report Regarding Track 2 Issues."

Four entities have submitted CCM proposals to the CAISO which form the basis of the CAISO's assessment and straw proposal: the California Forward Capacity Market Advocates (CFCMA, consisting of SCE, SDG&E, Reliant, FPL and NRG), Constellation, Mirant and PG&E. Based on the CAISO's desired design principles and features as discussed in this paper, the CFCMA proposal turns out to be the most favorable design. A significant factor contributing to this conclusion is the fact that only the CFCMA proposal provides for a multi-year forward assessment of the capacity that is actually committed to serve the needs of the CAISO control area. The CAISO believes that such an assessment is necessary for making optimal RA procurement and investment decisions, particularly to facilitate effective coordination with the transmission planning process. A second significant factor in the CAISO's preference for the CFCMA proposal is its approach to market power mitigation, which the CAISO believes will be critically important in local areas of the grid.

Readers should not interpret the above conclusion to be a CAISO recommendation to adopt the entire CFCMA proposal as submitted, however, mainly because that proposal and the others address some design details that deserve much greater assessment and debate, and therefore cannot and need not be resolved at this time. The CAISO's objective in this straw proposal is only to identify high-level design concepts and features that should be included in a CCM design if the CPUC decides to adopt a CCM, not to offer recommendations on all elements of a complete CCM design. This paper therefore indicates areas where further discussion and resolution will be needed but should be taken up in a later CCM design process subsequent to the CPUC ruling on the CCM.

A CPUC ruling on Resource Adequacy Phase 2 Track 2 is scheduled to be finalized at the end of February 2008, and is expected to include a decision whether or not to implement a CCM. If the CPUC decides to adopt a CCM and it is determined that the CAISO should be the operator of such a CCM, it is anticipated that the CAISO would conduct a stakeholder process in 2008 to design the implementation details of the CCM and would incorporate the CCM design resulting from that process into the CAISO market structure through a CAISO tariff amendment.

The CAISO will hold a conference call with stakeholders on Friday, October 19, from 10:30 to 12:00 Pacific Daylight Time to discuss this straw proposal. Call-in information will be posted in the calendar page of the CAISO's web site.

The CAISO requests that stakeholders submit written comments on this straw proposal by close of business on Monday, October 22 via email to: capacitymarket@caiso.com.

2. Design Principles and Features of a Central Capacity Market

The rest of this straw proposal is organized in the following manner. First, a series of topics is set out utilizing the numbered sub-sections, starting with the higher-level design concepts and principles, then moving into more detailed topics. Within each topic, the CAISO's positions are set out through a series of numbered propositions. Additional discussion is provided between the propositions to clarify and explain the rationale for the stated positions, and to identify topics that will need further assessment later in the CCM development process if a CCM is adopted.

2.1. Long Term Resource Adequacy Design Principles

Proposition 1. The Long Term RA framework should be designed to (a) induce timely and efficient investment in new supply infrastructure to serve the CAISO control area, and (b) ensure sufficient availability of supply capacity on a day-to-day basis to support reliable grid operation. Objectives (a) and (b) are the means to achieve the more basic goal of providing electric service to CAISO control area consumers at the desired level of service reliability and at reasonable and stable prices.

Proposition 2. Because a point of emphasis in the CCM discussions has been to provide a sufficient revenue stream to suppliers of RA capacity to induce both new investment and the commitment of existing capacity, the evaluation of CCM design alternatives should take a big picture perspective and consider the full set of market and non-market mechanisms by which RA capacity resources will earn revenues.

In particular, the earnings of capacity resources from bilateral capacity sales and/or a CCM will be complemented by earnings in the CAISO spot energy and AS markets. The CAISO intends to assess this bigger picture in its evaluation of CCM design principles and features.

2.2. Multi-year Forward (MYF) Resource Adequacy Framework

The term "multi-year forward framework" has commonly been used in the RA proceeding but does not have a commonly-understood meaning. This section starts by breaking the concept down into component activities that could constitute a MYF framework, depending on what such a MYF framework is intended to accomplish. Of the list of possible components stated below, an effective MYF framework for RA should include at least item (a) but may or may not include any or all of the other components.

