

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



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Order Instituting Rulemaking to Consider)
Refinements to and Further Development of the) Rulemaking 05-12-013
Commission's Resource Adequacy Requirements)
Program.)
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**TRACK 2 CENTRALIZED CAPACITY MARKET PROPOSAL OF
THE CALIFORNIA FORWARD CAPACITY MARKET ADVOCATES**

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Pursuant to the Ruling of Administrative Law Judge Wetzell, issued July 20, 2007, FPL Energy, NRG Energy, Reliant Energy, San Diego Gas & Electric Company, and Southern California Edison Company, collectively the California Forward Capacity Market Advocates ("CFCMA"), submit their joint proposal for a California forward capacity market. *See* Appendix A. CFCMA also submits a PowerPoint presentation that workshop participants might find useful in gaining a quick overview of the CFCMA proposal. *See* Appendix B. And lastly, CFCMA submits for the workshop record a copy of the completed Self Ranking matrix that the CAISO has requested for purposes of organizing the centralized capacity market discussions being held at the CAISO in parallel to the CPUC Track 2 workshops. *See* Appendix C.

CFCMA thanks ALJ Wetzell for the opportunity to submit this joint proposal for consideration during Track 2 of this proceeding. This joint proposal represents a consensus position of the CFCMA companies, and should serve to streamline the Commission's decision-making process in its evaluation of proposed long-term structures for the Commission's resource adequacy program. The CFCMA companies look forward to the

opportunity to present and discuss this proposal further during the Commission's upcoming Track 2 workshops.

Respectfully submitted,

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Appendix A

I. OVERVIEW

This proposal and related comments are filed jointly by intervenors FPL Energy, NRG Energy, Reliant Energy, San Diego Gas & Electric Company, and Southern California Edison Company, collectively the California Forward Capacity Market Advocates (“CFCMA”). These five companies share a common vision for the future of resource adequacy (“RA”) for California’s electricity markets. This vision is centered on robust, transparent, and competitive markets for energy, ancillary services, and capacity in order to meet California’s future electricity needs in an efficient and cost effective manner.

In particular, and in the context of this proceeding, CFCMA believes that the California Public Utilities Commission (“CPUC” or “the Commission”), in conjunction with the California Independent System Operator (“CAISO”) should design and implement a centralized capacity market to complement the centralized energy and ancillary services markets that CAISO operates. Furthermore, this capacity market should price and clear capacity locationally and sufficiently far in advance of delivery so as to allow planned capacity resources—including demand response, and distributed generation, as well traditional commercial generation—to compete to serve the state’s future needs. Similar centralized capacity markets in New England and PJM have attracted offers of substantial amounts of new resources, both generation and, significantly, demand response—which will be an essential part of any long-run resource adequacy portfolio in California.¹

In this proposal, the CFCMA collectively propose a design for a California Forward Capacity Market (“CFCM”). This single design proposal consolidates and builds on the four proposals offered by CFCMA members in March, 2007. Although there are many important details to be developed during a broader stakeholder process, CFCMA hopes that the CPUC and CAISO will be able to take this consensus CFCM design plan and build from it, knowing that there is strong and broad support for this approach. CFCMA hopes that the CPUC and CAISO will be able to take this consensus CFCMA proposal and use it as a basis for the development of tariff language and business practice manuals needed to implement the proposal. Additionally, this proposal will provide for a more well-reasoned and critical examination of the merits of a centralized capacity market versus proposals perpetuating the inadequacies of the existing, bilateral resource adequacy program.

The CFCM has many critical elements of success that are absent in potential alternatives. The CFCMA discussed these issues in greater detail in its May 18, 2007 filing. These elements include:

- **Surety of supply.** By identifying sufficient resources to meet future statewide load, located as needed to meet locational requirements, the CFCM is best able to bring forth needed physical resources. Alternatives that do not require a demonstration of resource adequacy until a year or a month prior to delivery may leave important holes in the physical infrastructure: either the total amount of generation installed may not be sufficient to meet reliability targets, or the transmission system may not be sufficient to ensure its delivery.

¹ In July 2007, PJM cleared 536.2 MW for the 2008/2009 Planning Year, an increase of 408.6 MW over the prior year. This auction was part of PJM’s transition to a full 3-year-ahead capacity auction, the first of which will occur in 2008 for the 2011/2012 delivery year. ISO New England received expressions of interest from “over 2,200 MW of demand-side resources such as energy efficiency, load management, and distributed generation” and “received applications for over 15,000 MW of generation capacity through proposed supply-side resources” for its first Forward Capacity Auction, scheduled for early 2008. See PJM “2008/ 2009 RPM Base Residual Auction Results” (PJM DOCS #428082) and respectively, ISO New England press release and ISO-NE Show of Interest Application Fact Sheet, March 16, 2007.

- **Transparency of pricing.** Markets require transparent pricing to operate efficiently. The CFCM provides completely transparent capacity prices, and those prices are provided far enough forward to guide orderly investment and retirement decisions. Alternative proposals offer only decentralized, short-term pricing information (perhaps moderated through the use of a “bulletin board,” although such a platform has proven challenging to implement in California to date), or create transparent pricing only after the time capital investment decisions has passed. Transparent pricing also provides a market-based benchmark for regulators for assessing proposed new investment proposals related to serving bundled customers, protecting consumer interests.
- **Competitive outcomes.** Of the competing proposals, only CFCM brings together two powerful pro-competitive elements of market design: competition from potential entrants, and effective market monitoring. By operating far enough forward to allow planned entrants to compete with incumbents on a level field, the CFCM uses market forces as the primary check on possible market power of incumbents. Because the CFCM is a centralized market, it offers an important backstop: offers into the market can (and will) be monitored by CAISO to ensure that market power is not being exercised in advance of the market. Furthermore, since the CFCM does not impose an administrative “demand curve” for capacity, prices reflect competitive market offers, not administrative estimates of the “right” price.
- **Ease of administration.** The CFCM substantially simplifies the administrative burden on CPUC and CAISO in meeting the state’s resource adequacy targets, primarily by eliminating the need to monitor each load-serving entity’s (“LSE’s”) individual compliance, including the complicated and contentious compliance rules regarding load migration.
- **Coordination with transmission planning.** By clearly declaring what particular resources will be available in the future, the CFCM integrates resource and transmission planning. The CAISO and transmission owners will have sufficient time to undertake any transmission reinforcements needed to support new generation or accommodate retirements.

The key elements of the CFCMA’s joint proposal for a CFCM include:

1. **State-determined RA targets.** Approximately five years prior to a Delivery Year, the CPUC, CAISO, and the California Energy Commission (“CEC”) would jointly establish capacity resource requirements statewide and for any relevant import-constrained areas of the state, as well as the capacity transfer limits of the transmission system.
2. **Resource qualification and capacity tags.** The CAISO qualifies potential capacity resources, including planned and existing generation, distributed generation, and other demand-side resources using non-preferential criteria that fairly balance certainty of supply and broad participation.² The qualification process creates “capacity tags” that can be traded among market participants, either bilaterally or within the CFCM Auctions.
3. **A centralized, forward, locational capacity auction.** Approximately four years prior to a Delivery Year, the CAISO will conduct an auction to acquire capacity supply obligations from sufficient resources to meet the RA targets, subject to the transfer limits of the transmission system. All cleared resources will be eligible to receive the capacity clearing

² CAISO may, as appropriate, contract with qualified vendors to develop or execute any aspect of the CFCM.

price of their physical location in the delivery year (i.e., they are paid a local or system capacity price, depending on their location and the identified capacity need of the grid).

4. **Performance standards.** The CFCM includes clear and effective performance standards, enforced through the CAISO tariff, on all capacity resources to provide a strong incentive for capacity resources to have high availability and sufficient energy, particularly during peak usage periods.
5. **Self-supply.** Any LSE may offer resources as price-takers in the auction, assuring that these resources will offset the LSE's capacity payment obligation. LSEs may not, however, opt out of the market, and self-supplied resources are subject to the same performance standards applied to other capacity resources.
6. **Market monitoring and offer mitigation.** The CAISO market monitor has clear enforcement powers to ensure that offers into the CFCM are not intended to inflate or suppress capacity clearing prices away from a competitive level, especially in import-constrained areas in which there are relatively few buyers and sellers.
7. **Backstop Auctions.** The CFCM design is robust enough that sufficient market-based capacity should be secured by the CFCM auctions. In the unusual event that additional resources are required, the design includes provisions for backstop process by the CAISO, either by deferring acquisition or through a separate auction process.

Each of these areas is discussed in more depth below. Taken together, these components are a comprehensive framework for an effective and efficient market structure to meet California's resource adequacy needs. We urge the CPUC and CAISO to use this framework as a starting point in its future deliberations.

CFCMA believes that this design is cost efficient, both in terms of market payments and implementation costs. CFCMA believes that its CFCM design will be the most efficient market design, and therefore the lowest cost option to consumers in the long-run. The goal for California's resource adequacy framework should be to remove elements of risk and design inefficiencies that will drive market-based prices upward. The CFCM does so by providing timely and transparent prices to investors in a stable, well-designed market structure.

II. CORE CFCM DESIGN

A. OVERVIEW OF THE MARKET DESIGN

At the center of the market design is the Primary Auction. The auction is designed to secure firm, physical commitments from qualified planned and existing resources, including generation, demand response, and imports, sufficient to meet 100 percent of the forecast peak load plus the planning reserve margin for a Delivery Year four years forward.³ LSEs may self-schedule capacity into the market, and capacity suppliers may offer their resources at a price (potentially subject to market power mitigation). The Primary Auction clears by accepting the self-supplied

³ A Delivery Year is a twelve-month period from May 1 of a year to April 30 of the following year.

resources and the lowest-cost offers sufficient to cover the peak load plus planning reserve margin, and the offer price of the last cleared resource sets the clearing price of capacity applicable to all cleared resources for each local area and the remaining system requirements.⁴

What follows is a description of essential elements of the proposed auction process. Our current recommendation is that the auction be a sealed bid auction that includes a qualification process in advance of the submission of final bids. The following discussion is largely consistent with other auction formats, such as multi-product, simultaneous descending clock auctions and package bidding. The final auction rules will need to provide specific and detailed bidding procedures. These auction rules will need to include provisions to enhance bidder incentives to compete, while ensuring price stability, as well mitigating the impact of any potential market power and provide contingencies for larger projects which, if accepted will result in overshooting resource adequacy targets, but if rejected, could result in higher costs.

The Primary Auction simultaneously ensures that sufficient resources are located within specified import-constrained Local Areas to meet locational capacity requirements, and that these resource adequacy requirements are met at least cost. The CAISO will ensure that all requirements are simultaneously satisfied. This will entail setting targets for each zone and subzone prior to the auction, based on reliability standards set by the state and an engineering analysis of the bulk power system.

The least-cost offers that will be accepted will meet system-wide needs, including the Local Area requirements. The least-cost offers for the entire system may fail to meet the requirements within each Local Area. This would mean that the clearing price in that Local Area would be higher in order to secure the additional capacity resources in that particular Local Area. Offsetting the selection of a higher cost Local Area capacity would be the disallowance of an equal volume of the highest-cost offers outside the Local Area that would otherwise clear; this would have the effect of lowering the system capacity clearing price. This method is essentially the same as that used in the MRTU energy markets to establish nodal prices, but operates on a simpler zonal model. All cleared capacity resources within the constrained Local Area are paid the local capacity price.

Imports can offer into the Primary Auction to serve as general system resources, but cannot be used to meet minimum capacity requirements in constrained local areas. The quantity of imports that can be imported across any particular external intertie is limited to a predetermined transfer limit set based on the engineering characteristics of the external intertie. If more offers of imports across a particular intertie are received than can be accommodated, the lowest-cost offers are accepted and all cleared imports relying on that external intertie are paid the price of the highest accepted offer (which will be less than or equal to the system capacity price paid to internal resources).

Each year subsequent to the Primary Auction but prior to the Delivery Year, there will be a Reconfiguration Auction. These subsequent auctions will allow participants to trade their supply obligation through a CAISO-facilitated market, augmenting trading of capacity tags in the bilateral

⁴ The CFCM proposal does contain an exception to the "single price" rule when the capacity clearing price exceeds 140 percent of Net CONE, as discussed below.

market. It also allows the CAISO to acquire additional resources or release surplus resources under specific conditions.

In each month during the Delivery Year, capacity resources are paid the applicable capacity price, adjusted based on performance metrics of the resources. These capacity costs are recovered by charges to LSEs based on their contribution to the coincident monthly peak load in the month and the location of load in Local Areas. If an LSE self-supplied resources, the revenue due those resources nets against the capacity charges of the LSE. However, if the self supplying LSE has a mismatch between supply and demand in the operating month, it is levied the applicable charge (or credit) due any other net short (or long) market participant.

B. DETERMINATION OF RA TARGETS

In advance of the Primary Auction, the CPUC, in consultation with the CEC and the CAISO, will determine the statewide Resource Adequacy Requirement for CAISO-served load for the auction's Delivery Year, expressed as megawatts of installed capacity resources (including capacity imports).

