Flexible Resource Adequacy Criteria and Must-Offer Obligation Comments on Third Revised Straw Proposal

Company	Date	Submitted By
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AReM General Comments

The Alliance for Retail Energy Markets (AReM) recognizes that the purpose of this element of capacity market discussions on the Flexible Resource Adequacy Criteria and Must Offer Obligation ("FRAC MOO") is "narrowly focused on how to operationally utilize flexible capabilities in the ISO market"2 and is not focused on more general policy issues.

Nevertheless, AReM feels obliged to point out that it has submitted comments on each of the FRAC MOO proposals put forth by the CAISO (and in the other CAISO and CPUC capacity market proceedings) setting forth a position that such requirements should, in the long term, be reflected as enhanced ancillary services. AReM's general opposition to including flexible requirements in the capacity obligation instead of developing biddable ancillary service products to address these requirements remains. AReM includes all of its prior comments by reference, and again requests that the CAISO take note of those comments. AReM also notes that at the recent FERC Technical Conference held on September 25, similar issues were discussed, and many participants raised similar concerns about the market design inefficiencies that are created when capacity obligations are defined in a narrow, granular manner. AReM urges the CAISO to review the record from that proceeding and attaches the presentation made by Dr. David Patton of Patton Economics.

To the extent that the CAISO (and CPUC) are intent on moving forward incorporating flexible capacity requirements (FCR) into the Resource Adequacy (RA) compliance program, AReM believes that the details associated with the compliance requirements must be clear and known well in advance of any compliance deadline to ensure that buyers and sellers are able to transact properly to meet the compliance obligations. The comments offered herein are intended to identify where those goals are (and are not) being achieved.

ISO Response

The ISO is designing the flexible ramping product. This product will help the ISO efficiently dispatch flexible capacity resources in real-time. Just as there is an energy product in the market and a forward capacity requirement to be able to produce energy, it's appropriate to have a forward flexible capacity requirement to ensure there is sufficient flexible capacity to bid into the ISO markets.

The ISO is working with LRAs and stakeholders to ensure compliance obligations and clear and know well in advance of RA compliance showings.

1. The ISO has outlined a methodology to allocate flexible capacity requirements to LRAs. It is

based on one possible measurement of the proportion of the system flexible capacity requirement to each LRA and calculated as the cumulative contribution of the LRA's jurisdictional LSE's contribution to the ISO's largest 3- hour net load ramp each month. Please provide comments regarding the equity

a. The ISO's proposal to use an LSE's average contribution to historic daily ISO maximum 3-hour load changes to allocate the Δ load component of the flexible capacity requirement.

AReM Response: AReM has no comment on the appropriateness of this mechanism to allocate the flexible capacity requirement to LRAs, except to note that the allocation based on contribution to the three-hour ramp appears reasonable.

b. The potential of using historic average daily maximum 3-hour net-load ramps or time of day system maximum 3-hour load ramps (morning vs. evening ramps).

AReM Response: See response to Question 1.a.

c. What other measurement or allocation factor should the ISO consider to determine an LRA's contribution to the change in load component of the flexible capacity requirement?

AReM Response: AReM does not have any comment as to whether there are additional measurements or allocations that should be considered.

d. Should the ISO consider seasonal allocations for each component? What would these seasonal allocations look like?

AReM response: AReM sees no reason to further complicate the capacity requirement by incorporating a seasonal allocation for each component.

ISO Response

The ISO has modified the allocation of changes in load slightly to focus more on contributions to peak net-load ramping needs. However, the ISO believes the new proposal more accurately reflects cost causation principles.

The ISO will not propose seasonal allocations at this time.

3. What are the appropriate bounds for the maximum and minimum for the error term as well as how to address year-to-year variability? What are the appropriate actions if such bounds are reached?

AReM Response: AReM appreciates the discussion contained in the Third Revised Straw Proposal with respect to the error term, and the uncertainties around how this term will be determined each year in the FCR process. AReM does not have an opinion on the maximum or minimum for the error term, but continues to maintain this "error term" is tantamount to a FCR reserve margin. Therefore, AReM continues to believe that if an "error term" is included in the FCR, then there must be further analysis to determine appropriate

reductions to the existing general 15% Planning Reserve Margin (PRM) in order to ensure that customers and ratepayers are not saddled with excessive RA and FCR procurement costs.

The Third Revised Straw Proposal recognizes that there is a relationship between these two components of an RA requirement when it says: The error term, by definition, is not known. However, there may be several factors that contribute to the need for additional procurement. For example, the current RA program allows for a 15 percent planning reserve margin. This margin is designed to include seven percent reserves, and approximately an eight percent system outage rate. The current flexible capacity requirement does not have a similar cushion built-in to account outages of flexible capacity.

Alternatively, the ISO's assessment may show there was more than enough flexible capacity available to address flexible capacity needs and flexible capacity needs could be reduced[3]

Despite acknowledging the link between the two, the CAISO's Third Revised Straw Proposal does not address in any meaningful way what modifications to the PRM should be considered in light of the application of an "error term" to the FCR. To the extent that the error term is intended to account for outages of the flexible capacity resources, it seems intuitive and indisputable that there should be some sort of reduction in the PRM, which also accounts for unit outages. The CAISO must provide more analysis on this topic and (i) propose a specific reduction in the PRM, or (ii) more fully explain to stakeholders why a reduction is not warranted. The CAISO should also fully specify how the annual determination of the FCR error term will be integrated with the PRM.

3 See CAISO Third revised proposal, page 24.

ISO Response

The ISO is not proposing any modifications to the planning reserve margin to account for any overlap between flexibility needs and system level resource adequacy requirments. The planning reserve margin is designed to account for ancillary services, outages, peak load, and forecast error. The flexibility requirements as proposed would be a subset of the overall set of resources used to meet resource adequacy requirements designed to ensure adequate operational flexibility from the resources used to meet the resource adequacy requirments.

4. The ISO has proposed must-offer obligations for various types of resources. Please provide comments and recommendations regarding the ISO's proposed must-offer obligations for the following resources types:

1. Demand response resources.
2. Storage resources.
3. Variable energy resources

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AReM Response: AReM does not have specific comments on the must offer obligations at this time, except to note that AReM endorses the CAISO's effort to ensure that all resources have clearly stated obligations that allow diversified resources to contribute to the flexible requirements under terms and conditions that are equivalent (not necessarily identical) to conventional generation.

ISO Response

The ISO is working with stakeholders to ensure that any resource that is able to address system flexibility needs can do so.

5. The ISO has proposed a flexible capacity availability incentive mechanism. Please provide comments of the following aspects of this mechanism:

f. Please also include comments regarding issues the ISO must consider as part of the evaluation mechanism that are not discussed in this proposal.

AReM Response: At this point in time, AReM endorses the 'adder method" as the preferred incentive mechanism option. AReM does not have any comment at this time on other elements of this Question 5.

ISO Response

The ISO appreciates the support on this aspect of the proposal.

6. The ISO has proposed to include a backstop procurement provision that would allow the ISO to procure flexible capacity resources to cure deficiencies in LSE SC flexible capacity showings. Please provide comments regarding the following issues of ISO's proposed flexible capacity backstop procurement proposal:

a. The inclusion of the adder methodology

AReM Response: See response to Question 5.f above (that AReM endorses the use of the adder method).

b. The opportunity for LSEs to provide a list of uncommitted flexible capacity that can be used to help cure flexible capacity deficiencies

AReM Response: AReM appreciates and supports that the CAISO intends to procure backstop FCR capacity only in stances where there is a demonstrated deficiency in the FCR showing of an LSE, and that the costs of such backstop procurement will be entirely allocated to the deficient LSE.

However, AReM believes that the CAISO's procedures for soliciting uncommitted FCR in the event of a deficiency need to be clarified. Specifically, as AReM understands the proposal, the CAISO intends, when there is a deficiency in FCR, to allow parties who have secured RA from specific units that can also provide EFC – but for which the EFC is not being used

for compliance with the EFC obligations – to make that EFC available and be paid the EFC adder by the CAISO. The CAISO in turn will bill the deficient LSE for that backstop procurement. AReM understands that the CAISO's requirements that RA and EFC must remain a bundled product could lead to a situation where an LSE may indeed have EFC in their RA portfolios that they have not committed for FCR compliance. However, it must be noted that the bundling restriction may be the very reason that the deficient LSE was unable to secure the required EFC. In such instances, when the CAISO secures the deficient EFC through its backstop procurement authority, having the deficient LSE pay the adder is reasonable, but it would not be reasonable for that deficient LSE to be required to pay any penalty associated with its shortfall. AReM acknowledges that the CAISO proposal does not contain any penalty sanctions, but it has not yet been determined whether CPUC regulations will have penalty sanction for EFC deficiencies, and so AReM is raising this issue here to alert the CAISO, and ask that, when this issue is discussed at the CPUC, the CAISO will support AReM's request that any penalties should be waived when the circumstances described here create a EFC deficiency.

Finally, the CAISO proposes a 30-day cure period for any identified shortfalls.[4] AReM supports this cure period, but notes that the CPUC has not yet updated its RA compliance sanctions to include FCR. When the CPUC begins that process, AReM urges the CAISO to work with the CPUC to ensure that its cure period matches the cure period afforded by the CPUC.

4 See CAISO Third revised proposal, page 49, footnote 48.

ISO Response

The ISO has assessed the available levels of effective flexible capacity available in the system. Based on this assessment, it is not clear to the ISO at this time that the bundling provisions of the FRAC-MOO proposal creates a scarcity of effective flexible capacity such that an flexible capacity resource could economically benefit from withholding or that LSE would not be able procure flexible capacity because another LSE had procured all available flexibility and was withholding. The ISO will continue to assess this concern and will work with DMM if such concerns become realities.

7. Are there any additional comments your organization wishes to make at this time?

AReM Response: Other than the issues raised above, there are several other issues that have raised concerns for AReM. Some of the issues described below have, in fact, been raised by AReM multiple times and the CAISO has failed to address them. As this process moves toward closure, AReM would appreciate the CAISO's immediate attention to these issues.

Proposed Timeline: AReM is concerned with elements of the overall process timeline presented on page 13 of the Third Revised Straw Proposal. Specifically, the Final EFC list of eligible flexible capacity resources will not be issued by the ISO until September 1 of each year – and that there will be a two-week period after September 1 during which EFC resources can ask for modifications to the EFC list, such that EFC list will not be official until mid September. AReM acknowledges that this is not dissimilar to the process for disseminating information about the Net Qualifying Capacity (NQC), and that for the NQC

there can be changes in the final list up until September. However, market participants have years of experience with the NQC process, and the type of changes that can occur late in the process. This is simply not the case with EFC; contracting for EFC will be an entirely new process. Receiving information about the final EFC so late in the cycle for the first two or three years of program could very well contribute to problems achieving compliance in the required time frame. Therefore, AReM requests that the CAISO revise the timeline to provide EFC data much earlier in the process, at least on a preliminary basis, so as to provide a guide for procurement efforts. In addition, should there be a significant change between the preliminary allocation and the final allocation in September, AReM requests that the October 31 deadline for the year-ahead RA showing be extended.

Counting Conventions: In the Third Revised Straw Proposal, the CAISO notes:
The ISO is working with the CPUC to determine if different counting criteria should be considered in the current RA proceeding and may revise these assumptions as appropriate based on the determination of this work.5

The fact that counting conventions continue to be evaluated, and are not yet finalized raises concern about the feasibility of implementing the FCR in 2015. In particular, as described below, the CAISO has not yet addressed rules for Combined Cycle Plants. As with the allocation of the overall FCR, it is essential the market participants who must buy and sell these resources in order to meet compliance obligations know precisely what they are buying and selling, and have this information in a timely manner to develop meaningful and carefully-executed transactions. Therefore, AReM urges that the CAISO's proposal must spell out the time frame in which this work is going to be completed, and if it cannot be or is not completed so that market participants have this information is available by July of each compliance year, the compliance window should be extended.

CPUC allocation versus CAISO allocation of FCR: The Third Revised Proposal states:

while the CPUC decision determines the overall requirement based on each month's maximum net load ramp, it allocates this overall requirement to LSEs based on peak load share. In contrast, the ISO is proposing to allocate the overall system requirement to LRAs in proportion to the sum of their jurisdictional LSEs contribution to the maximum net load ramp.6

This indicates that there may be a mismatch between the CAISO's allocation methodology and the CPUC. Such mismatches have never yet occurred between the CAISO and CPUC with respect to the annual determination of the Local Capacity Requirements, and AReM fully expects that the CAISO and CPUC will continue to ensure that no such mismatches occur with respect to the FCR. Nevertheless, AReM makes these comments here to highlight the importance that there be one – and only one – FCR compliance obligation established by the CPUC and CAISO to eliminate any market uncertainty or confusion, and to ensure that LSEs are not forced into some unnecessary duplicative procurement.

Need for a centralized capacity market: AReM acknowledges and appreciates that the CAISO supports the formation of a multi-year forward centralized capacity market, and urges the CAISO to continue working toward implementation of that market design. Increasing the granularity of the capacity requirements will increase the transactional

difficulty associated with meeting the RA requirements, especially in light of California's unfortunate hybrid market design. The formation of a centralized capacity market where capacity positions should be easily traded would significantly reduce these burdens, and would provide much needed capacity pricing transparency.

Rules for Combined Cycle Plants – When the CPUC adopted the Joint Parties proposal for flexible capacity requirements in D.13-06-024, it did so on an interim basis only and directed that the proposal be further modified to include counting rules and eligibility criteria for combined cycle gas turbines.7 The CAISO's initial straw proposal (December 13, 2012) proposed an "interim" counting rule for combined cycle units and stated that a "longer-term solution" is needed (p. 20). Since then, the two subsequent revised straw proposals have been silent on this topic. ESPs procure RA capacity from combined cycle units and need upfront clarity about how such units will qualify to provide flexible capacity. Lack of clarity will hamper procurement and create unnecessary market uncertainty. The CAISO should develop clear rules for *all* flexible resources before imposing requirements on LSEs. AReM again requests that the CAISO address this issue in its next revision.

Adjustments for Load Migration – AReM has also previously noted that an LSE's allocation of flexible capacity requirements should be adjusted to reflect load migration to be consistent with the current practice for adjusting System and Local RA requirements. AReM requests that the CAISO specify that the current RA process for adjusting an LSE's requirements to account for load migration be applied to the LSE's flexible capacity requirements.

ISO Response

In response to concerns regarding the proposed timeline, the ISO has issued a final EFC list. Having information is sooner is always better than later, however, given the connection between the NQC and the EFC, the ISO has proposed a release that coordinates these calculations.

The ISO believes that a centralized capacity market would facilitate the efficient procurement of flexible capacity. However, current RA is procured through a bilateral RA market. The ISO continues to work with the CPUC and other LRAs to ensure there are clear rules defined for all flexible capacity resource, including combined cycle plants. ‘

The ISO is not currently proposing to rerun the flexible capacity needs intra-year to account for load migration.

Company	Date	Submitted By
Bay Area Municipal Transmission Group (BAMx)	10/18/2013	Doug Boccignone dougbocc@flynnrci.com 888-634-7509

2. The ISO believes the proposed methodology reflects causation principles. Specific to allocating flexible capacity requirements, what does "causation" mean to your organization and how would this definition be most accurately reflected in a flexible capacity requirements allocation process?

The ISO's Cost Allocation Guiding Principle for Causation is that costs will be charged to resources that benefit from the services being procured or to resources that drive the procurement decision.2 The ISO's flexible capacity requirements are strongly related to resource intermittency, which is why the inclusion of the intermittent solar and wind resource components is justified. The ISO's flexible capacity needs also include ramping requirements that are affected by load changes, and ancillary services requirements that are linked to load (e.g., operating reserves are required for 7% of load served by non-hydro resources and for 5% of load served by hydro resources). Thus, the ISO's proposed approach for allocating the flexible capacity requirements based on the proposed components reflects causation principles (though the ancillary services allocation based on 3.5% of peak load share does not take into consideration the reduction in the requirement to 2.5% (one-half of 5%) for LSE's for their load served by hydro).

ISO Response

The ISO appreciates the support on this aspect of the proposal.

3. What are the appropriate bounds for the maximum and minimum for the error term as well as how to address year-to-year variability? What are the appropriate actions if such bounds are reached?

The error term should be bounded at plus or minus 20% of the total requirement (and the error term initially should be set to zero, as proposed by the ISO). In future years, within these bounds, the ISO should propose the value of the error term to use for the subsequent RA year based on a comparison of the flexible capacity made available to the ISO in the preceding compliance period to the ISO's actual flexible capacity needs during that period. Changes to the error term bounds should be addressed in future FERC filings after completing a stakeholder process.

ISO Response

The ISO is still assessing how to best set bounds on the error term and will consider this input as part of the consideration.

5. The ISO has proposed a flexible capacity availability incentive mechanism Please provide comments of the following aspects of this mechanism:

b. The price for the flexibility adder. Specifically, if the ISO proposed price is not correct, what price or data source should the ISO consider and why?

The ISO should investigate the possibility of using confidential CPUC data to develop the flexibility adder.

e. The proposed substation rules for forced outages

f. The last two sentences of Section 8.4 state that flex capacity substitution need not come from the same resource that provides substitute generic capacity, but local resources on forced outage will require another local resource be used for substitution. Parties should be allowed to substitute a non-local flexible capacity resource to meet the portion of the flexible capacity requirement being met by the local resource, and to separately substitute another local resource that may not have available Effective Flexible Capacity, to meet the local capacity requirement. For the substituted flexible capacity resource and for any substituted generic capacity, the current "same electrical bus" substitution requirement for local capacity substitutions should not apply.

ISO Response

The ISO has continued to work with ORA to assess the viability of relying on the CPUC data. However, these discussions have lead the ISO to reconsider the flexible ramping constraint to price the flexible capacity adder.

Parties are free to substitute any flexible capacity resource for another flexible capacity resource, regardless of the location of the original or substitute capacity. However, as noted in the comment, if the original resource is a local capacity resource, then the local component would still need to be replaces with another local resource.

Company	Date	Submitted By
BrightSource Energy, Inc.	10/16/2013	David Schlosberg dschlosberg@brightsourceenergy.com (510) 250-8816

Opening Comments

BrightSource appreciates this opportunity to submit its comments to the CAISO. In addition to the specific comments provided below, BrightSource offers the following overall summary of its primary outstanding issues in the 3rd straw proposal:

Solar thermal with storage resources do not contribute to the incidence of significant net load ramps and should not be included in the flexible capacity requirement assessment by design.

The specialized must-offer obligation hours for solar thermal resources should not assume

the presence of storage.

The availability incentive mechanism framework needs to consider the most appropriate application to flexible variable energy resource capacity.

ISO Response

Each of these questions are discussed below.

ISO Response

2. The ISO believes the proposed methodology reflects causation principles. Specific to allocating flexible capacity requirements, what does "causation" mean to your organization and how would this definition be most accurately reflected in a flexible capacity requirements allocation process?

BrightSource supports the ISO's proposal to allocate flexible capacity requirements to each LRA based in part on the aggregate of its constituent LSEs' variable energy resource portfolio's contribution to the maximum 3 hour net load ramp. The desired effect should be to encourage LSEs to fully consider the benefits and costs of its resource and demand management decisions and to provide the CAISO with a balanced portfolio that mitigates net system ramps and consequential flexible capacity procurement costs. In particular, the effect of procuring variable energy resources of differing production profiles and dispatch capabilities is essential.

As BrightSource explained in its comments to the first and second straw proposal, solar thermal resources integrated with sufficient energy storage need to be evaluated for inclusion in the calculation of the monthly maximum 3 hour net load ramp. Their inclusion, if not appropriate, will artificially create an increased procurement requirement in excess of actual system need, thereby increasing costs:

"Specifically, the Solar Thermal component of the allocation formula should include only Solar Thermal facilities without energy storage capabilities. Solar Thermal facilities with energy thermal energy storage capabilities possess varying degrees of dispatchability depending on plant design. Their daily output profiles will be based on, among other factors, energy and ancillary service market optimization results, current and prior operating day solar resource availability (which influences storage system charge status) and Scheduling Coordinator decisions related to contractual obligations. Therefore, output profiles cannot be predicted based on a uniform, geographically-based solar profile forecast. The dispatchable characteristics are more akin to dispatchable thermal or hydro supply resources, which are also not contemplated as components in the allocation formula."1

Footnote 18 of the 3rd straw proposal states that "solar and wind resources that are firmed outside of the ISO balancing area will not be included in the allocation calculation." Solar thermal facilities with storage can perform this firming at the point of generation and should

not be included in the allocation calculation either.

BrightSource appreciates the ISO's response to its comments on this subject in the second straw proposal; however, the split of solar PV and solar thermal into separate categories in the flexible capacity requirement assessment does not address the issue presented above. If the ISO intends to "allow an LSE to submit data regarding any additional dispatchability or curtailment provisions,"[2] which could affect a resource's inclusion in the flexible capacity requirement assessment, the ISO's fourth straw proposal should explicitly state this as it relates to solar thermal with storage resources, similar to the statement related to firmed wind and solar resources.

The capability of solar thermal with storage resources to modify system ramps and provide other sources of operational flexibility such as regulation and load-following has been well established in the research literature. Most notably, Denholm et al., (2013) models solar thermal with storage resources using an LTPP 33% RPS scenario and demonstrates its contribution to energy, load-following, regulation, and spinning reserves, as well as its capacity ratings assuming net load conditions in 2020.[3]

d. Specialized must-offer obligations (please also include any recommended changes for the duration or timing of the proposed must-offer obligation):

3. Variable energy resources (VERs).

While future solar thermal facilities are likely to incorporate storage capabilities, no solar thermal facilities, either operating or nearing completion, in the ISO balancing area currently possess storage capabilities. The currently proposed MOO hours, which assume the presence of storage capabilities, do not consider this reality and "the availability of all energy sources for the resource," which are currently candidates for participation as flexible VER capacity.[4]

[2]ISO Responses to Submitted Comments regarding Second Straw Proposal at pg 42. http://www.caiso.com/Documents/StakeholderCommentsMatrix-FRACMOO-SecondRevisedStrawProposal.pdf

[3] Denholm, P., Wan, Y-H., Hummon, M., and M. Mehos, "An Analysis of Concentrating Solar Power with Thermal Energy Storage in a California 33% Renewable Scenario," National Renewable Energy Laboratory, Technical Report, NREL/TP-6A20-58186, March 2013.

[4] ISO Responses to Submitted Comments regarding Second Straw Proposal at pg 43. http://www.caiso.com/Documents/StakeholderCommentsMatrix-FRACMOO-SecondRevisedStrawProposal.pdf

ISO Response

The ISO appreciates that support for the proposed allocation methodology

The Flexible Capacity Requirements study process is the proper forum to address how various resources impact the flexible capacity requirement. This includes solar thermal with and without storage and any additional dispatchability associated with a variable energy resource.

The ISO has merged the solar PV and solar thermal categories for the must offer obligation.

5. The ISO has proposed a flexible capacity availability incentive mechanism Please provide comments of the following aspects of this mechanism:

f. Please also include comments regarding issues the ISO must consider as part of the evaluation mechanism that are not discussed in this proposal.

The straw proposal does not include or make clear how incentive mechanism credits and penalties will be measured for participating flexible VERs. If flexible VER capacity is unavailable to generate (or decrement) due to natural resource availability, the ISO should treat these MOO intervals as having received an economic bid, subject to a verification process. To support this approach, further study is warranted of the coincidence of wind and solar resources' availability and net load ramps, to support a market in which there are "opportunities for all types of flexible capacity, including … renewable resources that are willing and able to adjust their output to meet system needs.

ISO Response

The incentive mechanism for VERs will work very similar for VERs as it would for any other resource. As noted in section 7.1.6 of the fourth revised straw proposal, a VER energy resource that is not available due to weather would be assessed based on the minimum of the resources bid or its schedule. The owner of the VER will have to consider the risks associated with provided flexible capacity, including fuel availability prior to selling flexible capacity.

6. The ISO has proposed to include a backstop procurement provision that would allow the ISO to procure flexible capacity resources to cure deficiencies in LSE SC flexible capacity showings. Please provide comments regarding the following issues of ISO's proposed flexible capacity backstop procurement proposal:

a. The inclusion of the adder methodology

The ISO's proposal to calculate a flexibility price adder for use in the incentive mechanism

framework and, particularly, backstop procurement requires additional attention to ensure that it achieves its goals. The $23.25 / kW-year adder appears to be arbitrarily set without regard for the difference in actual flexibility of the "average-priced" and the 85th percentile generator.[5] Moreover, the setting of the adder for backstop procurement prior to the annual LSE showings could be problematic. There is no evident support for the proposition that the adder method will result in a "slightly higher price for flexible backstop procurement," so this approach could artificially restrict the price of flexible capacity and obscure economic signals for investments in flexible capacity. If competitive offers suggest a price for flexible capacity greater than the generic capacity backstop price plus the flexibility adder, then LSEs may be incentivized to under-procure flexible capacity and to contract with flexible generators for system capacity only. The resulting conditions might either leave the ISO with an inability to procure sufficient resources or to resources being paid below a market-based appropriate price.

Other tariff-based adders or formula payments provided for operational flexibility, such as PJM's payment for fast regulation, have been developed with an analytical framework, and are linked to actual operational requirements and unit performance. An analytical basis could be developed for this adder as well and could align the incentives provided better with the types of flexibility resources that are consistent with state policy goals.

b. The opportunity for LSEs to provide a list of uncommitted flexible capacity that can be used to help cure flexible capacity deficiencies

No comments on this item at this time

[5] In addition, the capacity price of the 85th percentile generator, which here is used as a proxy for flexible capacity cost, would represent a composite price of system and flexible capacity since only a portion of the generator's capacity would be considered flexible.

ISO Response

The ISO appreciates this input and revisited the prospect of using the flexible ramping constraint to price the adder. The ISO has proposed a new flexible capacity adder price, but continue to seek stakeholder comment on this matter.

7. Are there any additional comments your organization wishes to make at this time?

Effective Flexible Capacity (EFC) Calculation for Flexible VERs

The CPUC Energy Division has issued a draft proposal for calculation of EFC for demand response and storage resources, including storage resources co-located with generation, using an Effective Ramping Capability methodology. For solar thermal with storage facilities, this could suggest an EFC which differs from the ISO's PMin, NQC and ramp rate based formula.6 In general, the implementation of new probablistic capacity value modeling could impact the ability of Flexible VERs to help the ISO meet the system needs addressed in proposal.

ISO Response
The ISO is working with the CPUC on the EFC counting rules for flexible capacity, including the rules associated with VERs and storage. Modifications to the EFC counting rules can be made as appropriate in conjunction with the final outcome of this proceeding.

Company	Date	Submitted By
Calpine Corp.	10/16/2013	Matt Barmack barmackm@calpine.com 925-557-2267

Opening Comments

Calpine has been concerned that flexible capacity counting rules, must-offer obligations, and availability incentives are not being developed consistently. The previous version of the straw proposal introduced widely varying must-offer obligations for different resource types. In our comments on the previous straw proposal, Calpine argued that resources that are subject to less stringent must-offer obligations and hence not fully available should not count fully towards flexible capacity requirements.

Consequently, Calpine was very encouraged by the proposal in the CAISO's presentation, Use-limited Resources and Flexible Capacity,1 at the October 15 RA Workshop. The proposal showed a willingness to de-rate the flexible capacity of resources that are less than fully available. While the proposal contains few details, it is a big step in the right direction. Calpine strongly encourages the CPUC and the CAISO to work together on the details of implementing the proposal.