- (a) MYF assessment of capacity needs;
- (b) MYF specification of LSE RA requirements;
- (c) MYF commitments by new resources to provide RA capacity;
- (d) MYF commitments by existing resources to provide RA capacity;

- (e) MYF review of LSE and CCM RA procurement and capacity commitments (which requires some form of items (c) and (d)), and identification of any shortfall or gap between this and the needs assessed per item (a); and
- (f) MYF “backstop” action to address any identified shortfall.

Proposition 3. The CAISO should collaborate with the CEC and CPUC to formulate a MYF assessment of capacity needs (item (a) above), including (i) system-wide capacity needs, (ii) local-area capacity needs, (iii) needed generator performance attributes such as ramping and quick-start capability, and (iv) needs in response to other state policies such as environmental policies.

The CAISO agrees with the arguments of most of the participants that such an assessment will provide a needed body of information to guide procurement activities, irrespective of whether such activities are conducted bilaterally or through a central market mechanism. The time frame being discussed is 5-6 years forward of the delivery period, but the specifics of the assessment time horizon and process remain to be worked out.

Proposition 4. A MYF review of the resources committed to provide RA capacity (item (e) above) is the most reliable and effective way to ensure that investment in new infrastructure is keeping pace with projected needs, including needs that may be created by the retirement decisions of existing resources, and to enable effective competition among existing resources and new investment in generation, demand response and transmission upgrades.

The CAISO believes that a MYF demonstration of resource commitment is preferable to an approach of simply putting out the MYF assessment (item (a)) and then waiting to review actual capacity commitments only one year or less prior to the delivery period. In essence, the CAISO believes a complete assessment of the capacity committed to serve control area load should be conducted enough in advance of delivery to allow appropriate backstop action to be taken if needed. One concern with waiting too long to review actual capacity commitments is that MYF decisions about the adequacy of new investment and the possible need for backstop action would have to make strong assumptions about whether all existing resources would continue to be available or might retire or opt out of providing RA capacity (i.e., “de-list”).

The MYF commitment is also essential for enabling effective competition between existing capacity, new investment in supply capacity, and new investment in demand response. Particularly in local constrained areas of the grid, the capacity price differentials in such areas can be dramatically reduced to the extent that forward commitments of new investment in demand response or transmission upgrades reduce the share of overall system capacity that must be located within each such area.

In order to accomplish Proposition 4 (item (e) in the above list) there must be some rules and procedures for obtaining MYF commitments by new and existing resources (items (c)-(d)). There are alternative approaches for doing this. One approach – a purely bilateral approach – would specify requirements for each LSE (item (b)), who would then enter bilateral contracts with new and existing resources to meet those requirements (items (c)-(d)), and then reveal these contracts to their regulatory authority and the CAISO by a specified date several years prior to the delivery period. This is essentially how RA functions today, so the main change would be to move the showing up to a MYF date. Alternatively, under a completely centralized approach a single entity would procure commitments from both new and existing resources to meet the identified needs (items (c)-(d)), possibly through a CCM or a centralized Request for Offers (RFO). With this approach the RA requirements on each LSE (item (b)) would not need to be specified at the time of the procurement, since the central procurement could be based on

the needs defined for the entire system. As noted earlier, the focus of the CAISO's current effort is limited to comparison of alternative CCM designs.

The matter of backstop procurement (item (f)) is discussed in a separate section below.

2.3. Primary Reliance on Bilateral Procurement and Self-Supply

Proposition 5. The CAISO supports a Long Term RA framework that relies primarily on bilateral procurement by LSEs, and only secondarily on the CCM mechanism to procure commitments of RA capacity. Under such a framework, the RA capacity procured bilaterally by LSEs would be offered into the CCM as "self-supply."