Based on its engineering assessment and system reliability studies, the CAISO will recommend to the CPUC for its approval:

- (1) Local Areas that, in order to meet adequacy requirements for reliability have transfer limitations that require a minimum level of internal generation;
- (2) Specific Local Area Requirements for the number of megawatts of installed capacity resources in identified Local Area; and
- (3) Maximum allowed imports from external control areas, separately by path and collectively in total.

Local Areas should be drawn sufficiently narrowly so as to minimize the need for separately negotiated reliability-must-run contracts with specific units within the Local Area to meet sub-zonal requirements. While this narrow definition may create some greater risk of market power, the proposed mitigation measures will address this concern adequately.

C. RESOURCE QUALIFICATION

All resources wishing to offer capacity to meet California resource adequacy requirements must be qualified by the CAISO prior to the Primary Auction (or prior to the time the resource takes on a supply obligation). The market design will include specific rules to qualify each category of resource. As a general matter, each capacity supplier will provide information about the specific resource(s) it will be offering, including the resource's seasonal dependable capability and location, as well as other pertinent information needed in advance of the auction by the CAISO to ensure just and reasonable outcomes, such as indicative bids from resources subject to market power mitigation.

The CPUC should note that *any* RA design will require careful consideration of what resources qualify. By using a central qualification procedure, the CFCM provides an administratively simple way to assure that whatever standards are selected are applied uniformly to all participants in the

CAISO markets. Resources that have been qualified receive “capacity tags” for their qualified capacity. These tags may be traded bilaterally or through CFCM Auctions.

C.1. Existing Generation Resources

Generating units in the CAISO control area that are currently designated as a RA resource by a California LSE or that has been designated as a capacity resource in a previous CFCM auction is an existing resource.⁵ Existing resources must offer their capacity into the CFCM or provide notice of administrative de-listing due to unit retirement or an export contract to ensure that all resources on the CAISO system are accounted for.

Existing dispatchable resources are generally assumed to be qualified up to their summer seasonal test rating. Intermittent and energy-limited resources (including hydroelectric) will be qualified using methods determined in the current RA process.

C.2. Planned Generation Resources

To qualify as planned capacity, a resource must demonstrate to the CAISO’s satisfaction (subject to criteria to be further developed) that the project will be completed and able to deliver energy prior to the beginning of the Delivery Year. If the resource is to be considered as qualified to bid for a Local Area Requirement, it must be located within and deliverable to the Local Area. The resource must provide a project development plan with key milestones, determined by CAISO to be realistically achievable.

Planned resources include not only new facilities, but also resources that could, with a sufficiently large investment, be markedly expanded, improved, or have their economic lifetime significantly extended. The stakeholder process should determine the particular qualification criteria by which substantial investment in an existing generation resource qualifies the facility to be offered as a planned generation resource, although the CFCMA proposes to use the criteria developed by SCE in its RFOs for new generation resources as a starting point.

C.3. Demand Resources

Demand resources, i.e. end-use customers able to reduce consumption from the grid on instruction from the CAISO, may qualify as capacity resources. Several working groups are already studying issues related to demand resources, and these working groups should resolve eligibility issues for the CFCM proposal (or any other RA construct).

C.4. Imports

Generating resources located in external control areas may qualify as California capacity resources. Such resources must be physically identified, or the exporter may identify a portfolio of resources provided that the exporting control area must confirm that the

⁵ This market design could readily be expanded to include voluntary participation of non-CAISO control areas.

export quantity from the portfolio will be firm. Imports cannot be used to meet any minimum physical Local Area Requirement. The importing resource does not need to secure firm transmission to or within CAISO, but the total quantity of imports allowed, and the quantity of imports allowed from any exporting area, will be limited in the CFCM by system import limitations.⁶

C.5. Exports

Generating resources in California may export capacity.⁷ A resource committed under a long-term export contract would administratively de-list the resource for the Delivery Year. All capacity exports are subject to market monitor review. If a resource within a Local Area de-lists for export purposes, its capacity will count towards the applicable Local Area Requirement but not the statewide Resource Adequacy Requirement, and the exporting resource must offer in the CAISO markets any energy not exported.

C.6. Credit Requirements

Resources that take on a capacity supply obligation may be required to provide appropriate financial assurance backing their offer in the form of a letter of credit, a corporate guarantee, or similar security, consistent with generally accepted contracting practices of California utilities. The amount of credit support may vary depending, for example, on whether the resource is planned or existing, or whether an import has firm transmission. Detailed credit requirements and mechanisms to manage these requirements will be developed in the stakeholder process.

D. RESOURCE OBLIGATIONS AND PERFORMANCE STANDARDS

D.1. Obligations of Capacity Resources

A resource selected in the auction receives a capacity supply obligation for the entire Delivery Year. This obligation may be transferred, in whole or in part, to another qualified resource with sufficient notice to the CAISO (provided that the substitute resource meets local deliverability requirements if the transferring resource was selected to meet a Local Area Requirement), subject to CAISO approval.

Internal generating capacity resources must offer into all CAISO energy and ancillary service markets for which they are capable of performing, consistent with CAISO tariffs. Internal generating capacity resources must also coordinate maintenance outages with CAISO.

⁶ California parties have historically engaged in a limited amount of seasonal capacity swaps; typically these contracts arrange for the delivery of capacity and energy into CAISO from the several northwestern utilities. CFMCA encourages discussion and development of a rule to accommodate a limited quantity of such capacity exchanges.

⁷ Capacity resources may export energy that did not clear in the CAISO day-ahead market.

External capacity resources must offer into the CAISO day-ahead energy market, consistent with CAISO tariffs.

Intermittent and demand resources must comply with program requirements established for them in subsequent stakeholder working groups.

Resources without a capacity supply obligation do not have a must-offer requirement into the CAISO markets. Internal generating resources without a capacity supply obligation must advise CAISO as to their maintenance schedules and make reasonable efforts to accommodate CAISO requests for rescheduling of such maintenance.

D.2. Performance Standards

As part of the Track 1 proceeding, parties have proposed that generating capacity resource performance requirements be incorporated in the CAISO tariff. CFCMA agrees with this view, although believes such a change is not sufficient to ensure resource adequacy. CFCMA endorses standards that provide generators with achievable and strong incentives to maintain high unit availability, particularly in periods of peak demand. The standards must also provide sufficient clarity and surety to support appropriate investment to improve unit reliability while avoiding punitive penalties that could add unmanageable risk to generators that may in turn result in costly and counterproductive increases to capacity offer prices. In particular, CFCMA endorses an availability metric similar to that developed by PJM for use in its capacity market, the Reliability Pricing Model (“RPM”). The approach combines the Effective Forced Outage Rate under Demand (“EFORd”) metric with a more focused Effective Forced Outage Rate during Peaks (“EFORp”) metric:

- EFORd provides an all-hours available metric that provides incentives for resources to be available consistently. Resources that are less reliable are paid less, giving resource owners a direct market signal to invest in reliability improvements. In the eastern RTOs, there was a marked increase in generator unit availability when the capacity markets shifted from paying for installed capacity to available capacity (as measured by EFORd).
- The EFORp metric augments the EFORd metric by providing an additional incentive to maximize availability during peak hours. EFORp is a measure of availability during a pre-defined set of hours during the year during which the system has historically experienced high levels of demand and/or tight reserve margins. The stakeholder process should determine the appropriate hours for this metric and its applicability to various resource classes. By adding extra value to performance during the hours when the California system is most likely to be capacity-constrained, the EFORp metric provides appropriate incentives to make investments and undertake programs to improve peak-period availability.

Units that are generating are available, as are units that were offered but not committed. Units that were not available for reasons outside of management control (for example, transmission line outages) are not penalized. Other details are discussed in the Appendix.

The entire penalty for under-performance is assessed solely during the year in which the resource under-performed. In particular, the qualified quantity of a resource is not adjusted from year to year based on prior years' performance. If a unit chronically and seriously underperforms, however, the resource's offer quantity into subsequent auctions will be reduced until the resource has reestablished a higher availability benchmark. The details of this element of the proposal should be developed in a stakeholder process.

D.3. Multi-Year Price Commitment for Planned Capacity

The CFCM allows planned generation resources to elect, as part of its offer qualification package, to receive a multiple-year price commitment. An existing generating resource may also be eligible for this multi-year price commitment if it meets the standards for planned generation established in Section C.2.

All members of CFCMA believe that the competitive market for generation and demand side resources should ultimately determine the price level and price stability required for rational investment. Indeed, CFCMA's common goal is to achieve a market design that encourages investment without administrative supports. As investors gain confidence in the stability of the California energy market, CFCMA believes that a multi-year price commitment period should be reduced or that this multi-year provision be eliminated entirely. Given current market conditions and regulatory uncertainty, however, CFCMA proposes that a multiple-year capacity price commitment for a period of up to ten years, specified in whole years, be available to planned capacity resources. While all members of the CFCMA support the availability of a multi-year price commitment option, Reliant Energy believes that a shorter term commitment option can achieve the market design objectives.

The multi-year award election must be made at the time the offer is first submitted. If the resource is selected in the Primary Auction, it will receive the locational capacity clearing price from that Primary Auction in the Delivery Year and that same price (adjusted for inflation) in subsequent Delivery Years, up to the total number of Delivery Years elected.

The CAISO will submit a zero-price sell offer for any planned generation resource that receives a multi-year commitment in each of the subsequent Delivery Years for which the resource has elected this option, at a quantity equal to the quantity cleared in the initial Primary Auction. Appropriate rules will be developed to place reasonable restrictions on the transfer of the multi-year commitment to resources other than the one that cleared the Primary Auction.

Any difference between the price paid under this option and the corresponding capacity clearing price in subsequent years will be collected from, or rebated to, LSEs through an uplift charge or credit. Uplift payments or credits for resources with a local capacity supply obligation will be charged or credited to LSEs with load in that Local Area.

E. AUCTION STRUCTURE

E.1. Overview

The CAISO will conduct a Primary Auction approximately four years in advance of each Delivery Year. This auction will assign (except in unusual circumstances) capacity supply obligations for that Delivery Year to meet 100 percent of the Resource Adequacy Requirement for CAISO-served load, including 100 percent of each Local Area Requirement. The auction also determines locational capacity prices statewide, in each Local Area, and in each transmission path used to import into California.

The CAISO will subsequently conduct periodic Reconfiguration Auctions for each Delivery Year (the CFCMA proposes four Reconfiguration Auctions). These Reconfiguration Auctions allow suppliers to trade capacity supply obligations through a transparent market. Also, subject to limits, the CAISO may use these Reconfiguration Auctions to acquire or release capacity to meet unanticipated changes in forecast load or transmission capacity.

Capacity resources are paid during the Delivery Year through the CAISO settlements system. Likewise, LSEs are charged monthly for capacity based on realized load during the Delivery Year.

E.2. Primary Auction

Approximately four years in advance of each Delivery Year, the CAISO (possibly with the assistance of an external auction manager) will conduct a Primary Auction.

a. Estimated Net Cost of New Entry

For certain limited purposes in the Primary Auction, the CAISO will need an estimate of the Net Cost of New Entry ("Net CONE") for each Local Area and statewide. The Net CONE will be calculated to be the annual payment required by an efficient, new capacity resource after accounting for its likely earnings in the CAISO energy and ancillary services market. Net CONE may vary by location. Net CONE for imports will equal the statewide Net CONE.

Initially, estimates of Net CONE should be established based on a detailed study of the development costs of new generation, projected earnings in the MRTU markets, and reasonable financing assumptions. If possible, this estimate should be benchmarked against arms-length development contracts. This administrative estimate will be updated with market-based information, as discussed below.

Net CONE would also be computed for each Local Area, but would only be used if the Local Area clears as a constrained area in the Primary Auction, using the same approach as described above. Note that the Net CONE for a Local Area should not be lower than the Net CONE system-wide, but it can be higher because of the potential for increased costs for constructing new generation in certain local areas compared to system-wide alternatives.

b. Structure of the Auction

The Primary Auction will be conducted by clearing the supply offers received from capacity suppliers to meet the statewide and locational capacity requirements at least cost. The Primary Auction is cleared for all areas simultaneously, but allowing the prices to vary by area to clear sufficient resources within Local Areas to meet locational requirements and by export areas to respect import constraints.

c. Offers of Capacity

At the time of the auction, all qualified resources submit sell offers, which specify quantity-price pairs for each resource.⁸ Each resource may be offered in blocks with non-decreasing prices for incremental quantities, with the total quantity equaling the total qualified capacity of the resource; multiple block bids from an existing generating resource will be subject to review by the market monitor.

Suppliers of existing internal generating resources must offer the full qualified capacity of these resources unless they have submitted documentation supporting the de-listing or export of the resource. Offered existing supply may not offer at prices above 60 percent of Net CONE unless they have previously filed the offer and supporting cost documentation with the CAISO. Such bids are subject to market monitor review, as discussed below, and the quantity, price, and zone of accepted bids from existing resources above Net CONE will be announced several months prior to the auction to allow time for developers to qualify replacement capacity. Offer prices from any resource may not exceed 2 times Net CONE.