The following comments elaborate on this issue and other issues

ISO Response

In the fourth revised straw proposal the ISO proposed requiring use-limited resources that reach monthly or annual use-limitation prior to the end of a month be required to provide substitute capacity. The ISO believes that this requirement enhances comparable treatment amongst various resource types and should go a long way to addressing the concerns raised here.

1. The ISO has outlined a methodology to allocate flexible capacity requirements to LRAs. It is based on one possible measurement of the proportion of the system flexible capacity requirement to each LRA and calculated as the cumulative contribution of the LRA's jurisdictional LSE's contribution to the ISO's largest 3- hour net load ramp each month. Please provide comments regarding the equity and efficiency of the ISO proposed allocation. Specifically, please comment on:

a. The ISO's proposal to use an LSEs average contribution to historic daily ISO maximum 3-hour load changes to allocate the Δ load component of the flexible capacity requirement.

b. The potential of using historic average daily maximum 3-hour net-load ramps or time of day system maximum 3-hour load ramps (morning vs. evening ramps).

c. What other measurement or allocation factor should the ISO consider to determine an LRA's contribution to the change in load component of the flexible capacity requirement?

d. Should the ISO consider seasonal allocations for each component? What would these seasonal allocations look like?

At this juncture, Calpine has no specific comments on the allocation of flexible capacity requirements to LRAs.

ISO Response

No response needed.

2. The ISO believes the proposed methodology reflects causation principles. Specific to allocating flexible capacity requirements, what does "causation" mean to your organization and how would this definition be most accurately reflected in a flexible capacity requirements allocation process?

With respect to the allocation of flexible capacity requirements, Calpine believes that "causation" means that loads and resources that contribute to the need for flexible capacity should bear flexible capacity costs. The straw proposal seems to reflect this general principle. Calpine is still unsure of whether or how flexible capacity procurement obligations would be allocated to resources that contribute to flexible capacity requirements but are not under contract to an LSE. Given that the vast majority of resources that contribute to flexible capacity requirements are under contract, this concern may be mostly theoretical.

ISO Response

The ISO has modified the proposal for allocating changes in load to reflect the changes of load during the top five daily maximum 3-hour net load ramps to more closely align with causation of the maximum net-load ramps.

Allocating an RA requirement to generating resource is a significant change to the current RA construct. While the ISO believes that such considerations likely merits additional consideration, such changes to the RA construct is beyond the scope of the current stakeholder initiative.

3. What are the appropriate bounds for the maximum and minimum for the error term as well as how to address year-to-year variability? What are the appropriate actions if such bounds are reached?

Calpine has no specific recommendations on bounding the size of the error term or changes in the error term, but recommends that the CAISO develop clear criteria for setting the error term. Calpine suggests that significant shortages of upward flexibility resulting in parameter-driven energy and AS pricing caused by failures, for example, to satisfy flexible ramping constraints, might constitute a basis for raising the error term.

ISO Response

The ISO will establish the error term in the flexible capacity requirement study and will consider these causes as the need for a non-zero error term in the future.

4. The ISO has proposed must-offer obligations for various types of resources. Please provide comments and recommendations regarding the ISO's proposed must-offer obligations for the following resources types:

a. Resources not identified as use-limited

b. Dispatchable gas-fired use-limited resources

1. Please provide comments regarding the ISO's proposal that would allow resources with use-limitations to include the opportunity costs in the resource's default energy bid, start-up cost, and minimum load cost.

Calpine supports the CAISO proposal to allow the inclusion of opportunity costs in energy bids and start-up costs to allow the management of use-limitations while complying with must-offer obligations. (Caps on energy bids and start-up costs, inclusive of opportunity costs, that are specific to flexible capacity resources and below the CAISO's general caps on energy bids and start-up costs may be warranted to prevent undue reliance on use-limited resources to satisfy flexible capacity procurement requirements, i.e., a resource with an energy bid that is so high that it is unlikely ever to be called may not contribute meaningfully towards flexible capacity requirements.)

2. Please provide information on any use-limitations that have not been addressed and how the

ISO could account for them.

c. Hydro Resources

d. Specialized must-offer obligations (please also include any recommended changes for the duration or timing of the proposed must-offer obligation):

1. Demand response resources.

2. Storage resources.

3. Variable energy resources.

Calpine reiterates that must-offer obligations, counting rules, and availability incentives must be consistent, i.e., resources that are less available and/or subject to less stringent must-offer obligations should count less towards flexible capacity procurement requirements. Calpine strongly supports the recent thinking on this topic reflected in the CAISO's presentation at the October 15 RA workshop and encourages the CPUC and the CAISO to implement some version of the general proposal in the presentation.[2]

[2] Use-limited Resources and Flexible Capacity

ISO Response

The ISO appreciates the support for proposal to allow resources to include the opportunity cost for start-up and minimum load costs.

In the fourth revised straw proposal the ISO proposed requiring use-limitations that reach monthly or annual use-limitation prior to the end of a month be required to provide substitute capacity. The ISO believes that this requirement enhances comparable treatment amongst various resource types and should go a long way to addressing the concerns raised here. Additionally, the ISO believes that the availability charges and credits are consistent with the availability of the resources. For example, a DR resource on outage for one hour would be more costly than an outage for a non-use-limited resource.

5. The ISO has proposed a flexible capacity availability incentive mechanism Please provide comments of the following aspects of this mechanism:

a. The selection of the adder method as the preferred option

1. Should the ISO still consider the bucket method, the "worse-of" method, or some other method not already considered? Why?

Calpine agrees with the adder method.

b. The price for the flexibility adder. Specifically, if the ISO proposed price is not correct, what price or data source should the ISO consider and why?

While the flexibility adder proposed by the CAISO may be plausible, the data cited by the CAISO do not support it. The CAISO cites data compiled by the CPUC on bilateral contract prices for system RA. Given that these contract prices are for a homogeneous product, there is no basis for the CAISO's conclusion "…that lower quality capacity will have a lower price, while newer and higher quality capacity (i.e. more flexible capacity) will receive a slightly higher capacity price."[3] To the extent that resource "quality" influences system RA prices,

lower quality resources actually may require higher prices to compensate for greater risk of outages and exposure to SCP penalties. Calpine conjectures that the price differences in the CPUC's sample of contracts reflects month-to-month variations in RA prices, not resource quality differences, i.e., system RA prices are generally higher in summer months than in winter and shoulder months.

c. The interaction between the existing SCP and the proposed SFCP

d. The proposed SFCP evaluation mechanism/formula

1. The formula used to calculate compliance (including the treatment of long-start and use-limited resources)

Calpine reiterates its view that resources that are not available in real-time do not provide the same contribution to reliability as resources that are available in real-time. This lower level of reliability should be reflected either in counting rules or in the calculation of SFCP incentives.

2. The treatment of forced and planned outages

3. The minimum availability thresholds for use-limited resources

e. The proposed substation rules for forced outages

The proposed substitution rules for flexible capacity that is forced out seem reasonable, but the straw proposal does not address a closely related topic, i.e., the substitution rules for flexible capacity that is sold as generic. Calpine requests that the CAISO not require the replacement of flexible capacity that is sold as generic with capacity of equivalent flexibility. (The fact that the CAISO has required the replacement of local capacity sold as generic with capacity in the same local area has limited and complicated opportunities to sell generic capacity from resources in local areas, particularly in local areas that have more than sufficient capacity to meet local capacity requirements, such as the Greater Bay Area.)

f. Please also include comments regarding issues the ISO must consider as part of the evaluation mechanism that are not discussed in this proposal.

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3 *Third Revised Straw Proposal* at 43.

ISO Response

The ISO appreciates the support for the adder method.

The ISO has reviewed the price used for the adder method and is proposed a new pricing methodology. The ISO will seek additional stakeholder input on this proposal as well as other possible solutions.

In the fourth revised straw proposal the ISO proposed requiring use-limitations that reach monthly or annual use-limitation prior to the end of a month be required to provide substitute capacity. The ISO believes that this requirement enhances comparable treatment amongst various resource types and should go a long way to addressing the concerns raised here.

If a resource that has an EFC, but is only shown on RA plans as generic, goes on a forced outage, the SC for the resource will only be responsible for replacing generic capacity. The SC for the resource on outage in this case will not be subject to the SFCP.

Company	Date	Submitted By
California Department of Water Resources (CDWR)	10/16/2013	Mohan Niroula mohan.niroula@water.ca.gov 916-574-0712

1. The ISO has outlined a methodology to allocate flexible capacity requirements to LRAs. It is based on one possible measurement of the proportion of the system flexible capacity requirement to each LRA and calculated as the cumulative contribution of the LRA's jurisdictional LSE's contribution to the ISO's largest 3-hour net load ramp each month. Please provide comments regarding the equity and efficiency of the ISO proposed allocation. Specifically, please comment on:

a. The ISO's proposal to use a LSEs average contribution to historic daily ISO maximum 3-hour load changes to allocate the Δ load component of the flexible capacity requirement.

CDWR appreciates CAISO for proposing allocation of FCR to Δ load based on historical load. CDWR in the first two rounds of comments advocated for this methodology. While CAISO appreciated CDWR's comments in this regard, it rejected the netting concept CDWR proposed in the proposed allocation methodology1. CDWR again emphasizes that:

a) if an LSE's contribution coincident with the ISO largest 3 hour net load ramp results in negative load changes, FCR associated with that negative load change should be netted against LSE's FCR obligation associated with wind and solar generation coincident with the ISO's maximum 3 hour net load ramp. This is an equitable approach to award LSE's load modifying behavior instead of providing compensation for negative load ramps; b) While determining contributing factor for an LSE, the historical load changes (3 hour load ramps based on hourly average load) should be measured coincident with the ISO determined maximum 3 hour net load ramp period. Steps presented below describes in detail.

b. The potential of using historic average daily maximum 3-hour net-load ramps or time of day system maximum 3-hour load ramps (morning vs. evening ramps).

Following steps should be considered:

1. ISO determines the maximum 3 hour net load ramp and the hour when it occurs for a month. Let's say hour 17:00.

2. Forecasted Maximum Ramp Period (MRP): 15:00 through 19:00; can be 2 hours before and after the hour when maximum 3 hour ramp occurs for the month.

3. Determine LSE's average hourly load for the month for last 2 years.

4. Determine LSE's 3 hour average hourly load ramp. For example: Hour 17:00 average load minus Hour 14:00 average load for 3 hour average load ramp at Hour 17:00.

5. Determine LSE's 3 hour average ramp coincident with MRP in bullet 2. Maximum (or average) value out of MRP hours can be taken as the contribution factor for Δ load.

6. Netting: if the LSE's contribution factor for Δ load is negative, the corresponding negative FCR should be netted against the LSE's FCR obligation attributed to wind and solar coincident with MRP. In this manner, netting should not be a concern as described by CAISO because netting in this way is done only at the period coincident with MRP (not averaging morning and afternoon contribution). Such netting would incent load modifying DR resources not bid into the ISO market.

c. What other measurement or allocation factor should the ISO consider to determine an LRA's contribution to the change in load component of the flexible capacity requirement?

As described in 1(a) above, CDWR also emphasizes that: a) if an LSE's contribution coincident with the ISO largest 3 hour net load ramp results in negative load changes, FCR associated with that negative load changes should be netted against LSE's FCR obligation associated with wind and solar generation coincident with the ISO's maximum 3 hour net load ramp. This is an equitable approach to award LSE's load modifying behavior instead of providing compensation for negative load ramps; b) while determining contributing factor for an LSE, the historical load changes (3 hour load ramps based on hourly average load) should be measured coincident with the ISO determined maximum 3 hour net load ramp period,

d. Should the ISO consider seasonal allocations for each component? What would these seasonal allocations look like?

Seasonal allocations may not reflect all LSE's contributions truly; their load behavior may differ from each other seasonally. The seasonal approach would consider uniform load behavior of LSEs which may not be true. More granular approach (monthly instead of seasonal) would incent LSEs in managing their load and resources effectively.

ISO Response

The ISO is still assessing the ramifications of allowing an LSE to have a negative load contribution.

The ISO has modified the proposal for allocating changes in load to reflect the changes of load during the top five daily maximum 3-hour net load ramps to more closely align with causation of the maximum net-load ramps. Instead of looking at set time windows, the ISO believes it is more appropriate to look at actual historic maximum changes to net-load. This should better capture an LSEs contribution.

The ISO is not proposing seasonal allocations of flexible capacity needs at this time.

2. The ISO believes the proposed methodology reflects causation principles. Specific to allocating flexible capacity requirements, what does "causation" mean to your organization and how would this definition be most accurately reflected in a flexible capacity requirements allocation process?

Causation means the degree of contribution to an affect or impact. The degree of contribution should be robust and should be determined in a practical and measurable way. In this case historical load and what it could represent in future to affect FCR is a practical and reasonable method. Causation also should be accounted for in both directions. If the contribution is causing the FCR need, then the contribution is chargeable. If the contribution is helping in mitigating the FCR need then it should also be counted as credit and should be netted against other obligations. Causation evaluation also needs to focus at the time period when the target or forecast occurs.

ISO Response

The ISO has modified the proposal for allocating changes in load to reflect the changes of load during the top five daily maximum 3-hour net load ramps to more closely align with causation of the maximum net-load ramps. The ISO is still assessing the ramifications of allowing an LSE to have a negative load contribution.

4. The ISO has proposed must-offer obligations for various types of resources. Please provide comments and recommendations regarding the ISO's proposed must-offer obligations for the following resources types:

a. Resources not identified as use-limited

b. Dispatchable gas-fired use-limited resources

1. Please provide comments regarding the ISO's proposal that would allow resources with use-limitations to include the opportunity costs in the resource's default energy bid, start-up cost, and minimum load cost.
2. Please provide information on any use-limitations that have not been addressed and how the ISO could account for them.

c. Hydro Resources

CDWR appreciates CAISO making changes for the eligibility for hydro resources counting for flexible capacity2. The proposal considers must offer hours of 5 am through 10 pm. Alternatively, Flexible Standard Capacity Product (FSCP) availability assessment hours could be targeted during morning ramp hours (5 am -9 am) and evening ramp hours (4 pm through 8 pm) only even though must offer hours are 5am through 10 pm. This will distinguish between a non-use limited thermal resource and a hydro generation resource.

Apparently, managing use limitation through proposed default energy bid opportunity cost procedure is not designed for hydro resources. Does this mean that there is no change to the use limitation consideration today for hydro resources under the FSCP?

Threshold test for Effective Flexible Capacity (EFC): the proposal mentions that CAISO will run a threshold test for EFC. To the extent the resource did not have an economic bid at a certain level it would not qualify as an EFC resource. Then the owner would have to request ISO for including the resource in the EFC list. ISO could reject the request. What are the conditions that such resource request could be rejected or accepted by CAISO?

d. Specialized must-offer obligations (please also include any recommended changes for the duration or timing of the proposed must-offer obligation):

1. Demand response resources.

CDWR supports scheduling coordinators to choose between mornings (7 am –noon) or evening (3 pm-8 pm) must offer hours. This is a targeted approach in utilizing DR resources to meet reliability when the system is in stressed condition.

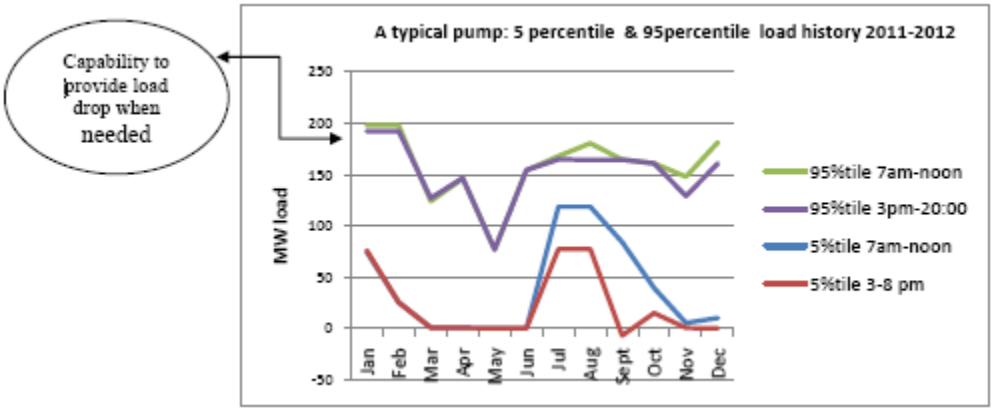
CDWR raised two significant issues in its comments on 2nd revised proposal. Following are the issues and comments:

a) The first was whether the ancillary service bid that a participating load can provide in the Day Ahead Market (DAM) will suffice for FSCP measurement or not, as energy bid cannot be provided in the DAM with the current ISO Model. CDWR believes that the contingency portion of FCR should be allowed with contingency flag (contingent upon reduction of system operating reserve for which contingent FCR is needed). CDWR appreciates CAISO's response that CAISO will review the implementation challenges[3]. CDWR would like to see some progress on the CAISO determination. It is apparent that CDWR is the only entity that has significant amount of participating load. CAISO's effort in reviewing implementation could be more productive with a discussion with CDWR.

b) The second issue: "In the case of demand response (DR) resources, if, for some reason, the load associated with the DR resource is not consuming or pumping during some days or hours of the compliance month, there will be no load to drop and hence DR cannot be offered to further reduce load during the proposed must offer hours. If the load has already done what it was supposed to do ultimately (reduce load) during the must offer hours, there should not be any penalty imposed. In case of a wholesale pump load, it may not pump for a

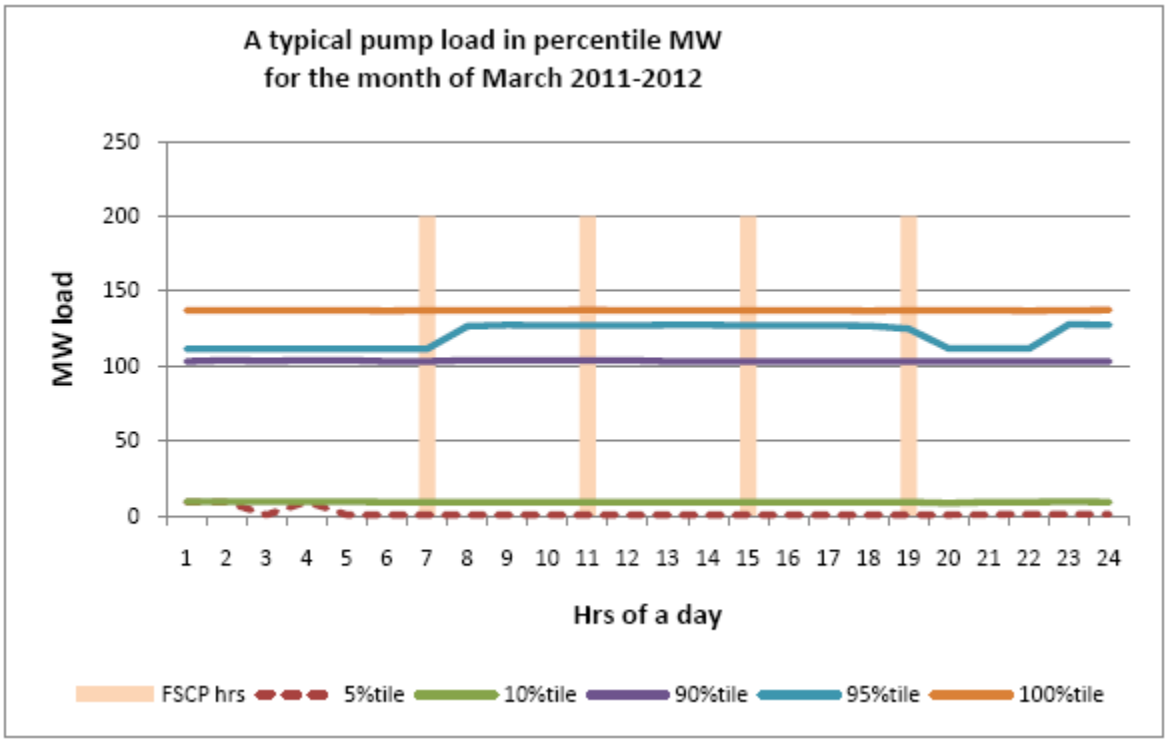
number of reasons, such as lack of water demand, during some days or hours of month overlapping proposed must offer hours. During those hours (overlapping with must offer hours) when water demand is reduced, load drop capacity will be reduced or vanish because of no pumping load. Such circumstance is equivalent to "dispatched RA generation capacity" to generate energy and hence should not be penalized by labeling those hours as non-compliant. There should be a mechanism that exempts such circumstances from being penalized under flexible capacity incentive mechanism". CDWR does not agree with the CAISO response[4] in this regard. CAISO states, "If a demand response resource does not have load to drop than it is unavailable to provide system flexibility."

With ISO's statement, CDWR understands that a pump load that can occur about 95% of times (which is a 5 percentile load) would be eligible to provide flexible capacity because it would be subject to FSCP assuming monthly FSCP availability standard could be around 95%. If the load is not available, it cannot be bid to drop and it will be subject to FSCP charges. This would deter use of participating load providing flexible RA. A chart below demonstrates a typical real example:



According to the ISO explanation, 5 percentile load (load that most likely would be present to drop) would be eligible to provide flexible RA as it will be subject to FSCP. In the chart above, the pump can not be used for flexible RA from March through June because its 5 percentile load is about zero. Very negligible amount would be eligible during October through February. Whereas, the pump load at 90-95 percentile is much higher, in the range of 100-200 MW. The load variations (95 percentile= 200 MW in some month to 5 percentile=0 in some month) can be due to various reasons such as no water demand for the day or some other environmental limitations, or responding to ISO stress condition through market price signal none of which undermines ISO reliability. So, the load does not need to be kept on to drop when a dropped load has already achieved its ultimate goal. There is no merit in allowing only load that exist to count for flexible RA because very little to none load would be allowed to count for flexible RA while the load actually can occur at much higher level. For example, for April, 5 percentile load is zero, whereas 95 percentile load is 150 MW. Since the pump can not provide flex RA, it actually poses challenge to ISO relaibility when pumping at 150 MW without having dropping capability from ISO. If it is allowed to provide flex RA at 150 MW, it could drop at the moment when it is needed

instead. The chart below shows with eligible 5 percentile load as Flex RA (1 MW in the example), there is a significant 90-100 percentile load (range 100-140 MW) in any hour of a day that could provide RA on an as available basis:



CDWR recognizes that ISO could see an implementation challenge in accomodating this unique situation. CDWR proposes that for participating load resources (pseudo gen) the availabilty measurement for FSCP should be measured matching with underlying demand schedule. If there is no underlying demand bid, FSCP measurement should waive that hour and if underlying demand schedule is there equal to or less than the flex RA capacity, and there is no bid for pseudo gen, it should be counted against availability. An illustrative example is presented below:

Assume, flexible RA capacity from ppseudo gen= 100 MW

FSCP hrs	7:00	8:00	9:00	10:00	11:00	12:00
Demand schedule	100	0	0	180	100	30
Pseudo gen (flex RA bid)	100	0	0	100	50	30
FSCP waiver	no	Yes; no demand and no bid to drop	Yes; no demand and no bid to drop	No; demand schedule is >RA capacity; pseudo gen is bid for a full RA capacity; 100% available.	No; 50 supply MW is not bid when demand schedule is 100 MW; 50 MWh counts against FSCP availability	No; now the demand bid is less than RA capacity; for this hour RA capacity of 100 should be treated as only 30 and measure FSCP based on
						30 MW; results in 100% FSCP for this hour in that way.

Without CDWR's concept (to use participating load on an as available basis), utilization of

participating load would be none to very negligible due to FSCP penalties.

2. Storage resources.
3. Variable energy resources.

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3 CAISO response: *The ISO is still reviewing the implementation challenges associated with participating load and will attempt to address this matter in the next draft of the proposal*.

4 CAISO response: *The ISO believes that demand response with no load to drop is more akin to a conventional generator on outage rather than a generator that has been dispatched. If a demand response resource does not have load to drop than it is unavailable to provide system flexibility.*

ISO Response

While the flexible capacity requirement is based on the 3-hour net-load ramp, the ISO must also rely on this product to address load following needs. As such, the ISO believes it is best to continue to assess the SFCP over the entire 5:00 a.m. through 10:00 a.m. window. Additionally, the ISO will honor any daily use-limitations during that window. The ISO requests additional input regarding any other use-limitations that hydro resources need assessed that are not currently covered.

The threshold test is set very low (i.e. submit at least one economic bid on at least ten days in the previous year. The ISO will automatically reassess all resources between the draft EFC listing and the final EFC listing. As such, it is possible that a resource that failed the original test would now pass and a resource that passed the original test may not on the second test. This should provide both an opportunity for resources to submit economic bids and encourage resources to continue submitting economic bids.

The ISO has looked at the application of flexible capacity as it applies to participating load very carefully. However, the ISO does not believe that PL, as currently designed works well for providing flexible capacity. The NGR product, however, does provide superior functionality and would work better for providing flexible capacity than PL.

5. The ISO has proposed a flexible capacity availability incentive mechanism Please provide comments of the following aspects of this mechanism:

a. The selection of the adder method as the preferred option

CDWR supports the preferred option.

1. Should the ISO still consider the bucket method, the “worse-of” method, or some other method not already considered? Why?

b. The price for the flexibility adder. Specifically, if the ISO proposed price is not correct, what price or data source should the ISO consider and why?

c. The interaction between the existing SCP and the proposed SFCP

d. The proposed SFCP evaluation mechanism/formula

The formula should take into account waivers suggested by CDWR in the example described above for participating load.

1. The formula used to calculate compliance (including the treatment of long-start and use-limited resources)

2. The treatment of forced and planned outages

3. The minimum availability thresholds for use-limited resources

e. The proposed substation rules for forced outages

f. Please also include comments regarding issues the ISO must consider as part of the evaluation mechanism that are not discussed in this proposal.

ISO Response

The ISO appreciates the support for the adder method. However, the ISO believes the proposed thresholds to avoid SFCP availability charges could create flexible capacity deficiencies towards the end of the month. Thus these thresholds have been eliminated.

7. Are there any additional comments your organization wishes to make at this time?

a) An excerpt from CDWR's comment in the 2nd revised proposal:

CEC Load forecast in the need assessment: ISO mentioned in the August 1 meeting that Flexible Capacity Requirement (FCR) assessment will include the demand forecast from CEC's Integrated Energy Policy Report (IEPR) data. The FCR assessment is intended to be performed each month, so monthly load forecasts will be needed. However, the CEC IEPR data produces one annual number representing each LSE's coincident peak demand for the entire year; it does not have granularity at a monthly level. How will ISO utilize the CEC IEPR data to derive 12 monthly forecasts of load? It appears that the CEC IEPR requires reporting the last 2 years' historical hourly load data. How is an LSE's annual coincident peak demand forecast from IEPR going to be translated to LSE's monthly demand forecast for FCR assessment purposes?

ISO response states, "The ISO has scaled ISO actual system peak in the previous year to match the CEC's IEPR forecast. Additionally, has scaled all loads proportionately. For example, in the results for the 2014 RA scaled 2012 actual load data such that the system peak equaled the forecasted IEPR system peak. All other hours were scaled using the same

proportional weighting."

ISO should present a process flow chart and an illustrative example to show how such load data is derived.

b) Inaccuracy of LSEs data and potential impact on FCR with rerun of FCR: The proposal lacks details on how ISO will determine accuracy. For example, what would be measured or compared?

c) Regulation as the must offer requirement for a storage resource: ISO should clarify if it is a regulation ancillary service bid.

ISO Response

The ISO appreciates this input and will try to address such questions as part of the flexible capacity requirements study process.

