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Company	Date	Submitted By				
Alliance for Retail Energy Markets	11/27/13	Sue Mara RTOAdvisors, L.L.C. (415) 902-4108				
		sue.mara@rtoadvisors.com				
<ol> <li>The ISO has outlined a methodolog LRAs. As detailed in the fourth revise stakeholder meeting PG&amp;E has put for methodology. Please provide comme as they relate to cost causation. If you over the other, please state your prefer</li> </ol>	1. The ISO has outlined a methodology to allocate flexible capacity requirements to LRAs. As detailed in the fourth revised straw proposal and at the 11/13 stakeholder meeting PG&E has put forward an alternative allocation methodology. Please provide comments for each of these proposals, particularly as they relate to cost causation. If your organization has a preference for one over the other, please state your preference and why					
<b>AReM Response:</b> PG&E states that its approach was designed to "limit free ridership" (Slide 2 of PG&E's presentation), but has provided no information on how much "free ridership" PG&E believe exists under the CAISO's proposal. AReM has insufficient information and technical resources to make an informed decision on which approach is preferable. However, AReM is concerned that the CAISO's assessment of PG&E's proposal has found that the approach is inconsistent with the methodology used to allocate system RA and may, in fact, <i>encourage</i> free ridership. Given these concerns, AReM cannot support PG&E's proposal at this time.						
ISO Response						
The ISO appreciates the input on the PG&E allocation methodology						
8. Are there any additional comments your organization wishes to make at this time?						
Calculating Change in Load as Part of Flexible Capacity Requirement Allocation – For the third straw proposal in a row, the CAISO has modified the way it proposes to calculate the change in load in allocating the flexible capacity requirement. AReM believes that cost causation should be the primary driver in the allocation. The CAISO's new proposal, which moves from using an LSE's average contribution to using the LSE's contribution during the 5-maximum net-load ramps, <sup>4</sup> would seem to better reflect cost causation. However, AReM lacks the technical resources to compare the alternative proposals for allocating the change in load and requests that the CAISO provide an estimate of the differing flexible capacity requirements for LSEs attributed to the change in load calculation proposed in the Third Revised Straw Proposal versus the one the CAISO now proposes in the Fourth Revised Straw Proposal, if an LSE requests such a comparison.						
Previous AReM Comments That I Proposal does not address severa CAISO on the Third Revised Stra	Have Not Been Addre al of the issues raised w Proposal, as follow	essed – The Fourth Revised Straw I by AReM in its comments to the s:				
1. Concerns that bundling may cre	eate unintended defic	iencies (AReM 10/28 Comments, pp.				
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5-6).

2. Concerns that the final EFC list is issued on September 1 with a two-week revision period provides insufficient time, because the LSEs' annual RA showings are due October 31 (AReM 10/28 Comments, pp. 6-7).

3. The lack of information concerning how Combined Cycle units will qualify to provide flexible capacity (AReM 10/28 Comments, p. 8).

While none of these questions or concerns were addressed in the CAISO's Fourth Revised Straw proposal, at the November 13th meeting, the CAISO stated that it was in the process of working out details on combined cycle units with the CPUC. AReM looks forward to a response on these concerns in the Draft Final proposal.

<sup>4</sup>4th Revised Straw Proposal, p. 21.

# ISO Response

The ISO believes the latest allocation proposal accurately reflects causation of flexible capacity needs as based on a 3-hour net load ramp. The ISO is proposing an additional break-out of the flexible capacity requirements into technology agnostic categories with specific offer-obligations for each category. The ISO does not believe that this change to the requirements necessitates a revision of the ISO's proposed allocation methodology, but will seek additional stakeholder input as part of the next revised straw proposal.

In response to AReMs other concerns:

- 1) The ISO has determined that it may not be desirable to require bundling in SCs' flexible capacity showings to the ISO. The ISO realizes that not requiring bundling needs to be considered in light of LRA's procurement requirements that may require bundling.
- 2) 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.
- 3) The ISO continues to work with the CPUC and other stakeholders to determine how combined cycle resources will count towards meeting flexible capacity requirements. It is not clear, at this time, that special counting provisions beyond those already provided are needed.

Company	Date	Submitted By
Bay Area Municipal	November 27,	Doug Boccignone
(BAMx)1	2013	888-634-7509

1. The ISO has outlined a methodology to allocate flexible capacity requirements to LRAs. As detailed in the fourth revised straw proposal and at the 11/13 stakeholder meeting PG&E has put forward an alternative allocation methodology. Please provide comments for each of these proposals, particularly as they relate to cost causation. If your organization has a preference for one over the other, please state your preference and why.

BAMx appreciates the CAISO's efforts to reach out to stakeholders to develop a flexible capacity allocation methodology that reflects causation. BAMx supports the CAISO's methodology to allocate flexible capacity requirements to LRAs as described in the fourth revised straw proposal. Allocation of the load component based on each LSE's average contribution to the five-largest CAISO daily maximum net load ramps each month is consistent with the causation principle. BAMx does not support PG&E's alternative proposal at this stage of the stakeholder process, and instead supports moving forward with the approach described in the fourth revised straw proposal.

