BEFORE THE
PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking to Oversee the Resource Adequacy Program, Consider Program Refinements, and Establish Annual Local Procurement Obligations.	)	Rulemaking 11-10-023

CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION COMMENTS IN RESPONSE TO CPUC QUESTIONS ON JOINT PARTIES' PROPOSAL

Pursuant to the procedural schedule set forth in the Phase 2 Scoping Memo and Ruling of the Assigned Commissioner and Administrative Law Judge issued by the California Public Utilities Commission ("Commission" or "CPUC") on December 6, 2012 ("Scoping Memo") and the extension of time granted by the Administrative Law Judge on December 20, 2012, the California Independent System Operator Corporation ("ISO") respectfully submits its comments in response to the CPUC questions set forth in Attachment B to the Scoping Memo. Those questions seek input about the Resource Adequacy and Flexible Capacity Procurement Joint Parties' Proposal ("Joint Parties' Proposal) submitted to the Commission on October 29, 2012 by San Diego Gas & Electric Company, Southern California Edison Company (with the exception of Section 5.4), and the ISO, and included as Attachment A to the Scoping Memo.

The ISO appreciates the opportunity to respond to the CPUC's questions about the Joint Parties' Proposal to establish an interim flexible capacity requirement that will augment the CPUC's existing bi-lateral resource adequacy program and will based on

the ISO's existing annual local capacity needs assessment.[1] The Joint Parties Proposal requests that the Commission adopt the proposal for flexible capacity procurement obligations for implementation and procurement for the 2014 resource adequacy compliance year.

Respectfully submitted,

/s/ Beth Ann Burns

Nancy Saracino
General Counsel
Anthony Ivancovich
Assistant General Counsel
Beth Ann Burns
Senior Counsel
California Independent System Operator Corporation
250 Outcropping Way
Folsom California 95630
Tel. (916) 351-4400
Fax. (916) 608-7222
aivancovich@caiso.com
bburns@caiso.com

Attorneys for the California Independent System Operator Corporation

Date: December 26, 2012

[1] These comments provide the ISO's views in response to certain of the CPUC questions and provide clarification and explanation in support of the Joint Parties' Proposal. The ISO is not submitting the comments on behalf of the Joint Parties.

California Independent System Operator Corporation
Response To CPUC Questions On
Joint Parties' Proposal

A. Reliability Risk

1. What is/are the most critical grid reliability risk/risks that should be evaluated and managed through the flexible capacity procurement initiative?

Answer:
An overarching concern for the ISO is ensuring that sufficient resources with the right operating characteristics are secured under a resource adequacy obligation. Without the commitment of resources under a resource adequacy obligation, the ISO cannot be assured that sufficient resources will be available for dispatch to maintain reliability within the balancing area. Additionally, the ISO is concerned with its ability to meet the morning and evening net-load ramping requirements. Increasing numbers of intermittent resources are fundamentally altering the load shape, causing the traditional longer and slower ramp across the day to evolve into multiple faster, steeper, and shorter ramps, both up and down, particularly in non-peak seasons. Thus, in the interim period, the ISO is primarily focused on meeting multiple steep upward ramps that can occur on any given day of the year. Addressing over-generation and the ability for resources to ramp down (or load to consume) is an additional and growing reliability concern that must be addressed longer-term through a more comprehensive capacity procurement solution.

2. This proposal attempts to address reliability risk by recommending that the CPUC establish a monthly interim flexible capacity obligation that is based on the ISO's identified flexible capacity needs.

a. ***Identify the key tasks required to implement this proposal. Propose the order in which they should be addressed, and discuss whether they should be taken up simultaneously or sequentially*.**

Answer:
The five key elements in the proposal include:

1. The ISO identifying the flexible capacity need for the following RA year;
2. The CPUC setting a flexible capacity procurement obligation based on the ISO identified need;
3. The CPUC allocating the flexible capacity obligation to its LSEs;
4. The LSEs procuring their flexible and generic capacity obligations; and
5. The LSEs demonstrating compliance with the CPUC set resource adequacy obligation.

California Independent System Operator Corporation
Response To CPUC Questions On
Joint Parties' Proposal

Flexible capacity identification, obligation, allocation, procurement, and demonstration are the five fundamental elements that must be wholly integrated into the CPUC's annual resource adequacy program. Similar to the process for ensuring sufficient local capacity, these five sequential elements make up the framework for ensuring flexible capacity exists and is maintained in the quantities needed to satisfy reliability standards within the balancing area, which are core to the proposal.

b. Can the difference between load and net-load be met partially by introducing curtailment provisions in renewable contracts (particularly solar resources)? What are the implications of doing so?