A supply offer may be a “composite offer” from two or more identified resources, with different resources supplying capacity in various months, provided that the full qualified capacity of the offer is available for each month of the Delivery Year.

Recognizing that many supply resources are available in blocks, offers may have a minimum quantity as well as a maximum quantity. However, the CAISO may reject the block offer, move the price up, and clear a smaller resource if in doing so it reduces total consumer costs to meet the resource adequacy targets.

d. Insufficient Competition or Inadequate Supply

Following the qualification process, if CAISO determines that there are inadequate offers to meet the resource adequacy targets, or if the offers of planned resources needed to meet load growth and unit retirements are insufficiently competitive to ensure robustly competitive outcomes, the CAISO will reduce the quantity of capacity cleared in the Primary Auction. Specifically:

- If total supply offers are inadequate to meet the Resource Adequacy Requirement statewide or any Local Area Requirement, the CAISO will set the capacity clearing price in that area to 110 percent of Net CONE (or, if in a

⁸ Note that other auction formats may involve several rounds of bidding, subject to defined activity rules. The exact auction mechanics to be used will be a matter for further analysis and stakeholder discussion.

Local Area, to the greater of 110 percent of Net CONE or the statewide capacity clearing price) and clear all resources available at or below that price.

- Offers of incremental supply (including planned generating resources, demand response and imports) may not be sufficiently competitive. This determination is made by comparing the planned supply offers to the net demand for planned supply, which is the capacity requirement minus existing generating resources (except those providing administrative de-list notice). If incremental supply offers do not exceed net demand for new supply by a sufficient “coverage ratio,” or if any one supplier of incremental supply is pivotal,⁹ then the CAISO will reduce the target quantity to create sufficient competition.

In the event that either of these rules is invoked and, consequently, less than 100 percent of the statewide Resource Adequacy Requirement and/or Local Area Requirement is met in the Primary Auction, the CAISO will either:

- (1) Secure the shortfall of capacity in subsequent Reconfiguration Auctions by submitting demand bids, or
- (2) If the shortfall is large enough, conduct a backstop auction to secure the required additional resources.

e. Price Collar

In a region, like California, with a long-term need to attract capital, needed resources must expect they will earn their long-run marginal cost. This economic reality means that *any* capacity market in California, including a bilateral-only market, should produce clearing prices that are, on average over time, equal to Net CONE (as determined by the market, which may not equal an administrative estimate of Net CONE). Net CONE is not independent from the capacity (and energy) market design itself, however; if the market design creates excessive volatility, investors face greater risk and require higher returns on invested capital. Likewise, consumers are harmed by markets with highly volatile prices unlinked from market fundamentals. Not only will they pay a risk premium, they will face greater “rate shock,” which makes budgeting difficult.

To decrease the potential volatility of market outcomes around the expected long-term price of Net CONE, capacity payments would be bounded between 60 percent and 140 percent of the then-current estimate of Net CONE, although capacity prices for certain resources could rise to 200 percent of the then-current estimate of Net CONE under certain circumstances described further in this proposal:

⁹ A supplier of incremental capacity is pivotal if the need for new capacity in the relevant area cannot be met without accepting at least some part of that supplier's offered incremental capacity.

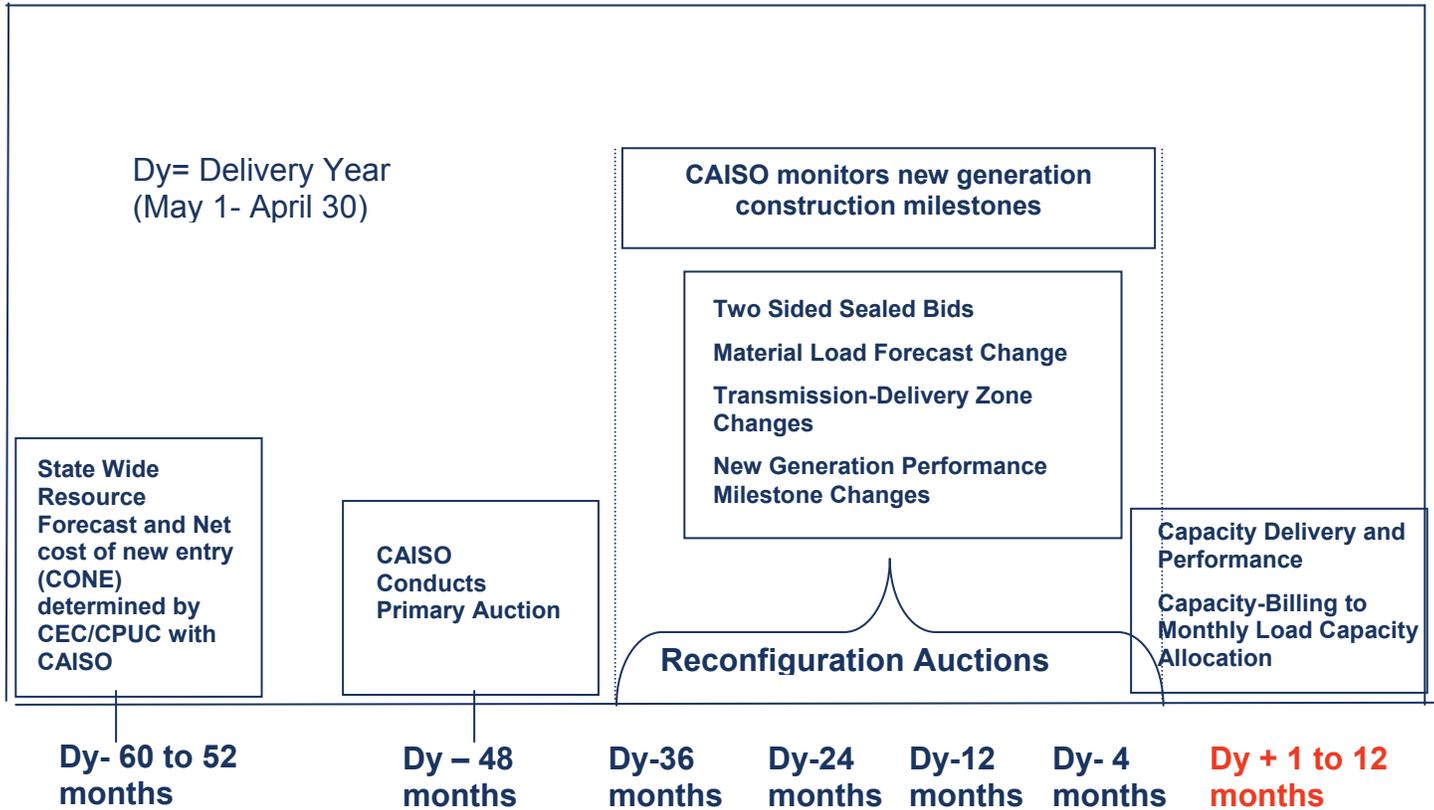
- The clearing prices in the Primary Auction are set based on the bids received from all resources (subject to market monitoring, discussed below), including offers of self-supplied resources, offers and export bids from existing resources, import offers, and offers of planned resources.
- If the clearing price in the Primary Auction, statewide or in any Local Area, would be equal or greater than 140 percent of the applicable Net CONE: (1) planned resources are paid the capacity clearing price, (2) other cleared resources priced between 140 percent of Net CONE and the capacity clearing price are paid their bid price, and (3) all other existing resources are paid 140 percent of Net CONE. Examples are provided in the Technical Appendix.
- If the clearing price in the Primary Auction, statewide or in any Local Area, would be less than 60 percent of the applicable Net CONE, the capacity clearing price is set to 60 percent of Net CONE. Self-scheduled resources clear in full. The remaining capacity supply obligation is given to priced resources *pro rata* to their volume offered at a price equal to or less than 60 percent of Net CONE.

The CFCMA believes that the price collar is a simple and sure means to achieve the predictable and reasonable capacity pricing required for investment. CFCMA observes that other capacity markets approved by FERC do not include an on-going, firm price floor which CFCMA believes is necessary, particularly in California's bilateral, hybrid market. In PJM and New England, parties advocated and FERC approved alternative market pricing rules to address both the potential impact of large capacity additions in smaller locational capacity areas and the potential for capacity prices to clear well below Net CONE when new entry is supplied through bilateral markets or rate-based investment. Individual CFCMA members may advocate for similar or additional market pricing rules should the overall market collar prove to be insufficient to provide a market price for capacity reasonably tied to the cost of new entry

f. Update of Net CONE Estimate

Net CONE is intended to equal the capacity payment needed by efficient, competitive, planned capacity resources (in addition to expected CAISO energy and reserves market payments) to enter the market. As new entry offers clear the CFCM, administrative estimates of Net CONE will be replaced by a rolling average of recent competitive offers of new generation. Depending on how quickly planned capacity offers are accepted in the Primary Auction, the administrative estimate to calculate Net CONE could be phased out as early as three years after the first Primary Auction. An example of such an updating procedure is given in the Technical Appendix.

Situations may arise when the offer prices of new capacity does not reflect the full costs of a new entrant that was relying solely on CAISO market revenues. For example, a resource may be offered as a self-supply by an LSE, or the resource may have entered into a long-term supply contract. When all new supply cleared in a Primary Auction comes from such units (i.e., units that are not relying principally on



revenues from the CFCM and the CAISO energy and reserves markets), there is no market information available about Net CONE and no updating will occur.

E.3. Reconfiguration Auctions

Following the Primary Auction at intervals of approximately 12 months, the CAISO will conduct four annual Reconfiguration Auctions. Reconfiguration Auctions are conducted using a sealed-bid auction format, with the clearing price set at the level at which the quantity of demand bids equals the quantity of sell offers.

In each Reconfiguration Auction:

- Market participants with a capacity supply obligation may submit bids to purchase capacity to meet this obligation;
- Qualified capacity resources may submit offers to supply these resources to the market.
- In the Third Reconfiguration Auction, the CAISO may submit bids or offers in the event that the load forecast changes materially, or if changes in the transmission system materially alter the need for resources statewide or in any Local Area.
- For each Local Area with both bids and offers, and for the system as a whole, the CAISO determines market-clearing prices at the intersection of the relevant demand bid curve and sell offer curve.

F. SELF-SUPPLY AND RESOURCE SUBSTITUTION

F.1. Self-Supply by LSEs

LSEs may schedule resources as price-takers (“self-schedule”) into the Primary Auction or into any Reconfiguration Auction in which the CAISO secures incremental capacity.

Resources that have been self-scheduled are subject to all obligations and performance requirements of similar capacity resources. Self-scheduled resources are awarded a capacity supply obligation with a specific megawatt level, and these megawatts must be provided in the Delivery Year (or have previously been traded to another resource), regardless of the realized load of the LSE.

The value of self-scheduled resources is deducted from the LSE’s share of the final program charges. If the proportion of self-scheduled resources in relevant Local Areas differs from the proportion required by the CAISO, the LSE may be subject to charges or credits for difference in locational Capacity Clearing Prices. Such charges or credits will be designed to ensure that the CAISO is revenue neutral.

If a self-scheduled resource incurs any charges or credits based on its performance, these charges or credits will be assessed to the LSE by the CAISO.

F.2. Resource Substitution

As a general matter, a resource with a capacity supply obligation may bilaterally contract with another qualified resource to transfer that obligation. If the resource was counted as capacity towards a Local Area Requirement, then the substitute resource must also satisfy that requirement. The substitute resource must also meet any credit or similar requirements associated with a capacity supply obligation.

In order to prevent a bypass of the market monitoring rules, a supplier may not transfer a capacity supply obligation from a planned resource to one of its existing resources that was de-listed without approval from the CAISO market monitor.

The CAISO must be notified of any such transfer with sufficient notice to verify the acceptability of the transfer and to commit the substitute resource.

G. SETTLEMENTS

Prior to each Delivery Year, the CAISO will determine the pattern of expected monthly peak load for the CAISO region. The annual capacity payment will be collected and paid in proportion to this published pattern, so that the charge per MW of load is expected to be equal in each month of the year. The CAISO will determine a scaling factor for each month equal to 12 times the month’s forecast peak divided by the sum of all months’ forecast peaks.

In each month of the Delivery Year, the CAISO pays each resource with a capacity supply obligation an amount equal to the product of (a) the quantity of the capacity supply obligation, (b) the capacity clearing price associated with that obligation in the auction in which it was awarded,

and (c) the monthly scaling factor. The settlement for the final month of the Delivery Year includes any charges and credits for the net availability of each supplier's resources.

If the CAISO released a capacity resource through a Reconfiguration Auction, the selling entity receives (or pays) the difference between (a) the capacity clearing price associated with that obligation in the auction in which it was awarded and (b) the price at which the obligation was repurchased on a monthly basis.