# ISO Response

The ISO appreciates the support for the allocation proposal. The ISO is proposing an additional break-out of the flexible capacity requirements into technology agnostic categories with specific offer-obligations for each category. The ISO does not believe that this change to the requirements necessitates a revision of the ISO's proposed allocation methodology, but will seek additional stakeholder input as part of the next revised straw proposal.

Please provide comments and recommendations (including requested clarifications) regarding the ISO's proposed must-offer obligations for the following resources types:

 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.

BAMx supports the ISO proposal to allow resources with use-limitations to include opportunity costs in the resource's default energy bid, start-up cost, and minimum load cost.

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<sup>&</sup>lt;sup>1</sup> BAMx comprises the City of Palo Alto Utilities, the City of Santa Clara/Silicon Valley Power, and Alameda Municipal Power.

**ISO** Response

The ISO appreciates the support on this aspect of the proposal. The ISO notes it has deferred this aspect of its proposal to a subsequent stakeholder process.

4. At the 11/13 stakeholder meeting there a significant amount of discussion regarding the appropriate method for setting the price for the proposed flexible capacity availability incentive mechanism. Please provide comments about how this issue might be resolved.

BAMx believes that additional analysis and discussion is needed to resolve the flexible capacity availability incentive mechanism pricing.

### **ISO** Response

While still critical to the overall design of flexible capacity marketplace, the ISO is prepared to defer additional development of the SFCP to a later date or subsequent stakeholder initiative to allow more time to collect additional information to accurately value the availability of flexible capacity.

5. The ISO has proposed an SFCP evaluation mechanism/formula that weights compliance with the real-time must offer obligation heavier than the day-ahead must offer obligation. Please comment on:

a. The merits of using such a weighting mechanism relative to the "lesser of" proposal from the previous proposal

BAMx supports the use of a weighting mechanism, but proposes different weights from those proposed by the CAISO

b. The relative weights between the real-time and day-ahead markets

BAMx suggests the RT and DA market weights each should be 50%. While the actual dispatch of the flexible capacity resource will take place in the RT market, BAMx is concerned that if the incentive mechanism skews the availability of flexible capacity resources away from DA towards RT, there could be unintended consequences for DA market results. The amount of flexible capacity participating in the CAISO markets is expected to be a substantial portion of the CAISO's economic bids. Differences in the composition of resources submitting such bids DA vs. RT could affect DA vs. RT market price results. The SFCP evaluation mechanism should not be designed in a way that creates discontinuities between those markets.

# **ISO** Response

As the ISO is proposing to defer the development of the SFCP, it is not necessary to make a

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determination on SFCP evaluation mechanism/formula or weights between the day-ahead and real-time must offer obligations. However, the ISO will reassess these comments prior to moving forward with the SFCP.

6. There were several clarifying questions asked at the 11/13 stakeholder meeting regarding substitution of flexible capacity that is on forced outage. Please provide comments and / or questions (and potential answers) regarding any additional clarifications the ISO should make in the next revision to clarify this aspect of the proposal.

BAMx is concerned that the replacement requirement for Use-Limited resources could lead to the unintended and inefficient consequence of keeping a portion of available flexible capacity off of the flexible capacity market, as Use-Limited resource owners might keep a portion of their capacity in reserve as backup for their Use-Limited resources.

# **ISO** Response

While still critical to the overall design of flexible capacity marketplace, the ISO is prepared to defer additional development of the SFCP to a later date or subsequent stakeholder initiative to allow more time to collect additional information to accurately value the availability of flexible capacity. The ISO believes that allowing flexible capacity resources to include opportunity costs in their start-up and minimum load costs will provide SC for these resources with an additional tool to manage potential risks of reaching a monthly or annual use-limitation. However, the ISO will defer this part of the FRAC-MOO proposal to a later initiative. Along with deferring the opportunity cost provisions, the ISO will also defer specific rules for replacement and substitute capacity for flexible capacity on outages (planned or forced).

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

BAMx reiterates its comments on the third revised straw proposal regarding the error term. 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 appreciates the input on the appropriate level for setting the error term. The ISO does not anticipate the error term would exceed 20% but does not believe it should be restricted if actual system conditions dictated the need for a large error term. The ISO will, as part of its annual flexible capacity requirements study, assess the need to utilize a non-zero error term and will provide ample opportunity for stakeholders to provide feedback.