Answer:
No, not in the context of this proposal, which is primarily focused on meeting upward ramping needs in the interim period. Renewable resource curtailment provisions are useful for addressing over-generation and downward ramping needs, not upward ramping needs. Over-generation is a real concern that must be addressed through a comprehensive capacity procurement solution, which may include curtailment options introduced in this question.

c. What are other options to alleviate the underlying reliability risk(s) (e.g. modified bidding behavior, incentives within procurement programs to procure resources that reduce identified reliability risks)? What are the benefits and drawbacks of addressing reliability risk by developing a flexible capacity obligation for LSEs relative to the alternatives?

Answer:
The ISO is proactively taking steps to enhance reliability through the market to ensure participation from the right type and mix of resources. For instance, the ISO is incrementally reducing its bid floor to incent more decremental bidding to help prevent over-generation. The ISO is also developing a flexible ramping product to incent participation from flexible capacity resources in the market.

Constructive market enhancements should be pursued to further refine the existing market. However, day-ahead and real-time market enhancements do not address the fundamental problem ─ the assurance that sufficient flexible capacity will exist within the balancing area so that the markets can function properly. Day-ahead or real-time market mechanisms will not sufficiently resolve "revenue adequacy" concerns and or the risk of retirement of existing flexible resources. This is the roll of resource

adequacy, to provide capacity payments for "installed capacity" that must be available to the ISO.

An alternative to the Joint Parties' proposal is to satisfy capacity needs through backstop procurement mechanisms using administratively set prices. The ISO wants to avoid this less efficient approach and, thus, views the Joint Parties' proposal as a reasonable short-term approach to ensuring the right amount and type of capacity is procured based on identified needs.

Ultimately, the benefit of the Joint Parties' proposal is that it takes a necessary and measured step to weaving flexible capacity, and in particular upward ramping capability, into the existing resource adequacy program without upsetting the bi-lateral nature of the program. The design is intended to minimize grandfathering and other potential resource adequacy contract concerns until a more comprehensive capacity procurement solution can be developed for 2017 and beyond. Additionally, the Joint Parties' proposal provides the ISO with better short-term assurance that required resource attributes will be procured in advance and made available to the ISO to meet reliability standards as once-through-cooled resources retire and the output of the supply fleet grows more variable, and, therefore, less predictable.

Introducing flexible capacity in 2014 will add some complexity to the CPUC's resource adequacy program. However, apart from the ISO's backstop capacity procurement mechanism, there is no clear alternative for ensuring that flexible capacity is purposefully preserved and procured forward in sufficient quantities to satisfy the identified need. Thus, the benefits of introducing a flexible capacity obligation into the resource adequacy program is that minimizes the risk that the ISO would leverage its existing or newly approved tariff authority to ensure that required resource capabilities are secured to satisfy NERC and WECC reliability standards.

d. In addition to addressing reliability risk, does the flexible capacity obligation have other market impacts?

Answer:
Yes. As previously explained above, the ISO has begun instituting changes in the day ahead and real time market to ensure that sufficient ramping capabilities are available for real time dispatch. These include the flex-ramp constraint, which is currently in place, as well as the flexi-ramp product, which is currently under development through a stakeholder process, and the integration of the integrated forward market and the residual unit commitment process that is also being considered in a stakeholder process. A flexible capacity obligation helps ensure that sufficient ramping capability is available in the market to minimize ramping capacity shortages. Additionally, explicit

ramp capability reduces reliability risks and minimizes potential price spikes caused by ramp deficiencies in the ISO five minute real time dispatch process.

e. ***How does this type of proposal, as compared to others, satisfy the Guiding Principles as set forth in the August workshop? (See Draft Guiding Principles in Attachment A) In your answer, you may consider the merits of the Guiding Principles as proposed.***

Answer:
The ISO believes that the Joint Parties' proposal adheres closely to the spirit of the flexible capacity principles set forth by the Commission. The ISO addresses each of the principles below.

1. ***The Flexible Capacity Procurement initiative should be administratively simple. It should not impose an unnecessary administrative burden on the regulator, load serving entities (LSEs), or market participants.***
2. ***The Flexible Capacity Procurement initiative should result in minimal disruption to the RA program.***

Answer to Principles 1 & 2:
The Joint Parties' proposal is designed to weave into the existing resource adequacy program without materially disrupting the substance of existing commercial arrangements. As far as process and timing, the Joint Parties' proposal is envisioned to roll out just as local capacity requirements do. Additionally, prohibiting the unbundling of flexible capacity attribute from the physical generic capacity also eliminates complexity and ensures a better fit with the existing resource adequacy program construct.