The ISO's data accuracy requirement regarding submission of contracted variable energy resources is designed to ensure 1) that the calculated flexible capacity requirements are, to the extent possible, accurate and 2) that the requirements are properly allocated to those LSEs that cause the need. It designed as a means to encourage LSEs to provide accurate information and protect other LSEs from any additional charges from inaccurate reporting. The ISO understands that on-line dates change and that these changes may not be under the control of the contracting, however the ISO believes that this stipulation will ensure the accuracy of the data submitted has undergone must be a good faith review for accuracy. The ISO will compare the new results (i.e. the results with the new, more accurate data) with the existing results.

Yes, the ISO will require storage resources selecting the REM option will be required to submit regulation ancillary service bids.

Company	Date	Submitted By
California Energy Storage Alliance	10/16/2013	Don Liddell, Douglass & Liddell liddell@energyattorney.com, (619) 993-9096

Opening Comments

CESA continues to applaud the CAISO's collaborative work with the CPUC and stakeholders reflected in the Third Revised Straw Proposal ("Proposal") to ensure that flexible capacity energy storage resources are available in the very near future to reliably operate the grid while fulfilling state energy and environmental goals. CESA will continue to work closely with the CAISO and the CPUC in developing the CAISO tariff changes necessary for the CAISO to adopt flexible resource adequacy RA capacity requirements that

specifically include energy storage for inter-hour, load following, and ramping needs.

ISO Response

The ISO appreciates the support on this aspect of the proposal.

1. The ISO has outlined a methodology to allocate flexible capacity requirements to LRAs. It is based on one possible measurement of the proportion of the system flexible capacity requirement to each LRA and calculated as the cumulative contribution of the LRA's jurisdictional LSE's contribution to the ISO's largest 3- hour net load ramp each month. Please provide comments regarding the equity and efficiency of the ISO proposed allocation. Specifically, please comment on:

a. The ISO's proposal to use an LSEs average contribution to historic daily ISO maximum 3-hour load changes to allocate the Δ load component of the flexible capacity requirement.

CESA's Response: CESA urges the CAISO to re-consider its use of three-hour ramping as a benchmark for need evaluation and allocation of flexible capacity requirements. Instead, CESA advocates for a methodology that appropriately values the benefits that shorter discharge duration energy storage resources may provide in terms of flexibility. For example, three 100 MW one-hour energy storage resources could provide more value to grid operations than could one 100 MW three-hour resource.

Both can provide 100 MW capacity for three hours, but the aggregated one-hour resources could provide up to 300 MW of short-term capacity if that were required. In order to allocate flexible capacity requirements with more appropriate discharge durations, system need evaluations should therefore incorporate sub-three-hour load ramps.

ISO Response

The ISO has proposed an EFC counting methodology that recognizes the specific operational attributes of storage resources that is less based on what some resources can do over less than a three hour period. However, at this time, the ISO believes it is reasonable to maintain a direct connection between the NQC and the EFC of a resource

4. The ISO has proposed must-offer obligations for various types of resources. Please provide comments and recommendations regarding the ISO's proposed must-offer obligations for the following resources types:

d. Specialized must-offer obligations (please also include any recommended changes for the duration or timing of the proposed must-offer obligation):

CESA's Response: CESA agrees with the proposed hourly must-offer windows. CESA also supports the rating of all systems according to their ability to deliver within their hourly windows. A resource might be derated according to its use limitations within the

hourly windows proposed for that specific resource. CESA also urges the CAISO to establish a load following category of must-offer obligations that fits the five-minute to five-minute need identified by the CAISO.

CESA additionally urges the CAISO to establish flexible RA counting criteria that recognize the multiple capabilities and characteristics of energy storage resources. CESA recommends that flexible RA counting criteria should incorporate the following characteristics of energy storage resources:

- The full flexible capacity of the charge and discharge range should be accounted for. Energy storage resources may be able to charge and discharge at full capacity, which essentially provides double the flexible capacity of conventional generation with comparable rated capacity.

- The proposed three-hour discharge duration requirement should be reconsidered in favor of a methodology that values the benefits that resources with shorter discharge duration capability may provide in terms of flexibility. It should be clarified that "availability" during the full time window may not require full discharge for the entire must-offer window.

- The ability to charge an energy storage resource from exported renewable energy produced by eligible renewable resources ("ERRs") should be accounted for in the valuation. Solar energy peaks midday, and wind resources usually produce greater generation at night. The ability to capture any energy exported from ERRs, as opposed to curtailing them, should be included in the valuation.

- The impact of resources on customer service should be accounted for in RA counting criteria, either through a standardized valuation methodology or by prioritization in the bidding process. This will appropriately recognize energy storage's ability to avoid disrupting customer service, especially in comparison to other load-management methods such as demand response.

- Resource availability (i.e. operational hours or total use cycles per year) should be accounted for. Energy storage resources generally do not have use-cycle constraints, which increases their grid benefits relative to other use-limited resources. This could be accounted for in the above proposed rating of systems by their ability to deliver within their specified time windows.

- Ramp rate should be factored into RA counting criteria for all resources.

The ramp rate of a resource affects the flexibility benefits it provides to the grid, especially in relation to rapid fluctuations in supply or demand.

ISO Response

The ISO has proposed an EFC counting methodology that recognizes the specific operational attributes of storage resources that is less based on what some resources can do over less than a three hour period. The ISO has put forward an EFC proposal that would be connected to the

NQC of the resource. As is the case currently, the ISO will defer to individual LRAs to determine the method for determining the QC for RA resources.

The ISO believes that the requirement to provide economic bids will allow the ISO to use the flexible capacity resources to address load following needs through 2017. After 2017, the ISO believes a specific load following product will need to be developed.

The ISO is still assessing the viability of counting both the full upward and downward range for a storage facility's EFC. While storage resources may be technically capable of providing full charge and discharge, it is not clear that such a counting of resources would reflect the planned operation of the resource. For example, a resource selecting to provide regulation would most likely look to return to a set point that is half charged. In such cases, it is not clear way the storage facility should receive an EFC the account for the full range between fully charged and fully discharged.

The value proposition of energy storage in conjunction with "exported renewable energy produced by eligible renewable resources," avoiding customer service disruption , and the treatment of ramp rate for counting for RA purposes is beyond the scope of this initiative. However, the ISO believes that there should be additional discussion regarding the importance of ramp rates in future stakeholder initiatives that seek to develop more granular capacity procurement goals.

It is not clear from the comments provided how the ISO should account for "customer service" in the determination of the EFC.

The ramp rate of resources is considered in the start-up time and the ability to move over three hours. The ISO has stated that the additional of a load following product will need to be developed. This new product would look more closely at shorter ramps than three-hours (i.e. 5 minute ramping capability).

5. The ISO has proposed a flexible capacity availability incentive mechanism Please provide comments of the following aspects of this mechanism:

f. Please also include comments regarding issues the ISO must consider as part of the evaluation mechanism that are not discussed in this proposal.

CESA's Response: CESA supports the Adder method proposed by the CAISO. However, energy storage resources should be allowed to have different SCP and SFCP ratings. Energy storage resources may provide more SFCP than SCP; this difference of capabilities should be explicitly recognized in the rating system. CESA also urges the CAISO to harmonize its requirements with the CPUC, which has proposed a counting method that: (a) does not allow for differential SCP and SFCP ratings, and (b) does not recognize the 15-minute NEM category for energy storage flexible capacity.

ISO Response

While the ISO appreciates the support on this aspect of the proposal, it is not clear that, given the connection between the resources NQC and EFC, it will be able to provide more SFCP than SCP. Finally, the ISO continues to work with the CPUC and other LRAs to coordinate resource adequacy rules and counting methodologies.

Company	Date	Submitted By
California Wind Energy Association	10/22/2013	Dariush Shirmohammadi e-mail: dariush@shirconsultants.com phone: 310-858-1174 Nancy Rader e-mail: nrader@calwea

Introduction

The California Wind Energy Association (CalWEA) appreciates the opportunity to comment on the CAISO's third revised straw proposal on Flexible Resource Adequacy Criteria and Must-Offer Obligation (FRACMOO).

CalWEA commends CAISO for several improvements in its third revised straw proposal – these improvements were mainly in line with CalWEA's comments on the second revised straw proposal. However, CalWEA strongly believes that several additional changes, discussed in detail below, still need to be implemented in the next version of the FRACMOO proposal.

ISO Response

No response required.

1. If contingency reserve capacity is to be reserved as part of flexible capacity procurement, it should be subtracted from the RA Capacity Requirement

CAISO proposes to calculate the flexible capacity requirement for any month of the year by adding two system capacity needs:

i) Largest three-hour contiguous ramp during the month; and

ii) Maximum contingency reserve for that month.

The inclusion of the latter term simply points to CAISO's abundance of caution in making sure that the capacity needed for system flexibility and for contingency reserve do not overlap. CalWEA believes that there are more effective ways to prevent such overlap than the approach proposed by the CAISO, which is tantamount to redundant long-term procurement of contingency reserve (as we explained before, RA capacity procurement at

115% to 117% of peak annual/monthly demand is specifically intended to ensure long-term procurement of contingency reserves). However, if CAISO still intends to procure the flexible and contingency reserves capacities simultaneously, the amount of contingency reserve procured in this fashion should be subtracted from the LSE's RA Capacity Procurement Requirement. Adopting this simple change in the RA Capacity Procurement Requirement would be similar to the paradigm in the CAISO's Flexible Capacity availability incentive mechanism, the "Adder Method."

ISO Response

The ISO will not be the entity procuring flexible capacity envisions flexible capacity procurement will largely be procured as a subset of all RA procured capacity. There should be no need to modify the 115-117 reserve requirements at this time to account for the inclusion of some portion of contingency reserves.

2. Imports, especially in light of FERC Order 764 reform, should be allowed to participate in offering flexible capacity

We note that CAISO continues to hold that imports will not qualify as flexible capacity, yet has never provided a solid argument justifying this exclusion, especially the exclusion of imports with 15-minute ramp capability.

ISO Response

Reasons for excluding imports have been provided in section 6 of the fourth revised straw proposal. As has been noted numerous times, the flexible capacity product current being discussed must be used to address both longer sustained ramps as well five minute load following needs. Imports that are not scheduled on a five minute basis cannot provide load following. However, as noted in the proposal in footnote 21, the ISO will reexamine imports once we have additional experience with 15 minute intertie schedules and individual flexible capacity products that allow for separation of the ISO's ramping and load-following needs.

3. The flexibility of renewable resources built into most power purchase agreements for these resources should be accounted for in calculating the flexible capacity requirement

CalWEA continues to urge the CAISO to work with the LSEs to explore the use of curtailments enabled in the PPAs to mitigate the net load ramps at least during those few time-periods during the year when the largest three-hour contiguous ramps are expected to occur. Utilizing this existing capability would reduce the monthly and annual flexible capacity requirement for the entire system and the participating LSE in particular. By reducing the need for flexible capacity requirements, renewable resources can make a significant contribution to resolving the issue.

ISO Response

Use of curtailment provisions for determining the magnitude of the net-load ramps should be

addressed as part of the flexible capacity requirements assessment.

4. The allocation of the flexible capacity requirement to LSEs can and should be modified to correspond to costs caused by such LSEs as a result of their procurement decisions

CalWEA is encouraged that the CAISO has modified its proposed method for allocating the monthly flexible capacity requirement for a calendar month, corresponding to the single largest three-hour contiguous ramp forecasted for that month ("maximum ramp event"), to more closely reflect individual LSE's contribution to that ramp for that single event. However, this is just the minimum step that CAISO could take in this area.

To properly reflect cost-causation, CAISO should isolate the exact contribution of each LSE to the maximum ramp event per the approach CalWEA suggested in our last round of comments via the relationship between the SCs on one side and loads and resources represented by that SC on the other side. This contribution should then be used for allocating the flexible capacity procurement obligation to the LSEs, either directly by the CAISO or via Local Regulatory Authorities (LRAs).

ISO Response

As noted in the proposal, "[t]he ISO must assess the proper level of granularity to use when determining the allocation to each LSE. The ISO has considered several levels of granularity, including a single measurement such as peak load ratio share as well as very detailed measurement that looks at each LSE's specific portfolio of load and resources." Based on the ISO's assessment, at this time, the proposed allocation appears appropriate. However, the ISO continues to assess the potential for looking at an LSE's specific contribution ramps based on the RPS data submitted.

5. CAISO should strictly enforce the obligation of flexible capacity resources to provide economic bids in the DA and RT markets

CalWEA continues to advocate that CAISO should use its bid validation rules to ensure that flexible capacity resources that were selected and paid to provide flexible capacity submit economic bids into the DA and RT markets. However, CAISO continues down the path of using performance incentives/penalties in the fashion that are used to reward/penalize RA resources for their availability – perhaps ignoring the fact that the system always has some "free" RA capacity for CAISO to rely on if insufficient committed RA capacity shows up in real time while there are no guarantees that there will be some flexible capacity available in real-time. If CAISO insists on using such an incentive-based approach to ensure the availability of sufficient flexible ramp capacity reserves, we propose that CAISO supplement the approach with two enhancements:

• The penalties for unavailability should, at a minimum, reflect the actual cost incurred to deal with the flexible ramp shortage; and

• The CAISO should study the incidences of flexible capacity shortage based on lack of scheduling/bidding, and if the number of such incidences increases beyond a threshold, introduce the concept of bid validation rules to ensure participation by selected flexible

capacity resources.

ISO Response

The ISO believes it is prudent to rely on the affirmative submission of a bid that demonstrates a resource is actually available, rather than relying on inserted bids and assuming the resource is available.

The ISO has considered the flexible ramping constraint as a possible means of establishing availability charges and credits. However, it is not clear how the ISO would determine the thresholds suggested and if, once crossed such thresholds would apply to all resources or only those that cross the threshold. Finally, if properly designed, the availability charges would discourage resources that can provide flexibility from doing so.

Company	Date	Submitted By
Dynegy Marketing and Trade, LLC	10/16/2013	Jason Cox Jason.cox@dynegy.com 713-507-6413

1. The ISO has outlined a methodology to allocate flexible capacity requirements to LRAs. It is based on one possible measurement of the proportion of the system flexible capacity requirement to each LRA and calculated as the cumulative contribution of the LRA's jurisdictional LSE's contribution to the ISO's largest 3-hour net load ramp each month. Please provide comments regarding the equity and efficiency of the ISO proposed allocation. Specifically, please comment on

1. The ISO's proposal to use an LSEs average contribution to historic daily ISO maximum 3-hour load changes to allocate the Δ load component of the flexible capacity requirement.

   Dynegy's comment: This approach will work if the LSEs have the same resources under contract and will introduce errors if their resource mix has changed resulting in a new Δ load value.

2. The potential of using historic average daily maximum 3-hour net-load ramps or time of day system maximum 3-hour load ramps (morning vs. evening ramps).

   Dynegy's comment: This method is likely to result in an overprocurement of flexible capacity and increase uplift payments (BCR). The CAISO should use an average (that takes into account the renewable forecast & schedules) in the day-ahead market with the ability to raise or lower the commitment in real-time.

3. What other measurement or allocation factor should the ISO consider to determine an LRA's contribution to the change in load component of the flexible capacity requirement?

   Dynegy's comment: We believe that the LRA isn't the best way to allocate flexible capacity requirements; each LSE should have the impact of their portfolio measured for contribution to the flexible capacity need and the cost or requirement allocated accordingly.

4. Should the ISO consider seasonal allocations for each component? What would these seasonal allocations look like?

   Dynegy's comment: Only if it makes a material difference in accuracy, otherwise it's just making it more complex for no reason.

ISO Response

The ISO has modified the proposal for allocating changes in load to reflect the changes of load during the top five daily maximum 3-hour net load ramps to more closely align with causation of the maximum net-load ramps. The ISO believes that changes to the allocation methodology are consistent with this definition of causation.

Each LRA's allocation will be based on its jurisdictional LSEs' contribution to the net load ramp. The ISO will defer to the LRAs to allocate the flexible capacity requirement to its jurisdictional LSEs.

The ISO is not proposing seasonal allocations at this time.

2. The ISO believes the proposed methodology reflects causation principles. Specific to allocating flexible capacity requirements, what does "causation" mean to your organization and how would this definition be most accurately reflected in a flexible capacity requirements allocation process?

   a. Dynegy's comment: Simply being in an LRA is cost causation? Do loads outside LRAs have flexible capacity requirements?

ISO Response

It is not clear what is meant by "loads outside LRAs." The ISO is allocating flexible capacity requirements to LSEs based on their contribution to the 3-hour maximum net load ramps.

3. What are the appropriate bounds for the maximum and minimum for the error term as well as how to address year-to-year variability? What are the appropriate actions if such bounds are reached?

   a. Dynegy's comment: Why not use a metric like you do for load forecast error? If bounds are exceeded then either reduce the amount of flexible capacity (if error is lower) or increase

the amount (if error is higher) going forward for the next season / period.

ISO Response

The ISO is still evaluating means for bounding the error term and will consider this input in its assessment.

5. The ISO has proposed must-offer obligations for various types of resources. Please provide comments and recommendations regarding the ISO's proposed must-offer obligations for the following resources types

Resources not identified as use-limited

Dispatchable gas-fired use-limited resources

Please provide comments regarding the ISO's proposal that would allow resources with use-limitations to include the opportunity costs in the resource's default energy bid, start-up cost, and minimum load cost.

Dynegy's comments: Dynegy supports the inclusion of opportunity costs.

Please provide information on any use-limitations that have not been addressed and how the ISO could account for them.

Hydro Resources

Specialized must-offer obligations (please also include any recommended changes for the duration or timing of the proposed must-offer obligation):

Demand response resources.

Storage resources.

Variable energy resources.

ISO Response

The ISO appreciate the support for including the opportunity cost provisions.

6. The ISO has proposed a flexible capacity availability incentive mechanism Please provide comments of the following aspects of this mechanism:

The selection of the adder method as the preferred option

Dynegy's comments: The adder method is preferred.

Should the ISO still consider the bucket method, the "worse-of" method, or some other method not already considered? Why?

Dynegy's comments: No, stick with the adder method.

The price for the flexibility adder. Specifically, if the ISO proposed price is not correct, what price or data source should the ISO consider and why?

Dynegy's comments: Dynegy supports WPTF's comments on this issue.

The interaction between the existing SCP and the proposed SFCP

The proposed SFCP evaluation mechanism/formula

The formula used to calculate compliance (including the treatment of long-start and use-limited resources)

The treatment of forced and planned outages

Dynegy's comments: Planned outages should not count against availability; forced outages should count against availability

The minimum availability thresholds for use-limited resources

Dynegy's comments: The CAISO should optimize the use-limited resources and provide a forecast / schedule for each use-limited resource to maximize the value of the resource in the market (max revenue). Thresholds may or may not be applicable and if used should decrease as their hours are used up.

The proposed substation rules for forced outages

Please also include comments regarding issues the ISO must consider as part of the evaluation mechanism that are not discussed in this proposal.

ISO Response

The ISO appreciates the support for the adder method.

Please see the responses to WPTF's comments on this point.

The ISO appreciates the support for the ISO's proposed treatment of outages.

The ISO has reviewed the costs and benefits of including thresholds for use-limited resources and has elected to remove these thresholds. As such, any use-limited resources shown on an RA plan as a flexible capacity and reach their use-limitation will be required to provide substitute capacity or be subject to SFCP availability charges. However, the ISO's proposal to allow resources to include the opportunity costs in start-up and minimum load costs will provide SC with an additional tool to manage use-limitations.

7. The ISO has proposed to include a backstop procurement provision that would allow the ISO to procure flexible capacity resources to cure deficiencies in LSE SC flexible capacity showings. Please provide comments regarding the following issues of ISO's proposed flexible capacity backstop procurement proposal:

The inclusion of the adder methodology

Dynegy's comments: Dynegy supports the adder methodology and CAISO having a backstop mechanism to cure deficiencies, just don't overprocure or use the backstop too much. If you are there's likely other market flaws you're using flexible capacity backstop to cure.

The opportunity for LSEs to provide a list of uncommitted flexible capacity that can be used to help cure flexible capacity deficiencies

Dynegy comments: Dynegy would support this proposal.

ISO Response

The ISO appreciates the support for the ISO's proposed backstop procurement authority. The ISO only uses any backstop authority only when absolutely needed.

Company	Date	Submitted By
Energy Producers and Users Coalition, Cogeneration Association of California, California Cogeneration Council	10/16/2013	Evelyn Kahl, Alcantar & Kahl LLP 33 New Montgomery St, Suite 1850 San Francisco CA 94105 ek@a-klaw.com 415-421-4143

4. The ISO has proposed must-offer obligations for various types of resources. Please provide comments and recommendations regarding the ISO's proposed must-offer obligations for the following resources types:

a. Dispatchable gas-fired use-limited resources

1. Please provide comments regarding the ISO's proposal that would allow resources with use- limitations to include the opportunity costs in the resource's default energy bid, start-up cost, and minimum load cost.

2. Please provide information on any use-limitations that have not been addressed and how the ISO could account for them.

Comments of the Energy Producers and Users Coalition on the

Flexible Resource Adequacy Criteria and Must-Offer Obligation

Third Revised Straw Proposal

Response to Question 4.b

Combined Heat and Power resources have unique operating and commercial conditions that challenge the proposed methodology for counting Effective Flexible Capacity. Due to their obligations to meet the operating requirements of their industrial hosts (*e.g.*, thermal or electrical energy), these resources may require a more detailed counting formula and greater discretion in setting the value that will be used by the ISO for counting an LSE's committed flexible capacity. The counting formula may also be affected by the nature of the contract commitments structured in the standard pro forma CHP contracts under the CPUC-approved CHP Settlement. The Third Revised Straw Proposal (Proposal) does not squarely address these issues, and CHP resources and LSEs would benefit from greater clarity.

As a preliminary matter, the Proposal appears to be inclined to minimize CHP host obligations in the counting process. The ISO has supported CHP resources because of their ability to meet their host obligations, most recently through the restatement of the rights of these resources to self-schedule certain amounts of their output as Regulatory Must Take Generation (RMTG). By setting RMTG levels, these resources ensure that they will be able to export sufficient energy to enable them to meet their obligations to the industrial host, including thermal energy. Section 7.1 of the Proposal, however, runs contrary to its other efforts, stating "*[t]he ISO's flexible capacity must-offer obligations include reducing resource self-scheduling as a means of increasing the pool of resources available for economic dispatch*." (p. 26) The Proposal should make clear that its goal is not to reduce self-scheduling to the detriment of CHP host operations.

In addition to this clarification, the Proposal could be improved by incorporating two additional clarifications. The final Proposal should:

Clarify the inflexible nature of some CHP output and develop a counting formula that reasonably accounts for these conditions; and

Confirm the ability of these resources to differentiate between generic RA capacity and flexible capacity to avoid impairing industrial host operations.

The Proposal differentiates the program for other atypical resources in Section 7.1, such as Dispatchable Gas-Fired Use-Limited Resources that "*are subject to environmental use-limitations mandated by a regulatory entity*." We recommend that the ISO add another

subsection to Section 7.1 to address CHP resources.

Making these changes would be consistent with CPUC D.13-06-024. In that decision, the CPUC adopted the Differentiated Capacity Option, which requires the resource to bundle generic RA and flexible capacity. The Decision recognized, however, that not all of a generator's NQC may be flexible capacity but could nonetheless be sold as generic RA, noting P_{min} as an example of inflexible capacity. Page A-2 of Appendix A of the Decision states:

Flexibility within a resource is counted by the Differentiated Counting Option. According to the "Differentiated Capacity Option", capacity that is inflexible, such as megawatts associated with Pmin, must be sold as generic capacity, not flexible capacity. Any flexible capacity must-offer obligation only applies to the flexible portion of the capacity. A megawatt of capacity can only be sold once as either generic or flexible.

While the Decision used Pmin as an example of inflexible capacity, it was not intended to limit the scope of inflexible capacity for all resources. The Decision addressed a limited universe of inflexible capacity, including hydro resources with storage capability. It also provided that *"[t]he rules for other use-limited, preferred and combined cycle resources will be developed by June 2014*;" because CHP is generally considered a preferred resource, it was assumed that modified protocols for CHP would be developed. The Proposal, however, appears to limit the scope of Preferred Resource to demand response, energy storage and intermittent resources. Despite comments on the Second Revised Straw Proposal suggesting approaches to accommodating CHP, nowhere does the current Proposal recognize the need for a protocol to address CHP inflexible capacity arising from the resource's host load obligations.

Inflexible capacity for CHP, like other preferred resources, may require a modified counting formula to ensure an accurate accounting of EFC. Using the generic protocol proposed by the Decision and the CAISO Whitepaper (NQC – Pmin) could overstate the availability of EFC. More importantly, it could put the CHP in a position where it cannot self-schedule up to its RMT_{max} without risking noncompliance with the EFC must-offer obligations under certain types of agreements.

Part of the issue stems from the existence of standard CHP contracts approved by the CPUC. The Legacy PURPA contracts do not address this issue in any way. The newer contracts based on the CHP Program Settlement form simply specify that the facility is providing Resource Adequacy Benefits (not RA or Flexible Capacity). There may be differences of interpretation regarding whether this means generic RA or bundled generic RA and flexible capacity. In addition, certain resources may be under contracts that expressly limit their total annual grid exports; these resources are more in the nature of the environmental use-limited resources, but also have different concerns.

If the Proposal's standard formula (NQC-Pmin) is used for CHP, it will in many cases overstate the resource's flexibility. If that calculation were taken as a measure in existing or standard contracts of the CHP's RA obligation, some CHP facilities could not meet their MOO. Consequently, as the CPUC did for generic RA, the counting formula must take into account the host obligations and the variable output of as-available resources.

The Proposal should more reasonably accommodate CHP operating conditions. While the Proposal or presentations used in the Stakeholder process may allude to certain of these points, the Proposal would benefit from an effort to clearly address these circumstances.

A CHP resource should be permitted to specify an EFC value annually and monthly to reflect its unique operating requirements related to industrial host obligations or CHP contract limitations, provided that it does not exceed the EFC prescribed by the ISO's default thermal resource formula (NQC – Pmin). This will ensure that a CHP's MOO does not interfere with its ability to self-schedule RMTG.

A CHP resource, or any generating resource, will have the ability to designate or sell any portion of its EFC range as "generic RA capacity." To the extent the generic RA capacity is not bundled with flexible capacity, it could either be self-scheduled or be economically bid, but would not have the Flexible Capacity Must-Offer Obligation to submit economic bids.

Take, for example, a 150 MW resource with an EFC of 100 MW that has the option to sell 40 MW of the EFC range as "generic RA" and 60 MW of flexible capacity, as long as flexible RA MWs are not also sold as generic RA (selling capacity twice). This generic RA portion associated with the EFC range would be in addition to the generic RA associated with the inflexible range (*i.e.*, 50 MW inflexible range + 40 MW EFC range) resulting in 90 MW of generic RA, 60 MW would be flexible RA.

For outages (planned or unscheduled) and de-rates resulting in partial capacity availability, a generating resource that has both generic and bundled generic/flexible capacity should have the discretion to designate whether the available capacity is generic RA (self-scheduled) or flexible RA (economically bid) that will be subject to Capacity Availability Incentive Mechanisms.

ISO Response

The ISO has proposed to account for the RMT portion of CHP units in the calculation of their EFC. In essence, the ISO has proposed that CHP resources' EFC be calculated as the difference between the NQC and the RMT for the amount of ramping the resource can provide over this range for three hours.