Company	Date	Submitted By
California Department of	11/25/2013	Mohan Niroula
water Resources (CDWR)		mohan.niroula@water.ca.gov 916-574-0712
1. The ISO has outlined	a methodology to allo	cate flexible capacity requirements to LRAs
As detailed in the fourth revise	ed straw proposal and	at the 11/13 stakeholder meeting PG&E has
put forward an alternative allo	cation methodology.	Please provide comments for each of these
one over the other, please sta	/ relate to cost causat ate vour preference ar	ion. If your organization has a preference for ad why
		········
From the outset of the FR Capacity Requirement (F0 LSE's load change coincid proposal also maintains th overall direction of the pro- iteration of the straw prop- the proposal.	AC MOO process SW CR) attributed to chan dent with the ISO syst ne concept of historica oposal in this regard, t osal contains some si	/P, has been advocating allocation of Flexible ge in load based on a historical trend of an em largest 3 hour net load ramp. This al data based allocation. SWP supports the hough SWP also notes that this fourth gnificant changes from the third iteration of
SWP's remains convinced should be an average 3 he and non-holidays. It is not non-holidays, and CDWR holidays are included in th weekends could be penal needs for the ISO system ramp occurs at HE19 for a that month should be an a non-holidays for that spec average number would be including only the weekda average 3 hour load ramp years for HE19 including of proposal, ISO is proposing case, there would be 5 sp hours and the largest of th needed on how ISO would forecasted top 5 largest m load ramp include a speci	d that an LSE's contrib our load ramp over a clear whether CAISC requests clarification be calculation, <i>DR res</i> <i>ized, thereby discoura</i> . For example, if the IS a month, then the LSE average number for the calculated from one by and holidays. If the of or the LSE would be calculated from one by and holidays. If the only weekdays and ho g LSE's contribution to be calculate the LSE's et load ramps. Will the fic day or days or a sp	bution to the largest 3 hour net load ramp period for that specific hour <u>during weekdays</u> o's proposal considers only weekdays and on this point. If historical weekends and <i>ources that ramp up during holidays and</i> <i>aging DR resource mitigating ramp down</i> SO's forecast of the largest 3 hour net load a's historical 3 hour load ramp for HE19 for e period including only the weekdays and is one year of historical data, then the month historical data for the specific month e period is the last two years, then the e calculated from the same month for last 2 olidays. As a change to the previous of the top 5 largest net load ramps. In this verage should be calculated for each of those r allocation. However, some clarification is average load ramp coincident with the e ISO forecast of the top 5 largest 3 hour net pecific hour or hours only?
CDWR believes that forect and tracking LSE's historic forecasted hour for FCR a based on cost causation. load ramp event and an L the hour of the month for a	casting an hour or hou cal data based on the allocation is a reasona If a specific day for a SE's historical 3 hour allocation of FCR, it ca	rs of the top five 3-hour net load ramp events average 3 hour load ramp for those ble way to address reliability and allocation month is forecasted for the 3 hour largest net load ramp is tracked for the same day and build distort the result without averaging

because that specific number could be an outlier which may not represent the general trend in the LSE's load change. In this regard, the proposal states:

> "However, the ISO believes that using an average contribution of an LSE to five largest daily maximum 3-hour continuous net-load ramps will help address uncertainty in forecasting and anomalous load changes. The ISO believes this is consistent with causation principles."

CDWR understands the intent of proposal to average LSE's contribution. However, the detail on how it calculates LSE's average contribution is not clear. Is the same coincident day/date used for all LSE's? An illustrative example should be included in the proposal on how these calculations are made as described above in order to understand the proposal clearly.

Another aspect of change in this proposal compared to the previous is the adoption of the use of one year historical data instead of 2 years as proposed previously. The proposal does not express any rationale why one year historical data is better than 2 years historical. If the period is wider, the general trend in LSE's load change may be more representative. Some analysis of impact on whether one year or multi-year historical data is representative may be needed. Year to year weather patterns also change. This may have a significant impact on an LSE's obligation.

The proposal should also state what the historical year would be. For example, for 2015 RA compliance year, would CAISO propose to use the year 2014 or 2013? If it is 2014, would the LSE data be available?

In its comments on the third iteration of the CAISO's straw proposal, PG&E presented its own alternative methodology for allocating flexibility requirements (attributed to change in load) among LSEs. In addition to coming very late in the process, the PG&E proposal would depart significantly from the allocation methodology that stakeholders have been developing through this process. PG&E proposes that CAISO use the largest non-coincident peak-ramp of an LSE to allocate the change in load component. CDWR strongly opposes the PG&E alternative proposal, which could allocate FCR for ISO's on-peak ramping needs based on an LSE's non-coincident including off-peak load ramps, in violation of the principles of cost causation. Under the CAISO proposal, the FCR equivalent to the higher of the LSEs' contribution to the on-peak morning or the on-peak evening ramp need as determined by the ISO is allocated to LSEs, not the off-peak ramp need. PGE's proposal misses the fact that the off-peak hours do not represent the problem that the FRAC-MOO process is trying to solve. This is an on-peak ramping issue driven by sudden demand and energy supply differences. If the contribution to the off-peak ramp need (or off-peak FCR) for CAISO were to be allocated, then it would potentially be a negative ramp need, in which case CAISO would allocate to LSEs a net positive off-peak load ramp. Therefore, allocating on-peak FCR (for positive ramp normally during the morning and evening peak) based on an LSE's off-peak load ramp does not follow cost causation and should be rejected.