Primary reliance on LSE bilateral procurement has been part of the RA framework since the program began, and the CAISO sees no reason why a CCM should conflict with that approach. The existing RA and Long Term Procurement Planning (LTPP) programs can easily be made compatible with a CCM by structuring their time frames to achieve multi-year forward capacity commitments, so that the capacity procured under these programs can be offered into the multi-year forward CCM as LSE self-supply.

Moreover, the creation of a CCM would not preclude the CPUC enhancing these programs, if it so desired, to establish a more centrally coordinated self-supply process for its regulated LSEs, as long as the results of such a process are available in time to be offered into the CCM as self-supplied capacity. Such enhancement may be desired, for example, as a vehicle to implement state environmental policy. PG&E has proposed something like this with its Centralized Request for Offers (CRFO) concept, although the PG&E concept would need to be modified to make it a fully CPUC-sponsored and state-jurisdictional process rather than one to which the CAISO would be a party. Some parties have expressed the concern that a high degree of coordination of bilateral procurement, as with PG&E's CRFO proposal, could result in depressing the CCM clearing price by systematically procuring all needed new investment through the CRFO under regulated rate-base cost recovery. Establishing a positive floor on the CCM clearing price, as discussed later in this straw proposal, may or may not be sufficient to address this concern. The CAISO believes such potential impacts and possible mitigations warrant further analysis if a CCM is adopted, so that the value of the CCM clearing price as a signal for needed investment is not undermined.

2.4. Product Procured Through a CCM

In defining the product to be procured through a CCM, the CAISO supports building upon the existing RA framework to incorporate needed enhancements rather than developing an entirely different product. The CAISO notes that there are other views on this matter. In particular there has been the view expressed that an energy-hedging product, which proposes to induce the needed capacity to serve load and operate the grid through the financial exposure of suppliers to spot energy and reserve prices, would be superior to a capacity-based product that subjects the capacity resource to an RA-based must offer obligation. As discussed further in this section, the CAISO believes it is both possible and preferable to achieve the main benefits of an energy-hedging product by enhancing today's capacity-based RA product without a drastic redefinition of today's RA product.

Proposition 6. The CCM should procure MW of supply capacity (including imports and demand response) that will be subject to an RA Must Offer Obligation (RA-MOO) under the CAISO tariff. This is in principle consistent with today's RA.

The CAISO recognizes that additional work needs to be done on the RA-MOO in the context of fully specifying the "standardized capacity product" to be procured for RA, irrespective of the decision to adopt or not to adopt a CCM. For example, it will be necessary to specify additional details on the obligation to offer ancillary services, the nature of the obligation for special types of resources such as demand response resources and imports, and how compliance with the RA-MOO will be measured and enforced. Moreover, the CAISO also acknowledges the March 22, 2007 proposal of Calpine and the other "Proponents" for a standardized RA contract and associated generator obligations, and expects to address these matters through a stakeholder process starting after the start-up of MRTU irrespective of whether a CCM is adopted.

Proposition 7. The CCM should procure MW of "System Capacity" and MW of "Local Capacity" for predetermined local areas of the CAISO controlled grid.

The quantity of System Capacity needed would be determined based on the load forecast for the CAISO system (through appropriate state-led load forecasting process) and the Planning Reserve Margin (PRM) adopted by the CPUC and the Local Regulatory Authorities. The MW quantities of Local Capacity needed for each Local Capacity Area would be determined by the Planning and Infrastructure Development department of the CAISO as subsets of the total System Capacity required. This approach is in principle consistent with today's RA.

The CAISO also notes, however, that within certain Local Capacity Areas all supply resources may not be equivalent with regard to their effectiveness on particular constraints. One approach to such situations could be simply to specify smaller Local Capacity Areas, but this approach would likely exacerbate any potential for exercise of local market power. Alternatively, treating all capacity within such a local area as if it were equivalent could lead to under-procurement in the bilateral and CCM processes and require CAISO backstop procurement to compensate for the effectiveness gap. The CAISO believes this concern merits further discussion.

Proposition 8. The CAISO supports adopting a capacity product definition that does not include specific resource performance attributes, but stipulates that it may be necessary to develop additional mechanisms to ensure that any needed resource performance attributes not targeted explicitly by the CCM are adequately provided.