Company	Date	Submitted By
EnerNOC, Inc	10/16/13	Mona Tierney-Lloyd Mtierney-lloyd@enernoc.com (415)238-3788

4. The ISO has proposed must-offer obligations for various types of resources. Please provide comments and recommendations regarding the ISO's proposed must-offer

obligations for the following resources types:

d. Specialized must-offer obligations (please also include any recommended changes for the duration or timing of the proposed must-offer obligation):

1. Demand response resources.

EnerNOC appreciates CAISO's recognition of its comments in its 3rd Revised FRACMOO Proposal by adjusting the hours over which DR resources would be required to bid into CAISO's day-ahead and real-time markets to 7 AM to noon and 3 to 8 PM.

All of the other concerns relative to the opportunity cost method of limiting monthly dispatches, which were expressed in EnerNOC's comments on the 2nd Revised FRACMOO Proposal still stand and are contained by reference herein.

Further, while CAISO has declined to address the PDR market design which would require FRACMOO bids to be submitted on a sub-LAP basis as being beyond the scope of this stakeholder process, it is the very fact that a flexible capacity resource requirement is being developed to meet a system need that the design of PDR is being called into question. EnerNOC respectfully disagrees that the issue is beyond the scope of this process. However, EnerNOC will raise this concern in the stakeholder catalogue of issues as well.

ISO Response

The opportunity cost calculations provisions of the proposal will not apply to PDR.

The ISO reiterates that specific design elements of PDR are beyond the scope of this initiative. Any reassessment of the PDR market design should be addressed in a separate stakeholder initiative as appropriate.

5. The ISO has proposed a flexible capacity availability incentive mechanism Please provide comments of the following aspects of this mechanism:

The selection of the adder method as the preferred option

1. Should the ISO still consider the bucket method, the "worse-of" method, or some other method not already considered? Why?

The adder method is not preferred for DR resource purposes. The CAISO's preference for the adder seems to be based upon the concept that a resource is either generic or generic and flexible, but cannot be flexible only. That assumption may make a lot of sense for generation resources; but, it is not an appropriate assumption for demand response

resources. In fact, it is highly unlikely that the same customers will be participating as both flexible capacity and generic capacity resources. Why? Because the product definitions are very different and would require very different response capabilities of the customers. EnerNOC would be recruiting customers specifically to meet each resource's definitions

For example, resources that are designed to meet a summer peak requirement would be comprised, to a large degree, of resources that are capable of reducing air conditioning load that are available to be dispatched between the hours of 1 PM and 5 PM. Further, the resource must be available to be dispatched for up to four hours over 3 consecutive days.

A flexible capacity resource would be needed most in the winter months (November through March) in the morning hours or late afternoon/evening hours. It has a separate must-offer obligation. The loads that are able to respond would not be weather-sensitive loads, for the most part. We would have to find other operational use reductions, other than A/C, for example. While this is possible, by pre-cooling applications etc., the HVAC profiles for customers during the morning hours of a winter month is going to produce smaller quantities of curtailable MW than a mid-day summer month would.

As such, from a DR resource perspective, it makes sense to measure the incentive of a flexible capacity resource relative to the SFCP and to measure the incentive of a generic capacity resource against the SCP

The price for the flexibility adder. Specifically, if the ISO proposed price is not correct, what price or data source should the ISO consider and why?

The interaction between the existing SCP and the proposed SFCP

See comments above to a. Also, at present, there is no definition of an SCP as it relates to DR.

The proposed SFCP evaluation mechanism/formula

The formula used to calculate compliance (including the treatment of long-start and use-limited resources)

The treatment of forced and planned outages

The minimum availability thresholds for use-limited resources

The minimum availability rules for DR in most months will be roughly 20 days (30 days less 4 weeks*2 weekend days less any holidays) or 90% of non-holiday weekdays * 5 hours/weekday.

The proposed substation rules for forced outages

It is not clear what this is.

Please also include comments regarding issues the ISO must consider as part of the evaluation mechanism that are not discussed in this proposal.

ISO Response

The Adder methodology is not based on a connection between generic and flexible capacity. In fact, one of the benefits of the adder methodology is that availability assessments of flexible capacity and generic capacity can be done independently of on another. This is exactly what has been requested in the final paragraph of the response to question 5.1.

The ISO continues to look to address some of the disconnects between the manner in which PDR resources can count for RA and how they count towards flexibility needs. For example, one of the major challenges for DR is that fact that RA is measured between 1:00 p.m. and 6:00 p.m., while flexibility is measured between 7:00 a.m. and noon or 3:00 p.m. and 8:00 p.m. The ISO has proposed to allow a DR resource to establish an EFC through the use of a test event to help measure the flexibility of a PDR resource. The ISO recognizes that it will need to coordinate with the CPUC and other LRAs to coordinate this with their counting rules for demand response providing "generic" RA capacity.

The ISO will likely take up the issue of SCP for DR resources in a stakeholder initiative in 2014.

Finally, the ISO has removed minimum availability thresholds. While DR resources would be subject to the must-offer obligation for weekdays only, if they reach a monthly use-limitation, than they would be required to provide replacement capacity or be subject to standard flexible capacity product availability charges.

Company	Date	Submitted By
Independent Energy Producers Association	10/16/2013	Brian Cragg bcragg@goodinmacbride.com 415-765-8413

1. The ISO has outlined a methodology to allocate flexible capacity requirements to LRAs. It is based on one possible measurement of the proportion of the system flexible capacity requirement to each LRA and calculated as the cumulative contribution of the LRA's jurisdictional LSE's contribution to the ISO's largest 3-hour net load ramp each month. Please provide comments regarding the equity and efficiency of the ISO proposed allocation. Specifically, please comment on

Should the ISO consider seasonal allocations for each component? What would these seasonal allocations look like?

The challenge for allocating flexible capacity requirements is to balance causation with a workable simplicity. The proposed allocation approach achieves a reasonable balance between identifying the responsibility for the need for flexible capacity and developing an allocation formula that does not depend on undue complexity.

ISO Response

The ISO will not propose seasonal allocations at this time.

2. The ISO believes the proposed methodology reflects causation principles. Specific to allocating flexible capacity requirements, what does "causation" mean to your organization and how would this definition be most accurately reflected in a flexible capacity requirements allocation process?

The potential "causes" of the need for flexible resources include hard-to-quantify elements like the state's policy of encouraging the development of renewable and low-carbon energy, the clean water regulations that will require the retirement of once-through-cooling resources, flat electric rates for residential customers, and the overall effectiveness of energy efficiency and demand response programs. It is not practical to attempt to assign these types of "causes" to individual customers or customer classes. The proposed allocation approach's focus on changes in load during the 3-hour ramp and the level of an LSE's procurement of wind and solar resources is a workable solution.

ISO Response

The ISO appreciates the support on this aspect of the proposal.

4. The ISO has proposed must-offer obligations for various types of resources. Please provide comments and recommendations regarding the ISO's proposed must-offer obligations for the following resources types

Resources not identified as use-limited

Resources that are not subject to use limitations are proposed to be required to submit economic bids into the day-ahead and real-time markets from 5:00 a.m. to 10 p.m. Use-limited resources that are not required to meet this obligation may provide somewhat lesser value to the CAISO, and lesser (or greater) value should be reflected in the compensation to different types of flexible resources.

b. Dispatchable gas-fired use-limited resources

1. Please provide comments regarding the ISO's proposal that would allow resources with use-limitations to include the opportunity costs in the resource's default energy bid, start-up cost, and minimum load cost.

Including the opportunity costs in the default energy bid, start-up cost, and minimum load cost should in theory provide a way to efficiently manage the limitations of dispatchable gas-fired limited resources. The difficulty may come in the initial attempts to quantify opportunity costs. For that reason, a "hard stop," which would allow the generator to control production as needed to meet environmental or other limitations, should also be available to these resources, at least in the first few years of the flexible resource adequacy program

c. Hydro Resources

The proposed treatment of hydro resources is acceptable, but IEP agrees with the sentiment expressed at the stakeholder meeting that the differences in the MOO of hydro resources and the MOO for other flexible resources should be minimized.

d. Specialized must-offer obligations (please also include any recommended changes for the duration or timing of the proposed must-offer obligation):

It may be difficult for individual demand response, storage, and variable energy resources to meet the proposed MOOs and definitions of flexible resources. However, these types of resources may be combined to produce a resource that, in aggregate, can provide flexible capacity and meet the must-offer requirements. For example, solar thermal resources combined with storage (in the form of molten salt) can both flatten the solar drop-off at the end of the day and continue to provide energy into the evening peak. Similarly, demand response resources can be aggregated to form a portfolio that can meet the requirements for flexible resources. Storage resources may be linked in a way that provides a reliable, full 3-hour response and the ability to be available to response from 5 a.m. to 10 p.m. Rather than developing exceptions and special rules for these resources, the CAISO should ensure that any roadblocks to the efficient combination of different resource types are removed.

Combined heat and power (CHP) facilities present another type of use limitation. Some CHP resources have the ability to provide a flexible capacity product to the CAISO and to adhere to performance obligations for flexible capacity. For example, a 50 MW CHP facility may have 30 MW devoted to its thermal host and 20 MW of flexible capacity it can offer to load-serving entities with a compliance obligation. The capacity available for dispatch as flexible capacity is 20 MW, not the difference between the facility's Pmin and Pmax. Rather, the amount of flexible capacity available to the CAISO should be calculated as the difference between "Pmin-plus" (the capacity dedicated to the thermal host) and the facility's Pmax. The facility's Pmin-plus would be specified in the unit's master file, and the facility's capacity would not be dispatched beyond the range defined as Pmax minus Pmin-plus. Within that range, the availability and performance obligations of flexible resources would apply.

ISO Response

The ISO believes that requiring use-limited resources to provide substitute capacity is use-limitations prior to the end of the month enhances comparable treatment amongst various resource types and should go a long way to addressing the concerns raised here.

The ISO has proposed a specific opportunity cost calculation and continues to test the accuracy of this tool in forecasting a use-limited resource's optimal dispatch. Because this calculation may need fined tuned, the ISO is proposing that the SFCP not apply until 2016 RA compliance. This would allow use-limited resources a year to assess the risks of hitting monthly use-limitations prior to being subject to availability charges

The ISO does not currently have the functionality to align for the aggregation of DR with other non-generation resources. However, the ISO is considering taking on such an initiative. See

http://www.caiso.com/Documents/2013_StakeholderInitiativesCatalog.pdf.

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The ISO has proposed to account for the RMT of CHP units in the calculation of their EFC. In essence, the ISO has proposed that CHP resources' EFC be calculated as the difference between the NQC and the RMT for the amount of ramping the resource can provide over this range for three hours.

5. The ISO has proposed a flexible capacity availability incentive mechanism Please provide comments of the following aspects of this mechanism

The selection of the adder method as the preferred option

The adder method is the leading option, but the stakeholder meeting revealed a few areas where more thought is required. IEP looks forward to the next version of the incentive proposals.

1. Should the ISO still consider the bucket method, the "worse-of" method, or some other method not already considered? Why?

The price for the flexibility adder. Specifically, if the ISO proposed price is not correct, what price or data source should the ISO consider and why?

Ultimately, the flexibility adder should be based on the market's valuation of flexibility. IEP agrees that the initial adder should be derived from publicly available information, but the initial level of the adder should be increased if it fails to produce the desired behavior.

ISO Response

The ISO appreciate the support for the adder method and has revisited various options to price the flexibility adder and has proposed a new price based on the flexible ramping constraint. The ISO continues to seek stakeholder comments regarding the appropriate method to price the adder.

6. The ISO has proposed to include a backstop procurement provision that would allow the ISO to procure flexible capacity resources to cure deficiencies in LSE SC flexible capacity showings. Please provide comments regarding the following issues of ISO's proposed flexible capacity backstop procurement proposal:

The inclusion of the adder methodology

The opportunity for LSEs to provide a list of uncommitted flexible capacity that can be used to help cure flexible capacity deficiencies

In the present market structure, a backstop procurement provision for flexible capacity is necessary. Including the adder methodology to ensure and compensate availability and the

list of uncommitted flexible resources is a good idea. Ultimately, as the straw proposal recognizes, the Reliability Services Auction should be the source of backstop flexible capacity.

ISO Response

The ISO appreciates the support for this aspect of the proposal.

Company	Date	Submitted By
NCPA	10/16/2013	Tony Zimmer Tony.zimmer@ncpa.com

1. The ISO has outlined a methodology to allocate flexible capacity requirements to LRAs. It is based on one possible measurement of the proportion of the system flexible capacity requirement to each LRA and calculated as the cumulative contribution of the LRA's jurisdictional LSE's contribution to the ISO's largest 3-hour net load ramp each month. Please provide comments regarding the equity and efficiency of the ISO proposed allocation. Specifically, please comment on:

The ISO's proposal to use an LSE's average contribution to historic daily ISO maximum 3-hour load changes to allocate the Δ load component of the flexible capacity requirement.

NCPA supports this aspect of the proposal.

d. Should the ISO consider seasonal allocations for each component? What would these seasonal allocations look like?

NCPA prefers the monthly determination of the allocation as currently proposed.

ISO Response

The ISO appreciates the support for this aspect of the proposal and will not be proposing seasonal allocations at this time.

2. The ISO believes the proposed methodology reflects causation principles. Specific to allocating flexible capacity requirements, what does "causation" mean to your organization and how would this definition be most accurately reflected in a flexible capacity requirements allocation process?

NCPA believes that the ISO's preferred methodology reasonably reflects cost-causation

principles.

ISO Response

The ISO appreciates the support for this aspect of the proposal.

3. What are the appropriate bounds for the maximum and minimum for the error term as well as how to address year-to-year variability? What are the appropriate actions if such bounds are reached?

NCPA supports the current proposal to have a default error factor of 0 for the 2014 RA year. The error factor should be revisited as needed and with stakeholder input if deemed necessary once experience is gained with this product

ISO Response

The ISO appreciates the support for this aspect of the proposal.

4. The ISO has proposed must-offer obligations for various types of resources. Please provide comments and recommendations regarding the ISO's proposed must-offer obligations for the following resources types:

Resources not identified as use-limited

If the resource subject to the must-offer obligation submits an economic bid into the day-ahead market and receives an energy schedule for its full flexible capacity range, does the resource still have a requirement to submit an economic "dec bid" in the real-time market? Please clarify in the Final Draft of the proposal.

Dispatchable gas-fired use-limited resources

1. Please provide comments regarding the ISO's proposal that would allow resources with use limitations to include the opportunity costs in the resource's default energy bid, start-up cost, and minimum load cost.

NCPA supports this in concept and looks forward to additional details as to how this element of the proposal would be implemented. Much of this information and methodology to account for opportunity costs associated with dispatching natural-gas fired use-limited resources is already established for default energy bids. We suggest that it is appropriate for the methodologies to be the same between the two processes for the sake of consistency, and to avoid duplication of effort.

ISO Response

Resources that receive day-ahead energy awards would be required to submit decremental bids in to the real-time market. The ISO has provided additional details regarding the methodology

that will be used for calculating the opportunity costs for use-limited gas-fired resources' start-up and minimum load costs in the fourth revised straw proposal.
5. The ISO has proposed a flexible capacity availability incentive mechanism Please provide comments on the following aspects of this mechanism:
NCPA supports the "adder method" over the other two methodologies described in the proposal.
ISO Response
The ISO appreciates the support for this aspect of the proposal.
7. Are there any additional comments your organization wishes to make at this time?
NCPA appreciates the ISO's recognition, as described in section 5 of the proposal, that a load-following metered sub-system is contractually obligated to manage its variability and uncertainty.
ISO Response
The ISO appreciates the support for this aspect of the proposal.

Company	**Date**	**Submitted By**
NRG Energy, Inc. ("NRG")	10/16/2013	Brian Theaker brian.theaker@nrgenergy.com
1. The ISO has outlined a methodology to allocate flexible capacity requirements to LRAs. It is based on one possible measurement of the proportion of the system flexible capacity requirement to each LRA and calculated as the cumulative contribution of the LRA's jurisdictional LSE's contribution to the ISO's largest 3-hour net load ramp each month. Please provide comments regarding the equity and efficiency of the ISO proposed allocation. Specifically, please comment on:		
a. The ISO's proposal to use an LSEs average contribution to historic daily ISO maximum 3-hour load changes to allocate the Δ load component of the flexible capacity requirement. This approach is an improvement relative to allocating the Δ load component based on an LSE's non-coincident peak demand. However, using average three-hour load changes to allocate an obligation to procure that is based on the maximum three-hour ramp may still not		

fully reflect causation principles.

b. The potential of using historic average daily maximum 3-hour net-load ramps or time of day system maximum 3-hour load ramps (morning vs. evening ramps).

Again, using average values to allocate a requirement that is based on a maximum value may not fully reflect causation principles.

c. What other measurement or allocation factor should the ISO consider to determine an LRA's contribution to the change in load component of the flexible capacity requirement?

Ideally, the flexibility requirement would be allocated on each LSE's contribution to the projected ramping need. Nevertheless, allocating the three-hour ramp component of the flexibility requirement based on analysis of historic contributions to ramping needs is a better approach than allocating that component based on projected peak demand.

d. Should the ISO consider seasonal allocations for each component? What would these seasonal allocations look like?

Inasmuch as RA (and flexibility) procurement is likely to be specified and enforced on a monthly basis, it would not make sense to allocate monthly requirements on a seasonal basis.

ISO Response

The ISO has modified the proposal for allocating changes in load to reflect the changes of load during the top five daily maximum 3-hour net load ramps to more closely align with causation of the maximum net-load ramps.

The ISO is not proposing seasonal allocations of flexible capacity needs at this time.

2. The ISO believes the proposed methodology reflects causation principles. Specific to allocating flexible capacity requirements, what does "causation" mean to your organization and how would this definition be most accurately reflected in a flexible capacity requirements allocation process?

"Causation" means allocating the flexibility requirement in direct proportion to the operational characteristic that gives rise to the requirement. Ideally, this would mean being able to accurately forecast each LSE's maximum three-hour ramp.

ISO Response

The ISO believes that changes to the allocation methodology are consistent with this definition of causation.

3. What are the appropriate bounds for the maximum and minimum for the error term as well as how to address year-to-year variability? What are the appropriate actions if such bounds are reached?

The error term is intended to account for uncertainty in the projection of the flexibility requirement – something that cannot be ascertained until some history is obtained. The minimum for the error term should be zero (0). The error term maximum should be set at a level that provides a reasonable "safety margin" for the CAISO to ensure that adequate flexibility has been procured. Perhaps a starting point would be to set the error term to provide one or two standard deviations of margin for both components of the flexibility requirement (maximum peak demand and the three-hour ramp).

ISO Response

The ISO will set the error term at zero initially. While using statistical benchmarks are desirable, based on the comments provided it is unclear what the standard deviations the ISO should consider.

4. The ISO has proposed must-offer obligations for various types of resources. Please provide comments and recommendations regarding the ISO's proposed must-offer obligations for the following resources types:

a. Resources not identified as use-limited

The CAISO proposal is reasonable.

b. Dispatchable gas-fired use-limited resources

1. Please provide comments regarding the ISO's proposal that would allow resources with use-limitations to include the opportunity costs in the resource's default energy bid, start-up cost, and minimum load cost.

The CAISO's approach – to allow use-limited resources to include an opportunity cost to help ration their use – is reasonable. It is also reasonable for the CAISO to include the opportunity cost in the calculation of the proxy cost cap. What is less clear is what scrutiny any opportunity cost adder submitted by the resource's owner, not by the CAISO, will be subject to.

c. Hydro Resources

The CAISO's approach is reasonable.

d. Specialized must-offer obligations (please also include any recommended changes for the duration or timing of the proposed must-offer obligation):

NRG remains concerned that the flexibility offering obligation proposed by the CAISO for some specialized resources remains dramatically different than the flexibility offering obligation that is proposed for other resources. While NRG supports allowing preferred resources to provide needed market products, including flexibility, the idea that resources that have very different offering obligations could provide the same amount and kind of flexibility as other resources with much more demanding offering obligations does not align with idea of encouraging technology-neutral competition through sound, equitable market design. If resources providing flexibility are allowed to have different offering obligations, then some mechanism must be developed so that these resources' limitations are reflected either in the amount of flexibility they are allowed to provide or the compensation they receive.

1. Demand response resources.

While NRG supports the CAISO's proposal that DR resources must provide at least three hours of response to qualify to provide flexible capacity, NRG does not support allowing DR resources to offer into one of two smaller, discontinuous periods instead of having to offer for the full flexibility period. If the CAISO restricts the use of a DR resource to once a day, it is not clear why such resources should only have to offer into one of two parts of the overall flexibility period and not for the entire flexibility period. If the concern is that DR resources may not have the load to support offered flexibility - a DR resource that does not have the load to support its flexibility offering obligation should not be allowed to offer flexibility at that level.

2. Storage resources.

NRG still does not understand how offering into the Regulation Energy Market satisfies an obligation to provide ramping capability over a three-hour period. While NRG supports finding ways to encourage the participation of preferred resources, including storage, in the CAISO's markets, the regulation energy management product is fundamentally different from the flexibility product as currently designed.

3. Variable energy resources.

The CAISO's proposal is reasonable.

ISO Response

The ISO is proposing to calculate the opportunity cost, not to allow the resource owner to determine it.

The ISO believes that requiring use-limited resources to provide substitute capacity due to use-limitations prior to the end of the month enhances comparable treatment amongst various resource types and should go a long way to addressing the concerns raised here.

The ISO agrees that DR resources without the underlying drop potential to provide flexibility should not attempt to do so. However, the ISO's proposed must offer obligation for DR resources is designed to align the load drop potential and the ISO's need for flexible capacity. Further, the ISO's proposal would only require a DR resource to submit bids into one of the selected windows, not some subset of either.

The ISO acknowledges that storage resources offering flexibility as a regulation energy management product will provide limited value to meet the three-hour ramp. However, the three-hour ramp requirement was designed to also procure resources that would be able to meet the ISO systems net load variability over shorter time intervals, which regulation energy management resources can help with.

5. The ISO has proposed a flexible capacity availability incentive mechanism
Please provide comments of the following aspects of this mechanism:

a. The selection of the adder method as the preferred option

NRG supports this approach. However, as noted below, NRG has serious concerns about the level of the proposed adder.

1. Should the ISO still consider the bucket method, the "worse-of" method, or some other method not already considered? Why?

No.

b. The price for the flexibility adder. Specifically, if the ISO proposed price is not correct, what price or data source should the ISO consider and why?

The proposed flexibility value of $23.25/kW-year is not reasonable. From NRG's experience, the current value that market participants ascribe to flexibility is likely several orders of magnitude below that number. The mathematical exercise the CAISO enlisted to derive the $23.25/kWyear price (starting with the 2011 difference between the median system RA price and the 85% system RA price, then escalating that price to 2015 by the difference between that difference and the same difference in 2010) is not valid. The CAISO started with one, and perhaps two, arbitrary points on the RA supply curve; nothing ties the value of flexibility to either of these points. Further, the assumed escalation was not supported; for example,

the CAISO provided no evidence that system RA prices have actually escalated as the proposed flexibility price was escalated. The only comparable market product that currently exists from which the CAISO could derive a value for flexibility is the Flexible Ramping Constraint. However, for reasons that are not yet clear to NRG, the CAISO has dismissed using the FRC as the proxy flexibility value.1 NRG finds the $23.25/kW-year value proposed by the CAISO to be unreasonable. At the same time, the CAISO does not wish to use a value derived from the FRC price. As a result, there appears to be no common path forward and additional work will be needed to derive an initial SFCP price.

c. The interaction between the existing SCP and the proposed SFCP

Under the adder approach, the proposed interaction is reasonable.

d. The proposed SFCP evaluation mechanism/formula

1. The formula used to calculate compliance (including the treatment of long-start and use-limited resources)

The formula proposed by the CAISO is:

If a resource owner bids flexible capacity into the CAISO's markets, and some of that capacity is awarded energy in the Day-Ahead market, NRG presumes that capacity need not be bid in to the Real-Time market. For example, if the resource owner sold 100 MW of flexible capacity, was awarded 50 MW of energy associated with that bid in the Day-Ahead market, the resource owner would only have 50 MW of flexible capacity left to offer in Real-Time. However, as NRG understands, the CAISO's formula, since the formula looks at the **minimum** of the flexible capacity offered to either the Day-Ahead or Real-Time market, the formula would understate the amount of capacity actually offered when flexible capacity is awarded energy in the Day-Ahead market. NRG seeks clarification on whether it is correctly interpreting the CAISO's intent.

2. The treatment of forced and planned outages

The CAISO's proposal is reasonable.

3. The minimum availability thresholds for use-limited resources

The CAISO's initial proposal – bidding in 90% of the required hours over at least 20 days – is reasonable.

e. The proposed substation [substitution?] rules for forced outages

The CAISO's proposal is reasonable.

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1 "For example, the use of the flexible ramping constraint offered an extremely wide spread of values depending on the assumptions about how a non-zero shadow price in the flexible ramping constraint. Therefore, the ISO does not believe the flexible ramping constraint is the appropriate mechanism to establish the flexible capacity adder." Third Revised Straw Proposal at Page 43.

ISO Response

The ISO has reviewed the price used for the adder method and is proposed a new pricing methodology. The ISO will seek additional stakeholder input on this proposal as well as other possible solutions.

The ISO will require the resources to bid the full amount of flexible capacity into both the day-ahead and real-time markets. Day-ahead market awards may be dealt with through the use of decremental bids. Additionally, the ISO's newest proposal has removed the minimum bid level portion and has proposed that day-ahead bids count 20% towards SFCP calculation and real-time bids count 80% towards the SFCP calculation.

The ISO has dropped the thresholds and will require all use-limited resources that hit their use limitation within a month to provide substitute capacity.

6. The ISO has proposed to include a backstop procurement provision that would allow the ISO to procure flexible capacity resources to cure deficiencies in LSE SC flexible capacity showings. Please provide comments regarding the following issues of ISO's proposed flexible capacity backstop procurement proposal:

a. The inclusion of the adder methodology

The adder methodology – which would subject the generic RA to one penalty level and the flexible capacity to another penalty level – seems reasonable. However, as noted above, the $23.25/kW-year penalty value proposed by the CAISO is NOT reasonable.

b. The opportunity for LSEs to provide a list of uncommitted flexible capacity that can be used to help cure flexible capacity deficiencies

NRG supports this.

ISO Response

The ISO has reassessed the viability of using the flexible ramping constraint as a means to price the adder, made modification to the proposal and will seek additional stakeholder input on this proposal as well as other possible solutions.

7. Are there any additional comments your organization wishes to make at this time?

NRG appreciates the CAISO's efforts to move forward with the FRACMOO effort. Doing so is a necessary complement to work that will soon begin at the CPUC. NRG also supports pushing the FRACMOO decision back to the February 2014 Board meeting to provide more time to work through this important and complicated matter.

ISO Response

The ISO appreciates the support in the timeline adjustment.

Company	Date	Submitted By
PG&E	10/23/2013	Marie Fontenot (415) 973-4985 Peter Griffes (415) 973-3335

1. The ISO has outlined a methodology to allocate flexible capacity requirements to LRAs. It is based on one possible measurement of the proportion of the system flexible capacity requirement to each LRA and calculated as the cumulative contribution of the LRA's jurisdictional LSE's contribution to the ISO's largest 3-hour net load ramp each month. Please provide comments regarding the equity and efficiency of the ISO proposed allocation. Specifically, please comment on:

The ISO's proposal to use an LSEs average contribution to historic daily ISO maximum 3-hour load changes to allocate the Δ load component of the flexible capacity requirement.