CDWR fully supports ISO's rejection of PG&E's alternative allocation proposal. In the PG&E's example, while the hours assumed are 14-HE18 for LSE's non-coincident 3 hour

load ramp, PG&E concludes that the non-coincident period should cover 24 hours for assessment. Perhaps PG&E did not realize that the impacts from positive off-peak hour (beyond 14-HE18) load ramps are helping to mitigate over generation conditions. Obviously, these off-peak load ramps should not be penalized for supporting system reliability. Certainly supporting system reliability is not a free ridership. There is no correlation between ISO's largest on-peak 3 hour ramp need (FCR) and the off-peak period load ramp. CAISO has accurately explained PG&E's error, and how the PG&E proposal would itself promote free ridership (LSE 2 in illustration Example 1).

# **ISO** Response

The ISO does not believe it is appropriate to disregard weekends and holidays. In fact, some of the ISO's largest ramping challenges may occur on spring and fall weekends. As such, the ISO has taken an approach to assessing the flexible capacity needs that considers all net-load changes regardless of the day of the week. Additionally, looking at the same day and hour to calculate the change in load may not align with the date with the greatest identified needs. The ISO's proposed reliance on historic net load change should allow the ISO to capture actual load deviations during times when net load has been changing most. The CDWR proposal, if properly understood, would not account for the fact that net-load deviations may not happen during the same hours or even time of day throughout the month. The ISO's proposal will look at coincident net-load ramps and will use the average of each LSE's contribution to each of the component parts for each of the top 5 observations in a month. For example, each LSE's will found using the same five 3-hour net-load observations. The ISO is now also proposing to use the same methodology for the determining the contributions to change in wind and solar (see 5.1.2 of the fifth revised straw proposal for greater detail). The ISO is proposing a single year of historical data be used because of the expansion from single observations in a year to five observations in the most current year.

The ISO appreciates the support for the ISO's proposed allocation methodology. As noted above, the ISO has made minor revisions to this part of the proposal, and will seek stakeholder input on these improvements.

2. The ISO believes that demand response resources should have the opportunity to provide flexible capacity. The ISO has proposed how demand response resources could do so. Please provide comments on the ISO's proposal. Specifically, please identify concerns with the ISO's proposal and offer potential solutions to these concerns. Additionally, please comment on the proper forum (ISO, CPUC, etc.) where these concerns should be addressed.

CDWR and ISO have discussed the use of participating load (PL) for flexible RA. ISO has indicated that flexible capacity would require spinning reserve capability from a PL resource. At present, due to the ISO model limitation, a PL resource is limited to non-spin capability with a contingency flag in the day ahead market and an energy bid in the real time market. PL resources also have other discrete dispatch constraints. ISO also has indicated that PL resources could potentially be flexible resources if some technical modifications were made to the resource such as conversion to a variable frequency drive (VFD), and ISO using its existing non-generation resource (NGR) model. Given these limitations and room for improvement to accommodate PL resource for flexible capacity, such potential should be

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

Page 9 of 103 ments on explored as the FRAC-MOO process continues.

Assuming that PL at some point will be capable of providing spinning reserve suited for flexible capacity, it would be prudent to consider its special attributes and they should be incorporated in the flexible standard capacity product (FSCP) development process now so as to address specific situations that arise with PL. *SWP's previous proposal<sup>2</sup> should be considered in which SWP suggests that FSCP should consider waiving the Must-Offer bid requirement to a PL resource when it is not pumping by linking the supply bid to the demand schedule.* With reference to a similar situation, the ISO proposal states:

"However, to the extent that a demand response resource is being used for a both flexible capacity and peak load shaving, then, just as has been proposed for other use-limited resources, the ISO market will honor the use-limitations of the resource through modeled start limitations. For example, if a PDR resource is used for peak shaving on a given day, then it will not also be required to be available to provide flexibility for an evening ramp. Setting the must offer obligation in this manner should allow demand response resources to provide flexible capacity to the ISO based on the resource's underlying load and provide the ISO with flexible capacity during the time ISO is most likely need the greatest quantity of flexible capacity."

When a PL resource is not pumping or its load has already been dropped or reduced, the situation is analogous to PDR peak shaving. Provisions to track the status of the underlying load for PDR must offer should also apply to PL resource. Rather than modifying the system to accommodate PL resources after FRAC MOO is implemented, it is worthwhile to consider incorporating such PL resource criteria in the design of FSCP at the outset. Modifications later may not be feasible or may take years to gain priority. Customizing targeted solutions already in use for PDR to address known problems with PL participation in the existing markets could allow for the development of future PL participation in flexible capacity markets.

<sup>2</sup> CDWR's comment on third revised proposal: <u>http://www.caiso.com/Documents/CDWR-Comments-FlexibleResourceAdequacyCriteriaMustOfferObligation-ThirdRevisedStrawProposal.pdf</u>

# **ISO Response**

<sup>2</sup> CDWR's comment on third revised proposal: <u>http://www.caiso.com/Documents/CDWR-Comments-FlexibleResourceAdequacyCriteriaMustOfferObligation-ThirdRevisedStrawProposal.pdf</u>

While beyond the scope of the current initiative, the ISO is open to considering other options to fully capturing the potential benefits of resources currently under the PL construct.