3. ***The Flexible Capacity Procurement initiative should be commercially feasible. Allowing the market to distinguish and value a megawatt of capacity with appropriately defined flexible characteristics from a megawatt of generic capacity will facilitate compliance and market liquidity.***

Answer to Principle 3:
A resource that is eligible to provide flexible capacity can choose to be flexible or not. By making itself available as flexible capacity, the resource will likely have a higher value than an eligible resource that chooses not to be flexible.

4. ***The Flexible Capacity Procurement initiative should be dynamic and should be allowed to evolve with changing grid conditions.***

Answer to Principle 4:
The Joint Parties' proposal is an interim step toward a more comprehensive capacity procurement solution. It is not intended to be a long-term solution. Saying this, within the proposal is an error factor built into the flexible capacity need calculation used to adjust for changing grid conditions over the interim period. This error factor is a simple way to adjust the flexible capacity needs calculation on an annual basis should there be an excessive reliance on exceptional dispatches due to ramping constraints, or demonstrated difficulties adhering to control performance standards, or other conditions causing concerns that could be reviewed and vetted with stakeholders when considering adjustments to the flexible capacity needs calculation.

5. ***The RA program should seek to maintain reliability while minimizing costs through market mechanisms.***

Answer to Principle 5:
Having the CPUC set a forward flexible capacity requirement is the most cost-effective approach, which will allow flexible capacity to be procured in advance through a bi-lateral market. Failure to do so would mean relying on the ISO's backstop procurement authority for resource attributes needed in the balancing area, which is likely not as cost-effective as a market mechanism.

6. ***The definition of flexibility should be technology neutral and prevent discrimination against all current and future resources that have the required flexible characteristics.***

Answer to Principle 6:
The ISO agrees that flexible capacity should be technology neutral. The flexible capacity capabilities from resources like distributed generation, demand response, and storage should be combined with flexible generation resources to ultimately create the most appropriate balance of flexible resources that count toward an LSE's flexible capacity procurement obligation. Demand response and storage resources may require some additional development to provide the operational characteristics needed to qualify as flexible capacity, as well as designing a counting convention applicable to these preferred resources. The ISO encourages expediting that development and commits to collaboration in this regard. Some existing or modified demand response programs may be able to participate in the ISO market and provide flexible capacity. To the extent such resources can do this, they should be included as flexible capacity. To expedite the implementation of a flexible capacity procurement obligation, the Joint

Parties' proposal recommends that resources currently possessing the characteristics consistent with flexible capacity, including being dispatchable in the ISO market, are suitable for inclusion in this interim flexible capacity proposal.

B. Interim RA solution (Section 2)

3. The proposed flexibility procurement initiative institutes an interim RA solution for 2014-2017. What are the anticipated impacts of an interim approach on resource adequacy contracts? What factors should the CPUC consider in deciding whether an interim approach is appropriate?

Answer:
The Joint Parties believe that impacts to existing resource adequacy contracts will be minimal. The Joint Parties' proposal was purposely designed to integrate into the existing bi-lateral resource adequacy program with minimal disruption to existing resource adequacy procurement practices. Also, this interim proposal provides a bridge to a comprehensive capacity procurement solution and provides a reasonable glide path into the procurement of flexible capacity.

4. Should the flexible capacity start in 2014? Explain why or why not.

Answer:
The ISO has demonstrated that a flexible capacity requirement must be incorporated into the 2014 resource adequacy program. Similarly, the Commission agrees that flexible capacity should be implemented in the 2014 resource adequacy compliance year. Specifically, the Commission stated:

> …we must take steps to ensure that the grid has sufficient flexible resources in the future. TURN echoes the sentiments of most parties in its comments: "(t)he Commission can reasonably defer implementing any flexible capacity requirement beyond the 2013 RA compliance year. However…the Commission should begin addressing possible flexible capacity needs and policies in the very near future with the goal of assessing if such requirements should be imposed for the 2014 RA compliance year.
> We will immediately begin the effort to finalize a framework for filling flexible capacity needs in this proceeding. Our intent is to adopt a framework by or near the end of 2012, for implementation in the 2014 RA compliance year.[1]

[1] D.12-06-025, Decision Adopting Local Procurement Obligations for 2013 and Further Refining the Resource Adequacy Program, June 21, 2012, at pgs. 19-20.