The proposed allocation methodology for the net load contribution can lead to unfair outcomes – PG&E offers an alternative approach

The CAISO's proposal to allocate based on monthly average 3-hour coincident load ramps does not fairly represent the true contribution of that load serving entity's (LSE) net load on the CAISO's planned procurement of flexible capacity. Two design features of the proposed allocation methodology are problematic: 1) monthly averaging of the maximum peak ramps and 2) the use of coincident peak ramps.

There are two key design questions regarding the allocation of the flexibility requirement based on the net load contribution. The first question is whether to allocate based on an average or peak ramp contribution. The second design question is what peak to use. Specifically, should the allocation be based on coincident or non-coincident maximum ramps. The current proposed method averages the daily ramps across the month to

determine contribution to the system's largest 3-hour ramp.

Regarding the first question, peak ramp versus averaging, PG&E recommends using each LSE's monthly peak ramp without averaging. System flexibility will be procured to meet the expected peak ramp, not the average ramp. The allocation methodology should apply the same principle and be based on the contribution of the peak ramps, not the average. The averaging unfairly blunts the cost obligation of an LSE that has a high peak ramp but lower average net load flexibility needs.

The problem with the averaging methodology can be seen with a simple example. Consider two LSE's: "A" and "B." Both LSEs have the same maximum continuous load ramp in a month, 1000 MW. LSE A has the same maximum ramp each day of the month, meaning its monthly average is 1000 MW. LSE B has lower maximum ramps in the other days, leading a monthly average that is lower than its peak, say 500 MW. The CAISO must procure the full flexibility requirement for the month, 2000 MW, regardless of the flexibility averages. Both LSEs A and B equally contribute to the ramping requirement, even though they have different monthly averages. Use of an averaging methodology unfairly allocates 67% of the requirement to LSE A.

Regarding the second design question - which type of peak ramp should be used in the allocation: coincident versus non-coincident, PG&E recommends the non-coincident. Use of the coincident ramp methodology can create a "free ridership" problem. Again a simple example with two LSEs can illustrate the free ridership problem using a coincident methodology.
Assume LSE A has a peak ramp in one hour of 1000 MW. For all other hours for the month, the net load ramp for A is 0 MW. LSE B has a similar peak ramp of 950 MW but on a different day and its net load ramp for all other hours of the month is 0 MW. In this case, the coincident max peak ramp is 1000 MW. If a coincident peak allocation methodology is used, LSE A would be allocated 100% of the flexibility requirement. LSE B is a free rider with no allocation. On the other hand, if the non-coincident peak ramp is used to allocate, LSE B would be allocated 48.7% of the requirement. This is a reasonable outcome and properly reflects cost causation principles. This simple example shows how a coincident peak ramp methodology can create a free ridership problem. Use of a non-coincident peak approach does not suffer from the same problem.

PG&E proposes below an allocation methodology for the net load contribution that uses the non-coincident monthly maximum 3-hour ramp and does not average across the month.

a. *The potential of using historic average daily maximum 3-hour net-load ramps or time of day system maximum 3-hour load ramps (morning vs. evening ramps).*

Use of averaging or coincident peak ramps can lead to unjust and unreasonable outcomes.

PG&E recommends an alternate approach, described below.

b. What other measurement or allocation factor should the ISO consider to determine an LRA's contribution to the change in load component of the flexible capacity requirement?

PG&E proposed an allocation methodology that uses the non-coincident monthly maximum 3-hour ramp and does not average across the month

PG&E proposes a methodology that addresses issues by using the non-coincident monthly maximum 3-hour ramp and not average across the month. Additionally, PG&E proposes to allocate a flexibility requirement to merchant variable energy resources (VERs) which is similar to the allocation methodology used in Westar's Balancing Area Services Agreement[1].

In place of the CAISO's current proposal, the contribution of load to the system requirement should be determined using the following steps:

1) Calculate each LSE's single largest 3-hour maximum load ramp (non-coincident) in MWs for each month using the previous two years of historical loads.
2) Calculate monthly percentage allocators for each LSE by dividing an LSE's own 3-hour ramp requirement by the sum of the 3 LSEs' 3-hour ramp requirements. If calculated by month, the result will be 12 percentages for each LSE.
3) Use the resulting 12 percentages to allocate the CAISO's monthly 3-hour max net load ramp requirements.

Example of Proposed Load Allocation Methodology

	LSE's maximum 3-hour load change in month	LSE's share of total LSE load ramps in month	System's load ramp coincident with system's maximum 3-hour net-load ramp in month	LSE's monthly allocation of load for flexible requirement
LSE 1	2,000 MW (Day 2, HE 14-HE17)	2,000 MW/8,000 MW = 25%	5,000 MW	25% * 5,000 MW = 1,250 MW
LSE 2	3,000 MW (Day 6, HE 15-HE18)	3,000 MW/8,000 MW = 37.5%		37.5% * 5,000 MW = 1,875

[1] FERC Docket ER09-1273, Order Granting Rehearing In Part, Westar Balancing Area Services Agreement and Schedule 3A, Generator Regulation and Frequency Response Service, November 17, 2011. http://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=12820105

				MW
LSE 3	1,000 MW (Day 15, HE 14-HE17)	1,000 MW/8,000 MW =12.5%		12.5% * 5,000 MW = 625 MW
LSE 4	2,000 MW (Day 30, HE 14-HE17)	2,000 MW/8,000 MW = 25%		25% * 5,000 MW = 1,250 MW
Total	8,000 MW			

This alternative does not suffer from potential issues discussed above, and, therefore, is better aligned with the principle of cost causation than previously proposed methodologies. PG&E's proposal is consistent with FERC's cost causation principle established in FERC Order 890 as applied in the June 2010 Transmission Planning and Cost Allocation by Transmission Owning and Operating Public Utilities. Specifically, "the cost causation principle provides that costs should be allocated to those who cause them to be incurred and those that otherwise benefit from them."[2] FERC's application of this principle was used to address "free ridership" problems associated with transmission planning and should be similarly applied in the CAISO's flexibility cost allocation determination.

Merchant VERs or VERs that have a non-CAISO LSE buyer should be allocated a portion of the flexibility requirement

PG&E further suggests modification to the proposed contributions of wind, solar PV and solar thermal resources. It is appropriate for the requirement from variable energy resources (VERs) that are contracted with CAISO-member LSEs be allocated to that entity. However it is not appropriate for merchant VERs or VERs contracted with a non-CAISO LSEs to have the requirement stemming from their output attributed to CAISO member LSEs.

This is similar to the treatment of Merchant VERs in the Westar Order. Westar argued, that "it is inappropriate for its wholesale and retail customers to subsidize the costs of the regulation burden imposed by generators located in Westar's balancing area that either export out of Westar's balancing area or make sales into the SPP energy imbalance market."[3] Westar's reasoning was accepted by FERC and is applicable to the CAISO.

[2] FERC Transmission Planning and Cost Allocation by Transmission Owning Utilities, Notice of Proposed Rulemaking, Issued June 17, 2010, Docket RM10-23-000, p79-80. http://www.ferc.gov/whats-new/comm-meet/2010/061710/E-9.pdf

[3] FERC Docket ER09-1273, Order Granting Rehearing In Part, Westar Balancing Area Services Agreement and Schedule 3A, Generator Regulation and Frequency Response Service, November 17, 2011, page 3. http://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=12820105

CAISO LSEs should not be responsible for the flexibility requirement of VERs that are not contracted with a CAISO LSE. Instead, merchant VERs or VERs that have a non-CAISO buyer should be allocated a portion of the flexibility requirement.

To address this issue, PG&E proposes:

1) VERs contracted with CAISO-member LSEs have their portion of the flexibility requirement attributed to the applicable LSE.
2) Merchant VERs or VERs contracted with non-CAISO member LSEs are responsible for the flexibility requirement attributed to their output on a forecast basis.
3) In the event that a VER is unable or unwilling to procure a flexible capacity Resource Adequacy (RA) contract to meet their obligation, that VER will be responsible for the associated backstop procurement, paid at the applicable backstop price.

c. Should the ISO consider seasonal allocations for each component? What would these seasonal allocations look like?

PG&E does not support a seasonal allocation of the flexibility requirement

The seasonal requirement would dull the signal in a manner similar to using monthly averages in place of monthly peak load does. Moreover, California Public Utilities Commission (CPUC)-jurisdictional LSEs are already accustomed to monthly allocations of generic RA. Mirroring the generic RA process to the extent possible for the Flexible RA program is appropriate and preferred.

ISO Response

The ISO has specifically addressed the PG&E proposal for allocated changes in load in section 5.1.2 of the fourth revised straw proposal. As such, the ISO refers stakeholders to that section of the fourth revised straw proposal for additional discussion.

Allocating an RA requirement to generating resource is a significant change to the current RA construct. While the ISO believes that the PG&E proposal likely merits additional consideration, such changes to the RA construct is beyond the scope of the current stakeholder initiative.

2. The ISO believes the proposed methodology reflects causation principles. Specific to allocating flexible capacity requirements, what does "causation" mean to your organization and how would this definition be most accurately reflected in a flexible capacity requirements allocation process?

PG&E defines "causation" in a manner consistent with FERC's cost causation principle as applied in FERC Order 890. Specifically, "the cost causation principle provides that costs should be allocated to those who cause them to be incurred and those that otherwise benefit from them." As discussed in the Order, cost allocation should also be designed to address

free rider problem. The alternative allocation methodology proposed by PG&E for the net load contribution addresses this issue.

ISO Response

The ISO has modified the proposal for allocating changes in load to reflect the changes of load during the top five daily maximum 3-hour net load ramps to more closely align with causation of the maximum net-load ramps. Further, the ISO addresses PG&E proposal as it pertains to addressing what PG&E's refers to as a free rider problem in section 5.1.2 of the fourth revised straw proposal.

3. What are the appropriate bounds for the maximum and minimum for the error term as well as how to address year-to-year variability? What are the appropriate actions if such bounds are reached?

Establish when the error term will be defined each year as part of the annual stakeholder process

The value of the error term should be developed as part of the annual stakeholder process to determine the CAISO's flexibility requirement which will recur in a consistent timeframe each year. The CAISO needs to update the FRAC-MOO calendar on page 13 of the Proposal and include dates when the error term will be defined and when the window for stakeholder feedback on the assumptions underlying the error term must be submitted.

PG&E recommends the error term be set to zero for the 2015 compliance year since the CAISO will not have adequate information in the annual flex RA assessment in 2014 to make a determination of epsilon for 2015

ISO Response

The ISO has added the development of the error term to the schedule provided in the latest revision to the straw proposal.

4. The ISO has proposed must-offer obligations for various types of resources. Please provide comments and recommendations regarding the ISO's proposed must-offer obligations for the following resources types:

The CAISO should allow substitution of alternative resource and eliminate the safe harbor

The CAISO should allow LSEs to provide an alternative flexible capacity resource on a daily basis within the month for any use-limited flexible resource that has reached its monthly or yearly use-limitation. This should be allowed up to the time prior to the close of the IFM and can be managed via a combination of SLIC and an update to the Resource Adequacy

Availability Management (RAAM) tool.

The CAISO should eliminate its requirement that resources submit bids in 90% of Standard Flexible Capacity Product (SFCP) hours or 20 days in the month as a means of avoiding incentive mechanism charges. This safe harbor could leave the CAISO without the flexibility the system needs later in the month.

a. *Resources not identified as use-limited*

No comments at this time.

b. *Dispatchable gas-fired use-limited resources*

No comments at this time.

1. *Please provide comments regarding the ISO's proposal that would allow resources with use-limitations to include the opportunity costs in the resource's default energy bid, start-up cost, and minimum load cost.*

Supports additional option of allowing use-limited resources to use a daily energy requirement to manage availability

PG&E supports the CAISO's plan allowing use-limited resources to use a daily energy requirement in addition to, or in place of, the incorporation of opportunity cost in default energy bids to manage limitations.

PG&E requests clarification in the next proposal as to whether or not the CAISO plans to initiative a follow up stakeholder initiative to clearly define the criteria for a "use-limited" resource. Such an initiative would serve to provide clarity to generators and LSEs alike as to the applicability of must offer rules to their resources.

2. *Please provide information on any use-limitations that have not been addressed and how the ISO could account for them.*

No comments at this time.

c. *Hydro Resources*

PG&E supports the hydro proposal as adopted by the CPUC.[4]

d. *Specialized must-offer obligations (please also include any recommended changes for the duration or timing of the proposed must-offer obligation):*

1. *Demand response resources.*

The proposal that flexible demand response resources meet the requirements for generic capacity requires clarification

For a demand response resource to receive generic RA credit, it must be available from 1:00 p.m. – 6:00 p.m. on non-holiday weekdays. Under the CAISO's proposal, this would effectively require flexible DR to have a MOO from 7:00 a.m. – 12:00 p.m. and 1:00 p.m. – 6:00 p.m., or 1:00 p.m. – 8:00 p.m. This means the flexible DR resource would have to be prepared to dispatch either twice in one day or be prepared to be dispatched for seven continuous hours. PG&E requests clarification from the CAISO in the next proposal on this issue as it is unclear if this structure was what the CAISO intended.

2. *Storage resources.*

MOO for storage should not be incorporated at this time

PG&E remains opposed to the previous proposal that energy storage providing regulation energy management qualify as flexible RA. A sole-use technology that does not meet the full definition of flexibility applicable to all other technology types provides the wrong incentive for development of the sole-use technology. The CAISO could easily end up with more of the special technology than it actually needs, and will be required to limit its counting through non-market means.

ISO Response

The ISO will allow for daily substitution for resources that are on forced outage as long as the substitution is received and approved prior to the close of the IFM.

The ISO has eliminated the thresholds that would exempt resources from the SFCP availability charges.

[4] CPUC Decision 13-06-024, Decision Adopting Local Procurement Obligations for 2014, A Flexible Capacity Framework, and Further Refining the Resource Adequacy Program. http://wwwregrel/Docs/GenerationResourceAdequacyOIR-IV/Final-Decisions/CPUC/2013/GenerationResourceAdequacyOIR-IV_Final-Dec_CPUC_20130627_D-13-06-024_280783.pdf

The ISO continues to look to address some of the disconnects between the manner in which PDR resources can count for RA and how they count towards flexibility needs. For example, one of the major challenges for DR is that fact that RA is measured between 1:00 p.m. and 6:00 p.m., while flexibility is measured between 7:00 a.m. and noon or 3:00 p.m. and 8:00 p.m. The ISO has proposed to allow a DR resource to establish an EFC through the use of a test event to help measure the flexibility of a PDR resource. The ISO recognizes that it will need to coordinate with the CPUC and other LRAs to coordinate this with their counting rules for demand response providing "generic" RA capacity. .

The ISO acknowledges that storage resources offering flexibility as a regulation energy management product will provide limited value to meet the three-hour ramp. However, the three-hour ramp requirement was designed to also procure resources that would be able to meet the ISO systems net load variability over shorter time intervals, which regulation energy management resources can help with. The ISO agrees that limits on some categories of flexible capacity may have to be considered

5. The ISO has proposed a flexible capacity availability incentive mechanism. Please provide comments of the following aspects of this mechanism:

a. *The selection of the adder method as the preferred option*

1. *Should the ISO still consider the bucket method, the "worse-of" method, or some other method not already considered? Why?*

PG&E believes it is premature to declare one incentive mechanism the preferred approach. Further analysis and stakeholder discussion is required on this matter.

b. *The price for the flexibility adder. Specifically, if the ISO proposed price is not correct, what price or data source should the ISO consider and why?*

No comment at this time.

c. *The interaction between the existing SCP and the proposed SFCP*

Applying the same availability rate as the SCP is too stringent

The SCP was designed to incent availability five hours per day, five days per week, whereas the FSCP will be applied to 17 hours per day, seven days each week including weekends and holidays. While the CAISO has proposed applying the same percent availability standard, PG&E believes that a lowered percent availability standard is appropriate for flexible capacity as the burden borne by flexible resources is considerably higher.

d. The proposed SFCP evaluation mechanism/formula

1. The formula used to calculate compliance (including the treatment of long-start and use-limited resources)

2. The treatment of forced and planned outages

3. The minimum availability thresholds for use-limited resources

e. The proposed substation rules for forced outages

Greater detail and discussion of substitution is necessary

PG&E requests greater detail on the CAISO's rules for substitution in the Fourth Revised Straw Proposal, including, but not limited to: time requirements and any locational requirements.

The CAISO should separate out the process of providing substitute flexible capacity for a forced outage and the existing process of substituting system/local capacity for that same outage. For example, assume that Resource A is a flexible local area resource which has been committed for 100 MW of flexible and 100 MW of generic capacity. Resource B is a system resource that has been committed for 100 MW of generic capacity and has an uncommitted 100 MW of flexible RA. Resource C is a flexible local area resource with an uncommitted 100 MW of generic RA and no flexible RA attributes.

If Resource A goes on a forced outage then:

1. Resource B should be allowed to be bid as a substitute for Resource A's flexible commitment. Once the substitution has been approved by the CAISO and goes into effect, Resource A should have no economic bidding requirements in either the day-ahead or real-time (and no associated SFCP charges).
2. Resource C should be able to be provided as a substitute for Resource A's generic RA commitment, as is the case today.

The substitution processes of (1) and (2) should be independent of each other, which is to say, one should be able to be performed without the other, or both should be accepted at the same time.

Currently, the CAISO allows local RA resources to be prequalified as substitutes for other local RA resources with similar characteristics. Prequalified resources are allowed to be

substituted in RT for each other. PG&E recommends an extension of the prequalification process for flexible RA resources, allowing for real-time (RT) substitution of one flexible resource for another if they have met the prequalification criteria.

f. *Please also include comments regarding issues the ISO must consider as part of the evaluation mechanism that are not discussed in this proposal.*

ISO Response

The ISO received significant support from stakeholders regarding the selection of the adder method. As such the ISO has proposed to use the adder methodology to price the SFCP. The ISO has proposed a new price and will seek stakeholder input regarding the appropriate adder price or method for setting the adder price.

The ISO has provided additional details regarding substitution. The substitution examples provided by PG&E appear to be correct. Any resource with an EFC can be used to substitute for a resource on outage as long as the resource that is substituting can provide sufficient flexible capacity to cover the resource on outage.

6. The ISO has proposed to include a backstop procurement provision that would allow the ISO to procure flexible capacity resources to cure deficiencies in LSE SC flexible capacity showings. Please provide comments regarding the following issues of ISO's proposed flexible capacity backstop procurement proposal:

a. *The inclusion of the adder methodology*

The CAISO must provide clarity that backstop procurement will be applied at the same rate that is used in the incentive mechanism. This point is applicable regardless of which approach is adopted in the incentive mechanism. PG&E believes this point is of great importance as any difference between pricing may result in opportunistic behavior.

b. *The opportunity for LSEs to provide a list of uncommitted flexible capacity that can be used to help cure flexible capacity deficiencies*

PG&E is supportive of this element of the proposal.

ISO Response

The ISO is currently proposing to use the same price for the adder for SFCP and backstop procurement for flexible capacity.

Company	Date	Submitted By
San Diego Gas & Electric	10/18/2013	Nuo Tang Sr. Market Policy Analyst NTang@Semprautilities.com

Determining the Requirement

SDG&E recommends the CAISO coordinate with the LRA when requesting the data so that the data requests are not duplicative. As mentioned in SDG&E's previous comments, there are several reasons for this recommendation:

1. the IOUs already submit such data in the granularity requested by the CAISO to its LRA, the CPUC, on a regular basis;
2. the frequency at which the IOUs submit such data is greater than only twice a year proposed by the ISO; and,
3. the ISO ultimately will send procurement requirements back to the LRA which would contain the same information the IOUs have already submitted.

To the extent the ISO has updated information that can be used to update the requirements, the ISO should have the opportunity to recalculate the requirement and allow a true-up process much like that of the current CPUC Local RA true-up process.

SDG&E would like the ISO to clarify its proposal to immediately backstop a recalculated flexibility capacity requirement based on "inaccurate data" submitted by an LSE. SDG&E notes that the data requested and submitted to the ISO in January, 2014 and updated again in August 2014 for a resource which may not come online until middle of 2015 is at best an estimate and is the most accurate data at the time of the submittal. If a resource comes online sooner than expected, then its contribution to the flexibility requirement should be recalculated but this did not mean the LSE submitted "inaccurate data". The construction schedule is not within the control of the buyer. SDG&E believes the ISO should not immediately backstop the new flexibility requirement and should allow all LSEs to have the opportunity to self-supply the new flexibility requirement. On the flipside of the "inaccurate data" is when a resource comes online later than forecasted. The ISO is not proposing to reimburse for the sunk costs which that LSE had to purchase to meet its original flexibility requirement from another LSE whose share of the requirement is greater. The ISO assumes that "inaccurate data" does not increase the overall flexibility need and would be a redistribution of the same need. That assumption is only one of three possibilities. ISO's proposal to reallocate cost of over procurement is one sided.

SDG&E wonders what happens if LSE A sells LSE B energy output from an intermittent resource during the year. Would the ISO propose to transfer the associated flexibility requirement onto the new LSE? What if the sale is only for RA from that intermittent resource?

Again, SDG&E recommends the ISO to consider a true-up process similar to the Local true-up process administered by the CPUC. This process allows all LSEs to re-optimize their portfolios during the year due load shift.

ISO Response

The ISO is working with LRAs to ensure the data collected by the ISO for study purposes closely mirrors that which is collected by the LRAs.

The ISO is not currently proposing to do a mid-year true-up process. However, there will be a final assessment to determine if any RPS project on-line dates have changed prior to final RA showings.

The clause regarding the data accuracy is designed to ensure LSE's submit data to the ISO that is fully reviewed and accurate to the greatest extent possible. The ISO understands that projects and on-line dates change. This provision is not designed to penalize LSEs when such events occur. However, the ISO feels this provision will ensure the flexible capacity requirements study is as accurate as possible.

The ISO is not planning to transfer obligations based on the sale of energy from one LSE to another over the course of a year.

The ISO is still assessing the potential for a mid-year true-up to account for load shifting.

Must Offer Obligation for Dispatchable Gas-fired Use-limited Resources

A number of dispatchable gas-fired resources are subject to environmental use-limitations, typically restricting a resource's run hours, number of starts, and/or total energy production on a daily, monthly or annual basis. Despite these environmental limitations, dispatchable gas-fired resources are highly flexible and provide the CAISO considerable operational flexibility. Without some modification, requiring these resources to strictly adhere to the proposed economic bid requirement could prematurely exhaust the resource's start, run time or energy output allowance, preventing the resource from provide continued flexibility during the RA compliance month or year. The consequence of being "unavailable" exposes both the resource to higher incentive penalty risk and the resource's SC to increased replacement cost/risk – a combination that potentially keeps otherwise flexible resources from providing flexibility through the RA program. To manage this outcome, the CAISO proposes to help dispatchable gas-fired use-limited resources manage limitations by incorporating start-up, run hours, and total output limitations into the opportunity cost calculation of a resource's default energy bid. To avoid the appearance of economic withholding, the CAISO or an independent entity – and not the resource owner – will calculate the revised opportunity cost using a yet-tested methodology. If a monthly limitation is reached and the resource has (1) economically bid-in up to that point all of its flexible capacity for at least 90% of Standard Flexible Capacity Product (SFCP) hours, (2) economically bid in at least 20 days over the month, then the resource is exempt from availability penalties for the remainder of the month. Similarly, if a resource's annual limitation is reached within a month, and the resource has economically bid-in up to that

point at least 90% of SFCP hours, then it is exempt from SFCP obligations. However, if substitute flexible capacity is not procured and the resource is shown on subsequent monthly RA showings, the resource will be subject to SFCP availability penalties.

SDG&E believes the proposal has merit assuming the methodology yields results that appropriately value the cost of the particular limitation. That said, SDG&E is troubled by inconsistent treatment of the obligation to replace and the exposure to incentive penalties between intra-month deficiencies and whole month deficiencies. On the one hand, if a monthly limitation is reached and the resource has (1) economically bid-in up to that point all of its flexible capacity for at least 90% of SFCP hours, (2) economically bid in at least 20 days over the month, then the resource is exempt from availability penalties for the remainder of the month, and there is no obligation to replace that flexible capacity. If the CAISO requires additional flexibility for the other 8 to 11 days, which might not be consecutive days, of the month, it will presumably procure additional capacity using its backstop authority to which will be a 30 to 60 day term (as seen by FERC's decision for RRSGO). Because flexibility is a system attribute, and because there is no discrete obligation on the resource to replace, the costs of such backstop will spread to all LSEs. One the other hand, whole month deficiencies – for example, a resource hitting its annual run time limits in November and therefore unable to provide any flexibility in December – require replacement by the resource's SC to avoid SFCP penalties for December. Costs for this replacement, or exposure to the penalty, are borne by the SC for resource alone.

In both cases, the resource likely prematurely reached its run limits because the revised DEB methodology failed to appropriately value the opportunity cost of the limitation. The proposal spreads the risks/costs of this failure across the entire market for intra-month deficiencies, but unjustifiably requires SCs for resources to absorb the risks and costs of the methodology failing and causing whole month deficiencies. SDG&E requests the CAISO acknowledge the primary driver for reaching a limitation in each instance is the opportunity cost methodology as well as the systems that dispatch the resources, and not require replacement or exposure to penalties for either intra-month or whole month deficiencies resulting from reaching a limitation.

The ISO should require all resources to bid in for all of the flexible MOO hours that resource is required even if the resource has reached its limitation. The ISO systems must be able to recognize the limitation and not dispatch the resource accordingly. Providing special bidding exemptions to different types of resources only increases the complexity of daily operations for each resource owner to as far as settlement validation for the incentive mechanism.

ISO Response

The ISO has proposed a methodology for determining the opportunity cost for use-limited gas-fired generation and is testing the accuracy of this methodology in determining an optimal dispatch. Because the opportunity cost calculation made need honing and resource SC will need an opportunity to better understand potential risks of providing flexible capacity, the ISO will not impose flexible capacity availability charges until the 2016 RA compliance year. The ISO believe the thresholds to avoid SFCP availability charges could create flexible capacity

deficiencies towards the end of the month. There are many reasons such limits could be reached. Thus these thresholds have been eliminated.

Flexibility Availability Incentive Mechanism (FAIM)

In the ISO's preferred adder method, there would be two availability targets for a generator to meet. The first is the current generic RA availability target and the second is the flexible RA availability target. SDG&E would like the ISO to clarify if the self-schedule which makes a resource un-available is in the day-ahead market, or real time market, or both, for most flexible resources. (The proposal has an exemption for long start resources such that if there is no day-ahead award, the obligation for that resource is complete.) However, SDG&E believes that the definition of the flexible availability is missing a derate of a ramp rate. The resource may be able to reach its PMAX but may take an additional 90mins which would ultimately affect the EFC value. Could there be any other situations where the flexible availability is affected? Does fuel supply affect availability or is the concept similar to the current non-availability incentive mechanism where only mechanical failure would be assessed a charge.

SDG&E reiterates its request for the ISO to provide stakeholders an estimate of the flexible RA availability target based on some historical data. The ISO could use bidding and outage data from the past few years of dispatchable resources in the day-ahead market while ignoring the real time market bidding data for the moment. The ISO could assume that all dispatchable RA resources sold the capacity as flexible and bid into the day-ahead market as such. The ISO should net out the Pmin portion of the RA capacity and only use the remainder portion from the (1x1) Pmin to the RA sold for combined cycles generators. For other ULRs, the ISO could start with the assumption that all ULRs operated as flexible resources and assess the bidding behavior based on the MOO hours in the proposal.