3. Please provide comments and recommendations (including requested clarifications) regarding the ISO's proposed must-offer obligations for the following resources types:

b. Specialized must-offer obligations:

1. Demand response resources

Assuming that Participating Load (PL) is eligible to provide spinning reserve and modifications are made such that it can provide flexibility, the FSCP development should consider the must offer constraints described in (2) above. Such modifications could happen in the future and accommodation of the specific attributes of PL resources in the FRAC MOO FSCP development process is a prudent measure to provide the ISO and CDWR with maximum flexibility to revisit PL participation when other barriers to participation are eventually resolved.

### **ISO Response**

Numerous stakeholders have commented that resource/technology specific offer-obligations are complex, discriminatory, and may not provide the ISO with adequate flexible capacity to reliably operate the grid. As such, the ISO is proposing to break-out the flexible capacity requirements into technology agnostic categories with specific offer-obligations for each category. These categories should provide opportunities for all resources, including preferred resources, to provide flexible capacity. The categories proposed are derived from a needs-based approach of the flexible capacity categories needed to reliably operate the system. The ISO will be seeking additional comments on this new proposal as part of the next revised straw proposal.

4. At the 11/13 stakeholder meeting there a significant amount of discussion regarding the appropriate method for setting the price for the proposed flexible capacity availability incentive mechanism. Please provide comments about how this issue might be resolved.

The ISO proposed adder price based on the spread between the CPUC report median price and the 85 percentile price may have no direct link with the actual flexibility attributes of the resources paid with 85 percentile price. Price may also be related to a season. The ISO proposal states that a pricing option using flexible ramping constraints would lead to a circular pricing signal. However, absent a historical record on the pricing for flexible capacity, the ISO determined adder price based on the CPUC report may be an option unless another robust method is discovered. Another option could be to assess *regulation ancillary service price* and derive price per/kw-month. Regulation ancillary service may have the attributes of flexible capacity.

2012 Hourly A/S price, \$/MW		
2012 Reg Up	9.37	
2012 Reg down	3.24	

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	Average regulation						
	price	6.31					
	Based on 2012 average	e regulation A/S	S price	Bas	sed on 2012 R	eg up price	
	January	days	31	Jan	luary	days	31
_		hours	744			hours	744
		\$/MW-		Mo	nthly		
	Monthly payment	month	4691	рау	rment	\$/MW-month	6971
		\$/kw-month	4.69			\$/kw-month	6.97
		Denvir miss	, (mana sa tila la s				
	Adder price (monthly)	= Reg up price	e (montniy	avera	ge) – CPIVI prid	ce	
		= 6.97-5.625 =	= \$1.35/kw	-mont	h		
	Adder price per year =	= 12 x 1.35 \$/kv	w-year = \$	16.14/	kw-year		
	Since 2015 ECR is for	the largest rai	mpup the	differe	ence between	the regulation u	o price
	and the CPM price co	uld be used as	the adder.	, which	amounts to a	about \$1.35/kw-r	nonth as
	shown in the table abo	ove.		,			
19	SO Pasnansa						
	SO Response						
т	he ISO greatly appreciat	es the efforts o	of CDWR to	o prop	ose an SFCP	pricing mechani	sm.
۷	Vhile still critical to the ov	erall design of	flexible ca	pacity	marketplace,	the ISO is prepa	ared to
d	efer additional developm	ent of the SFC	P to a late	r date	or subsequen	t stakeholder ini	tiative to
a	llow more time to collect	additional info	rmation to	accura	ately value the	availability of fle	exible
C	apacity. At that time, the	130 will reeva		vĸsp	Toposai.		
5	. The ISO has proposed	an SFCP eva	luation me	chanis	m/formula tha	t weights compl	iance
W	vith the real-time must off	er obligation h	eavier thar	n the d	lay-ahead mus	st offer obligation	n. Please
С	omment on:						
а	The merits of using suc	h a weighting	mechanisn	n relati	ive to the "less	er of" proposal f	from the
p	revious proposal		incontainion	riciat			
1							
	Without any analysis, one can think of proposed weights (DAM/RTM=20/80) as promoting						
	RIM must offer compl	liance rather th	an DAM m	iust of	ter compliance	e. Will it create s	carcity in
	more important than RTM because adequacy in DAM will result is stable real time operation					peration	
	On the other hand, incentivizing RTM offer by higher weight could lower the exceptional						
	dispatch.	C		-	-		
<b>۲</b>	The relative weights be	twoop the real	time and		and montrate		
Ø	. The relative weights be	tween the real	-ume and (	lay-an	ieau markets		
	Probably, an analysis	by ISO on wha	at is more \	/aluab	le to ISO (in te	erms of reliability	and
	, <u>,</u> , <u>,</u>	-		-		_	
						Page	12 of 103

cost), DAM or RTM, could demonstrate the appropriate weights. Since RA is about advance planning, DAM adequacy could be more valuable than RTM adequacy in the sense that DAM adequacy leads to a stable RTM.

### **ISO** Response

As the ISO is proposing to defer the development of the SFCP, it is not necessary to make a determination on SFCP evaluation mechanism/formula or weights between the day-ahead and real-time must offer obligations. However, the ISO will reassess these comments prior to moving forward with the SFCP.