Another important question regarding the definition of the capacity product is whether it should explicitly include requirements for generator performance attributes such as dispatchability, ramping and quick-start capability. One approach that has been advocated is to keep such attributes out of the capacity product definition and rely on the spot AS markets in conjunction with the MYF assessment of needs mentioned above to provide sufficient information and incentives for investment in the types of capacity needed for efficient grid operation. Although in theory it is possible through optimal market design and pricing to induce timely provision of efficient quantities of supply capacity of the needed types and locations, it would be risky to rely completely on that approach when the new LT-RA framework is first implemented. The concern is that even if a shortfall in certain needed attributes is identified at the time of a MYF review of committed capacity, there would be no mechanism to induce the right kind of new investment short of a special, targeted backstop procedure. The CAISO therefore prefers not to foreclose the possibility that additional provisions may be appropriate to attract forward commitment of supply resources with specific performance attributes.

The above should not be interpreted to mean, however, that the needed performance attributes must be incorporated in the definition of the capacity product. The concern could be addressed

through other approaches that have already been mentioned in the current proceeding, such as the specification of new AS products, the adoption of inter-connection requirements for resource types that create needs for additional dispatchability, ramping or regulation, or the creation of another forward market for the needed attributes. The CAISO proposes to evaluate alternative approaches in the context of the 2008 CCM design process if the CCM approach is adopted.

2.5. Pricing and Price Determination in the CCM

Proposition 9. The CAISO supports the use of the estimated Cost of New Entry (CONE) as the reference point for establishing the demand and hence the clearing price in the CCM.

The value of the CCM clearing price as a signal for needed new investment, and the usefulness of the CCM auction as a venue for effective competition between existing resources and new resources (including demand response, as well as decisions to retire or re-power existing units), depend on the use of estimated CONE as the reference price in establishing demand. Further specificity on the process, methodology and responsibility for developing the estimated CONE for the CCM is not discussed in this straw proposal and would need to be addressed in the 2008 CCM design process if a CCM is adopted.

Proposition 10. The CAISO supports the incorporation of a Peak Energy Rent (PER) deduction to the capacity payment. The PER deduction should be based on the market earnings of a reference resource, rather than trying to calculate a resource-specific PER deduction for each RA resource.

The use of a relatively inefficient (i.e., high heat rate) reference unit for calculating the PER deduction will reinforce the incentives to build new or repower efficient units and allow inefficient ones to retire. Depending on how environmental costs are reflected in spot market prices, the choice of the reference unit for PER deduction can also be used to reinforce incentives to build new clean units (e.g., having low emissions of greenhouse gases or other regulated pollutants) and allow dirtier ones to retire.

Another important design decision regarding the PER deduction is whether it is taken ex ante or ex post. Under ex ante PER deduction, an estimate of expected market earnings is made prior to the running of the CCM and that estimate is incorporated into the demand curve as a "Net CONE" target capacity price. Once the exact CCM capacity clearing price is determined based on the Net CONE approach, it is assumed to reflect the expected spot market earnings of the RA capacity with sufficient accuracy that no further adjustment to capacity payments based on actual spot market outcomes is needed. Of course this assumption is apart from and does not preclude the use of penalties for inadequate availability or performance or other measures to mitigate excessive market earnings, but it does assure that capacity payments as determined in the CCM will not be subject to reduction after the fact based on normal market earnings. In contrast, under the ex post PER deduction approach the demand in the CCM is based on the full estimated CONE with no attempt to adjust the CCM clearing price based on an up front estimate of market earnings. Instead, capacity payments are adjusted down from the CCM clearing price after the fact based on actual spot market prices for each settlement period.

In both the ex ante and ex post approaches, the amount of the adjustment would still be based on the estimated earnings of a reference resource, so that is not the point of difference between these approaches. Rather, it is a question of either: (a) setting the CCM demand and clearing price based on a lower estimated value, i.e., Net CONE, and then fixing the capacity payment at that value and insulating it from any subsequent impact of normal market earnings; or (b) setting the CCM demand and clearing price on a higher estimated value, i.e., full CONE, and adjusting

actual capacity payments later as actual market prices give a more accurate estimate of market earnings.