For each month, the CAISO charges each LSE its load-weighted average of the total capacity cost secured through the CFCM (system and local), with appropriate financial offsets for self-supplied resources. These charges reflect different prices of resources required for the LSE based on the Local Areas in the investor-owned utility service territories or municipal service territory in which the LSE serves load, as well as the variation in prices across the auction in which the resources were committed. An LSE that self-schedules an Import resources from an export area with a capacity clearing price below the statewide clearing price receives the benefit of the lower-cost capacity. In each month, an LSE's charges will be determined by its contribution to the monthly system coincident peak.¹⁰

H. MARKET MONITORING AND OFFER MITIGATION

The ability of planned resources to enter and compete against existing resources is the most important check on potential market power in the CFCM design. Nevertheless, the CAISO market monitor has an important role in reviewing the offers into the CFCM, helping to assure regulators and consumers that the resulting prices are just and reasonable.

H.1. Offer Caps

The diversity of ownership of capacity resources in the California system overall, in combination with the competition provided by the four-year forward auction, should be sufficiently high that no offer caps on generic capacity outside of Local Areas need be imposed. The CAISO market monitor will review offers from all existing resources, however, and may recommend that the FERC take action to address potentially abusive behavior.

Offers from an existing generation resource within a Local Area may be capped if either of two conditions is met:

- A market participant (together with its affiliates) controls 20% or more of the uncommitted capacity within the Local Area, where "uncommitted capacity" means capacity in excess of the capacity obligation of the supplier, or
- The capacity owned by a market participant (together with its affiliates) is (singly) pivotal with respect to uncommitted capacity available to meet the local capacity requirement (i.e., the Local Area market cannot clear at the established resource

¹⁰ Actual LSE load is compared to actual system coincident peak, so that the sum of LSE's weights equals 100%. Payments to suppliers, and total charges to consumers, are based on expected monthly peaks, so the actual cost per MW of load may be lower or higher than average if actual load is higher or lower than predicted. See the example in the Technical Appendix.

adequacy level without utilizing a portion of the market participant's capacity portfolio).

For any market participant that fails either of the above tests and that submits an offer above 60 percent of Net CONE for one or more of its resources, the market participant must calculate an Net Avoidable Cost Rate ("Net ACR") and to produce sufficient cost information for the CAISO market monitor to assess the accuracy and completeness of the Net ACR calculation. The Net ACR for a resource is its Avoidable Cost Rate ("ACR") less Projected CAISO Market Revenues:

- The Avoidable Cost Rate should reflect the long-run going forward costs of maintaining a capacity resource in a highly available state, including on-going capital expenses, less expected earnings from the CAISO markets. It should also incorporate opportunity costs, as well as expected CFCM penalties and charges. CFCMA proposes that the definition of Avoidable Cost Rate adopted by PJM in its Reliability Pricing Model tariff (Attachment DD, Section 6.8) be used as the starting point for the development of a formula for use in the CFCM.
- Projected CAISO Market Revenues shall include all actual unit-specific revenues from CAISO energy markets, ancillary services, and unit-specific bilateral contracts from such Generation Capacity Resource, net of marginal costs for providing such energy (i.e., costs allowed under cost-based offers pursuant to the CAISO tariff) and ancillary services from such resource, averaged over the four calendar years prior to the Primary Auction.

If an offer exceeds the Avoidable Cost Rate, and if discussions between the bidder and the market monitor fail to resolve differences, the Primary Auction will be computed with and without bid mitigation. If in any Local Area or statewide, the effect of mitigation is to reduce the capacity clearing price by 5 percent or more, then the capacity clearing price is set using the mitigated bids in the affected zone. The supplier may contest the decision of the market monitor at FERC, in conjunction with the pre-auction report that the CAISO will file.

H.2. Reporting

For each Primary Auction, the CAISO will prepare two filings to be made simultaneously with the FERC and the CPUC. Competitively sensitive information will not be released to the public through these filings. Market participants will have the right to comment or protest these filings.

Prior to the Primary Auction but after CAISO has received qualification materials, CAISO will report on the breadth of competition and participation in the market. If any offer capping is required, the filing will provide sufficient detail to the regulators to describe and support the action of the market monitor.

As soon as practicable following the Primary Auction, CAISO will file the results of the auction and its conclusions about the competitiveness and robustness of the auction. The CAISO may recommend changes to the tariffs, market rules, or auction parameters for use in subsequent auctions.

In the event that a Primary Auction fails to secure enough capacity, either statewide or in any Local Area, the CAISO will review the auction results, market data, and other relevant information to determine the cause of the shortfall. Based on this review, the CAISO will recommend changes to the tariffs, market rules, or auction parameters—particularly, the level of Net CONE—for use in subsequent auctions.

I. BACKSTOP PROCEDURES

In order to maintain robust and competitive pricing and market transparency, the CFCM is designed to secure substantially all of the required capacity resources in the Primary Auction. There may be instances, however, in which there is inadequate supply offered, or insufficient competition, that results in the Primary Auction clearing less than the capacity requirement, either statewide or in some Local Area.

If the deficiency is small and does not materially undermine grid reliability, CAISO will attempt to cover small shortfalls in subsequent Reconfiguration Auctions by submitting offers to secure incremental capacity. Detailed rules regarding qualification and the prices at which CAISO will participate will be developed.

Large deficiencies that do represent a potentially serious reliability issue, however, need to be addressed more proactively. CFCMA proposes that, if the Primary Auction clears seriously below target in any one year, that the CAISO hold a backstop auction for replacement capacity to meet the shortfall in a targeted, cost-effective manner. Such resources could elect an inflation-adjusted capacity price commitment of up to ten years (matching the maximum allowed period of the Primary Auction). The backstop auction process should be designed to minimize any incentive for a market participant to withhold a project from the Primary Auction with the aim of securing a more favorable contract in the backstop auction process.

J. OPERATIONAL CHARACTERISTICS

As proposed, the only characteristic of generation explicitly considered by the CFCM is location. The design readily extends, however, to allow CAISO to secure target quantities of resources with certain operational characteristics. CFCMA does not endorse the wholesale use of capacity markets to create incentives to develop and retain resources with particular operational characteristics. CFCMA strongly prefers that the CAISO and its stakeholders work to develop and address concerns through the ancillary service markets to achieve the same goal.

The CFCM works in conjunction with properly designed energy and ancillary services markets to produce the correct mix of operational characteristics. If CAISO energy and ancillary service markets are correctly designed and implemented, then those markets will create additional revenue opportunities for resources with needed operational characteristics. Developers will weigh whether the extra cost of building flexible resources is covered by the extra revenues, thereby reaching an economic equilibrium of unit types on the system.

We recognize, however, that the capacity market may be an expedient, and possibly even necessary, means to reach certain ends. In this regard, the CFCM is markedly superior to alternative capacity market designs. Bilateral securement of units with particular operational characteristics can be cumbersome and prone to market failures, owing to the relatively small quantity of each operational characteristic required and the smaller number of resources with

those characteristics. Additionally, apportioning such a requirement to all LSEs is very challenging and can easily lead to inequitable responsibilities. Moreover, there may be a disjunction between the locational requirement of an LSE's capacity and the (non-locational) requirement for operational characteristics. A centralized market design that clears against a demand curve in the short-run will require further administrative estimates of the cost of providing each operational characteristic. A central, forward auction, however, can elicit market prices and reduce administrative complexity if—contrary to CFCMA's market views and preferences—the capacity market is the vehicle by which CAISO ensures that it has sufficient quantities of resources with certain operational characteristics.

K. TRANSITION

CFCMA does not at this time offer a specific timetable for transitioning from the current RA system to the CFCM. All the existing RA mechanisms regarding year-ahead and month-ahead demonstrations of capacity will need to be shifted into the CFCM design, but we believe that the details of this transition, including appropriate interim rules regarding must-offer requirements, market power mitigation, price formation, forward commitment period, and frequency of reconfiguration auctions, are best addressed as part of the implementation details if CFCM is adopted. Although these topics will require thoughtful debate, CFCMA believes that neither the need for a transition nor the rules design for such a transition will present serious obstacles to the implementation and success of CFCM.

III. TECHNICAL APPENDIX

A. AVAILABILITY METRIC

The CFCMA propose using an availability metric that combines elements of the traditional EFORd metric and a version of the EFORp metric that was developed by PJM for its Reliability Pricing Model. Unlike RPM, however, the availability metrics would be used solely as a reduction to the current-year payments to capacity suppliers, resulting in the equivalent of a reduction in the capacity clearing price payable to each resource, based on its actual availability during the Delivery Year.

The EFORp metric measures availability during a defined small number of hours that historically have been the times of greatest system stress. The Target EFORp is set based on actual fleet performance in the calendar year prior to the Delivery Year. Using that standard, some resources will have higher-than-standard peak-available capacity and would receive credits for these extra megawatts of capacity, while others will likely perform below the assumed level of performance and pay charges for the below-standard delivery. CFCMA proposes that the availability charges and credits from the performance metric be entirely self-funding. Charges from under-performing suppliers would fund the credits paid to suppliers whose resources performed, on aggregate, above average. There are two cases that could arise:

- If the total megawatts of under-performance is less than or equal to the megawatts of over-performance, the over-performing megawatts are paid a *pro rata* share of the under-performance penalties. Consequently each credit will be worth less than (or, at most, equal to) the capacity clearing price.

- If the total megawatts of under-performance exceeds the megawatts of over-performance, over-performing resources are paid the capacity clearing price for their incremental megawatts. The remaining charges are returned to load by a reduction in the capacity charge.

In hours not covered by the EFORp metric, the NERC-standard EFORd metric will apply. The annual EFORd statistic usually weights performance in all months equally. CFCMA proposes to use month-specific weights, reflecting (a) the exclusion of the EFORp hours in some months and (b) the relative importance of resource availability across months with historical levels of load.

Payments to a capacity resource over a year in which its EFORp was lower than the fleet average would be calculated as:

$$\text{Payment} = \text{Quantity} \times \text{Clearing_Price} \times [(1 - \text{EFORd}) - (\text{EFORp} - \text{EFORp})]$$

where EFORp is the Target EFORp. The same formula would apply for resources with EFORp higher than the fleet average, but with the caveat that the EFORp bonus would be capped by available monies collected as EFORp charges from other suppliers. Penalties and charges applicable to capacity resources would be capped.

The following table provides a simplified example of how the net annual payment would be computed for four resources. Computing appropriately monthly payments adds complexity, but not unmanageable complexity.

Unit	Quantity Cleared (MW)	Gross Capacity Payment (annual)	EFORd	EFORd Charges	EFORp	EFORp Charges	EFORp Credits	EFORp Bonus Payments	Total Payments
A	100	\$9,600,000	5.0%	\$480,000	5.0%	\$96,000	\$0	\$0	\$9,024,000
B	200	\$19,200,000	7.0%	\$1,344,000	3.8%	\$0	\$38,400	\$18,538	\$17,874,538
C	200	\$19,200,000	3.0%	\$576,000	4.2%	\$38,400	\$0	\$0	\$18,585,600
D	500	\$48,000,000	4.0%	\$1,920,000	3.5%	\$0	\$240,000	\$115,862	\$46,195,862
Total	1000	\$96,000,000		\$4,320,000		\$134,400	\$278,400	\$134,400	\$91,680,000

Clearing Price = \$8
EFORp = 4.0%

B. CLEARING RESOURCES ABOVE PRICE COLLAR

Section II.E.2(e) describes how the price collar operates when planned or existing resources have qualified offer priced above 140 percent of Net CONE.¹¹ An example is provided here for clarity. The numbers are purely hypothetical and, we believe, unlikely to occur provided that Net CONE is estimated with reasonably accuracy.

¹¹ Any existing resources offering above this price would be subject to review by the market monitor.

Suppose that 5,000 MW of capacity was targeted to be procured in a particular area. Enough offers of planned resources were received to satisfy the “sufficient competition” requirement of Section II.E.2(d). The most economic offers were:

Unit #	Quantity	Offer Price
Units A through J	4,600 MW in total	\$0
Unit K – existing	200 MW	145% Net CONE
Unit N1 – planned	60 MW	150% Net CONE
Unit L – existing	100 MW	155% Net CONE
Unit N2 – planned	42 MW	160% Net CONE

In this example the auction clearing price is 160% of Net CONE, which is paid to Units N1 and N2. Payments to Units A through J are capped by the price collar at 140% of Net CONE. Units K and L are paid as-bid (at levels reviewed by the market monitor) at 145% and 155% of Net CONE, respectively.

C. UPDATE OF NET CONE

Although it is not unreasonable to use administrative estimates of Net CONE in the CFCM, these estimates should be updated with offers from competitive, new resources as this information becomes available. Net CONE would be updated statewide and for each Local Area separately, if there is evidence that there are systematic cost differences across these regions. No cleared offer will be used to update Net CONE unless the CAISO market monitor has reviewed the offer and determined that it reasonably represents the full net cost of market-based new entry.

The process for incorporating such new information should be through a systematic update. For example, the first update could be:

$$\text{CONE}(t+1) = 0.5 \times [\underline{\text{CONE}} + \text{CCP}(t)]$$

Where:

CONE(t) is the estimate of Net CONE used in the Primary Auction for Delivery Year *t*

CONE is the initial administrative estimate of Net CONE

CCP(t) is the offer price of the highest-cost, cleared, planned capacity resource.