6. There were several clarifying questions asked at the 11/13 stakeholder meeting regarding substitution of flexible capacity that is on forced outage. Please provide comments and / or questions (and potential answers) regarding any additional clarifications the ISO should make in the next revision to clarify this aspect of the proposal.

As applied to generic RA today, if a use limited flexible RA resource's use limitation is exceeded, it should not be forced to make a substitution even in a forced outage condition. To the extent it has not exceeded the use limitation identified in the masterfile, substitution of a forced outage should be okay.

A DR resource being a use limited resource may also be subject to this requirement. Currently there are no provisions to report forced outage or any other outage for a DR resource and what constitutes an outage for a DR resource is not defined in the tariff either. One practical and feasible method for DR resource is to track the underlying demand schedule. If the underlying demand schedule is not present during the FSCP assessment hours, there should be no substitution requirement because reduced or dropped demand is equivalent to a dispatched generation providing energy online. Additionally, DR resource should not be required to report forced outages as it is today. The straw proposal, section 8.5 (Additional considerations in the SFCP) should include these exceptions for DR such as a PL resource.

### **ISO** Response

As part of the fifth revised straw proposal, the ISO proposes to require flexible capacity resources that are also use-limited to submit economic bids consistent with the applicable use-limitation. The ISO will continue to work on how best to deal with reporting of outages for DR resources to address flexible capacity in a subsequent stakeholder initiative.

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

CDWR has following additional clarifying questions and comments:

Q: Does an LSE need to report the intermittent resource that is not planned as a RA resource? There may be some contracts that provide energy to ISO market but are not planned or qualified to be used for RA compliance.

Q: <u>Error term</u>: It may be set to be within (+) or (-) 5% of total FCR. If it starts to grow wider, then underlying discrepancies in the needs determination should be identified and corrected rather than relying on setting error bounds for additional procurement. The source of error should be corrected. Finally, how the error portion of FCR is allocated is not established in the proposal. The proposal should include the error allocation methodology.

### ISO Response

Response: Yes, an SC for a LSE must provide the ISO with all contract information regarding intermittent resources regardless of the RA status of the resource.

Response: The ISO appreciates the suggestion regarding the determination of the band of the error term. As noted in the paper, the ISO will, as part of the flexible capacity requirements assessment, inform all stakeholders if there is a need for a non-zero error term and how that term will be allocated.

Company	Date	Submitted By
California Energy Storage Alliance	November 27, 2013	Don Liddell, Douglass & Liddell liddell@energyattorney.com (619) 993-9096

1. The ISO has outlined a methodology to allocate flexible capacity requirements to LRAs. As detailed in the fourth revised straw proposal1 and at the 11/13 stakeholder meeting PG&E has put forward an alternative allocation methodology. Please provide comments for each of these proposals, particularly as they relate to cost causation. If your organization has a preference for one over the other, please state your preference and why.

CESA takes no position here on PG&E's proposed alternative methodology

# **ISO** Response

No response required

2. The ISO believes that demand response resources should have the opportunity to provide flexible capacity. The ISO has proposed how demand response resources could do so. Please provide comments on the ISO's proposal. Specifically, please identify concerns with the ISO's proposal and offer potential solutions to these concerns. Additionally, please comment on the proper forum (ISO, CPUC, etc.) where these concerns should be addressed.

The proposal should expressly take full account of the fact that demand response can be provided by energy storage, both *per se* and as an enabling technology for demand response. The CAISO and the CPUC should continue to collaborate as closely as possible and endeavor to coordinate policy positions at the FERC.

### ISO Response

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The ISO continues to work with the CPUC and other stakeholders to ensure that energy storage resources are able to provide flexible capacity.

3. Please provide comments and recommendations (including requested clarifications) regarding the ISO's proposed must-offer obligations for the following resources types:

a. Dispatchable gas-fired use-limited resources

i. 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.

CESA generally supports full accounting of opportunity cost on a comparable basis for all resources.

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

CESA takes no position here on how the CAISO accounts for opportunity cost as specifically related to gas-fired resources

- b. Specialized must-offer obligations:
- i. Demand response resources

CESA takes no position here as to specialized must-offer obligations other than those applicable to energy storage.

ii. Storage resources

CESA supports the proposed flexible capacity Must Offer Obligation window of 5:00 am – 10:00 pm for energy storage. CESA also applauds the CAISO's effort to harmonize the Proposal's requirements with the RA proceeding at the CPUC. However, in the case of energy storage, flexible capacity should not be intrinsically coupled with generic capacity. Energy storage resources can provide highly controllable upward and downward flexibility, typically with extremely high ramp rates. They rarely have daily, monthly, or annual use limitations. However, many of the highest value energy storage resources will provide flexible capacity well in excess of standard capacity. Separating flexible capacity from standard capacity will provide several benefits to the grid going forward:

- In cases where a utility obligation for flexible capacity exceeds its obligation for standard, or generic, capacity, a utility should not be obligated to procure generic capacity simply to meet the flexibility need. Maintaining the bundling of flexible and generic capacity is likely to result in over-procurement of generic capacity.
- During periods of over-generation, energy storage and variable energy resources ("VERs") can provide downward ramping to the grid without injecting additional energy into the system. As has been shown in recent modeling in LTPP Track 4,

over-generation of renewables during mid-day periods is likely by 2020. Rules should value resources that can supply downward regulation without necessarily also supplying generic capacity.