Parties who support the ex ante PER deduction argue that having the capacity payment stream fixed up front, even though it would be at the lower Net CONE value, increases the certainty of capacity payments for investors and thereby facilitates investment in new capacity. Parties who support the ex post PER approach argue that it provides greater certainty of the total revenue stream of the RA capacity, i.e., capacity payments plus spot market earnings. Other arguments in favor of the ex post approach are that it allocates risk more transparently and appropriately between suppliers of capacity and consumers, and it creates strong disincentives for suppliers to try to raise spot prices thus mitigating potential exercise of market power.

Beyond these two primary options, some intermediate approaches have been suggested in the course of the workshops and stakeholder meetings that merit further examination. For example, one alternative approach would be to set the demand and the CCM clearing priced based on a Net CONE estimate, fix the capacity payment at this level for the course of the delivery period, but then limit the amount of spot market revenues the RA capacity could earn through bidding rules or some other device. The intent of such an approach would be to have ex ante certainty regarding the capacity payment stream combined with disincentive to bid up spot market prices to increase revenues. A variation of this, again in conjunction with the ex ante PER approach, could be to include a fixed-price energy contract in the definition of the RA capacity product.

The CAISO believes that further discussion on this matter is warranted and therefore does not offer a position on it at this time. In addition, there are several more detailed design issues regarding the PER deduction that would need to be addressed later in the course of designing a CCM if one is adopted, such as: (a) whether the PER deduction should include spot market AS capacity payments; (b) how the PER deduction should account for scarcity prices; and (c) the appropriate reference resource.

Proposition 11. The CAISO believes that a vertical demand curve at the target capacity quantity is preferable to a sloped demand curve. In conjunction with either type of demand curve, there should be pre-specified upper and lower bounds on the CCM clearing price.

The vertical demand curve at the target quantity allows capacity offer prices to establish the CCM clearing price for the target quantity, rather than fixing the CCM clearing price at exactly the CONE or Net CONE estimate when the target quantity is cleared. Moreover, when there is sufficient capacity offered to the CCM, the CCM will always procure the target amount of capacity rather than procuring excess capacity as it would with a sloped demand curve.

Regarding the upper bound on the CCM clearing price, clearly an upper bound is appropriate to reflect the maximum willingness to pay for capacity, as long as the upper bound is high enough not to create a disincentive for new investment. The CAISO believes that the exact level of the upper bound does not need to be specified at this time and can be addressed in the 2008 CCM design process if a CCM is adopted. Regarding the lower bound on the CCM clearing price, a key design question is whether there should be a positive price floor to prevent the clearing price from dropping to zero when there is excess capacity in the system. As noted earlier, there is concern that the CCM clearing price could systematically be depressed if all or most new investment enters the CCM through bilateral procurement and self-supply, in which case the CCM price might never become the desired price signal for new investment. Although the exact specification of a floor on the CCM clearing price need not be decided now, if a CCM design is adopted that includes a significant expansion of centrally coordinated self-supply, it should consider carefully the potential adverse impacts on the CCM price signal and the effectiveness of mitigating provisions such as a CCM clearing price floor or some parameters to bound the amount of the coordinated self-supply.

2.6. Performance Incentives for RA Capacity

Proposition 12. The CAISO supports mechanisms that provide effective incentives for RA capacity to be available and perform as needed through adjustments to the current-period capacity prices paid to RA resources, such as EFORp (peak hour availability) and EFORD (average availability) measures.

Such mechanisms are superior to ones that utilize current-period performance metrics only to reduce a resource's qualifying capacity in future periods, without any impact on the resource's current-period payments.

2.7. Timing of CCM Auction Relative to Delivery Period

Proposition 13. The CAISO supports four-years forward as the optimal time horizon for conducting the primary CCM auction, and also supports the concept of holding a series of reconfiguration auctions between the primary CCM auction and the start of the delivery period.