The second update could be:

$$\text{CONE}(t+2) = [0.3 \times \underline{\text{CONE}}] + 0.35 \times [\text{CCP}(t) + \text{CCP}(t+1)]$$

The third update could be:

$$\text{CONE}(t+3) = [0.3 \times \text{CCP}(t)] + 0.35 \times [\text{CCP}(t+1) + \text{CCP}(t+2)]$$

Thereafter, updates could be:

$$\text{CONE}(t+1) = [0.3 \times \text{CCP}(t)] + [0.7 \times \text{CONE}(t)]$$

This suggested process phases out the initial administrative estimate so that, after three successful Primary Auctions, Net CONE is determined entirely based on market outcomes. Thereafter, the estimate of Net CONE is updated to incorporate new market prices.

Net CONE may also be updated through a FERC filing, as provided in Section H.2.

D. SETTLEMENTS

Other U.S. capacity markets provide for equal payments across all months to capacity suppliers. The effect on consumers, however, is that the cost per kWh varies substantially over the course of the year and, paradoxically, is lowest during peak months (when the fixed payment is spread over a larger quantity of consumption). CFCMA proposes to collect capacity payments from load, and to pay generators, in such a way that keeps the cost per kW of demand approximately equal through the year.

In advance of the Delivery Year, the peak load is projected based on historical data. These forecast peaks establish monthly weights by which CFCM charges are collected and paid. For example, suppose the total charges to be collected, based on CFCM clearing prices, was \$600 million in a year. Rather than collecting \$50 million per month, weighting would be:

Month	Coincident Peak Load, Forecast (MW)	Share of Cumulative Monthly Peak Load Forecasts	Target Capacity Payments
June	55,000	10%	52,480,916
July	59,000	11%	56,297,710
August	60,000	11%	57,251,908
September	55,000	10%	52,480,916
October	45,000	9%	42,938,931
November	40,000	8%	38,167,939
December	42,000	8%	40,076,336
January	44,000	8%	41,984,733
February	40,000	8%	38,167,939
March	37,000	7%	35,305,344
April	47,000	9%	44,847,328
TOTAL	524,000	100%	500,000,000

The target capacity payments in each month would be charged to LSEs would be in proportion to their share of *realized* contribution to the *actual* monthly peak and further adjusted to reflect locational cost differentials and capacity cost reductions owing to EFORd availability performance of capacity resources. The CAISO is, therefore, revenue neutral in each month.

Appendix B



**California Forward Capacity Market
Advocates (CFCMA):
Joint Proposal for a
Centralized Capacity Market**

August 3, 2007

Centralized Capacity Market Proposal

- ◆ CFCMA developed and filed a comprehensive joint proposal at the CPUC and CAISO on August 3, 2007
 - CFCMA members: SCE, SDG&E, Reliant, NRG, FPLE
 - Market has features from new PJM and New England capacity markets, plus innovations
 - CPUC workshops in August, decision expected January 2008
- ◆ Statewide and local Resource Adequacy target determined four years plus prior to delivery year
- ◆ Centralized CAISO administered capacity market conducted four years prior to delivery
 - Resource qualification for existing and planned generation and demand response
 - Winning resources subject to “must-offer” in all CAISO markets
- ◆ Recommends Sealed Bid (single bid) auction four years prior to the delivery year to price system and local resources according to grid constraints

Capacity Market Proposal (continued)

- ◆ Effective market power monitoring and mitigation
 - Includes cap and floor for existing resources (1.4 - 0.6 of capacity cost of a new entrant adjusted for other revenues)
- ◆ 1-year fixed price for existing resources
- ◆ Multi-year pricing, up to 10-years, for new resources
 - Price inflation adjusted annually
- ◆ CAISO Backstop auction and other measures if primary auction fails to attract sufficient new resources
- ◆ Weighted locational capacity prices charged to load based on realized contribution to monthly system peak
 - All load in CAISO subject to charges
- ◆ Monthly capacity payments to resources based on locational auction clearing prices
 - Strong performance penalties/incentives during peak hours
 - Less stringent penalties for forced outages in other periods

Primary Auction

- ◆ Primary auction four years prior to delivery year with reconfiguration auctions
- ◆ Locational clearing prices for resources based on sealed bids and binding constraints
- ◆ Existing resources that clear the auction will receive a 1-year capacity payment, paid monthly after actual delivery
- ◆ New Entrants have the option of bidding for a term of up to 10-years (inflation adjusted)
 - Term to be reviewed after experience gained with the market
 - New Bids that clear auction will receive specified prices for the term of actual delivery years
 - In subsequent auctions, accepted resources from the prior auctions will bid in at zero and receive specified price from the prior auction
- ◆ Auction Price Collar based on 1.4 and .6 of net cost of new entry (Net CONE) for existing resources

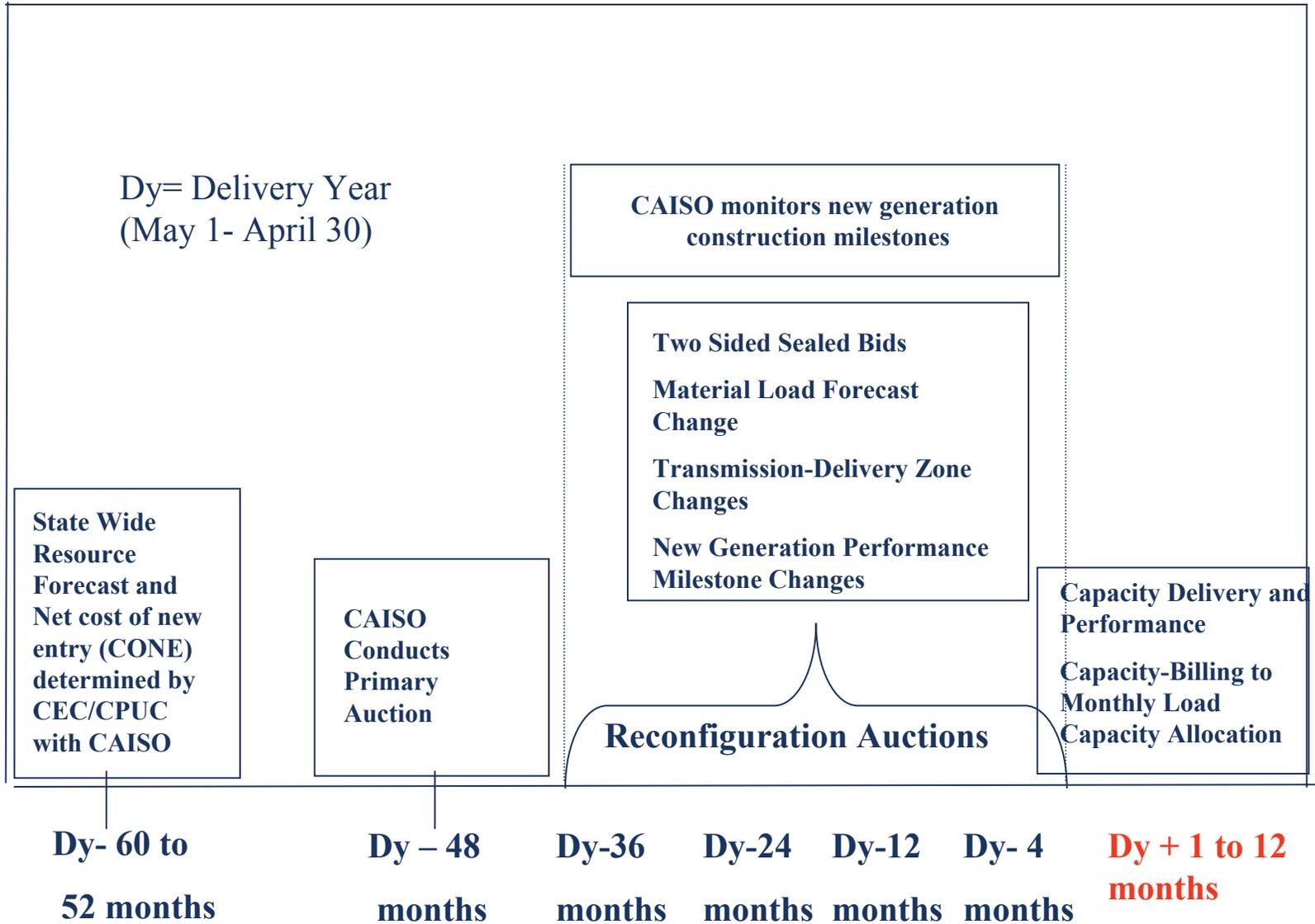
Reconfiguration Auctions

- ◆ Reconfiguration auctions are conducted at 12-month intervals after the primary auction
- ◆ Two-sided, sealed-bids (i.e. eligible parties can bid to both buy and sell capacity)
 - The total secured capacity from the primary auction typically does not change in these reconfiguration auctions.
 - Resource substitution requires CAISO approval
 - In the “Third Reconfiguration Auction” CAISO may buy or sell capacity if:
 - Load forecasts changed materially
 - Changes in transmission materially altered the need for system or local capacity.

Backstop Auctions

- ◆ CAISO has ability to conduct a backstop auction to secure resources if primary auction fails
- ◆ Backstop process is triggered if:
 - Primary auctions for state or location fail to meet target resource requirement for three consecutive years.
 - Specific resource target needs for location or state are “significantly below” resource target for any single delivery year.
- ◆ CAISO conducts a separate specific auction to meet resource needs for new generation
- ◆ Backstop auction awards a contract for up to 10 years

Overview of Auction Timing



Resource Obligation

- ◆ All Resources bid in auction are initially qualified by the CAISO
 - Qualified resources receive “Capacity Tags” which can be sold bilaterally or into the auction
- ◆ Resource performance obligations for the cleared auction resources:
 - ◆ Must offer requirement for CAISO energy and ancillary services and RUC markets
 - ◆ Real time must offer for capable units
 - ◆ All resource bidding and obligations subject to CAISO Tariff
- ◆ Resource Performance incentives
 - ◆ Resources penalized/rewarded if performance is below/above target performance during peak periods
 - ◆ Modeled after PJM’s EFORp process
 - ◆ Substantive penalties/rewards during peak hours
 - ◆ Additional but less stringent penalties for forced outages outside of peak periods (EFORd)

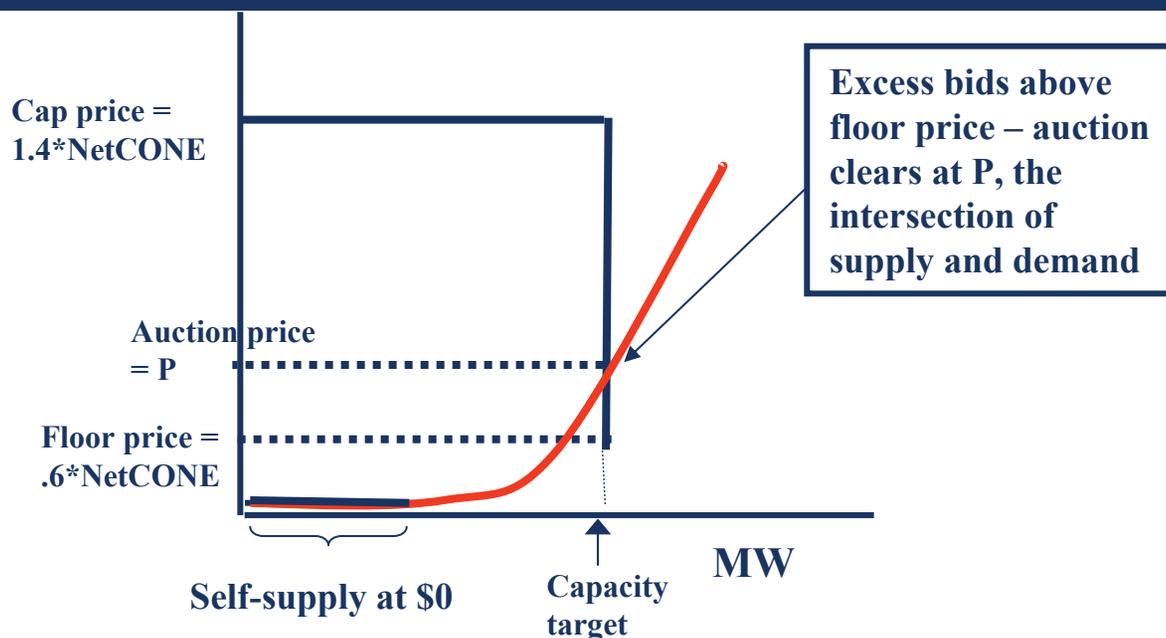
Market Power Mitigation Measures

- ◆ Four Year Forward Resource Qualification
 - Credit qualification
 - New resource completion milestones
- ◆ Initial Cost of New Entrant (CONE) based on studies
- ◆ Subsequent CONE based on successful purchases of new capacity
- ◆ Bid Cap for new entrants is 2 times CONE
- ◆ Cleared Price Collar for existing units at 1.4 and .6 times CONE
- ◆ Back Stop auction measures if there are insufficient bids to meet system or locational resource targets
- ◆ Periodic reports to CPUC and FERC on market outcome, new entrant bids, and competitive outcome from auction