The ISO continues to believe that an interim flexible capacity procurement obligation is necessary in 2014. Based on CPUC renewable resource build-out scenarios, the need for flexible capacity begins in earnest in 2015 and increases substantially over the next few years. In 2015, the ISO anticipates that the net-load shape will begin to fundamentally change, with the balancing area experiencing much steeper and shorter duration ramps. The ISO has shown that 2014 is the right time to establish a flexible capacity requirement so that load-serving entities can both secure flexible resources and gain familiarity with procuring different flavors of capacity before the need grows even more urgent in 2015.

C. Development of Eligibility and Needs Methodology (Section 3.1 and Section 3.2)

5. According to the proposal, "flexible capacity need" is defined as the need of the ISO to meet ramping and contingency reserves. (Section 3.1)

a. Is this an appropriate definition of flexibility? If not, please explain what might be an appropriate definition and why.

Answer:
Yes, the ISO believes this is an appropriate definition of flexibility for the interim period. The proposal ensures that there will be sufficient upward ramp capability from dispatchable resources without encroaching on the requirements for reserves. The longer-term, more comprehensive capacity procurement solution should address over-generation concerns as well as differentiated ramping products e.g., maximum continuous ramping, load following capability, and regulation.

b. Should flexible capacity needs encompass all of the contingency reserves (E.G. Spin, Non-spin, Regulation up/down)?

Answer:
Yes. While regulation is not considered a part of the contingency reserves (contingency reserves are, by definition, spin and non-spin, but not regulation[2]), adequacy in flexible capacity must assure that the prescriptive amounts of contingency reserves is available in addition to the flexible capacity needed for 3-hour ramping requirements.

[2] Link to WECC Standard BAL-002-WECC-1 — Contingency Reserves can be found here: http://www.nerc.com/files/BAL-002-WECC-1.pdf

6. ***Flexibility needs are calculated according to the following formula (Section 3.2)-***

Flexibility Need$_{MTHy}$= Max[(3RR$_{HRx}$)$_{MTHy}$]+ Max(MSSC, 3.5%*E(PL$_{MTHy}$)) + ε

Where,

Max[(3RRHRx)MTHy] = Largest three hour contiguous ramp starting in hour x for month y
E(PL) = Expected peak load
MTHy = Month y
MSSC = Most Severe Single Contingency
ε = annually adjustable error term to account for uncertainties such as load following

   a. ***Is the above formula an appropriate measure to calculate flexibility needs and why?***
      - ***E.G. The ISO included the max of either a 3.5% of monthly expected peak load (EPL) or Most Severe Single Contingency (MSSC) factor to the need calculation. This is supposed to ensure that the ISO gets 100% of spinning reserve capacity needed to cover the MSSC.***
        - ***What evidence supports using a 3.5% of EPL to provide the spinning reserve needs in an N-1 contingency?***
        - ***Is it reasonable to require spinning reserves equal to 100% of MSSC? Please explain.***

Answer:
Yes, the above formula is an appropriate measure to calculate flexible capacity needs for the interim period only. Application of the formula, particularly in the first year, assumes that all resources are available to the ISO coincident with when and where flexible capacity is needed. A basis for this simple formula is that forecast errors and other uncertainties will be de minimis. Thus, an error term has been appropriately incorporated into the formula to account for uncertainties, should they arise (see answer to 6.c below). As the ISO has previously stated, this formula is designed as an interim measure only, and it is best suited to work with the existing resource bi-lateral capacity procurement structure. As a comprehensive capacity procurement solution develops, so must the definition of flexible capacity. Flexible capacity will need to move beyond a single "dispatchability" attribute as proposed. For instance, flexible capacity will need to incorporate ramp down, not just ramp up capability to address growing over-generation concerns.

With regard to the specific relevance of 3.5% and MSSC component in the equation, the 3.5% and MSSC factor incorporated into the formula represents the amount contingency reserves that must be provided as spinning reserve as indicated by reliability standards (specifically detailed in the WECC standard referenced below[2]). The proposed formula is designed to assure that the ISO, at minimum, has sufficient ramping capability and spinning reserves covered by dispatchable resources. If the flexible capacity requirement did not incorporate contingency reserves, then there may not be adequate flexible capacity to satisfy the large, upward ramps without encroaching on the contingency reserve requirement. Thus, the proposal reasonably assumes that the set of dispatchable resources that can provide flexible capacity includes the set of resources that can provide contingency reserves.