This issue is closely related to Item 2(e) discussed above, because in all the CCM proposals the auction serves the dual purpose of (i) clearing supply and demand for capacity and producing a transparent clearing price, and (ii) providing a forward assessment of the total RA capacity that is committed to serve the CAISO control area, thus to allow identification of any shortfall. As stated above as Proposed Position 4, the CAISO believes that a MYF review of the total committed RA capacity is a more reliable and effective way to ensure that investment in new infrastructure is keeping pace with projected needs, and to enable effective competition between existing and new resources to provide RA capacity.

There are some further details that need not be addressed now but would need to be worked out in the context of a subsequent CCM development process if a CCM is adopted, such as the specification of the target delivery period, and the exact timing of the various auctions during the procurement cycle. In addition, it will be necessary to specify the qualification requirements for new resources to participate in the CCM, so that new projects are sufficiently developed by the time of the CCM auction to have confidence in their on-time start of commercial operation. The CCM design will need to ensure compatibility between the timing of the CCM auctions and the typical development timelines and milestones of new projects.

2.8. Role of CAISO Backstop Procurement to Meet Shortfalls in RA Procurement

When considering the need for and possible approaches to backstop procurement, it is useful to consider the potential CAISO backstop role in terms of three possible time frames:

- (a) Long-term or multi-year forward time frame, in which the backstop could consider and procure commitments to build new resources;
- (b) Short-term, on the order of several months to a year prior to delivery, which would consider only existing resources;
- (c) Operational time frame, on the order of week-to-week or even day-to-day via the Exceptional Dispatch or some other very short-duration procurement provisions.

Proposition 14. At a minimum the CAISO needs type (c) backstop procurement capability to be able to manage “significant events” that alter operating conditions in unforeseeable ways.

For all practical intents and purposes, this need is consistent with the provisions for “significant event” procurement currently being discussed in developing the Interim Capacity Procurement Mechanism (ICPM) which will replace the existing Reliability Capacity Services Tariff (RCST). Thus, even though the ICPM will include a predetermined sunset date, the CAISO has noted the need to revisit the subject prior to the ICPM sunset to determine what the needs are and the most appropriate ways to address them based on how the Long Term RA and related provisions and market conditions have developed by that time.

Proposition 15. The CAISO supports the objective, as advocated by most of the parties to this process, of designing the CCM to maximize its ability to procure most if not all of the needed capacity so as to minimize the need to utilize CAISO backstop procurement mechanisms.

Proposition 16. The previous proposition notwithstanding, the CAISO expects that it will need to have backstop capacity procurement capability to supplement LSE or CCM procurement in a time frame up to one year ahead of delivery (type (b) above), similar to the provisions that exist today under RCST and are included in the latest ICPM design proposal.

The details of the type (b) backstop do not need to be completely worked out now, however, but should be included in the 2008 CCM design process if the CCM approach is adopted. More generally, any adopted CCM design should contain clear provisions for addressing situations where insufficient capacity is offered to clear the CCM auction, because such shortfalls could form one basis for triggering backstop procurement.

Proposition 17. The CAISO does not expect to exercise backstop capacity procurement in a multi-year forward time frame, i.e., type (a) above.

The matter of multi-year forward backstop procurement is discussed further below in the context of transmission planning.

Proposition 18. The capacity product procured through a backstop mechanism should have the same performance requirements (RA-MOO, any applicable performance penalties, etc.) as the RA capacity procured through the primary bilateral and CCM mechanisms.

Many of the details of backstop procurement need not be specified now but will require further discussion in the 2008 CCM design process if a CCM is adopted, including:

- The specific circumstances and triggers under which it would be appropriate for the CAISO to engage in short-term backstop procurement;
- The timing at which such backstop procurement should occur;
- The preferred mechanism for procuring the backstop capacity;
- The appropriate duration of backstop capacity commitments; and
- Whether backstop procurement should target resource attributes not targeted by the CCM, such as generator performance (dispatchability, ramping and quick-start) and environmental characteristics. (Note the connection between this point and the earlier discussion, in the context of the capacity product definition, of the possible need for supplementary mechanisms to induce investment in needed generator performance attributes.)