Market Power Review

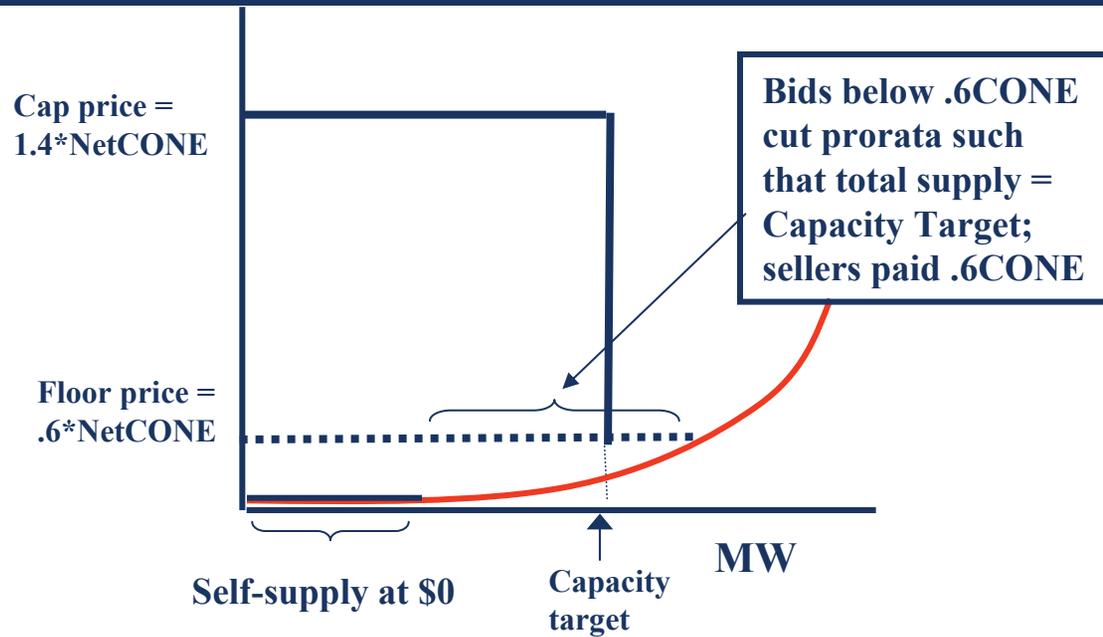
- ◆ Local market power bid mitigation if:
 - **Structure:** a supplier's capacity in a constrained region either exceeds 20% of the total *or* is pivotal; and
 - **Conduct:** the offer price for an existing resource exceeds avoidable costs + 10%; and
 - **Impact:** accepting offers exceeding estimated cost would increase prices by at least 5%
- ◆ Administratively imposed pricing if location fails to attract sufficient supply to satisfy requirements
 - Existing units paid greater of $1.1 \times \text{CONE}$ or system prices
 - New entrants paid up to $2 \times \text{CONE}$
- ◆ Administratively imposed demand if location has insufficient number of competitors to set competitive bid price
 - Residual demand satisfied via Reconfiguration auction or Backstop auction based on circumstances

Typical Auction Solution



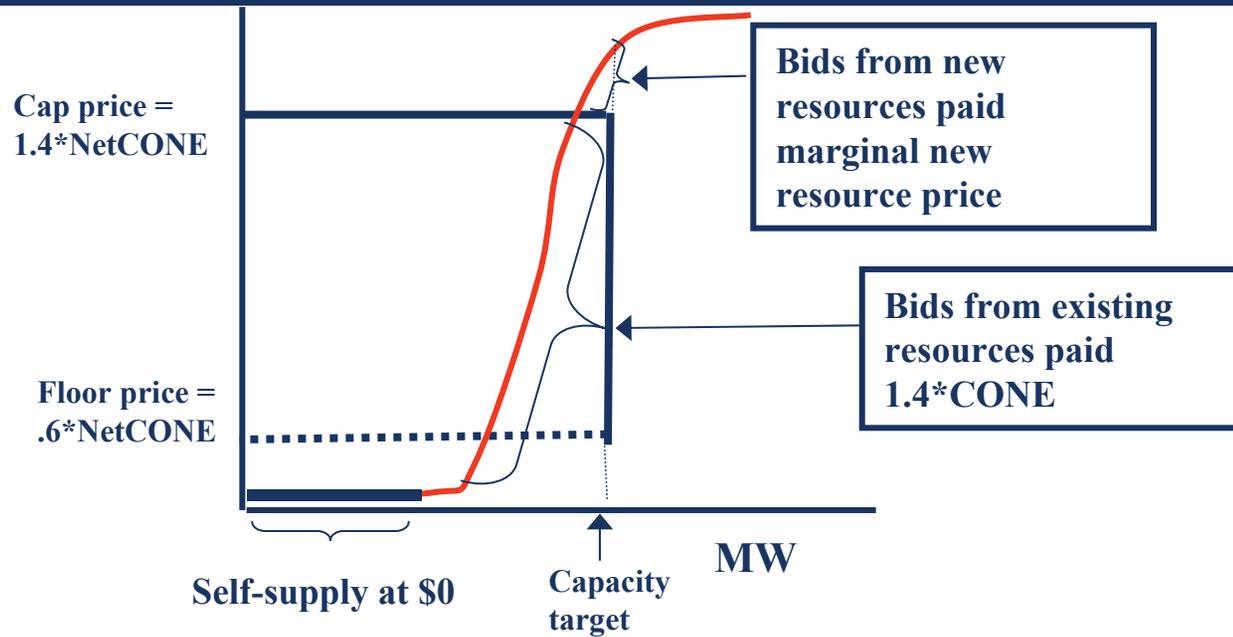
- ◆ Here price is set where supply crosses the Capacity target demand
- ◆ All units selling capacity get paid a price “P”
- ◆ Units that bid above “P” do not clear the auction and are not awarded capacity

Floor Pricing Auction Solution



- ◆ Auction price will never clear below $0.6 * \text{CONE}$
 - “Self-supplied” capacity is bid at \$0 and clears auction first
 - Additional “bid-in” supply clears at intersection with curve
- ◆ If supply bid below $0.6 * \text{CONE}$ exceeds the capacity target, all such bids are cut pro-rata and the sellers receive $0.6 * \text{CONE}$

Pricing above Cap Solution



- ◆ If auction requires supply from new resources bid above $1.4 \cdot \text{CONE}$
 - “Self-supplied” capacity is bid at \$0 and clears auction first
 - Existing supply paid cap of $1.4 \cdot \text{CONE}$
 - New resource bid above $1.4 \cdot \text{CONE}$ are paid marginal new resource price
 - Auction procures the Capacity target MW

Self-Supply & Resource Substitution

- ◆ Self-supply
 - Parties are not obligated to self-supply
 - Load can obtain capacity and “self-supply” to the auctions
 - Capacity is bid in to the auction at \$0 and guaranteed to clear
 - Parties can fully “self hedge” by self supplying all of their realized locational capacity requirements
- ◆ Resource Substitution
 - Generation can transfer capacity obligation bilaterally (via Capacity Tags)
 - Must be in the same location as the original sale
 - Substitute unit must meet all credit requirements
 - CAISO must be notified and verify “the acceptability for the transfer”
 - Cannot substitute obligation from a “planned resource” to an existing resource without CAISO approval

CFCMA Proposals: Miscellaneous issues

- ◆ Imports can sell based on limits, determined by the CAISO, placed on each import path
- ◆ Initially determined by a “detailed study”
 - Net CONE can vary by location
 - After a “successful auction”, CONE is calculated based on a weighted average of realized and historical capacity prices in each location
 - CONE reviewed any time auction produces a shortfall
- ◆ Generation can bid different prices for “blocks” of capacity
 - Incremental capacity beyond name plate may bid in blocks
 - Block bidding from existing capacity is subject to market monitor review

Appendix C

July 24 Updated Evaluation Criteria Matrix For the California Forward Capacity Market (CFCM) Proposal

BENEFITS			
	<u>Criteria</u>	Description of Proposal and How it Meets Criteria	High, Medium, Low* *Second bullet provides more info
<u>1.</u>	How does the proposal provide incentives to attract an efficient amount investment in California's electricity infrastructure?	<ul style="list-style-type: none"> • The California Forward Capacity Market's (CFCM) four-year forward auction creates adequate time to plan resources and matching transmission to reach identified reserve levels, locally and statewide. • The total identified need is met efficiently: CFCM secures 100 percent of the planning reserve margin (neither more nor less), and CFCM provides a structure for the orderly replacement of inefficient existing resources. • New and existing generation, imports, and demand response resources can participate on comparable footing, ensuring that the right mix of resources will be built and maintained to meet California needs. • The multi-year price commitment for new resources facilitates financing at reasonable rates. • CFCM's strong performance incentives encourage development of highly reliable new resources and efficient investment to improve availability of existing resources. 	High Will allow for sufficient terms for new resources to be built and values needed existing resources

2	How does the proposal provide generation, transmission, and demand response a reasonable opportunity to compete in meeting both local and system capacity requirements?	<ul style="list-style-type: none"> • The CFCM allows for both existing and new generation, and demand response to compete competitively to supply capacity on both a local and system basis. Capacity suppliers are selected about four years ahead of the delivery year, allowing time not only for the development of new resources but also the new transmission to support them. • The timing of the market allows for the integration of transmission planning to address local and system issues. • The CFCM uniquely provides sufficient time to coordinate load growth, demand response, new generation additions with transmission upgrades to efficiently meet local and system capacity requirements. 	<p>High All three components are critical and the CFCM allows all resources to compete on comparable terms supported by integrated transmission planning</p>
3	How does the proposal provide a mechanism that ensures the retention of existing resources that are economic?	<ul style="list-style-type: none"> • The ability of new generation and demand response to compete in the forward auction will allow the orderly retirement of uneconomic and inefficient generation resources. • By allowing new and existing resources to compete on an even playing field the CFCM will send appropriate incentives to repower or retire existing resources. Existing resources can submit priced offers (subject to market power mitigation) that reflect their costs to continue operation; if this cost is greater than the cost of competing resources, the unit will not be selected and will face the decision of whether to delist or retire. • All resources are paid the same clearing price, subject to availability penalties, so there is no uneconomic incentive towards one class of resources over another. 	<p>High Needed resources will be secured while resources that may be considering retiring will be sent accurate price signals</p>

<p><u>4</u></p>	<p>How does the proposal promote the acquisition of capacity sufficiently in advance of the needed time of delivery in order to support planning and allow new entrants to compete?</p>	<ul style="list-style-type: none"> • The CFCM selects resources 4 years in advance of the delivery year. This term allows for the acquisition of capacity in a forward timeframe that will allow needed resources to be developed and constructed. • Resources secured in the auction will be committed to meeting California electricity needs in advance for a one-year period. New resources may elect a 10-year commitment at a set price, which will support cost-effective construction financing, removing a potential barrier to entry for new supply and providing consumers a lower capacity cost by reducing regulatory risk. • In situations where there is inadequate supply offered, or insufficient competition, if the deficiency is small, CFCM will use a series of reconfiguration auctions to secure incremental capacity. For large deficiencies CAISO has ability to conduct a backstop auction for replacement capacity to meet the shortfall in a targeted, cost-effective manner. 	<p>High CFCM will allow for an explicit multi-year price commitment period that will allow new resources to be financed and will also contribute to a stable regulatory environment.</p>
<p><u>5</u></p>	<p>If the proposal contracts forward for capacity in advance of the operating year, how are the costs of capacity in excess of the capacity requirement during the operating year (i.e arising from load forecast error) allocated among LSEs?</p>	<ul style="list-style-type: none"> • CFCM targets securing only up to the capacity target; there is no planned securement beyond this target, as may occur under a demand-curve approach to centralized capacity markets. • CAISO may “sell back” resources in the Third Reconfiguration Auction, conducted approximately 12 months before each delivery year, if it anticipates significant capacity in excess of requirements. Proceeds of the sell-back reduce total capacity costs. • Weighted locational capacity costs (including any charges for surplus capacity) are allocated to all LSEs based on their realized contribution to monthly zonal and system peaks. 	<p>High With the two prong approach of both the primary and reconfiguration auctions there will be multiple opportunities to address changing reliability needs.</p>