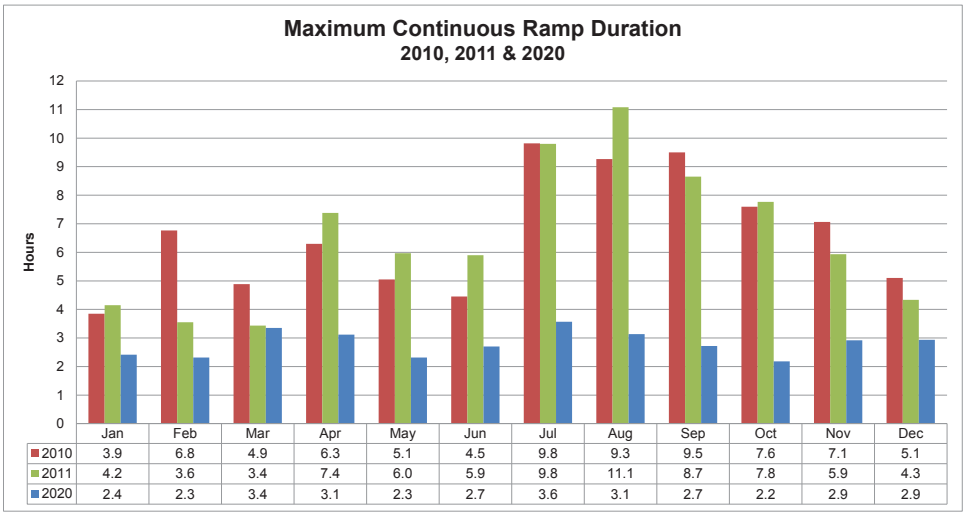
The ISO must satisfy both NERC and WECC reliability standards. Specifically, the NERC requires a performance response during a contingency event, while the WECC requires a prescriptive amount of contingency reserves be available (*i.e.,* pre-contingency) at all times except when responding to a contingency event. Thus, the required quantity of contingency reserves, at minimum, must be preserved alongside the amount of flexible capacity required to maintain system reliability and balancing performance.

Currently, the ISO MSSC is the loss of one Diablo Unit. The ISO must meet the NERC disturbance control standard in response to the loss of a resource.[3] WECC has added the requirement to maintain contingency reserves to enable meeting the NERC disturbance control standard. The response time in the standard requires the ISO to recover within 15 minutes (per NERC BAL-002) and the ISO has up to 60 minutes to replenish operating reserves (per WECC BAL-002). Additionally and separately, the ISO must plan the system to assure reliable operations of the transmission grid, which includes addressing line and path overloads. Such overloads may occur due to the loss of a single element (N-1 contingency) or worse. In real time, the ISO has only 30 minutes to respond to an N-1 contingency. NERC requires an even more stringent standard of N-1-1 (*i.e.,* the loss of the next worst element following the loss of any grid element) in planning to assure adequacy resources are available in real-time to address grid contingencies. Thus, the resource adequacy program must ensure sufficient flexible capacity is procured to meet the 3-hour ramping needs and to resolve 34an N-1-1 contingency event within 30 minutes, with available contingency reserves, regulation and other dispatchable resources, as appropriate.

[3]NERC Standard BAL-002-0 — Disturbance Control Performance found at: http://www.nerc.com/files/BAL-002-0.pdf

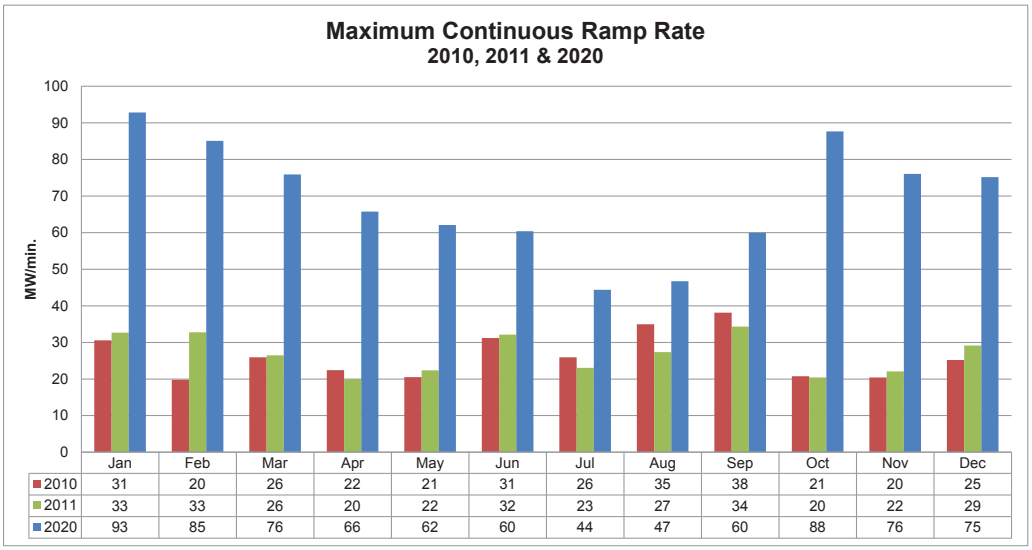
b. According to the proposal, flexible capacity need is based on how much ramp capability a resource can offer and sustain over a continuous three hour period. Is three hours an appropriate duration in which to measure ramping? Support your answer with empirical data when possible.