2.9. Cost Allocation for Central Procurement

Proposition 19. Cost allocation for each LSE should be based upon the LSE's actual load for each delivery period (e.g., settlement month), rather than a forecast of the LSE's load, so as to accurately reflect any Direct Access load migration.

This approach to cost allocation should apply to both CCM procurement and to any CAISO backstop procurement. It would also be equitable and fair, particularly for costs associated with backstop procurement, to allocate costs based on cost causation principles as far as possible. For example, if possible the costs of backstop procurement should be allocated to those LSEs whose own capacity procurement shortfalls necessitated the backstop procurement. In contrast to today's RA approach, however, the submitted CCM proposals effectively render the cost causation principle largely moot because the self-supply mechanism ensures that LSEs will pay for central procurement only as needed to supplement their self-supplied capacity.

2.10. Requirement to Participate in CCM and Ability of Resources to De-List

Proposition 20. Supply resources internal to the CAISO control area that do not explicitly "de-list" from the RA market should be required to offer their capacity to the CCM.

In the eastern ISOs "de-listing" is the vehicle for installed capacity to opt out of the capacity procurement mechanism and thereby be relieved of their obligation to offer their capacity to the market. This proposition presupposes well-specified listing and de-listing provisions, which have been discussed to some extent in the CCM proposals and workshops but are not yet ripe for detailed specification. The subsequent CCM design process will need to develop the details, including potential exemptions from the CCM offer requirement (e.g., MSS load-following resources and non-PGA QFs), the specifics of de-listing and how it would work, and how de-listed resources that continue to operate during the delivery period might count towards meeting local area capacity requirements even if they don't count towards system requirements. As noted later in this paper, the requirement either to participate in the CCM or de-list is important for mitigating local market power in the form of physical withholding.

2.11. Coordination of Long Term RA with Transmission Planning

Several questions have been raised in the workshops and stakeholder meetings regarding this important aspect of Long Term RA. Some of the major questions are:

1. Can transmission upgrade projects compete directly against new generation projects in the CCM? If so, many details must be spelled out, such as how a transmission upgrade project would pre-qualify for the CCM by having achieved certain milestones, and how it would figure into the CCM supply and/or demand functions.
2. If transmission upgrades cannot compete against new generation, then how would a MYF assessment of needs and a MYF procurement process be coordinated with grid planning to ensure efficient infrastructure investment?

The CAISO has given some consideration to these questions and offers the following approach for further discussion with stakeholders.

Proposition 21. In advance of the multi-year forward CCM, the CAISO transmission planning process will identify specific, viable transmission upgrades to relieve constrained local areas of the grid. Such upgrades will serve as multi-year forward backstop actions in the event that not enough supply capacity is offered in the CCM to meet the RA capacity needs of a local area.

The concept behind Proposition 21 is best explained by means of an example. Starting with the time frame of the transmission planning process and the MYF assessment of capacity needs, suppose that a certain constrained area of the grid is estimated to require 1000 MW of internal RA capacity for the delivery period 5-6 years in the future. The 1000 MW estimate is based on the existing topology and capacity of the grid plus any upgrades that have already been fully committed to and adopted in the transmission plan (i.e., will definitely be built with a high degree of certainty). In addition, the CAISO's planning process also identifies another potential upgrade that would reduce the local capacity requirement to 600 MW. Finally, suppose that the local area actually contains only 750 MW of installed, qualifying capacity, including any new supply that has already been committed to and will become operational within the 5-6 year horizon. All of this information is made available to the market to help inform bilateral RA procurement and the running of the MYF CCM.