6	How does the proposal make available to the market transparent price signals that ensure that capacity is efficiently priced and traded?	<ul style="list-style-type: none"> • The qualification process creates standardized, tradable “capacity tags.” • All auctions will be based on a “sealed bid” process in which the clearing price will be transparently communicated to the market. Both existing and new resources will be paid the same clearing price. • Following the annual auction, the CAISO would conduct four annual reconfiguration auctions at intervals of approximately 12 months to allow for efficient reallocation of resources while maintaining the overall level of reliability. • Efficiency of the resulting CFCM clearing prices is created by the transparency of the market design, the ability of planned resources to compete, and the comprehensive market monitoring and market power mitigation measures. • Self supply is accepted and Parties can “self hedge” by self supplying their realized locational capacity requirements. 	<p>High Transparency at all levels is a key feature of the CFCM</p>
6a	How does the proposal provide price signals that reflect comparative reliability and energy policy values?	<ul style="list-style-type: none"> • Transparency is one of the key components of the CFCM. Capacity will be priced locationally, reflecting the need to maintain sufficient capacity in local areas despite higher construction costs. • Resources with higher availability—especially during peak periods—receive higher payments per MW of capacity than those with lower availability, providing a direct and measurable economic incentive to invest in resources that contribute more to system reliability. • CFCMA urges that other policy goals and objectives should be met by improvements to the energy and reserves markets or through other policy vehicles. However, it would be possible for CFCM to include generation attributes as a price adder to the core capacity value, providing a coordinated process for meeting reliability and other goals simultaneously. 	<p>High (for reliability) Availability metrics reward resources in proportion to the reliability contribution.</p> <p>Low (for policy) Not addressed by design.</p>
6b	Describe how the proposal affects overall customer costs, in the short, mid, and long term.	<ul style="list-style-type: none"> • In the short-run, comparisons of an equitable, comprehensive RA mechanism such as CFCM with the current patchwork are difficult. CFCM will allocate RA costs equitably to all consumers through transparent pricing and allocation of costs based on actual loads; to the extent that some consumers are not bearing their full and fair share of RA costs today, CFCM will allocate costs to them equitably. LSEs that 	<p>Medium-High CFCM will set competitive prices and create efficient outcomes, which</p>

6b (con't)		<p>have been counting resources that contribute less to reliability may see cost increases, but those that bring high-quality resources will be fairly compensated.</p> <ul style="list-style-type: none"> • Critics of CFCM will claim that paying every capacity resource a common clearing price will increase costs. However, CFCMA recognizes that resources owned by LSEs and long-term contracts for capacity will damp any cost impact, up or down. Moreover, capacity is already being priced, explicitly or implicitly, in bilateral contracts, and there is no reason to believe that these imbedded capacity prices diverge systematically from the competitive market price for capacity—some will be higher, and some lower, though, since there exists today no transparent market for capacity. • Furthermore, CFCM will bring strong market power mitigation to bear for the first time in the pricing of California capacity. A decentralized approach cannot be as effective, requiring either arbitrary caps or exemptions—neither of which actually secure resource adequacy. • CFCM provides a simplified means of means for LSEs to meet their RA requirements, potentially lowering the capacity costs for small LSEs and fostering direct access. • Creating an efficient capacity market will result in lower medium-term costs to consumers. Today California relies on last-minute utility procurement with contentious cost-allocation methods to keep the lights on, and there is no orderly mechanism for older, inefficient units to retire or repower. CFCM will competitively secure system needs and allow economic replacement of out-dated resources, creating both cost and policy benefits. • In the long run, an efficient market produces lower prices for consumers than an inefficient design. A centralized auction with a well-defined, standardized product and uniform and equitable cost assignment is intrinsically more efficient than alternatives lacking these characteristics. 	ultimately benefits consumers more than near-term price suppression.
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7	How does the proposal include performance incentives that are effective and clear, and ensure that generation and other capacity resources meet their expected obligations?	<ul style="list-style-type: none"> • Clear performance incentives are a critical component to the CFCM. CFCM contains a must-offer requirement for CAISO energy and ancillary services and RUC markets and a real time must offer for capable units. • All resource bidding and obligations subject to CAISO Tariff. • CFCM proposes using an availability metric that combines elements of the traditional EFORd metric and a version of the EFORp metric that was developed by PJM for its Reliability Pricing Model. • EFORp would impose substantive incentives to perform during peak hours; Resources are penalized or rewarded if performance is below or above target performance during peak periods. • In hours not covered by the EFORp metric, the NERC-standard EFORd metric would apply. EFORd usually weights performance in all months equally. The CFCM proposes to use month-specific weights, reflecting (a) the exclusion of the EFORp hours in some months and (b) the relative importance of resource availability across months with historical levels of load. 	High Suppliers will have strong incentives/penalties to retain availability especially during peak hours
7a	How will performance incentives for suppliers affect incentive of LSEs to bid in the Day Ahead Market?	<ul style="list-style-type: none"> • Winning resources subject to “must-offer” in all CAISO markets • Resource performance obligations for the cleared auction resources: <ul style="list-style-type: none"> ◆ Must offer requirement for CAISO energy and ancillary services and RUC markets ◆ Real time must offer for capable units ◆ All resource bidding and obligations subject to CAISO Tariff, which includes energy market power mitigation 	High The must offer requirement for CFCM resources will allow for significant liquidity in all applicable CAISO markets
7b	How will performance incentives for suppliers affect dispatch incentives in real-time?	See answers to 7 and 7a.	High

7c	How will performance incentives affect variability of payments by LSEs and payments to capacity suppliers?	<ul style="list-style-type: none"> • Resources penalized/rewarded if performance is below/above target performance during peak periods <ul style="list-style-type: none"> ◆ Modeled after PJM's EFORp process ◆ Substantive penalties/rewards during peak hours • Additional but less stringent penalties for forced outages outside of peak periods (EFORd) • Payments are made according to above criteria on a monthly basis with an annual true-up 	High LSEs know in advance the maximum capacity payment; lower availability reduces capacity charges.
7d	How will the determination of the gross capacity requirement account for differences in the nature of the resources offered to meet the requirement?	<ul style="list-style-type: none"> • The level of statewide and local gross capacity requirements would remain, under CFCM, the choice of the CPUC and CEC, based on input from the CAISO and stakeholders. CFCM is designed to achieve this requirement efficiently and verifiably, and to provide availability incentives that reward those that meet these requirements most cost-effectively. In other markets, similar performance metrics have resulted in marked increase in unit availability and allowed the regulator to reduce gross capacity requirements. • CFCM does not preempt stakeholder processes to determine the treatment of intermittent and energy-limited resources. Any RA proposal needs to address the limitations of these units and treatment of their contribution to system reliability. 	Moderate
8	How does the proposal allow for cost effective tracking mechanisms for monitoring and compliance?	<ul style="list-style-type: none"> • The centralized market's one-for-one matching of resources with capacity tags will provide a simple enforcement mechanism to prevent double counting of resources. • Compliance by LSEs will be automatic: CFCM's transparent pricing procedure ensures each LSE is responsible for its actual share of the resource adequacy capacity, either by purchase or self-supply. • All requirements will be approved and published by the CPUC/CEC and CAISO on a forward mechanism. • Tracking and compliance will occur in coordination with the CPUC and CAISO 	High Transparency and tracking will encourage individual compliance by all LSEs and will not allow free-riders. Jurisdiction remains with the CPUC

<p><u>9</u></p>	<p>How does the proposal complement the CAISO's MRTU market design, systems, and operations?</p>	<ul style="list-style-type: none"> • CFCM complements MRTU, providing the long-run RA needed to ensure that sufficient resources are located where needed to operate the energy and reserves markets. Resources cleared in the CFCM have clear, mandatory requirements to participate in MRTU day-ahead and real-time markets, as well as the Residual Unit Commitment process, in accordance with the CAISO tariffs. • The CAISO will know well in advance what pool of resources it can rely upon to meet system and local needs and allow it to make orderly system or operations adjustments or improvements to best maintain reliability • The CFCM insures sufficient physical resources to meet the reliability needs (including the state approved PRM) of the system, which is the critical foundation of MRTU. Without resource sufficiency, MRTU will not meet expectations for efficiency. • Resources selected in the CFCM have a must-offer requirement into all CAISO markets, which will create market liquidity and allow real competition to occur in the CAISO's energy and ancillary services markets. • CFCM uses the same settlements and credit processes of MRTU, streamlining the development and implementation of these systems for CFCM and lowering costs for participants. 	<p>High CFCM fits seamlessly into day-ahead and real-time MRTU design</p>
<p><u>10</u></p>	<p>How does the proposal provide incentives for building, supplying, and utilizing a diverse resource mix that is compliant with the California Energy Action Plan, meets environmental policy requirements, and meets the following operational requirements:</p>	<ul style="list-style-type: none"> • The CFCM allows for both existing and new generation, and demand response to compete effectively to supply capacity on both a local and system basis. The timing of the market allows for the integration of transmission planning to address local and system issues • The CPUC will retain the jurisdiction to establish the requirements or implement the criteria and requirements set by the Legislature for their jurisdictional LSE's. The CFCM simply provides a forward clearing mechanism to meet those requirements in a transparent way. • CFCM will encourage an efficient mix of baseload, cycling, and peaking generation on the system. Resources compete based on the lowest capacity payment required, <i>net of earnings</i> expected from the sale of energy, reserves, steam, renewable energy credits, and other products or services generated. Resources 	<p>High</p>

<u>10 (con't)</u>		<p>with high value in these other markets will underbid other planned capacity resources.</p> <ul style="list-style-type: none"> • CFCMA urges that other policy goals and objectives should be met by improvements to the energy and reserves markets or through other policy vehicles. However, it would be possible for CFCM to include generation attributes as a price adder to the core capacity value, providing a coordinated process for meeting reliability and other goals simultaneously. 	
<u>10a</u>	<ul style="list-style-type: none"> ◆ Local, Zonal, and System Requirements 	<ul style="list-style-type: none"> • The CAISO, in conjunction with the CPUC, will publish requirements for local, zonal and system requirements and individual CFCM will occur within each constrained areas. • The CFCM then secures sufficient resources to meet these requirements with enough lead time to integrate these resources into the grid. Different prices may occur by area. • Imports may participate in CFCM, but they may be limited both in total and across any path to ensure deliverability. If these limits bind, the capacity price for external resources may be lower than the system capacity price. • Due to the stringent performance requirements, the CAISO can count on those identified resources to be there when they are needed 	<p>High All constrained areas will be considered so that the right resources in the right location are secured.</p>
<u>10b</u>	<ul style="list-style-type: none"> • Quick start, fast ramping, and cycling resources to optimize and fine tune the system. 	<ul style="list-style-type: none"> • These items are best addressed through improved pricing in the CAISO real-time and ancillary services markets. The potential for these flexible resources to earn higher net revenues in CAISO energy and ancillary services markets will feed back into their offers in the CFCM. 	<p>Medium</p>

10c	<ul style="list-style-type: none"> Resources with storage capability to shift output from intermittent resources from off peak to on peak periods. 	<ul style="list-style-type: none"> This item will be addressed in the CAISO's Energy Markets. All resources will be eligible to participate and be accommodated based on the CPUC counting rules for qualifying capacity. CFCMA believes that correct pricing of energy and ancillary services will provide the appropriate level of economic incentive to develop resources capable of storing power for use during peak periods and accommodating swings in output from intermittent units. 	Medium-High
10d	<ul style="list-style-type: none"> How will the proposal account for the impact of low hydro conditions on resource availability? 	<ul style="list-style-type: none"> The CPUC will continue to remain the jurisdictional entity to set the Planning Reserve Margin that accommodates historical performance of all resources. 	High
10e	<ul style="list-style-type: none"> How does the proposal provide for orderly retirement of resources as their reliability decreases and relative environmental impacts increase? 	<ul style="list-style-type: none"> The ability of new generation and demand response to compete in the forward auction will allow the orderly retirement of uneconomic and inefficient generation resources. When a resource can no longer recover its going-forward costs (including costs of meeting environmental requirements) from the market, it will be given a clear market signal to exit. By allowing new and existing resources to compete on an even playing field the CFCM will send appropriate incentives to repower or retire existing resources If an existing unit is not selected in the CFCM auction and so retires, the system has four years to adapt and, moreover, the auction has already selected the replacement resource(s). 	<p>High Needed resources will be secured while resources that may be considering retiring will be sent accurate price signals</p>