Answer:
First, the ISO reiterates its need for increased regulation, load following, and maximum continuous ramping in the near future. The single "dispatchability" attribute, i.e. ramping capability, highlighted in the Joint Parties' proposal has not diminished the eventual need for more refined flexible capacity products. As noted in the Joint Parties' proposal and as the ISO presented at the August 13, 2012 resource adequacy workshop, the duration of the longest ramp is forecast to decrease from 10-11 hours to 3 hours by 2020, as shown in the graph below.



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2010	3.9	6.8	4.9	6.3	5.1	4.5	9.8	9.3	9.5	7.6	7.1	5.1
2011	4.2	3.6	3.4	7.4	6.0	5.9	9.8	11.1	8.7	7.8	5.9	4.3
2020	2.4	2.3	3.4	3.1	2.3	2.7	3.6	3.1	2.7	2.2	2.9	2.9

Additionally, the ramp rates required to meet the longest ramps will increase dramatically between now and 2020, as shown in the graph below.



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2010	31	20	26	22	21	31	26	35	38	21	20	25
2011	33	33	26	20	22	32	23	27	34	20	22	29
2020	93	85	76	66	62	60	44	47	60	88	76	75

Thus, the proposed 3-hour ramp and sustained energy requirement is expected to provide a single measure of flexibility that has the highest likelihood of satisfying all the ISO's flexible capacity needs in the interim period, including load following, maximum continuous ramping capability and the preservation a portion of the ISO's required contingency reserves.

c. ***Is adding an annually adjustable error to ramping requirements term to account for uncertainties appropriate?***
   - ***Should the error factor be capped? If so, what is an appropriate cap level and why?***
   - ***What criteria should be stipulated to provide appropriate boundaries on what can be included in the error factor (i.e. proportion of wind generation, or distributed generation)?***

Answer:
The error term is designed to accommodate uncertainties, including forecast error, unplanned outages, and the non-performance of flexible resources. Parties will need to decide what is the appropriate level for the error term, so that it is not be overly prescriptive, but robust enough to account for various uncertainties. Under the current resource adequacy construct, uncertainties such as forecast error and forced outages are factored into the fifteen percent planning reserve margin. There will be significantly higher uncertainties regarding the determination of the flexible capacity need. We need to account for the forced outages of the designated flexible capacity resource fleet. As to the forecast error of the ISO's flexibility forecasts, it may be more variable than the forecast error for system demand peak for two reasons. First, there is little industry

experience in forecasting flexibility needs since they are just emerging as a reliability concern. Second, we are forecasting the maximum 3-hour ramp, but our flexibility needs are not limited to just 3-hours, they extend across all ramp times, from regulation to the maximum ramp. The simplification of flexibility needs to one characteristic will also increase the errors in our estimates. Historically, load variability has been relatively easy to forecast and meet given the reliance on a relatively dispatchable supply fleet whose output was largely predictable. Going forward, forecasting loads and resource capabilities will be much more difficult. A less predictable supply fleet and a more volatile load, especially given smart grid developments, electric vehicles penetration rates, and dynamic pricing, will challenge accurate forecasting of resource commitments. The Joint Parties' proposal does not factor in all of these uncertainties into the needs determination calculation. They are accounted for by the error. Thus, an error term is necessary and appropriate. The Joint Parties recognize that this error term will likely be modified over time as we gain more experience with forecasting flexibility and the impacts of forced outages. Including the error term accounts for these changes in the future without having to adopt a new structure. If an error term limit must be set, then the ISO suggests it be set at no less than fifteen percent of the forecast annual flexible capacity need. This would make the error term consistent with the current planning reserve margin percentage, which provides a cushion for other uncertainties.