SDG&E is concerned with the ISO's preferred adder method for calculating the availability incentives and charges. This primarily stems from the fact that the adder method is a new charge that was never written, since these terms did not exist in the Tariff at the time of contracting, into SDG&E's contracts where SDG&E is the SC for the resource. SDG&E is the SC for many resources for power purchase tolling agreements. Pure RA transactions do not need SDG&E to become the SC for the resource. While the SDG&E receives all capacity attributes (local, system and now flexibility) in the contract, SDG&E does not have the ability to pass through the newly proposed flexible non-availability charges due to plant performance. This mechanism will increase rate payer costs for generator performance that is not the fault of SDG&E. In this case, SDG&E urges the ISO to give both generators and LSEs the option to grandfather contracts from the financial penalties of the MOO. SDG&E believes that rate payers are held harmless for non-utility owned generator performance that SDG&E would be held liable for in CAISO settlement statements.

ISO Response

The ISO is still reviewing the proper means of addressing the ramping de-rates and how this would be addressed in terms of the SFCP. Limited fuel is not considered as a factor for availability. In other words, if a flexible capacity resource is unavailable do to fuel limitation,

then the resources would be considered unavailable under the SFCP.

The ISO has provided ISO wide estimates of the flexible capacity would have been for 2011 and 2012. However, the ISO is not able to release LRA or LSE specific allocations due to confidentiality concerns. Without binding flexible capacity requirements and defined flexible capacity resource, producing the historic targets requested will not provide a representative target. The ISO will start to compile this data based on the 2014 RA performance.

The ISO has included a section in the fourth revised straw proposal to address grandfathering provisions (see section 9 of the fourth revised straw proposal). The ISO will seek additional comments regarding the need for grandfathering provisions.

SDG&E's Alternative Approach to Buckets and Adders

SDG&E proposes that the ISO consider combining the bucket and the adder approaches. Make the flexibility adder (as the ISO considers it) a portion of the current CPM value. Using the same values presented by the CAISO, the current CPM price of $67.50/kW-yr is comprised of the flexible RA SFCP of $23.25/kW-yr and the generic RA SCP $44.25/kW-yr. SDG&E believes this may avoid the need to grandfather existing contracts. The incentive mechanism's name shall not need to change. If flexible target is not met, the ISO would only charge flexibility adder portion of the CPM price. At no time, should the price of both flexible and generic RA be greater than that of the most current CPM. Since there is no additional increase to the CPM price for non-availability, no party can argue increased monetary risk from a change to the CPM price. In fact, a resource that is generic only has less monetary risk. SDG&E also believes this will aid in lowering the cost of backstop procurement discussed later on.

SDG&E strongly disagrees with the ISO's approach of calculating the adder. First, the current CPM rate has been designed to value flexible capacity just the same as generic. SDG&E would argue that the CPM'ed resource did not self-schedule into the ISO's DAM for the 30 or 60 day time period. Thus the ISO has received flexible capacity in its markets at the $67.50/kW-yr price just as a non-flexible resource that was CPM'ed. Second, the publically available report data used by the CAISO from does not provide any granularity to allow CAISO to make any assessment regarding the price of RA contracted from a flexible resource. SDG&E would argue that the higher price capacity was more for a local resource rather than a system resource. ORA made stakeholders aware that it has certain confidential data that could help CAISO determine a more precise value for flexible resources.

SDG&E does not believe the increase of $0.96/kW-yr cost from 2010 to 2011 is representative of the overall market for RA. This price should not be used as a projection of increase in value of flexibility.

With regards to resources on planned outage and the exclusion of hours from the non-availability calculation, SDG&E believes the ISO should "standardize" its own tariff between flexible and generic non-availability standards. If the ISO has a new method of calculating the availability percentage for flexibility, then the generic calculation should be changed to

match that of the new method.

ISO Response

The ISO's proposal of the adder methodology is designed to price the additional value of a resource's flexibility. The SDG&E proposal, while consistent with this objective, is not consistent with the CPM settlement. This is important because the ISO believes it is important to set the compensation for backstop and SFCP. The ISO is reviewing the need to maintain this connection.

Any changes to the SCP (generic) availability incentive mechanism are beyond the scope of the current stakeholder initiative.

The ISO has followed-up with ORA regarding its RA contract data and feels that the information that offered will not resolve many of the questions raised by stakeholders regarding the pricing concerns for the flexible capacity adder. As such, the ISO has proposed a new flexible capacity adder price and will be seeking stakeholder comments on this the new proposal as well as any other potential solutions.

EFC Value Changes

How does the ISO manage the EFC value change risk? Several questions come to mind:

1. Will the ISO update the EFC list monthly similar to how it updates its current NQC list?
a. This keeps LSEs and Generators informed of the changes to EFC values and if ULRs have exhausted its EFC capability due to CAISO dispatches.

2. Is the LSE obligation complete as long as the Flexible RA Compliance plans and the Flexible Supply plans are matched and validated by the CPUC and CAISO?

a. If the generator and submits one value for the Flexible Supply Plan that matches that of the LSE, but then changes its ramping capability in the RDT, will the flexible non-availability calculation be based off the updated RDT what was not updated in the EFC list? Or will the CAISO use the original EFC value and is unable to capture this change in its systems?

b. Would the ISO freeze the RDT for ramp rate changes at T-75 or earlier for monthly EFC list updates similar to how the ISO currently updates its NQC list and any changes to the ramp rate that happen within the T-74 or later window will require an outage card in SLIC/OMS which would be used in the availability penalty calculation?

ISO Response

The ISO will issue a monthly EFC list if changes in the NQC list necessitate doing so.

The LSE is not responsible for providing substitute capacity for forced outages unless they are the SC for the resource and seeking to avoid SFCP availability charges. Any problems brought about by any derating, including the resource's ramp rate, will fall to the resource's SC.

Backstop

During RRSGO policy and tariff development, ISO proposed to backstop a resource that was contracted with an LSE for replacement and charge the LSE(s) that was contracted with the generator that was on outage. Ultimately, the ISO abandoned this method because first, this seemed to give LSEs priority of a backstop first rather than all generators equal opportunity for backstop procurement and second, ISO admitted that it ultimately looked at only resources without a supply plan. While the goal to limit the financial impact to the LSEs is honorable, SDG&E does not recommend for the ISO to adopt this method.

SDG&E proposes a backstop on the bundling principle and pricing based on its alternative approach. First, ISO should have all partial-RA and non-RA resources at its disposal for backstop and not give preference to certain resources over others. Second, there should not be a need to allow LSEs to voluntarily provide a list of RA resources under contract. This only adds to the complexity for implementation. Finally, the cost shall be based on the need, if the ISO needs generic capacity, then the generic portion of CPM should be used; if the ISO needs flexibility, the entire CPM rate should be used. The ISO has the ability to see how much flexibility is contracted for each resource via its supply plan. If the resource is currently contracted for generic RA as well as flexible RA, the supply plans will provide the ISO with that information. If the same resource has surplus flex RA not committed on a supply plan while all of its generic RA is committed, the ISO should have the ability to backstop only that surplus flexible RA and the resource should be paid for its new FRACMOO. It is standard contract language that the buyer receives all CPM revenue from the seller for up to the contract quantity. The ISO must stay neutral to which LSE it chooses to backstop for its need and only select from the generator that it will ultimately backstop. Let the parties of the contract figure out who is eligible to the CPM revenue. Likewise, if in order for the ISO to backstop flexibility it must backstop the generic non-RA portion, then that is only due to one of two scenarios:

1. LSE(s) chose not to commit all of its generic AND flexible capacity procured so that the LSE may use that resource for unit substitution for a forced outage. Then the generator that accepts the CPM designation usually has to give the buyer the CPM revenue.

2. The resource did not fully sell its generic and flexible capacity. This should again be left to the counterparties of the contract. The ISO should only CPM the resource and not determine who is eligible for the CPM revenue in this complicated situation.

RRSGO is a good example of a policy designed without understanding implementation complexity. The ISO has the ability to see how a resource has sold its capacity. However because of the requirement for LSEs to replace, the ISO requests all LSEs to replace up to the outage MW of the RA plan. This increased complexity and sources of replacement by several folds. SDG&E wishes not to have the ISO repeat these mistakes.

ISO Response

The ISO's proposal to looks to backstop only the type of capacity that is needed. That includes procuring only the excess flexible capacity from already contracted RA resources. The ISO believes that it is reasonable to first look to resources with RA contracts but with uncommitted

EFC to minimize the cost of any backstop procurement. This method would allow the ISO to backstop as SDG&E recommends (i.e. "the cost shall be based on the need, if the ISO needs generic capacity, then the generic portion of CPM should be used; if the ISO needs flexibility, the entire CPM rate should be used")However, the ISO will look to stakeholder for additional comments on how the ISO can avoid implementation concerns.

Company	Date	Submitted By
San Francisco Public Utilities Commission	10/18/2013	Michael A. Hyams mhyams@sfwater.org (415) 554-1590

1. The ISO has outlined a methodology to allocate flexible capacity requirements to LRAs. It is based on one possible measurement of the proportion of the system flexible capacity requirement to each LRA and calculated as the cumulative contribution of the LRA's jurisdictional LSE's contribution to the ISO's largest 3- hour net load ramp each month. Please provide comments regarding the equity and efficiency of the ISO proposed allocation. Specifically, please comment on:

a. The ISO's proposal to use an LSEs average contribution to historic daily ISO maximum 3-hour load changes to allocate the _ load component of the flexible capacity requirement.

San Francisco supports the ISO's proposal to allocate the load portion of an LSE's contribution to the flexible capacity requirement using the LSE's percentage of the average load change, based on the previous two years of historical load data, during ISO's historic daily coincident maximum 3-hour gross load ramps. For purposes of load, San Francisco believes that this approach is much more consistent with the cost causation principle than previous methods proposed by the ISO (e.g., LSE peak-load ratio share and LSE monthly load factors). However, San Francisco believes that a superior approach to allocating the _ load component would be to use LSEs' historic percentage of average load change during the same interval as the ISO forecasted net 3-hour maximum load ramp (i.e., net of forecasted variable renewable resources). This method would align the _ load component with the forecasted system ramping requirement, as opposed to aligning it with the ISO's historic 3-hour gross load ramp, which could be a different interval.

During the stakeholder meeting on October 9th ISO staff explained that LSEs that, on average, have a negative contribution to the ISO's maximum 3-hour ramp will be given a factor of 0 for the load allocation component. These LSEs will not be given a negative allocation factor for the load component. In contrast, changes in wind, solar PV and solar thermal are allowed to have negative values (i.e., if the change in one of these resource components helps to reduce the net load ramping requirement). San Francisco believes that the ISO should apply a consistent approach when calculating each of the components that are used to determine an LSE's flexible capacity allocation. Allowing the load allocation factor to be negative may provide a signal to loads to modify behavior in a way that reduces the system ramping requirement by potentially reducing the LSE's total flexible capacity allocation. To avoid the administrative challenges associated with negative total flexible

capacity allocations, the ISO can assign LSEs with net negative allocations a value of zero.

b. The potential of using historic average daily maximum 3-hour net-load ramps or time of day system maximum 3-hour load ramps (morning vs. evening ramps).

It may not be practical to look at each LSE's historic net-load ramp on a daily or monthly basis, as it would require netting the hourly generation from each LSE's variable renewable resources against each LSE's load curve. However, it may be practical to look at each LSE's average gross load change during the time of the historic ISO maximum net-load ramp. If the latter approach is used, particularly once significant intermittent resources are reflected in the historic calculation, using the LSE's average gross load contribution during the historic daily ISO maximum 3-hour net-load ramps may be a better indicator of LSEs' contributions to the _ load component than the proposed method of comparing LSE historical averages to the ISO's historical gross load ramp.

A drawback of this approach would be an obvious lag effect as the proportion of solar and wind generation increases. As noted above, this drawback could be avoided by identifying the time interval of the forecasted ISO 3-hour net-load ramp for each month and applying the same interval for the calculation of each LSE's contribution to the historic ISO 3-hour ramp.

San Francisco encourages the ISO to provide examples of the _ load component allocation using the different methods being considered. We suspect that there may not be a significant difference in the results between the various methods, in which case it may then be appropriate to adopt the method that is administratively reasonable to implement. Ultimately, differences in the level of effort required to implement each method should be weighed against expected improvements in reflecting causation in the resultant allocations when choosing the preferred method.

d. Should the ISO consider seasonal allocations for each component? What would these seasonal allocations look like?

San Francisco does not yet have a position on whether the ISO should pursue seasonal allocations for each component or a recommendation on what the allocation methodology might look like. However, to the extent seasonal allocations would make the process less administratively cumbersome and more transparent without sacrificing accuracy and consistency with cost causation, such an allocation methodology may be worth pursuing. San Francisco encourages the ISO to explore seasonal allocations in a subsequent straw proposal and to provide quantitative examples of what a seasonal allocation might look like compared to the current 12-month allocation.

ISO Response

The ISO has modified the proposal for allocating changes in load to reflect the changes of load

during the top five daily maximum 3-hour net load ramps to more closely align with causation of the maximum net-load ramps. The ISO looked at various allocation methodologies for load contribution to net-load ramps, including the PG&E proposal. Outside of the PG&E proposal, there was little difference between the methods. However, because the assessment was done at an LSE level, the ISO is unable to share the exact results due to confidentiality concerns.

The ISO is still assessing the ramifications of allowing an LSE to have a negative load contribution.

The ISO is not proposing seasonal allocations of flexible capacity needs at this time.

2. The ISO believes the proposed methodology reflects causation principles.
Specific to allocating flexible capacity requirements, what does "causation" mean to your organization and how would this definition be most accurately reflected in a flexible capacity requirements allocation process?

The cost causation principle requires that market participants that cause particular system costs be allocated those costs. For purposes of the current flexible capacity requirement, this means that entities contributing to the drivers of the ISO's monthly maximum 3-hour net load ramping requirement should be allocated a share of the system flexible capacity requirement that is proportional to their contribution to the maximum 3-hour net load ramp.

San Francisco believes the ISO's current proposal is generally consistent with cost causation principles. Under the current proposal, the ISO has identified the drivers of its system maximum 3-hour net load ramps and a methodology for calculating each LSE's contribution to those causal factors. San Francisco believes that identifying the causes of the maximum 3-hour ramping requirement and assigning flexible capacity procurement to LSEs in proportion to their contribution to each driver will send the correct signal to market participants. This is consistent with fundamental economic principles to place the cost obligation on the entity that has the most control over the behavior that causes the cost to be incurred in the first place.

ISO Response

The ISO believes that changes made to the fourth revised straw proposal are consistent with cost causation as defined above.

5. The ISO has proposed a flexible capacity availability incentive mechanism

The ISO should explore the possibility of using confidential CPUC data collected under its resource adequacy program to develop the flexibility adder. .

ISO Response

The ISO has continued to work with ORA to assess the viability of relying on the CPUC data. However, these discussions have lead the ISO to reconsider the flexible ramping constraint to price the flexible capacity adder.

Company	Date	Submitted By
Shell Energy North America (US), L.P.	10/14/2013	Mike Evans michael.evans@shell.com 858-526-2103

1. The ISO has outlined a methodology to allocate flexible capacity requirements to LRAs. It is based on one possible measurement of the proportion of the system flexible capacity requirement to each LRA and calculated as the cumulative contribution of the LRA's jurisdictional LSE's contribution to the ISO's largest 3-hour net load ramp each month. Please provide comments regarding the equity and efficiency of the ISO proposed allocation. Specifically, please comment on:

d. Should the ISO consider seasonal allocations for each component? What would these seasonal allocations look like?

Shell Energy Comments: Shell Energy believes that portfolio deviation should be the basis of the cost allocation, and that a more cost efficient mechanism for the ISO to procure flexible capacity resources is through a daily reserve product, and not a flexible capacity RA mandate, which will ultimately overprocure flexible capacity and result in higher costs to California consumers. A daily procured product will allow intermittent resources to guage when to change their scheduling procedures to reflect availability (or scarcity) of flexible capacity resources.

ISO Response

The ISO has reviewed the prospect of using portfolio deviation as means for allocation. Breaking out LSE-by-LSE deviations is extremely difficult for two reasons. First, once all resources have been aggregated the ISO is able to forecast system level load, wind, and solar output. It may be possible to break out LSE specific wind and solar outputs (the ISO is still assessing this possibility), however, the ISO does not have LSE specific forecasted load data. The ISO continues to assess these options, but does not anticipate these to yield very different results from the proposal as issued.

4. The ISO has proposed must-offer obligations for various types of resources. Please provide comments and recommendations regarding the ISO's proposed must-offer obligations for the following resources types:

d. Specialized must-offer obligations (please also include any recommended changes for the duration or timing of the proposed must-offer obligation):

3. Variable energy resources.

Shell Energy Comments: We encourage the ISO to re-think its proposal regarding use

limited gas fired peakers, and to allow the SC to manage the output capability of the unit during the calendar year. Managing the energy output becomes a complex issue, and it is unlikely that the ISO has the capacity to spend the quantity of time and effort to manage these resources. The concept of an ISO calculated opportunity cost will be difficult to establish, difficult to weigh across the timeframe in which the unit can operate and difficult to weigh against market conditions. We encourage the ISO to re-think their proposal and to allow SC's to manage the use limitation aspect of the generation unit.

ISO Response

The ISO is not proposing to manage use-limited resources. Instead the ISO is proposing to design another tool that will assist the SC in managing the use-limitations of resources**.**

Company	Date	Submitted By
Cities of Anaheim, Azusa, Banning, Colton, Pasadena, and Riverside, California (Six Cities)	10/17/2013	Bonnie Blair bblair@thompsoncoburn.com 2-2-585-6905

1. The ISO has outlined a methodology to allocate flexible capacity requirements to LRAs. It is based on one possible measurement of the proportion of the system flexible capacity requirement to each LRA and calculated as the cumulative contribution of the LRA's jurisdictional LSE's contribution to the ISO's largest 3-hour net load ramp each month. Please provide comments regarding the equity and efficiency of the ISO proposed allocation. Specifically, please comment on:

a. The ISO's proposal to use an LSEs average contribution to historic daily ISO maximum 3-hour load changes to allocate the Δ load component of the flexible capacity requirement.

Six Cities' Comments: The Cities support this proposed measure for allocating the change in load component of the flexible capacity requirement.

ISO Response

The ISO has modified the proposal for allocating changes in load to reflect the changes of load during the top five daily maximum 3-hour net load ramps to more closely align with causation of the maximum net-load ramps.

4. The ISO has proposed must-offer obligations for various types of resources. Please provide comments and recommendations regarding the ISO's proposed must-offer obligations for the following resources types:

b. Dispatchable gas-fired use-limited resources

1. Please provide comments regarding the ISO's proposal that would allow resources with use-limitations to include the opportunity costs in the resource's default energy bid, start-up cost,

and minimum load cost.

Six Cities' Comments: In concept the Six Cities support the inclusion of opportunity costs in a use-limited resource's default energy bid, start-up cost, and minimum load cost. However, the Six Cities oppose the ISO's proposal that in exchange for the ability to include opportunity costs in the resource's bids, a use-limited resource must manage its use limitation so that its flexible must-offer obligation may extend beyond its use limitation unless certain monthly minimum must-offer threshold levels are reached, *i.e.*, 90% of SFCP hours and at least 20 days of bidding. Conceptually, this is a significant departure from the current RA paradigm, under which the ISO will respect a resource's use limitation, and once the resource reaches its use limitation, there is no additional must-offer obligation or exposure to potential penalties. It also is inconsistent with the operational flexibility allowed under existing MSS agreements applicable to several of the Cities.

The ISO's proposal to require "management" of use limitations solely through inclusion of opportunity costs in bids likely will discourage participation by many use-limited resources as flexible capacity resources by imposing unacceptable risks. This is especially problematic given the stringent availability thresholds proposed by the ISO (90% of SFCP hours and 20 days in a month). For example, some of the Six Cities' thermal peaking units have limited monthly run-times (less than 200 hours for some of the units or less than 40% of SFCP hours). Even with the ability to include opportunity costs in bids, it is likely that such peaking units may exhaust their use-limitation hours before the threshold bidding levels are reached and subject themselves to penalties. Imposing unacceptable risks on participation of use-limited resources as flexible capacity resources will effectively reduce the pool of available flexible capacity.

Further, the ISO indicated that the opportunity cost bidding methodology is still in the proof of concept development phase. Therefore, it is unclear and uncertain that opportunity cost bidding can effectively manage use limitation constraints.

Six Cities suggest that until such time as the opportunity cost bidding methodology has been proven to be effective, the ISO apply the existing tools to manage the use-limited resources that are flexible capacity resources, *i.e.*, SLIC tickets to indicate that a resource's use limitation has been reached, after which no additional must-offer obligation will apply under either the SFCP or the SCP. At a minimum, the ISO should apply less burdensome bidding thresholds (*e.g.*, 60% of SFCP hours and 15 days of bidding).

The Six Cities also reiterate their suggestion, discussed at some length in their comments on the 2nd Revised Straw Proposal, that the ISO give detailed consideration to establishing different "buckets" for Flexible RA resources. The bucket concept has been suggested, in greater or lesser detail, by several stakeholders. *See* the ISO's Matrix of Comments and Responses on the Revised Straw Proposal at pages 26 (NRG) and 69 (SDG&E). The ISO's most recent response to these suggestions indicates that the ISO is "willing to consider a bucket approach if over reliance on use limited resources becomes a concern that impact (*sic*) system reliability." (Comments/Response Matrix re Comments on the 2nd Revised Straw Proposal at 25). This "willing to consider if" response is not an adequate substitute for serious and open-minded analysis prior to imposition of a must-offer/availability incentive regime that will discourage use-limited resources from offering flexible capacity that otherwise could be made available, albeit not as ubiquitously as the ISO might prefer. The

Six Cities believe that a bucket approach offers the greatest promise for addressing several of the inherently conflicting objectives in flexible capacity procurement.

Conceptually, the bucket approach would allow resources that cannot satisfy requirements for 5-minute or sustained dispatchability to meet some portion of the ISO's flexibility requirements, while requiring 5-minute dispatchability and the capability for sustained energy production for a defined percentage of the flexible capacity requirements. Establishing different buckets for Flexible RA would provide support for the development of a broad range of resources with different types of operating characteristics, which would reduce the potential adverse consequences (economic, policy, and reliability) of putting all of the reliability eggs in one bucket. If the percentages allowed for each bucket were adjusted gradually from year to year as system characteristics evolve, there would be sufficient durability to support resource development and procurement without locking in a portfolio of resources that may turn out to be unsuitable or inadequate.

Application of a bucket approach also would allow the ISO to manage potential reliability concerns resulting from the relaxation of eligibility criteria or must-offer requirements to accommodate the development of preferred resources. Allowing resources with different flexibility attributes to count toward a portion of Flexible RA requirements is appropriate, but relaxing eligibility criteria or availability requirements on a broad scale could result in threats to reliability or substantial backstop procurement by the ISO. Both consequences would be undesirable, and both could be avoided by implementation of the bucket approach.

2. Please provide information on any use-limitations that have not been addressed and how the ISO could account for them.

Six Cities' Comments: As noted in the Cities' comments on the 2nd Revised Straw Proposal, at least two of the Cities (Pasadena and Riverside) require internal resources to maintain distribution system reliability during peak conditions. Self-scheduling of Flexible RA resources should be permitted during periods when those resources are necessary to manage such local reliability constraints that are not modeled in the ISO's optimization program. The ISO's response to this concern (at page 26 of the Comments/Response matrix) to the effect that the SC for a resource will have to assess all operational limitations of a resource and risks of charges before deciding whether to offer the resource to provide flexible capacity does not substantively address the concern identified by the Cities. It goes without saying that the SC for a resource will have to consider all operational limitations of the resource and the risks of potential charges when deciding whether to make available the flexible capacity of the resource. The question the ISO should be considering, but thus far has not, is whether the Flexible RA framework should encourage maximum participation by use-limited resources by providing reasonable accommodations for local reliability considerations that cannot be "managed" adequately through opportunity costs.

ISO Response

The ISO is not proposing to manage use-limited resources. Instead the ISO is proposing to design another tool that will assist SC in managing the use-limitations resources. SC may still utilize SLIC tickets as a means of managing use-limitations. The ISO has further developed the proposal with a specific methodology for calculating opportunity costs and will seek stakeholder input. Additionally, because the opportunity cost calculation made need honing and resource SC will need an opportunity to better understand potential risks of providing flexible capacity, the ISO will not impose flexible capacity availability charges until the 2016 RA compliance year. The ISO believe the thresholds to avoid SFCP availability charges could create flexible capacity deficiencies towards the end of the month. There are many reasons such limits could be reached. Thus these thresholds have been eliminated.

The ISO believe that a tiered/bucketed approach presents challenges very similar to the approach currently proposed by the ISO. For example, it is not clear where or how the tiers/buckets would be set and what would be the rationale for setting the lines at those points. This is almost exactly the question the ISO raised in the CPUC RA workshop on 10/15/2013. While the ISO continues to assess the prospect of tiers/buckets of capacity, it is not clear that the tiered approach would resolve the challenges associated with different technology types.

The ISO is still considering how to address the local reliability concerns addressed by six cities and will seek additional input regarding the concern.

5. The ISO has proposed a flexible capacity availability incentive mechanism Please provide comments of the following aspects of this mechanism

Six Cities' Comments: As a threshold issue, the Six Cities do not believe that an availability incentive mechanism should be imposed in CY 2015. The flexible capacity paradigm still needs to be proven effective, and undoubtedly adjustments will need to be made along the way. It is not appropriate to structure an incentive/penalty mechanism until some experience and empirical data are available. The Six Cities urge the ISO to defer the availability incentive mechanism to a later phase of flexible capacity implementation.

ISO Response

The ISO will not look to implement the SFCP for RA year 2015.

7. Are there any additional comments your organization wishes to make at this time?

Six Cities' Comments: With respect to the criteria for backstop procurement identified at page 50 of the Third Revised Straw Proposal, it appears that there is no difference in backstop prices for the resources described in criteria numbers 2 and 3. If that is the case, the Cities recommend elimination of the priority under criterion 2, as eliminating that priority will allow the ISO greater discretion in identifying the resource best suited to address a flexible capacity deficiency at the lowest possible cost.

ISO Response

The ISO appreciates the suggestion. However, the ISO believes it is appropriate to leave the three criteria to completely identify the selection criteria.

Company	Date	Submitted By
Silicon Valley Power (SVP)	10/17/13	Ken Kohtz kkohtz@santaclaraca.gov (408) 615-6676

1. The ISO has outlined a methodology to allocate flexible capacity requirements to LRAs. It is based on one possible measurement of the proportion of the system flexible capacity requirement to each LRA and calculated as the cumulative contribution of the LRA's jurisdictional LSE's contribution to the ISO's largest 3-hour net load ramp each month. Please provide comments regarding the equity and efficiency of the ISO proposed allocation. Specifically, please comment on:
a. The ISO's proposal to use an LSEs average contribution to historic daily ISO maximum 3-hour load changes to allocate the Δ load component of the flexible capacity requirement. SVP supports this aspect of the CAISO's proposal
ISO Response
The ISO has modified the proposal for allocating changes in load to reflect the changes of load during the top five daily maximum 3-hour net load ramps to more closely align with causation of the maximum net-load ramps.
2. The ISO believes the proposed methodology reflects causation principles. Specific to allocating flexible capacity requirements, what does "causation" mean to your organization and how would this definition be most accurately reflected in a flexible capacity requirements allocation process?
The CAISO's preferred methodology reasonably reflects cost-causation principles.
ISO Response
The ISO has modified the proposal for allocating changes in load to reflect the changes of load during the top five daily maximum 3-hour net load ramps to more closely align with causation of the maximum net-load ramps.
3. What are the appropriate bounds for the maximum and minimum for the error term as well as how to address year-to-year variability? What are the appropriate actions if such bounds are

reached?