Now suppose that the CCM is run four years forward of delivery. The supply for the local area includes LSE self-supply that may include new investment, as well as other offers of new and existing capacity, and possibly bids to de-list by resources within the area that may want to retire. The demand quantity is 1000 MW to test the presumption that the potential upgrade is not needed. If the CCM clears at least 1000 MW then the supply capacity for the local area is found to be sufficient and the potential upgrade is not needed, at least for the targeted delivery period. If the CCM clears less than 1000 MW, however, then there is a backstop decision to be made. Further details of this concept need to be developed, such as what magnitude of shortfall should trigger what sort of backstop action, what opportunities should be provided to parties to fill the gap, etc. But ultimately, if the capacity shortfall is deemed significant and other actions do not adequately meet the local need, then the CCM outcome would effectively become the trigger to move forward with the identified potential transmission upgrade as a transmission backstop to meet a shortfall in local capacity.

The approach illustrated above provides at least one way that investment in new transmission can compete with new generation to meet the capacity needs of a local area of the grid. It also characterizes how the CAISO might view its backstop role in a multi-year forward framework, that is, to focus on a transmission upgrade as the backstop for insufficient capacity rather than an explicit role in inducing new generation investment.

Another important aspect of coordination between the CCM and transmission planning lies in the application of the Transmission Economic Assessment Methodology (TEAM). The TEAM is a detailed approach for quantifying the expected economic impacts of proposed transmission upgrades, focusing on the effects of each proposed upgrade on locational market prices for energy and ancillary services and on the opportunities to exercise market power in the spot markets. With a CCM structure in place that produces transparent clearing prices for system and local capacity, the TEAM could be usefully enhanced to estimate the effects of a proposed upgrade on capacity price differentials between system and local areas, on the quantities of local capacity needed for each area, and on the potential for market power in the local capacity markets. This would be a valuable improvement in the economic assessment of transmission upgrades for transmission planning purposes.

2.12. Market Power Mitigation

Proposition 22. Because of the potential for exercise supplier market power in local capacity areas, the adopted CCM design must include explicit provisions to mitigate local market power – both economic and physical withholding – and avoid over-reliance on the potential entry of new capacity in local areas to drive competitive market outcomes.

Such mitigation provisions should be clearly specified in advance of the implementation of the CCM, should address both physical and economic withholding, and should not simply depend on the activities of the CAISO Department of Market Monitoring and the FERC to monitor and limit the exercise of local market power.

Although the exact specification of such provisions will depend on the ultimate design of the other features identified above, there are several important observations to be made regarding market power mitigation.

1. As noted earlier in this paper in the discussion of the capacity product, local market power can be exacerbated when the various resources within the local area have different effectiveness on critical transmission constraints within that area.
2. Direct bid mitigation, based on structural, conduct and impact tests, is the most effective approach for mitigating economic withholding. Relying on the use of a sloped demand curve in the CCM is not likely to be effective against concentrated supply ownership in an area.
3. The obligation of internal resources either to offer into the CCM or formally de-list is essential for mitigating physical withholding.

Finally, as noted by previously by the Department of Market Monitoring, although the focus of the CCM proposals is on the procurement and pricing of capacity, the CPUC and the parties should not lose sight of the essential role that long-term energy contracting plays in mitigating market power in the short-term energy markets. The best designed long-term capacity procurement and pricing structure will not prevent another energy crisis (even with a 15 percent planning reserve margin) if not coupled with large amounts of long-term energy contracting. Ultimately consumers consume energy, not capacity, and if this energy is not adequately hedged through long-term contracts, the market will be ripe for significant market power abuse. With this in mind, the degree to which the CCM design facilitates or complements long-term energy contracting has a significant impact on the overall protection against market power afforded by the CCM and the entire Long Term RA framework.

2.13. Other Open Issues

There are several other important issues raised in the submitted proposals and in the course of the current workshops and stakeholder meetings which not mentioned above, but which warrant further discussion and evaluation. Some of these are:

1. Whether to set RA requirements based on a single annual peak value, or have RA requirements vary by seasons or months.
2. Whether new capacity investment and a distinct product called “availability,” which could be provided by both new and existing capacity, can be procured separately at different prices as proposed by PG&E.

3. Whether a capacity commitment that is longer than one year in duration is needed to support new investment.