d. ***The ISO proposes to use minute-by-minute estimate of load to calculate flexibility needs. Please discuss the suitability of this approach and if this is not suitable, what are the other options?***

Answer:
Minute-by-minute net load data is the appropriate level of granularity to evaluate ramping needs intra-hour to ensure that all ramp excursions can be captured and not "averaged" which can occur if the net-load data is evaluated at greater time intervals, such as 15-minute or hourly.

e. ***It appears flexible capacity procurement is overlapping with the determination of operating reserves. Is this appropriate? Can some amount of the PRM be offset, and how can the CPUC manage the overall RA obligation if portions are met with more flexible resources?***

Answer:
The current resource adequacy program includes sufficient capacity to cover contingency reserves, forced outages, forecast errors, and other uncertainties. In other words, resources that provide contingency reserves (spinning and non-spinning

reserves) are in the pool of resource adequacy resources today. The Joint Parties' proposal does not alter this construct. Additionally, flexible capacity, like local capacity, would offset the amount of system capacity procurement needed to meet the CPUC set planning reserve margin. The Joint Parties' proposal does not propose to alter the required amount of planning reserve margin.

It is important to understand that flexible resources that are providing contingency reserves must be flexible resources, and they cannot be dispatched for flexible capacity needs when they are providing contingency reserves; these reserves are set-aside to resolve contingency events, not day-to-day ramping needs. If flexible capacity resources where procured only to the quantity needed to satisfy ramping needs, and all other resources were not flexible, then during the maximum ramp events, the ISO would not have any flexible resources available as contingency reserves and would be in violation of NERC and WECC reliability standards. Failure to secure sufficient reserves is a violation of appropriate reliability rules and is what triggers Stage 1, 2 or 3 alerts and potentially dropping load. Alternatively, if the ISO has sufficient resources to meet its contingency reserves, but not its ramping needs, then it may not be able to meet control performance standards; again, resulting in possible violation; this could also create reliability issues by forcing the ISO area control error to exceed allowable tolerances. A core value of the ISO is compliance; the ISO cannot be placed in an untenable, no-win situation as described. Given the overlap between resources that can provide both flexible capacity and contingency reserves, it is right and appropriate to incorporate contingency reserves into the flexible capacity need calculation.

7. ***What process(es) or proceeding should be used to calculate capacity flexibility needs as load and supply change over time?***
    a. ***Currently the annual LCR process results in a determination of local capacity needs on an annual basis. Should flexible capacity needs be included within the LCR process, or should a separate but similar process be established to update flexible capacity needs? Please explain.***
    b. ***Who should determine flexibility needs annually– the ISO or some other third party?***

Answer:
The ISO, as the balancing authority, is the appropriate entity to assess the balancing area's flexible capacity needs. The ISO will collaborate with the CEC in making this assessment. No other entity has the required analytical data nor the experience or expertise to undertake the complex task of planning for the reliability of the balancing

area.[4] Indeed, in the CPUC's LTPP proceeding, the ISO provides the analysis of future needs, which the CPUC has relied upon.

The Joint Parties' proposal would integrate the flexible capacity needs determination into the local capacity technical analysis. As such, flexible capacity and local capacity needs can be assessed annually and simultaneously through the ISO's technical study process. The ISO envisions that flexible and local capacity needs will be published and vetted according to the process in place today for assessing local capacity, with the subsequent approval by the Commission in an annual resource adequacy proceeding, which results in the Commission authorizing the identified local and flexible capacity needs to be procured by the its jurisdictional load-serving entities.

D. Allocation of Flexible Capacity Requirements (Section 3.3 and Section 3.4)

8. The proposal recommends the CPUC allocate flexible capacity procurement obligations to LSEs based on each LSE's relative share of monthly system peak. Is this a suitable approach? Explain why or why not.

a. ***What other alternatives exist within CPUC jurisdiction that allows LSEs to demonstrate compliance of flexible capacity obligations? Please discuss the relative costs and benefits of different approaches. (Section 3.3)***

Answer:
The Joint Parties addressed how to allocate the flexible capacity need in detail, including alternative approaches considered, in Section 3.3 of the proposal.

E. Flexible Capacity Must-offer Obligations (Section 4)

9. In addition to the must-offer obligations that currently apply to RA resources, the flexible capacity must-offer obligation for flexible resources would require resources to submit economic bids into the ISO's real-market between a predetermined set of hours (i.e. 5AM to 10PM).