Like NCPA, SVP supports the current proposal to have a default error factor of "0" for the 2014 year, and also suggests that the error factor should be revisited with stakeholder input if deemed necessary once sufficient experience has been gained.

ISO Response

The ISO has proposed the error term be set to zero for 2104.

5. The ISO has proposed a flexible capacity availability incentive mechanism Please provide comments of the following aspects of this mechanism:

e. The proposed substitution rules for forced outages

The last two sentences of Section 8.4 state that flex capacity substitution need not come from the same resource that provides substitute generic capacity, but local resources on forced outage will require another local resource to be used for substitution. Parties should be allowed to substitute a non-local flexible capacity resource to meet the portion of the flexible capacity requirement being met by the local resource, and to separately substitute another local resource, that may or may not have available Effective Flexible Capacity, to meet the generic capacity requirement. For both the substituted flexible capacity resource and the substituted generic capacity resource, the current "same electrical bus" substitution requirement for forced outages therefore should not apply to substitution for a flex capacity resource on a forced outage.

ISO Response

There is nothing in the ISO's proposal that would prohibit such substitution. The ISO has added language designed to clarify this point to the latest straw proposal.

7. Are there any additional comments your organization wishes to make at this time?

Like NCPA, SVP appreciates the CAISO's recognition, as described in Section 5 of the proposal, that a load-following MSS is contractually obligated to manage the variability and uncertainty of load and resources within its SC portfolio.

Additionally, SVP has the following two questions regarding the CAISO's proposal:

Q1: Regarding Section 5.1.2, and the examples of allocating the maximum 3-hour net load ramp, will the CAISO provide the LRA with each of the four "bucket" amounts in addition to the total contribution amount? SVP strongly supports providing the LRA/LSE with the additional "bucket" detail as to how the total amount is broken out (or determined).

Q2: Regarding the CAISO's discussion of the "bundling" of flex capacity and system/general capacity in the second paragraph of Section 6, this topic was briefly discussed during the October 9th stakeholder meeting, and SVP is still unsure of the

resulting details. It appears that a counting or selling of 1 MW of flex capacity will include 1 MW of the resource's NQC for system and, if applicable, local capacity. However, it appears that an owner of a flex resource can claim or sell 1 MW of system capacity without having any MWs of flex capacity tied to that claim or sale. Is this indeed the case?

Perhaps the following example would be helpful: A resource has 100 MW of NQC and 100 MW of EFC. It sells 50 MW of EFC to a second party (50 MW of system NQC goes with the 50 MW of EFC). It also can sell (or self-claim) 50 MW of system RA (without EFC) to a third party. Thus, only 50 MW of the resource's EFC is utilized, and only 50 MW of the resource's EFC is subject to the SFCP must-offer obligation and availability incentive mechanism – yet 100 MW of System RA has been sold (or claimed) by this resource. Is this scenario allowed under the proposal?

ISO Response

The ISO will provide all "buckets" (i.e. components that contribute to an LSE's and LRA's flexible capacity requirements) to the LRA.

The terms and conditions of a contract regarding what is sold and what is not sold is between the parties of the contract. However, it is accurate that a generator may be shown in an RA showing as only generic even if the resource has an EFC. Only those MW shown as flexible will be subject to the SFCP.

Company	Date	Submitted By
SCE	10/21/2013	Joe M[c]Cawley Joseph.mccawley@sce.com 626-302-3301

1. ISO's Flex Must Offer Proposal(s)

The ISO's proposed resource-specific MOOs are unduly discriminatory, ineffective, unfair and must be abandoned

To the extent any forward Flex offer obligations are imposed, they must be "technology neutral" and based on underlying resource operating characteristics and Flex capabilities

To the extent multiple forward offer obligations are developed to address Flex resource use limitations, the ISO must align these different obligations with the ISO's relative Flex needs to ensure the Flex services delivered from different resources are comparable and have equivalent reliability value

SCE is not convinced imposing forward Flex offer obligations can achieve the stated objectives of such obligations – certainly not in the form currently proposed and perhaps not in the form suggested above – and asks the ISO to consider whether spot market mechanisms either alone, or in conjunction with some "reduced form" forward obligation is

not a more effective approach to ensuring adequate Flex resource availability

ISO's Proposed CPM Adder should be rejected

ISO Response

The ISO's proposed MOOs are designed to remove barriers to various resource types that may be able to provide flexible capacity.

The ISO proposed flexible capacity allocation methodology is designed to allocate flexible capacity requirements to those that cause the need for flexible capacity.

In the future, the ISO hopes to develop more specific flexible capacity requirements. Such requirements are necessary as the ISO believes that the current construct (i.e. the three hour net load ramp) will not ensure the appropriate flexible attributes will be procured beyond 2017. Prior to that time, the ISO will work with all stakeholders to ensure such requirements are allocated based on causation principles.

The ISO believe that the MOO as proposed will work in conjunction with other real-time market design initiatives to provide the flexibility needed to operate the system reliably.

The ISO has received a significant amount of support for the use of the adder method and believes it is the appropriate method for pricing the additional value of flexible capacity

1. The ISO has outlined a methodology to allocate flexible capacity requirements to LRAs. It is based on one possible measurement of the proportion of the system flexible capacity requirement to each LRA and calculated as the cumulative contribution of the LRA's jurisdictional LSE's contribution to the ISO's largest 3-hour net load ramp each month. Please provide comments regarding the equity and efficiency of the ISO proposed allocation. Specifically, please comment on:

a. The ISO's proposal to use an LSEs average contribution to historic daily ISO maximum 3-hour load changes to allocate the Δ load component of the flexible capacity requirement

SCE's supports the ISO's proposal to allocate changes in load by using two years of historic metered load data to measure monthly average 3-hour maximum continuous load ramps vs. the previously proposed method to use peak-load share and monthly load factors to allocate changes in load.

b. The potential of using historic average daily maximum 3-hour net-load ramps or time of day system maximum 3-hour load ramps (morning vs. evening ramps).

SCE has no comment at this time on this issue.

c. What other measurement or allocation factor should the ISO consider to determine an LRA's contribution to the change in load component of the flexible capacity requirement?

See response to 1.d

d. Should the ISO consider seasonal allocations for each component? What would these seasonal allocations look like?

The following expands upon SCE's last set of comments in which we recommended consolidating the 12 monthly allocation factors into just two factors, non-summer and summer.

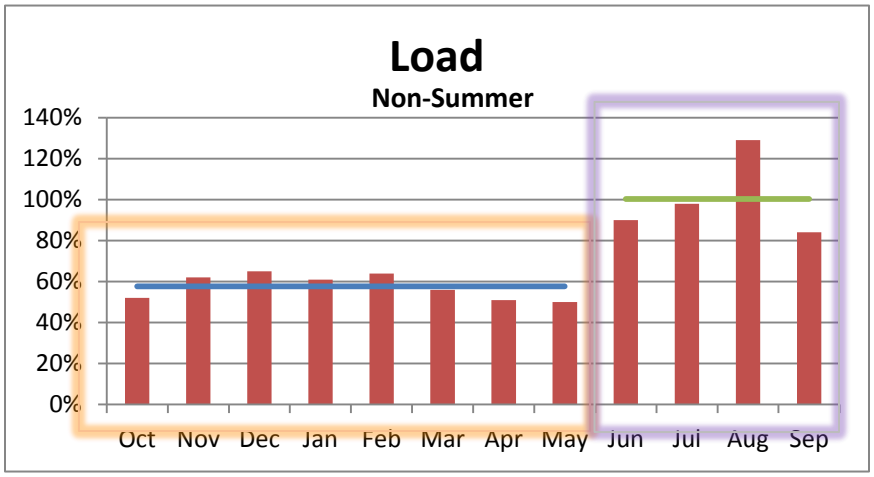
As the data in the following table illustrates, while using a seasonal average allocation initially sounds viable, a closer look at the individual monthly values reveals that the average values for each Fall sector would be skewed by the respective September values.

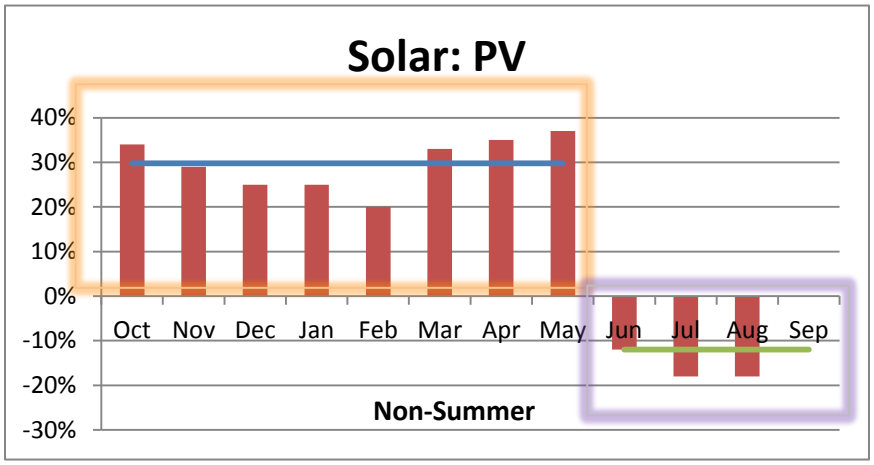
SCE continues to propose that the best overall allocation approach is to develop an average June – September (i.e. "summer") allocation factor and an Oct – May (i.e. "non-summer") allocation factor.

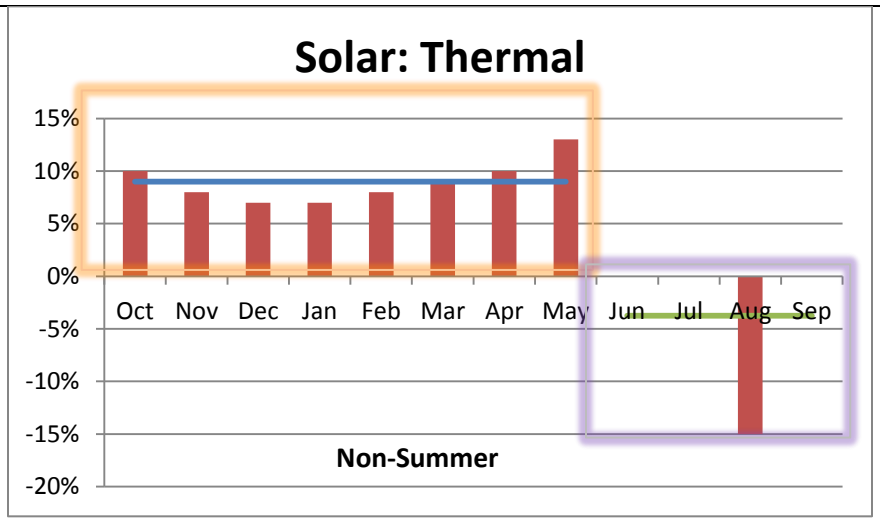
Consistent with this approach, SCE also supports the ISO's consideration of merging Solar PV and solar thermal allocation factors.

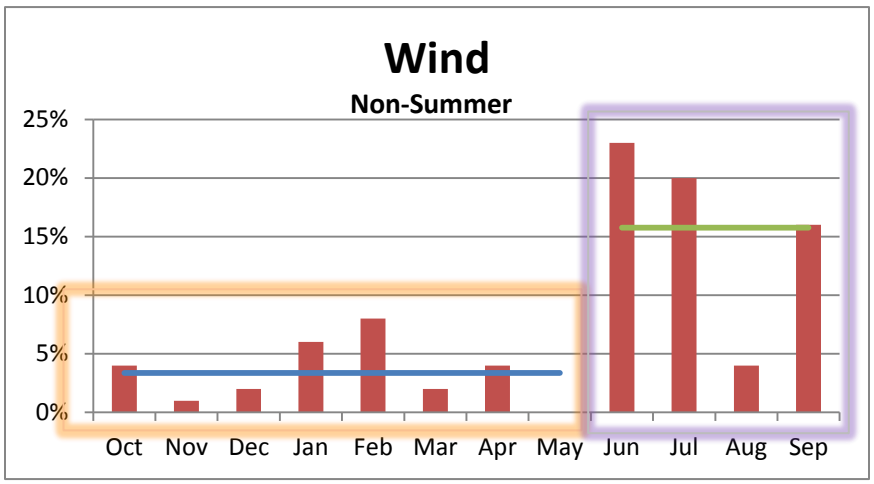
Allocations with DER PV netted with Load

	2015 Share Calculations				
			Solar		
Month	Load	Wind	PV	Thermal	DER PV
Dec	65%	2%	25%	7%	
Jan	61%	6%	25%	7%	
Feb	64%	8%	20%	8%	
Mar	56%	2%	33%	9%	
Apr	51%	4%	35%	10%	
May	50%	0%	37%	13%	
Jun	90%	23%	-12%	0%	
Jul	98%	20%	-18%	0%	
Aug	129%	4%	-18%	-15%	
Sep	84%	16%	0%	0%	
Oct	52%	4%	34%	10%	
Nov	62%	1%	29%	8%	
Avg.	**72%**	**8%**	**15%**	**5%**	


Load
Non-Summer
140%
120%
100%
80%
60%
40%
20%
0%
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep


Solar: PV
40%
30%
20%
10%
0%
-10%
-20%
-30%
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Non-Summer





ISO Response

The ISO has modified the proposal for allocating changes in load to reflect the changes of load during the top five daily maximum 3-hour net load ramps to more closely align with causation of the maximum net-load ramps. The ISO believes that changes to the allocation methodology are consistent with this definition of causation.

The ISO will not propose seasonal allocations at this time. The ISO may revisit this issue in the future, however, at this time it is more prudent to stay with monthly allocations. If the trends SCE identifies continue, then moving to seasonal determinations should be considered. However, if the ISO went with a seasonal allocation at this point it could be very difficult to unwind if trends change.

2. The ISO believes the proposed methodology reflects causation principles. Specific to allocating flexible capacity requirements, what does “causation” mean to your organization and how would this definition be most accurately reflected in a flexible capacity requirements allocation process?
As mentioned in previous comments and workshops, SCE continues to support an allocation mechanism that allocates the obligation for the provision of flexible resources to those that cause the need for flexible resources. And, as a general matter, SCE believes that the CAISO’s intent to allocate the obligation based on those load serving entities that have contracts with intermittent resources is a step in the right direction. SCE supports the methodology being used by the ISO to determine the amount of flexibility required to maintain grid reliability. We concur that using a max 3-hour net-load ramping change to determining the required amount of flexible capacity, and requiring this amount of flexible capacity to be available during a daily 18-hour period, should ensure a sufficient amount of flexible capacity is available. However, SCE believes that requiring flexible capacity to be available during 18-hour daily periods explicitly illustrates the inappropriateness of then allocating 100% of causation upon only a 3-hr time period. SCE believes that the ISO’s currently proposed allocation methodology does not achieve the goal of allocating the obligation for the provision of flexible resources to those that cause the need for flexible resources, and in fact provides spurious results. SCE is concerned that the allocation results of this method are driven more by the modeling methodology than actual contribution to the ramping need in some instances. Our analysis (SCE comments on FRAC-MOO 2nd Straw) appears to demonstrate that the effective flex credit received by solar is entirely an artifact of the ISO's analytical approach (i.e., allocating based on a 3-hr net load ramp when the load ramps in summer are longer and forcing the annual peak load to occur in August) and does not fairly represent solar's "true" contribution to flex needs. In addition, the erratic behavior of the allocations in the summer months do not make rational sense and could be indicative of further difficulty for the data to fully describe the contribution to flex need of each group and therefore is not a reliable basis for allocation. As also mentioned in SCE’s July 25 comments, SCE believes that another situation may arise for which the ISO’s proposed allocation methodology does not appropriately address cost causation. That example is a situation in which a load serving entity that is not a CAISO entity procures intermittent resources from the CAISO controlled grid and exports them to serve load outside of the CAISO. Indeed, this example already exists. In this circumstance, the CAISO proposal lacks in its ability to allocate flex requirements to that entity. SCE is concerned that this example will continue to grow in the future and produce a skewed allocation. SCE urges the CAISO to address this deficiency as soon as possible. So what allocation method is appropriate? SCE believes that until there is sufficient agreement among stakeholders regarding how each of the various resources can potentially provide (or create the need for) flex, a fixed allocation factor should be used. We’ve

previously suggested that the first step should be to determine the average annual contribution to flex for each resource type and to use this annual value to establish one set of allocating factors for the entire year. We believe fixed seasonal factors (i.e. summer and non-summer) are a good compromise. We believe that this approach is a reasonable step towards developing causation based allocation rules and does not create procurement consequences that are not inseparable (i.e. solar provides flex in some months while creating the need to procure flex in other months).

SCE also strongly recommends that whichever allocation method adopted by the CAISO should be classified as interim.

ISO Response

The ISO believes that the latest proposal is consistent with cost causation based on how flexible capacity is requirements are currently defined. In the future, the ISO expects to develop more granular flexibility products that would require an allocation mechanism specific to those defined products.

Allocating an RA requirement to non-ISO LSEs is a significant change to the current RA construct. While the ISO believes that the SCE proposal likely merits additional consideration, such changes to the RA construct is beyond the scope of the current stakeholder initiative.

The ISO as stated several times that more granular definitions of flexible capacity needs (i.e. load following). Additionally, the CPUC's recent RA ruling has said that the proposed RA construct would be modified by 2018. As such, the ISO views the current proposal as a first step and the proposal will be modified in the future as the definitions of flexible capacity become more granular.

3. What are the appropriate bounds for the maximum and minimum for the error term as well as how to address year-to-year variability? What are the appropriate actions if such bounds are reached?

See response to 4.d.

ISO Response

See above response.

4. The ISO has proposed must-offer obligations for various types of resources. Please provide comments and recommendations regarding the ISO's proposed must-offer obligations for the following resources types

b. Resources not identified as use-limited

See response to 4.d

c. Dispatchable gas-fired use-limited resources

d. Please provide comments regarding the ISO's proposal that would allow resources with use- limitations to include the opportunity costs in the resource's default energy bid, start-up cost, and minimum load cost.

See response to 4.d

e. Please provide information on any use-limitations that have not been addressed and how the ISO could account for them.

See response to 4.d

f. Hydro Resources

See response to 4.d

g. Specialized must-offer obligations (please also include any recommended changes for the duration or timing of the proposed must-offer obligation):

1. Demand response resources.

2. Storage resources.

3. Variable energy resources.

SCE opposes the ISO's proposed "custom" offer obligations based on resource type (DR, storage, dispatchable VERS, and use-limited resources). Given the growing complexity and obvious problems associated with developing Flex offer obligations, SCE now questions the need for any forward offer obligations associated with the Flex capacity attribute. Instead, SCE believes that the ISO spot markets should be explored as the more appropriate place to incent Flex resources to submit economic bids. Major concerns with the current MOO proposals include:

1. **The ISO's must offer proposals are unduly discriminatory.** Rather than forward Flex offer obligations based on a defined set of flexible operating and use characteristics, the ISO's proposal ties each specific MOO to a resource type (e.g., DR, storage, VER, ULR) regardless of resource operating characteristics. For example, DR is afforded a choice of two offer periods - both significantly shorter than the proposed "default" period of 5:00 AM to 10:00 PM daily - simply because it is DR. A use-limited thermal or hydro resource with identical availability and operating characteristics as a DR resource would be denied access

to this two-period offer obligation simply because it is not DR. In another example, only storage resources will be afforded the opportunity to meet their Flex offer obligation by bidding only Regulation, which effectively exempts these resources from having to submit economic energy bids[5]. Again, other Flex resources with similar use-limitations and regulation capabilities would not qualify for this MOO simply because they are not storage. Offer rules based on resource type as opposed to underlying resource capabilities are not only prima facie discriminatory, they create additional problems of effectiveness and fairness described below. Looking ahead, it is difficult to see how FERC could accept the ISO's proposal as currently configured, which, in addition to being discriminatory, increases the level of uncertainty resource owners and LSEs face for 2015. It is even more difficult to see how the ISO's MOO proposal transitions into the multi-year forward Joint Reliability Framework (with associated RSA) where multiple Flex capacity attributes may reemerge and where "technology neutrality" has been espoused as a core principle. If forward offer obligations are in fact needed for Flex RA capacity – a need SCE now seriously questions – and these forward obligations are to be fair, feasible and sustainable, they must be based on resource use limitations and operating characteristics and not on resource type.

2. **The multiple, resource-specific MOOs are ineffective**. The very purpose of forward offer obligations is to ensure the availability of resources when needed. The generic RA capacity MOO is effective because, together with NQC counting rules, explicit limits on quantities of use-limited resources (i.e., CPUC's MCC buckets) and an appropriately-focused SCP mechanism, it ensures RA resources are aligned and available in sufficient quantities when needed (i.e., peak load hours). Unlike peak-load requirements, which are relatively predictable, and occur only at specific points in time, Flex requirements are pervasive, less predictable, and, according to the "duck chart", ever changing. Clearly, these added dimensions of time and uncertainty make defining and measuring the adequate, hour-by-hour availability of Flex capacity a challenge. However, the ISO's Flex MOO proposal, as currently designed, does not address this challenge. The ISO's proposal allows Flex capacity to be parsed into different spot market services and different time periods without any attempt to coordinate how much Flex capacity will be available in any given hour and in what form. Instead, both by the ISO's design of MOO rules and by LSE/resource owners' choices within these rules[6], the ISO will essentially "get what it gets when it gets it". Whether that collective result is adequate in any given hour will be much more a matter of coincidence than design.[7] SCE understands that offer obligations by themselves cannot ensure hour-by-hour adequacy. That it takes the collective set of RA program rules to

[5] SCE is not disputing whether Regulation is the best use of a storage resource and is not taking any position on whether and how storage resources provide energy to fulfill their eventual RA obligations. SCE is only commenting on the unequal treatment of resources with similar or identical operating characteristics.

[6] The ISO's proposal pre-specifies time periods (DR and VERS) and products (storage), but leaves it to resource owners to select which time periods and products (DR and storage). Also, there is currently no mechanism in the Flex RA framework (CPUC or ISO) that limits how much of any Flex resource type an LSE can use to meet its allocated Flex showing requirement.

[7] A particular concern when one considers the frequent ISO admonition to stakeholders "the 3-hr net load ramp is not the only flex requirement the ISO must meet; we must meet all the flex needs all the time."

accomplish that result. But it is clear to SCE the collective rules that apply to Flex RA capacity – those already adopted and those proposed – along with the resource-specific MOOs proposed by the ISO add significant complexity without achieving any assurance of achieving the reliability objectives of forward offer obligations.

3. **The ISO's Flex MOO proposal is unfair to LSEs**. One of the core principles of the RA program has been, by meeting their forward RA procurement and showing requirements, LSE's have substantially reduced their exposure to additional capacity costs above and beyond those forward requirements. That any residual cost exposure is due largely, if not entirely, to some unforeseen event or significant forecast error, the likelihood of either, by RA program design, is very small. Another core principle has been that each individual LSE's RA requirements are not directly or unduly impacted by how other LSEs choose to meet their own RA requirements[8]. The former is achieved by having coherent RA program rules that reasonably ensure the program's reliability objectives are met in actual practice; the latter by using well-defined, uniform (aka "standard") capacity products to meet program requirements.[9] SCE believes the ISO's current Flex MOO proposal runs contrary to both of these principles. First, because there is no apparent way to ensure adequate Flex capacity is available hour-by-hour, nor that the Flex capacity that is available effectively meets the ISO's ramping needs, LSEs are unreasonably exposed to ISO backstop costs (due to intra-year Flex deficiencies) and uncertain increases in future Flex requirements (due to increased use of the error term in the ISO's requirements formula[10]). Second, because the resource-specific MOOs proposed by the ISO clearly imply differential contributions to reliability by resource type (i.e., the Flex product across resource types is neither well defined nor uniform) and there are no proposed limits on which eligible Flex resources LSEs use to meet their individual requirements, the potential for one LSE's choices to impact another LSE's requirements is clearly set.[11] The practical consequences of these core RA principle violations may seem small in the near term because the relative volume of "non-standard" Flex resources will be low. However, we must recognize that there is significant potential for the volume of these resources to increase and the ability to re-visit RA rules in light of such growth could prove difficult. For any rules to be effective, they must be durable.

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[8] SCE understands this potential exists in local RA procurement due to resource effectiveness factors, but this exposure is very small due to the nature and configuration of each local area (there is little to no "excess" eligible generation in most local areas).

[9] where "well-defined and standard" mean resources have been pre-qualified (by counting rules, location designations, ramping capabilities, etc) to meet a stated reliability objective such that the ISO is indifferent to which subset of qualified resources LSEs use to meet their individual and collective RA requirements.

[10] Given the existing Flex RA framework as it currently stands, SCE does not see any other means for the ISO to compensate for collectively ineffective Flex showings.

[11] If the ISO uses backstop procurement or increases the size of the error term in response to deficiencies in the Flex RA fleet, and those deficiencies are attributable to an over-dependence on Flex resources that have "non-standard" MOOs, then those increased procurement costs and/or increased future requirements apply to all LSEs without regard to how much or how little they used over-depended resources to meet their individual showings.

This is particularly true for forward capacity procurement. It makes no sense to adopt must offer rules for the near-term that could easily become challenged before 2017[12] and which, as stated above, cannot effectively transition to the JRF/RSA.

4. **The ISO's Flex MOO proposal is unfair to Flex generator owners**. As SCE notes above, an unavoidable consequence of resource-specific offer obligations is the reliability product delivered by each resource type will not be uniform or standard. This creates problems for generators just as it does for LSEs. Some resources will provide Flex services more hours of each day, some less, some when the value of that service is higher, some when it's lower, and still some in forms of service that may or may not contribute to meeting Flex needs.[13] Yet the ISO's proposal is to treat all eligible Flex resources as if they were standard and impose Flex resource substitution rules, do backstop procurement and, potentially, increase the size of the error term accordingly. Most importantly, the ISO has proposed a "one-size-fits-all" CPM price adder. Aside from the obvious resource inequities – why should a 5-hr resource be counted and paid the same as a 17-hr resource when there has been no attempt to ensure the quality or value of reliability services provided by each are equivalent – generator owners should be concerned about the incentives these inequities may create for LSEs. Specifically, LSEs may be incented to contract with less available resources that have lower exposure to performance risk and the backstop procurement costs for which get partly allocated to other LSEs.

5. **The ISO's proposed MOOs are incompatible with other RA offer obligations.** Currently, the Flex RA framework adopted by the CPUC requires Flex resources to have underlying generic RA capability (i.e., have a designated NQC) and that the Flex capacity cannot exceed that generic RA capability. Assuming most LSEs will show all relevant RA capacity attributes of a given resource needed to meet that LSEs RA requirements (system, local and Flex), it is reasonable to conclude most Flex capacity included in showings will also have generic RA capacity obligations to meet. As such, the offer and availability obligations of these resources must be compatible. As proposed, some are not. The ISO's proposed Flex offer periods for DR and storage do not completely overlap with – and in one instance is not even contiguous with – the SCP availability period for generic RA capacity. Each resource-specific MOO in the ISO's proposal was presumably designed around the perceived capabilities of each resource type and, in most cases, limited so as not to exceed those capabilities.[14] This begs the question whether some resources can in fact do "double duty" and meet both generic and flex requirements. It is not SCE's intention in these comments to opine on how potentially competing RA requirements should be reconciled for certain resource types (DR, storage, and flexible VERs). It is, however, our intention to state

[12] 2017 is currently the end of the so-called "interim period" for incorporating Flex RA.
[13] It makes no sense to allow storage to elect to meet its Flex obligations by offering only Regulation if there is an abundance of Reg in the market and a relative shortage of ramping. Nor does it make sense to allow DR to elect an "evening" offer period in summer when the ISO has claimed its predominant ramping needs will be in the morning.
[14] This is particularly true in the case of Flexible Solar resources, but also DR, storage and hydro.

any such reconciliation should not be "backed into" by the imposition of offer obligations, particularly for resources whose underlying generic RA capabilities have yet to be determined. If forward offer obligations and Flex performance standards are going to be imposed, the ISO, CPUC and stakeholders must first address questions of which RA services resources can provide and which they must provide and how to reconcile any differences. Only then can coherent offer rules be set.