The bundling of flexible and inflexible resources called for in the Proposal will also cause several operational and practical issues:

- If an existing resource has already been contracted to provide standard capacity, then it is unable to contract for additional incremental flexible capacity. The value of the incremental flexible capacity is unclear, as is the rating of the combined resource. This contractual impediment and lack of certainty as to the parameters of any must offer obligation prevents procurement of energy storage resource in combination with VERs and conventional generating resources.
- In the bundled standard/flexible capacity scenario described in the Proposal, the value of the flexible capacity resource only exists when combined with a generic capacity commitment. For example, if a resource that is committed to provide generic capacity has an outage or has different outage characteristics that are not identical to a paired flexible capacity commitment then the flexibility would appear to lose its value.

Finally, net qualifying capacity ("NQC") does not account for several of the flexible benefits provided by energy storage:

- Energy storage resources that can rapidly switch between charging and discharging at any point in the range of their state of charge should be counted for their entire positive and negative flexible range. The flexible range of this kind of energy storage resource is a tangible flexible benefit provided to the grid during regulation energy management ("REM"), ramping, and load following that should be accounted for in the flexible capacity rating.
- A single 1.5-hour duration energy storage resource can provide three hours of downward regulation to its full charging capacity during times of peak renewable generation as well three hours of upward ramping to its full discharge capacity during the evening peak load. This single resource could thus provide the same benefits as a conventional generation resource or a flexible VER as described in the Proposal. Capping the rating of the energy storage resource at the NQC under current rules would effectively cap it at the maximum of the four-hour discharge capacity.

CESA urges the CAISO join the CPUC in recognizing that the effective flexible capacity ("EFC") of an energy storage resource should not be capped by its NQC. CESA urges the CAISO to establish the capacity counting methodology for energy storage resources equal to the EFC, rather than the NQC of the resource.

iii. Variable energy resources

Except as mentioned in response to question 3(B)(ii) above, CESA takes no position here as to specialized must-offer obligations other than those applicable to energy storage.

### **ISO** Response

The ISO appreciates the support of the opportunity cost provisions of the proposal. The ISO believes that allowing flexible capacity resources to include opportunity costs in their start-up and minimum load costs will provide SC for these resources with an additional tool to manage potential risks of reaching a monthly or annual use-limitation. However, the ISO will defer this part of the FRAC-MOO proposal to a later initiative.

The ISO has proposed to require an SC to submit two RA showings for month-ahead and yearahead RA showings: One for system and local capacity and a separate showing for flexible capacity. Resources that are only on the flexible capacity showing will be subject to the flexible capacity must-offer obligations, resources on the generic, system and local, capacity showing will be subject to the generic system and local capacity must-offer requirements, and resources on both showings will be subject to both generic and flexible must offer requirements.

4. At the 11/13 stakeholder meeting there a significant amount of discussion regarding the appropriate method for setting the price for the proposed flexible capacity availability incentive mechanism. Please provide comments about how this issue might be resolved.

The methodological issues discussed in the Proposal must be addressed before appropriate pricing can be evaluated.

### **ISO** Response

While still critical to the overall design of flexible capacity marketplace, the ISO is deferring additional development of the SFCP to a later date or subsequent stakeholder initiative to allow more time to collect additional information to accurately value the availability of flexible capacity.

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

Significant progress has been made toward development of counting methodologies that assure comparable treatment, and that also take full account of the multiple value streams that energy storage can provide, in the Fourth Revision. CESA urges the CAISO to move toward adoption of the recommendations set forth at 3(B)(ii) above as expeditiously as possible in the next revision of the Straw Proposal by directly acknowledging that energy storage is sui generis and thus merits its own distinct methodology The next revision should also elaborate on the specific technical studies to determine the optimal deployment of energy storage to meet flexibility needs that are mentioned in the 2013 Special Reliability Assessment produced jointly by the CAISO and NERC.

# **ISO** Response

The ISO has proposed to require an SC to submit two RA showings for month-ahead and yearahead RA showings: One for system and local capacity and a separate showing for flexible capacity. Resources that are only on the flexible capacity showing will be subject to the flexible capacity must-offer obligations, resources on the generic, system and local, capacity showing will be subject to the generic system and local capacity must-offer requirements, and resources

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on both showings will be subject to both generic and flexible must offer requirements.