[4] The ISO recently established a new division under the leadership of Mark Rothleder, Vice President of Market Quality and Renewable Integration. One of the primary responsibilities of the new division is to conduct generation fleet studies that test whether there is adequate "flexible capacity" installed to meet future electricity needs.

a. ***What is the impact of this more stringent must-offer obligation for flexible resources on specific resources?***
b. ***Is the proposed set of hours suitable? Does limiting the hours in which a resource must submit economic bids enable more resources to participate in the flexible capacity initiative?***
c. ***Is it appropriate to exclude self-scheduled resources from counting towards flexibility?***

Answer:
Yes. When resource adequacy resources meet their must-offer obligation through self-scheduling, then these purportedly flexible resources are, in fact, no longer dispatchable by the ISO, and, therefore, they are no longer "flexible."

d. ***Can this risk be alleviated partially by incentivizing resources with Must-Offer Obligations to submit economic bids in the ISO market instead of self-scheduling? What changes could be contemplated within regulatory proceedings at the ISO and the CPUC, to make it conducive for resources to submit economic bids instead of self-scheduling their energy?***

Answer:
Yes. In fact, the ISO is developing market mechanisms that should encourage increased economic bidding in the day-ahead and real-time markets (i.e. the flexible ramping product and changes to the bid floor). Currently, there is nothing in the ISO market that prohibits a resource from submitting economic bids instead of self-scheduling. However, the ISO believes that requiring an upfront flexible capacity requirement and associated offer obligation to provide economic bids rather than self-scheduling, along with the market incentives in the ISO markets, will ensure that the right resources are procured to provide flexible capacity and reduce the costs of the flexible ramping product.

F. Eligibility (Section 5.1)

10. According to the proposal, a resource must be able to ramp and sustain energy output for a minimum of three hours to qualify as flexible. Is this a suitable condition to determine eligibility for flexible resource? (Section 5.1) Please explain why or why not.

Answer:
Yes, it is suitable to determine the eligibility of a resource to provide flexible capacity based on a resource's ability to ramp and sustain its energy output for a minimum of three hours. For details as to why this is an appropriate metric, please refer to Section 1.2-Determination of Flexible Capacity Need in the Joint Parties' Proposal.

11. Is the ISO proposed mechanism to modify the resource's master file to note flexible capacity as "dispatchable" appropriate? Please explain why or why not.

Answer:
Yes, indicating a resource as dispatchable in the ISO masterfile is appropriate. A resource is intrinsically "flexible" if it is dispatchable by the ISO. Thus, dispatchable resources must be identified as such in the ISO masterfile to be recognized and used by ISO systems. However, a resource's degree of flexibility is dependent on the resource's other attributes listed in the ISO masterfile, such as start-up times, ramp rates, Pmin and Pmax. Thus, listing a resource as "dispatchable" in the ISO masterfile is essential, but doing so is only a threshold indicator of how the ISO can operate that resource.

a. What, if any, capacity procurement impacts on current resources due to the bundling requirement can be anticipated (positive and negative)? (Section 5.2)

Answer:
Bundling capacity attributes adds simplicity to the bi-lateral contracting process. For instance, without bundling it would be difficult to determine the must offer obligation for a resource whose owner sold both its flexible capacity attribute and its underlying generic capacity. "Unbundling" is a complex issue that can be considered as part of a comprehensive capacity procurement solution.

California Independent System Operator Corporation
Response To CPUC Questions On
Joint Parties' Proposal

12. How can the integrity of the master file be maintained?

Answer:
The ISO has established business processes for maintaining the integrity of the masterfile and obligations for resources to accurately report operating data.

13. "Dispatchability" is as much a contractual term (i.e. bidding behavior) as it is a physical characteristic of a resource. How can generators list contractual terms in the MasterFile?

Answer:
For ISO purposes, identifying a resource as "dispatchable" in the ISO masterfile indicates the physical capability of a resource. This physical capability listed in the masterfile tells the ISO that this resource is capable of changing its output based on an ISO dispatch instruction. Another field in the masterfile could list flexible as Yes or No. In this case, a dispatchable resource that is also listed as flexible would have certain contractual and ISO tariff obligations. If, for example, a dispatchable resource that is also flexible has a tariff obligation to submit economic bids, but does not do so, then the ISO masterfile could trigger the ISO market systems to submit an economic bid on the resource's behalf. This type of functionality already exists and is core to the ISO market.