6. SCE has been clear in these comments that resource-specific Flex offer obligations appear unworkable. That any forward Flex offer obligations – to the extent they are needed at all – must be based on underlying resource capabilities without regard to resource type. And that any differential in forward Flex offer obligations intended to accommodate various resource use limitations must be done in recognition of the ISO's relative flex needs in order to ensure all Flex resources are providing comparable reliability value.

   Given the significant challenges revealed in developing forward offer obligations to date, SCE has stepped back and asked if forward offer obligations are needed at all? Moreover, can they even work? Two basic objectives have been held up as justification of need for forward Flex offer obligations; 1) to ensure Flex resources are available during periods of greatest flex need (the default being 5:00 AM to 10:00 PM daily), and 2) to ensure resources submit economic bids rather than self-schedule. SCE believes it is reasonable to assume the vast majority of Flex resources included in LSEs' showings will also be counted towards meeting their generic system and local RA requirements as well. The existing offer obligation on generic capacity already requires resources to offer into the ISO's day-ahead and real-time markets whenever they are available. So it appears the first stated objective for forward Flex offer obligations is not needed for most Flex resources. If so, the only remaining purpose for a forward Flex MOO is to incent desired bidding behavior.

   SCE's comments have made abundantly clear the problems associated with trying to align structured forward incentives (i.e., offer obligations) with actual market conditions and reliability needs for something as variable and time-dimensional as "flex". But aligning incentives and needs is precisely the job of spot markets. It is, after all, one of the main reasons we have an ISO-run spot market; to set requirements based on contemporaneous needs, and create price signals that make it the economic interest of market participants to meet those needs. SCE does not disagree with the ISO's desire to have access to the flex attributes of resources when needed and avoid ramping shortages that would upset normal market function and potentially create reliability issues. But, given the unique and dynamic nature of ramping requirements that will only grow and change over time, SCE is doubtful any set of forward offer obligations can "get it right".

   Alternatively, it seems altogether plausible, and perhaps even desirable for the ISO to develop spot market mechanisms that incent Flex resources to bid Flex services in time periods of greatest need – such as Flexi-Ramp products that produce specific needs and price signals and scarcity pricing mechanisms that allocate the cost of ramping shortages back to Flex resources that were self-scheduling during the periods of shortage. Notwithstanding the adoption of the ISO's proposed Flex MOO's, it is SCE belief the ISO will have to develop these spot market mechanisms anyway. It is not hard to understand the

problems that will arise when these forward and spot incentives don't align.

SCE does not have any specific proposal for precise spot-market mechanisms to either take the place of forward Flex offer obligations or work in conjunction with some "reduced form" forward offer obligations. At this point, SCE is only asking the ISO and stakeholders to consider that the path we're on now won't work. At the very least we have to go back and approach any forward obligations from the perspective of resource capability and ISO need, not resource type. In so doing one should ask what are we really trying to accomplish with forward obligations and is there a better, more durable way.

ISO Response

The ISO's proposed MOOs are designed to remove barriers to providing flexible capacity. The ISO believe that the MOO as proposed will work in conjunction with other real-time market design initiatives to provide the flexibility needed to operate the system reliably.

The ISO believe that a tiered/bucketed approach presents challenges very similar to the approach currently proposed by the ISO. For example, it is not clear where or how the tiers/buckets would be set and what would be the rationale for setting the lines at those points. This is almost exactly the question the ISO raised in the CPUC RA workshop on 10/15/2013. While the ISO continues to assess the prospect of tiers/buckets of capacity, it is not clear that the tiered approach would resolve the challenges associated with different technology types.

In the fourth revised straw proposal the ISO proposed requiring use-limited resources that reach monthly or annual use-limitation prior to the end of a month be required to provide substitute capacity. The ISO believes that this requirement enhances comparable treatment amongst various resource types and should go a long way to addressing the concerns raised here.

The ISO continues to look to address some of the disconnects between the manner in which PDR resources can count for RA and how they count towards flexibility needs. For example, one of the major challenges for DR is that fact that RA is measured between 1:00 p.m. and 6:00 p.m., while flexibility is measured between 7:00 a.m. and noon or 3:00 p.m. and 8:00 p.m. The ISO has proposed to allow a DR resource to establish an EFC through the use of a test event to help measure the flexibility of a PDR resource. The ISO recognizes that it will need to coordinate with the CPUC and other LRAs to coordinate this with their counting rules for demand response providing "generic" RA capacity.

5. The ISO has proposed a flexible capacity availability incentive mechanism Please provide comments of the following aspects of this mechanism:

See response to 5.f.

a. The selection of the adder method as the preferred option

1. Should the ISO still consider the bucket method, the "worse-of" method, or some other method not already considered? Why?

See response to 5.f.

b. The price for the flexibility adder. Specifically, if the ISO proposed price is not correct, what price or data source should the ISO consider and why?

See response to 5.f.

b. The interaction between the existing SCP and the proposed SFCP

See response to 5.f.

c. The proposed SFCP evaluation mechanism/formula

See response to 5.f.

2. The formula used to calculate compliance (including the treatment of long-start and use-limited resources)

3. The treatment of forced and planned outages

4. The minimum availability thresholds for use-limited resources

c. The proposed substation rules for forced outages

See response to 5.f

d. Please also include comments regarding issues the ISO must consider as part of the evaluation mechanism that are not discussed in this proposal.

The ISO's proposed CPM adder should be rejected.

The ISO has proposed a CPM price adder of $23.25 be used to assess Flex performance bonuses and penalties and applied to any backstop purchase of Flex capacity. For the following reasons, this proposal should be rejected:

a. The ISO has not laid any credible foundation why Flex capacity should receive higher backstop capacity payments than generic capacity. They have simply presumed Flex

capacity is more valuable, assumed existing CPM rates are "deficient" and invented a method for producing a value that draws unfounded conclusions from unrelated reports.[15]

b. There is no evidence the commitments made or services provided by a Flex resource require any forward capacity compensation. As currently proposed, the essential commitment made by selling Flex is to forego the opportunity to submit self-schedules during certain hours. The service provided is ramping. The ISO has presented no evidence to suggest the "lost self-scheduling opportunity" and ramping services cannot be fully compensated by spot market revenues. In fact, the ISO's own proposal for use-limited Flex resources[16] explicitly relies on the assumption resources can fully capture Flex opportunity costs in their spot market capacity and energy bids.

c. If a CPM adder is to be imposed, and given the ISO's current Flex MOO proposal, the idea that a single adder should apply to all Flex resources, when the relative services provided are far from uniform, is patently unfair and would create a host of negative untended consequences.

[11] SCE notes that since 2010, there have been 22 resources designated as CPM or ICPM. Of those 22 resource designations, there is only one resource that SCE could not verify as being a flexible resource. Thus, roughly 95% of all CPM designations have been to Flex eligible resources.

[12] The ISO proposal is to modify a resource's default start-up, min load and energy bids to account for any lost opportunities incurred by providing Flex and to ration the use of Flex over time.

ISO Response

While the ISO believes that the adder methodology is the appropriate method to valuing flexible capacity, the ISO has proposed a new price for the adder method and will seek comments on this new price as well as alternative prices or methodologies to develop the price.

6. The ISO has proposed to include a backstop procurement provision that would allow the ISO to procure flexible capacity resources to cure deficiencies in LSE SC flexible capacity showings. Please provide comments regarding the following issues of ISO's proposed flexible capacity backstop procurement proposal:

a. The inclusion of the adder methodology

See response to 5.f.

b. The opportunity for LSEs to provide a list of uncommitted flexible capacity that can be

[15] SCE notes that since 2010, there have been 22 resources designated as CPM or ICPM. Of those 22 resource designations, there is only one resource that SCE could not verify as being a flexible resource. Thus, roughly 95% of all CPM designations have been to Flex eligible resources.

[16] The ISO proposal is to modify a resource's default start-up, min load and energy bids to account for any lost opportunities incurred by providing Flex and to ration the use of Flex over time.

used to help cure flexible capacity deficiencies.

SCE is neutral on this aspect of the proposal.

ISO Response

No response required.

7. Are there any additional comments your organization wishes to make at this time?

As mentioned in our previous comments, SCE wishes to remind parties that the current proposal is designed to be interim in nature until a more robust and permanent structure can be developed. Ultimately, cost causation must include not only an allocation of costs to load, but also an allocation to the resources that contribute to the need for flexibility.

Counting and Most Offer rules should line-up reasonably with both market needs and reliability needs. At present, there is neither sufficient historical data nor an agreement on how preferred resources can and will satisfy these needs to develop rules that are anything other than interim.

ISO Response

The ISO as stated several times that more granular definitions of flexible capacity needs (i.e. load following). Additionally, the CPUC's recent RA ruling has said that the proposed RA construct would be modified by 2018. As such, the ISO views the current proposal as a first step and the proposal will be modified in the future as the definitions of flexible capacity become more granular.

Company	Date	Submitted By
VIASYN, Inc.	10/16/2013	Sean Breiner (907) 378-9392

1. The ISO has outlined a methodology to allocate flexible capacity requirements to LRAs. It is based on one possible measurement of the proportion of the system flexible capacity requirement to each LRA and calculated as the cumulative contribution of the LRA's jurisdictional LSE's contribution to the ISO's largest 3- hour net load ramp each month. Please provide comments regarding the equity and efficiency of the ISO proposed allocation. Specifically, please comment on:

a. The ISO's proposal to use an LSEs average contribution to historic daily ISO maximum 3-hour load changes to allocate the Δ load component of the flexible capacity requirement.

VIASYN supports the use of average contribution to daily maximum 3-hour load ramp because the ISO will use historic LSE-specific load data in the calculation.

b. The potential of using historic average daily maximum 3-hour net-load ramps or time of day system maximum 3-hour load ramps (morning vs. evening ramps).

Given that the methodology used to assess an LSE's contribution to change in wind and solar output is based on percentage share of change in aggregated system-level wind and solar output, as opposed to each LSE's contracted resource portfolio, calculation of historic average daily 3-hour net-load ramps appears unnecessarily granular and intensive with little additional benefits.

The benefits of using time of day system maximum 3-hour load ramps is also unclear. The use of maximum 3-hour load ramps should be sufficient for use in the flexible capacity requirement and LSE contribution calculations.

What other measurement or allocation factor should the ISO consider to determine an LRA's contribution to the change in load component of the flexible capacity requirement?

The existing proposal is sufficient for a capacity requirement based on 3-hour maximum net-load ramps.

c. Should the ISO consider seasonal allocations for each component? What would these seasonal allocations look like?

Seasonal or monthly allocations would be appropriate.

ISO Response

The ISO has modified the proposal for allocating changes in load to reflect the changes of load during the top five daily maximum 3-hour net load ramps to more closely align with causation of the maximum net-load ramps.

The ISO is not proposing seasonal allocations of flexible capacity needs at this time, however, the ISO may consider seasonal allocations in the future

3. What are the appropriate bounds for the maximum and minimum for the error term as well as how to address year-to-year variability? What are the appropriate actions if such bounds are reached?

To address year-to-year variability the ISO can incorporate an additional variable in the flexible capacity requirement calculation that reflects the variability uncertainty inherent in the renewable resource profile used in the calculation of the projected maximum three hour ramp. This uncertainty should not be reflected in the error term.

The error term should be bounded by a percentage of the maximum three hour ramp, reflecting a threshold beyond which reliability concerns escalate due to insufficient capacity dedicated by the flexible capacity requirement calculation. If such bounds are reached the source of the unanticipated flexibility need should be assessed, and adjustments should be made to the flexible capacity requirement formula in the subsequent flexible capacity requirement assessment process.

c. Hydro Resources

The ISO should clarify why it proposes to require hydro resources to provide at least six hours of energy when the flexible capacity requirement is based on a 3- hour ramp period. A four hour requirement appears adequate.

d. Specialized must-offer obligations (please also include any recommended changes for the duration or timing of the proposed must-offer obligation):

3. Variable energy resources.

Assessing availability as the lower of the bid or resource's forecast appears appropriate.

ISO Response

The ISO continues to assess the appropriate bound on the error term, but appreciates the input provided on the matter and will take it into account in the assessment

The requirement for 6 hours of energy from hydro resources is based on the need to have flexible capacity needed to address multiple steep ramps in a given day as well as load following requirements.

The ISO appreciates the support on this assessment of VERs.

4. The ISO has proposed a flexible capacity availability incentive mechanism
Please provide comments of the following aspects of this mechanism:

a. The selection of the adder method as the preferred option

The adder method appears appropriate.

b. The price for the flexibility adder. Specifically, if the ISO proposed price is not correct, what price or data source should the ISO consider and why?

The ISO proposed price is not correct, however we do not have a better alternative at this time.

d. The proposed SFCP evaluation mechanism/formula

1. The formula used to calculate compliance (including the treatment of long-start and use-limited resources)

Compliance calculations appear adequate, however we would like greater clarification regarding the requirement for hydro resources to provide at least six hours of energy when the flexible capacity requirement is based on a 3-hour ramp period.

2. The treatment of forced and planned outages

The treatment of forced and planned outages appears appropriate.

3. The minimum availability thresholds for use-limited resources

Availability thresholds for use-limited resources appear appropriate.

e. The proposed substation rules for forced outages

Substitution rules for forced outages appear appropriate

ISO Response

The ISO appreciates that support of the adder method and substitution rules. The ISO continues to review different options for determining the price for the adder and has issued a new proposed pricing methodology and will seek stakeholder comments.

5. The ISO has proposed to include a backstop procurement provision that would allow the ISO to procure flexible capacity resources to cure deficiencies in LSE SC flexible capacity showings. Please provide comments regarding the following issues of ISO's proposed flexible capacity backstop procurement proposal:

a. The inclusion of the adder methodology

This methodology appears appropriate.

b. The opportunity for LSEs to provide a list of uncommitted flexible capacity that can be used to help cure flexible capacity deficiencies

This opportunity appears appropriate.

ISO Response

The ISO appreciates the support for this aspect of the proposal.

Company	Date	Submitted By
Wellhead	10/15/13	Grant McDaniel

1. The ISO has outlined a methodology to allocate flexible capacity requirements to LRAs. It is based on one possible measurement of the proportion of the system flexible capacity requirement to each LRA and calculated as the cumulative contribution of the LRA's jurisdictional LSE's contribution to the ISO's largest 3-hour net load ramp each month. Please provide comments regarding the equity and efficiency of the ISO proposed allocation. Specifically, please comment on:

a. The ISO's proposal to use an LSEs average contribution to historic daily ISO maximum 3-hour load changes to allocate the Δ load component of the flexible capacity requirement.

Wellhead supports this method.

b. The potential of using historic average daily maximum 3-hour net-load ramps or time of day system maximum 3-hour load ramps (morning vs. evening ramps).

Wellhead supports this method.

ISO Response

The ISO has modified the allocation of changes in load slightly to focus more on contributions to peak net-load ramping needs. However, the ISO believes the new proposal more accurately reflects cost causation principles.

2. The ISO believes the proposed methodology reflects causation principles. Specific to allocating flexible capacity requirements, what does "causation" mean to your organization and how would this definition be most accurately reflected in a flexible capacity requirements allocation process?

Wellhead believes the latest CAISO proposal has captured the appropriate causation for this implementation phase.

ISO Response

The ISO appreciates the support on this aspect of the proposal.

4. The ISO has proposed must-offer obligations for various types of resources. Please provide comments and recommendations regarding the ISO's proposed must-offer obligations for the following resources types

Wellhead believes that it is more appropriate for the CAISO to create technology agnostic tiers. The proposed structure does not incentivize new technologies to provide greater range, nor does it account for outliers that currently exist within the identified technology buckets that can already provide greater service. A technology agnostic tiered structure will allow new technologies to participate, while incentivizing participants to provide a greater range of flexibility. A tiered approach is a maintainable structure that will allow new technologies to enter the market without creating yet another specialized bucket. Wellhead proposes the following tiers as an example:

1. 10 hours/day – Flex or Regulation
2. 6 hours/day – Flex (morning and evening)
3. 3 hours/day - Flex
1. Morning only
2. Evening only

b. Resources not identified as use-limited

Any resource, regardless of its fuel source, should be allowed to make use of the opportunity cost methodology for any non-economic limitations.

b. Dispatchable gas-fired use-limited resources

1. Please provide comments regarding the ISO's proposal that would allow resources with use- limitations to include the opportunity costs in the resource's default energy bid, start-up cost, and minimum load cost.

Wellhead supports this methodology; however, the CAISO must have a process in place that will allow SCs to challenge and/or recalculate the opportunity cost if the calculated value is failing to appropriately control the usage of the facility.

2. Please provide information on any use-limitations that have not been addressed and how the ISO could account for them.

As proposed, daily and monthly limitations should be easily controllable; however, the CASIO needs to actively monitor and be open to tuning the system to ensure that annual limitations are manageable.

c. Hydro Resources – covered under the tiered approach

d. Specialized must-offer obligations (please also include any recommended changes for

the duration or timing of the proposed must-offer obligation):

1. Demand response resources. – covered under the tiered approach

2. Storage resources – covered under the tiered approach

3. Variable energy resources– covered under the tiered approach

ISO Response

The ISO believe that a tiered/bucketed approach presents challenges very similar to the approach currently proposed by the ISO. For example, it is not clear where or how the tiers/buckets would be set and what would be the rationale for setting the lines at those points. This is almost exactly the question the ISO raised in the CPUC RA workshop on 10/15/2013. While the ISO continues to assess the prospect of tiers/buckets of capacity, it is not clear that the tiered approach would resolve the challenges associated with different technology types.

Not all resources are well suited for using the opportunity cost calculations for start-up and minimum load costs. For example, it is extremely difficult to calculate the opportunity cost for PDR resources. However, the ISO appreciates Wellhead's support for the opportunity cost provisions that the ISO has proposed.

5. The ISO has proposed a flexible capacity availability incentive mechanism Please provide comments of the following aspects of this mechanism:

a. The selection of the adder method as the preferred option

1. Should the ISO still consider the bucket method, the "worse-of" method, or some other method not already considered? Why?

No, the adder methodology most accurately aligns the incentive with the MOO.

b. The price for the flexibility adder. Specifically, if the ISO proposed price is not correct, what price or data source should the ISO consider and why?

While the $23.25 seems a reasonable proxy, this proposed price for the flexibility adder is based upon an untested assumption that the 85th percentile is receiving a higher RA payment because of their flexible attributes. It is just as likely that the higher payments are due to other attributes that the market currently values. Wellhead believes the actual value should be contained within a subset of the flexi-ramp constraint data, plus the risk that will accompany the final MOO. Since it is not possible to align these two values until FRA is

actually being purchased/delivered, Wellhead will support an initial value of $23.25.

c. The interaction between the existing SCP and the proposed SFCP

The adder methodology appropriately governs the interactions between SCP and SFCP

d. The proposed SFCP evaluation mechanism/formula

4. The formula used to calculate compliance (including the treatment of long-start and use-limited resources)

Wellhead supports this method.

5. The treatment of forced and planned outages

Wellhead supports this method.

6. The minimum availability thresholds for use-limited resources

Wellhead supports this method.

e. The proposed substation rules for forced outages

Wellhead supports the proposed substitution rules..

ISO Response

The ISO appreciates that support of the adder method. The ISO continues to review different options for determining the price for the adder.

6. The ISO has proposed to include a backstop procurement provision that would allow the ISO to procure flexible capacity resources to cure deficiencies in LSE SC flexible capacity showings. Please provide comments regarding the following issues of ISO's proposed flexible capacity backstop procurement proposal:

a. The inclusion of the adder methodology

Wellhead supports this inclusion.

b. The opportunity for LSEs to provide a list of uncommitted flexible capacity that can be

used to help cure flexible capacity deficiencies

Wellhead supports this opportunity.

ISO Response

The ISO appreciates that support for this aspect of the proposal.

7. Are there any additional comments your organization wishes to make at this time?

Wellhead encourages the ISO to continue to assess the need for provisions that would limit the amount of baseload and/or PMin as part of capacity showings by publishing a soft target.

ISO Response

The ISO is considering the need for such provisions and appreciates this comment.

Company	Date	Submitted By
Western Power Trading Forum	10/16/2013	Ellen Wolfe, Resero Consulting for WPTF, 916 791-4533, ewolfe@resero.com

"Counting Rules" still need to be resolved

WPTF continues to be concerned about the differential must-offer requirements for various resource types. It makes sense for the ISO to develop a mechanism to maximize the use of the flexible resources on the system. However, it is very important that some resources (e.g., flexible gas-fired generation) not be burdened with a much greater must-offer requirement than others, yet be compensated the same, or counted equally, with resources providing less flexibility. WPTF understands that the CPUC is addressing the issue of how to properly count resources for RA in its RA proceeding. We strongly encourage the ISO to take an active role in that CPUC process, and to encourage the CPUC to develop policies that support the ISO's needs. That said, whether that goal is successfully met or not, the ISO must recognize that it ultimately may have to make provisions to ensure that both rules for participation, and compensation, to the flexible resources are commensurate with their contribution to the ISO's flexibility needs.

ISO Response

The ISO is taking a very active role in the CPUC's RA proceeding and agree that limits on Flexible capacity that is not available for the entire must-offer period may need to be considered.

WPTF supports the ISO's preferred "adder" method

The "adder" method allows flexible capacity to be distinguished from generic capacity and maximizes the incentives for such resources to make whatever flexible capacity is available to the ISO in its markets. Therefore, WPTF advocates that the ISO adopt the adder approach. We also request that the ISO develop a procedure that permits a supplier to submit an "outage" status indicator (or something equivalent) for the flexible capacity, versus simply using no bids to convey a reduction in the ability to offer flexibility (as opposed to an actual and complete physical outage of the capacity in question).

ISO Response

The ISO appreciates that support of the adder method. The ISO continues to review different options for determining the price for the adder.

The ISO's proposed penalty price for the FRAC MOO needs revision and substitution/replacement should be allowed to the extent workable

The ISO's basis for the proposed $23.25/kw-yr lacks merit. The ISO based this proposal on the price spread between high-priced and lower-priced RA resources in public CPUC data related to RA contracting. There is very little support for the ISO's presumption that the differences in the RA contract prices are limited to, or at all related to, the flexibility of the resources.

WPTF agrees with the ISO's observation that when the Reliability Services Auction (RSA) is operational indicative market prices may be available. However in the early years of FRAC MOO, WPTF expects that the ISO may still be more than fully sourced for flexibility in most hours. As a result a penalty price of $23.25/kw-yr would overstate the impacts of the unavailability and would thereby be punitive. WPTF suggests the ISO either sharpen its pencils and find other more specific proxies, or consider a replacement-cost approach to penalties for FRAC MOO until the RSA is in place and can be used both for resource replacement and to provide the appropriate price signals.

In the same vein, the ISO at its October 9, 2013 stakeholder meeting discussed the philosophy that suppliers should not be able to replace their FRAC in the case, for example, that they simply did not want to bid. While this is an extreme example, it raises the question of what the impact should be to a supplier who is not able to provide the obligated flexibility, for whatever reason, when the system is oversupplied with flexible capacity. During such times the supplier or the ISO could likely easily replace at a low cost. Under these circumstances it would be unreasonable to prevent the supplier from replacing its FRAC, and it would be unreasonable to impose a high penalty. And it certainly would be unreasonable to do both.

The ISO needs to rethink its penalty price and to clarify its replacement policy.

ISO Response

The ISO continues to review different options for determining the price for the adder. Additionally, the ISO believes that a resource that signs a contract to supply flexible capacity should be responsible for providing that flexible capacity unless the resource goes on forced outage. However, the ISO continues to look into the possibility and implications of allowing a resource to transfer the flexible capacity obligation at will.

WPTF supports the move to LRA allocation based on coincident peak load variation with limited changes.

WPTF supports the ISO's proposal to allocate FRAC requirements on load variation based on a Local Reliablity Authority's (LRA's) load change during the ISO's maximum 3-hour ramps. However, using a daily average of this relative load variation would seem to be inconsistent with the ISO's procurement policy, which is likely to be based on some severe condition and not varied by hour. WPTF requests that the ISO consider instead an approach based – for example – on the coincident ramp during the 10 most significant 3-hour ISO ramps. The ISO should also *credit* the LRA if its ramp lessens the ISO's need.

ISO Response

The ISO has modified the allocation of changes in load slightly to focus more on contributions to peak net-load ramping needs. However, the ISO believes the new proposal more accurately reflects cost causation principles. The ISO is still reviewing the possibility of providing a credit to LSE that drop relative to the coincident net-load ramp.

Careful consideration is required to ensure Combined Heat and Power (CHP) resources are not locked out of the RA market

WPTF and other organizations continue to point out to the ISO that the design of FRAC MOO may produce circumstances that make any RA participation by CHP resources unworkable. To avoid this outcome, the ISO must make it entirely clear that the Effective Flexible Capacity (EFC) simply reflects the number above which a unit cannot physically provide flexibility in the ISO's eyes. The EFC does not represent the flexible capacity available at all times. As the ISO has discussed with respect to hydro resources, a resource's flexible capacity may be lower than the EFC much of the time. In fact, the flexible range for CHP facilities may change dramatically across a year. As a result, the EFC itself should have no bearing whatsoever on what LSEs contract from suppliers, other than to limit parties from selling flexible capacity beyond the EFC. Rather, a supplier alone should be able to specify its flexible range available for purposes of an LSE's "showing".

Quite simply, any supplier should always be able to sell generic RA alone or also sell any amount of flexible RA from the entire range of zero to the EFC output level. The ISO should make it entirely clear that no supplier is *required* to sell any flexible RA simply because they sell generic RA and have a non-zero EFC. Even within the confines of the CPUC and ISO's "bundling" rule a supplier is not *required* to sell any flexibility to a buyer, but rather the bundling rule provides that a supplier may sell FRAC to a buyer to the extent it is within the

unit's EFC and does not exceed the generic capacity that was also sold to that buyer.

The ISO and LSEs must also recognize that outages have to be treated carefully. A reduction of 25% of a CHP's output does not equate to a 25% reduction in the flexible capacity available to the LSE. Instead, a reduction in a CHP's output capability of 25% might mean that it can offer no flexible capacity.

The ISO asked for comments as to why CHP resource issues are not addressed by the other proposed provisions. No other provisions protect CHP resources. Though the resources have use limitations, they are not limitations that can be managed with economic bids – as most CHPs have a secondary electricity production priority over host steam needs. And though the CHP resources have limitations on when they can offer, the ISO's other model of reducing the must-offer time window does not meet the needs of a CHP resource, given that their steam needs are not manageable in nice packaged time buckets. Quite simply, the CHP resources should be able specify how much flexibility they have available during each time period and only be required to market - and offer - that amount of flexibility. The CHP resources should also have the ability to convey how this flexibility changes under specific outages.

Thank you for your consideration.

ISO Response

The ISO has proposed to account for the RMT of CHP units in the calculation of their EFC. In essence, the ISO has proposed that CHP resources' EFC be calculated as the difference between the NQC and the RMT for the amount of ramping the resource can provide over this range for three hours.