<p><u>11</u></p>	<p>How does the proposal minimize or eliminate the need for the CAISO to rely on backstop capacity procurement, Reliability Must-Run or other such mechanisms to obtain additional needed capacity?</p>	<ul style="list-style-type: none"> • The CFCM secures needed resources in advance through a centralized process. By identifying capacity needs statewide and locationally five years in advance, and by securing these resources four years in advance, CFCM provides sufficient time for a competitive response from developers to meet California's capacity needs. • The CFCM allows planned generation resources to elect to receive a multiple-year price commitment. An existing generating resource may also be eligible for this multi-year price commitment if it meets the standards for planned generation. These provisions enhance the ability to finance needed new capacity, even in smaller load pockets where prices may be more volatile. • Because CFCM is locational, and the locations reflect transmission limitations, the vast majority of RMR contracts should be eliminated. There is a potential for a limited number of RMR contracts to meet unusual system needs below the local area level. • As described above if there is a significant market failure in the forward auctions, the CAISO will secure resources for a period of up to 10 years through a supplemental competitive offering. 	<p>High</p> <p>By setting up the needed locational requirements and meeting them, CFCM largely eliminates RMRs. CFCM will create strong incentives for new entry but includes a backstop auction as an important safety net</p>
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<p><u>12</u></p>	<p>Does the proposal include a backstop mechanism for situations when insufficient values of capacity can be procured through the centralized market? Please describe.</p>	<ul style="list-style-type: none"> • CFCM is designed to encourage the greatest possible degree of participation in the primary auction. There are two situations in which the primary auction may not secure enough capacity, either statewide or locally: <ul style="list-style-type: none"> ◆ Not enough capacity was offered, at any price. ◆ Enough capacity was offered, but offers of incremental capacity needed in the market were not sufficiently competitive. In this situation, the amount of capacity secured is scaled back to create competitive conditions among the suppliers of new capacity. • If either case triggers, the resulting shortfall in capacity is secured through one of two competitive processes: <ul style="list-style-type: none"> ◆ If the quantity of capacity secured in the primary auction is significantly below the resource target, the CAISO conducts a backstop auction to secure the needed resources, offering contracts of up to 10 years. ◆ If the deficiency is not sufficiently below target, the CAISO shifts the unmet demand into subsequent reconfiguration auctions, which are held annually. 	<p>High CFCM has explicit mechanisms to price existing capacity and secure incremental capacity in the event of inadequate supply or insufficient competition.</p>
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<p><u>13</u></p>	<p>How does the proposal allow for effective use of imports to meet RA requirements?</p>	<ul style="list-style-type: none"> • Imports are allowed up to the constraints on the import paths; an overall maximum level of imported capacity may also be imposed. Self-supplied imports are taken first, followed by the lowest price import capacity at each import point. Imports of capacity will be priced at the lower of the system capacity price or the constrained price at each particular import path. • Imports may qualify as California capacity resources and clear the market just as existing resources, up to the level determined acceptable by the CAISO/CPUC. Imports, however, cannot be used to meet minimum capacity requirements in constrained local areas. <ul style="list-style-type: none"> ◆ Importing resource must be physically identified, or the exporter may identify a portfolio of resources provided that the exporting control area must confirm that the export quantity from the portfolio will be firm. ◆ Importing resource does not need to secure firm transmission to or within CAISO, but the total quantity of imports allowed, and the quantity of imports allowed from any exporting area, will be limited by system import limitations 	<p>High Directly meets CFCM will select the least costly imports of capacity.</p>
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<p><u>14</u></p>	<p>How does the proposal ensure that all load serving entities recover the cost of their capacity requirements and ensure that cost shifting does not occur between LSEs?</p>	<ul style="list-style-type: none"> • The CPUC is ultimately responsible to evaluate the degree to which LSEs “recover the cost of their capacity requirements” through retail rates. • The CFCM establishes locational, wholesale “market prices” for capacity, and all wholesale load is charged these prices. LSEs pay these prices for all metered demand in each zone and are paid the locational price for its capacity cleared in the market. In this way cost shifting does not occur but load migration – with proper cost migration – occurs automatically. • Indeed, CFCM significantly reduces the need for cost allocations and the risk of cost shifting that exists in current markets. See Answer 21. • CFCM integrates seamlessly with direct access: <ul style="list-style-type: none"> ◆ Cost allocation in CFCM tracks realized load, so as load shifts, cost responsibility shifts. ◆ LSEs that have bilaterally contracted for capacity have a liquid market in which to resell the capacity should their load decrease, or they can simply be compensated at the CFCM clearing price for their excess capacity. ◆ Small LSEs have the option to rely on CFCM to meet their RA requirements, rather than incurring potentially expensive contracting costs. 	<p>High. Directly meets. All LSEs pay and/or is paid the market price for capacity for actual load in each month.</p>
<p><u>15</u></p>	<p>How does the proposal accommodate load migration and changing LSE requirements?</p>	<p>See Answer 14</p>	<p>High. Directly meets. Capacity is billed based on actual load, so capacity charges automatically follow load.</p>

<p><u>16</u></p>	<p>Is the proposal compatible with short and long term bilateral procurement and/or resource ownership by LSEs. How?</p>	<ul style="list-style-type: none"> • Yes. The CFCM allows LSEs enhanced flexibility in their energy and capacity procurement. An LSE can own plants or contract bilaterally for any term and simply self supply these resources into the CFCM market. • CFCM establishes a transparent price that can also be the foundation of bilateral trading. Entities are free to negotiate bilateral agreements and self-supply capacity into CFCM auctions. • LSEs also have the option to procure only their energy through bilateral contracts and rely on the CFCM to provide capacity. • The CFCM actually allows more flexibility in the energy procurement choices of LSEs when compared to the existing RA program. Specifically, the requirement for annual energy contracting can be relaxed once reliable capacity is assured through CFCM. A more flexible portfolio of energy options is then available. 	<p>High. Directly meets. The CFCM allows LSEs to procure energy and capacity with greater flexibility.</p>
<p><u>17</u></p>	<p>How does the proposal facilitate competitive market outcomes regardless of some self provisioning of capacity or use of opt-out provisions?</p>	<ul style="list-style-type: none"> • CFCM does not allow opt-outs. • CFCM allows, and inherently encourages self-supply as a hedge against an uncertain capacity market clearing prices. • If the amount of self-supplied resources is less than the amount needed, the self supplied resources will be taken first, but then the lowest-priced resources are taken to establish a market price. • If all resources are self-supplied, then the CFCM market rules will establish the prices as 0.6 times Net CONE, where Net CONE is the competitively determined net cost of new entry. In these cases, Net CONE will be reviewed administratively to ensure that it continues to reflect the cost of new entry 	<p>High. Directly meets. Establishes a market price even if all capacity is self-supplied.</p>

<p><u>18</u></p>	<p>How does the proposal mitigate market power?</p>	<ul style="list-style-type: none"> • CFCM provides for appropriate and effective market power monitoring, especially in local areas. As a centralized market, CFCM allows the market monitor to review all bids for appropriateness, using a combination of tests for structure, conduct, and impact. • The most important element of market power mitigation in CFCM is the forward market design. The four-year forward market clearing allows new entrants to establish a competitive ceiling on the costs, even in local areas where, even if the incumbent generation is owned by few suppliers, incremental supply (which sets the clearing price) can be offered by many suppliers • All existing resources must offer their capacity through self-supply or priced offers, or request to de-list that capacity. • To supplement these structural elements that promote competition, the CFCM also establishes meaningful and significant administrative mitigation measures including bid rules, <i>ex ante</i> market power reviews, price collars and specific rules targeting self-scheduled bids, new entrant milestones and local area bids. • Finally, and if all else fails, CFCM includes provisions for a fully competitive backstop auction. • The details of CFCMA's market power mitigation are contained in section H of the CFCM proposal. 	<p>High. Directly meets. The central market and four year forward make it easier to detect and mitigate potential market power.</p>
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<p><u>19</u></p>	<p>Please describe any other attributes that should be considered and how the proposal meets these requirements.</p>	<p>Consistency with FERC Precedent</p> <ul style="list-style-type: none"> Any change to the CAISO tariff must be approved by the FERC. All of the major elements of CFCM have been approved by FERC, either in ISO New England or PJM, providing greater confidence that an agreement by California parties around a market based on the CFCM proposal will be ratified by the FERC. <p>Track Record of Forward Market Designs</p> <ul style="list-style-type: none"> Forward capacity markets in eastern RTOs have met with good initial success: PJM has conducted two auctions; even though lead times have been less than one year, it has cleared 536 MW of demand response and 1,200 MW of incremental generation. New England received applications for over 15,000 MW of generation capacity through proposed supply-side resources and over 2,200 MW of demand-side resources such as energy efficiency, load management, and distributed generation for its first forward capacity auction, to be held in early 2008. 	<p>High</p>
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Feasibility Impact to CAISO			
	Criteria	Description of Proposal and How it Meets Criteria	High, Medium, Low
<u>20</u>	<u>Cost of Implementation (CAISO).</u>	<ul style="list-style-type: none"> • The costs should moderate. <ul style="list-style-type: none"> ◆ The capacity tag tracking system will be straightforward and simpler than in alternative designs without standardized capacity definitions. ◆ The sealed-bid auction is an auction that should require little infrastructure and should be easy to build or buy. The CAISO could develop this, or it could be outsourced to a third party specializing in auction design and software. ◆ The settlement of capacity charges or credits should be a straightforward extension to the existing CAISO settlement system. 	Medium-High. Costs of implementation will be moderate, but administrative costs are likely lower than managing multiple programs under the current RA procedures
<u>21</u>	<u>Ease of Implementation (CAISO).</u>	<ul style="list-style-type: none"> • CFCM should be easy to implement relative to complex, non-standardized mechanisms. • Will require the development of the tariffs and business rules, the auction mechanism, and a billing system based on actual load. CFCM builds on existing mechanisms for many elements, and other elements have already been filed at FERC by other RTOs. The auction mechanism need not be complex, and several auction designs in other markets could be adapted readily. The bulk of the settlements system should be within the capabilities of the CAISO's new settlement software. • CFCM will be much easier to implement than the existing RA system which requires the CAISO to examine the filings of the LSEs and then use and ultimately settle, RMR or RCST contracts (or other reliability backstop contracts) to ensure that sufficient capacity resources are available in all areas. It also generally eliminates the cost shifting associated with RMR and RCST administrative cost allocations. 	Medium. It may appear more complicated than the current system, but probably is simpler.

<u>22</u>	<u>Time to Develop (CAISO)</u>	<ul style="list-style-type: none"> • After all regulatory approvals have been received, it should not take long to develop the simple systems required to implement CFCM. For example, PJM's first RPM auction occurred less than four months after receiving final approvals. 	Medium
<u>23</u>	<u>Implementation Timeframe</u> for Market Participants to transition to a new market design, and to achieve the Long Term RA objectives.	<ul style="list-style-type: none"> • A transition to the four-year forward market clearing could start shortly after regulatory approval and systems development. 	Medium. Can be started quickly, but 4 year forward nature will require some transition period.
<u>24</u>	<u>Changes to RA Program</u> Please include a description of changes to RA counting rules and other elements of the RA program that would need to be modified.	<ul style="list-style-type: none"> • CFCM would build on the existing capacity counting and qualification rules. • CFCM would eliminate the required and burdensome annual and monthly CPUC contract demonstrations of LSEs, replacing them with a straightforward forward market clearing and settlement based on incurred load. • CFCM improves on the existing program by creating a capacity tagging system that allows trading of capacity separate from energy. LSEs would be free, therefore, to manage their energy risks much more flexibly. • CFCM is designed to eliminate the need for utility backstop procurement processes and related cost allocation issues. 	High. Will require some changes, but the current process is already making changes each year.

Feasibility: Impact to Market Participants			
	Criteria	Description of Proposal and How it Meets Criteria	High, Medium, Low
<u>25</u>	<u>Cost of Implementation (Market Participants)</u>	<ul style="list-style-type: none"> • Administrative costs: Minimal. <ul style="list-style-type: none"> ◆ LSEs will have minimal implementation costs and, going forward, will reduce their administrative costs of complying with RA standards since no action is required on their part. ◆ Suppliers will have modest implementation costs in developing systems for calculating and submitting capacity offers. ◆ Billing for capacity from CFCM will be part of the CAISO bill, so systems are already in place. 	High Administrative costs are minimal; Total costs of capacity will be competitive and transparent.
<u>26</u>	<u>Ease of Implementation (Market Participants)</u>	<p>Very easy.</p> <ul style="list-style-type: none"> • Under CFCM market participants can choose to do nothing and buy from the CFCM market, or they can entirely self-supply and entirely avoid CFCM market prices. 	High.
<u>27</u>	<u>Time to Develop (Market Participants)</u>	<p>Minimal.</p> <ul style="list-style-type: none"> • Market participants can largely continue current procurement practices if they choose. However, to fully hedge (self-supply their needs) they may have to procure capacity under longer terms – or under short terms, but four years forward. 	High.
<u>28</u>	<u>Implementation Timeframe for Market Participants to transition to a new market design, and to achieve the Long Term RA objectives.</u>	<ul style="list-style-type: none"> • LSEs have no mandatory responsibilities for implementation. • Suppliers will need to develop capabilities for offering resources into CFCM prior to implementation. 	High

<p><u>29</u></p>	<p><u>Changes to RA Program</u> Please include a description of changes to RA counting rules and other elements of the RA program that would need to be modified.</p>	<p>See answer 24</p>	<p>Medium. Not likely to be more than currently.</p>
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CERTIFICATE OF SERVICE

I hereby certify that on this day I served a copy of the foregoing **TRACK 2 CENTRALIZED CAPACITY MARKET PROPOSAL OF THE CALIFORNIA FORWARD CAPACITY MARKET ADVOCATES** on all known interested parties of record in R.05-12-013 by electronic service and by U.S. Mail to those parties without an email address. I have also sent hard copies by overnight mail to the Assigned Commissioner(s) and Administrative Law Judge(s).

Dated at San Diego, California, this 3rd day of August, 2007.

/s/ JOEL DELLOSA

Joel Delloso

CALIFORNIA PUBLIC UTILITIES COMMISSION

Service Lists

Proceeding: R0512013 - CPUC - OIR TO CONSID

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