Company	Date	Submitted By			
California Wind Energy Association (CalWEA)	11/27/2013	Dariush Shirmohammadi & Nancy Rader			
1. The ISO has outlined a methodology to allocate flexible capacity requirements to LRAs. As detailed in the fourth revised straw proposal1 and at the 11/13 stakeholder meeting PG&E has put forward an alternative allocation methodology. Please provide comments for each of these proposals, particularly as they relate to cost causation. If your organization has a preference for one over the other, please state your preference and why					
CalWEA has several fundamen	tal comments in this	area:			
a) CalWEA agrees with the CAISO that the allocator should be based on the LSE's historical/forecasted load variation at the time of the 3-hour maximum net load ramp to better reflect each LSE's contribution to the ramp as compared with an average load ramp forecasted at different times of the month or season.					
b) CalWEA strongly objects to CA the allocation factors for two obvio	ISO removing the $\Delta$ lous reasons:	Distributed Energy Resources from			
• The state is in the midst of an explosive rise in distributed renewable energy (including solar rooftops); thus, relying on historical information on the performance of distributed energy resources subsumed in load variation is likely to result in an erroneous (and thus unfair) allocation of costs, especially given the common understanding that one of the two major ramps in the day is due, in significant part, to such distributed resources; and					
• By subsuming the contribution of distributed energy resources within load, the ISO would mask the impact that these resources are having on the cost of grid operation. This information is needed to inform policy decisions related to the integration cost of these resources. The main objective of this exercise is, after all, to inform LSEs and policymakers about the indirect costs associated with the procurement decisions and policy choices that they make.					
We should note that CAISO can r account for the impact of $\Delta$ Distrib	We should note that CAISO can readily access all the data that is necessary to explicitly account for the impact of $\Delta$ Distributed Energy Resources from LSEs.				
c) The allocator presented in Section 5.1.2 of the Fourth Revised Straw Proposal attempts to identify all the "uncontrollable" drivers of the 3-hour maximum net load ramp, but misses one of the biggest of these "uncontrollable" drivers: the LSEs' fixed import/generation schedules. The impact of these schedules must be added into the Flexible Capacity allocator to reflect the impact that they have on the procurement of the Flexible Capacity					
Page 18 of 103 Flexible Resource Adequacy Criteria and Must-Offer Obligation Comments on					

Fourth Revised Straw Proposal

# Product (FCP).

d) Per our point 1a above, CalWEA fully supports CAISO's use of the LSE's historical/forecasted load variation at the time of the 3-hour maximum net load ramp as part of the allocation factor for procured Flexible Capacity. It is now only logical that the same treatment be extended to the other variables in the allocation formula, namely:  $\Delta$  Wind Output,  $\Delta$  Solar PV,  $\Delta$  Solar Thermal,  $\Delta$  Distributed Energy, and  $\Delta$  Fixed Schedule. In other words, CAISO should account for the contribution of all these factors by using their forecasted amounts at the time of the 3-hour maximum net load ramp. It is critical to note that CAISO has all the necessary data, systems and expertise to perform this calculation and should do that for proper Flexible Capacity allocation.

# **ISO** Response

While the ISO appreciates CalWEAs concerns regarding the removal of the  $\Delta$  Distributed Energy Resources from the allocation methodology, the ISO believes it is most appropriate to rely on an LSE's historic load contribution as the means of measuring distributed energy's impact on load. Distributed energy is increasing significantly in the ISO's BAA, however, CalWEA has not shown that this expansion will occur disproportionately to one LRA over another (thus creating an inequitable allocation based on load changes). The ISO does not believes that this is not masking the impact of the distributed energy resources, but merely expressing these resources as a component of overall load variability, which is how they will be seen by the ISO in real-time.

It is unclear, based on the comments provided, how f fixed import or generation schedules affect net load variability. . The ISO believes that while these fixed schedules do not help address net load variability they do not add to it.

The ISO believes it is more appropriate to utilize the 5 largest ramp needs to determine allocation requirements. As system variability increases, it is not reasonable to base a monthly allocation simply on a single data point. As such, the ISO believes that determining allocations based on the five largest ramping requirements is more appropriate and mitigates the impact of anomalous data points.

 Please provide comments and recommendations (including requested clarifications) 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.

Explicit provision for gas plants opportunity costs gets in the way of standardizing the Flexible Capacity Product (FCP) and as such it must be avoided. A resource should internalize all opportunity costs when offering its Flexible Capacity.

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

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Per response above, CalWEA does not agree with inclusion of use limitations to start with

b. Specialized must-offer obligations:

The must-offer obligation for all types of resources should be limited to time periods when the 3-hour maximum net load ramp is likely to happen rather than to a blanket time period between 5 AM to 10 PM. While the latter practice would ease the administration of FCP procurement, it would serve to limit competition for this service because fewer participants will be able to offer services over the extended time period, leading to higher FCP costs. Thus, CalWEA suggests that the time window for the mustoffer obligation be pre-determined on a month-to-month (or season-to-season) basis and the obligation to offer be verified against the pre-determined time windows.

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

VERs' contribution to addressing flexible capacity needs should mainly be in the form of reducing the need for that capacity, as opposed to providing Flexible Capacity. This will facilitate the ability of the CAISO to standardize the necessary characteristics of Flexible Capacity based on resources that can consistently and reliably provide such capacity.

However, the CAISO should properly account for the contribution of VERs in reducing the need for flexible capacity, and the CAISO should 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

The inclusion of opportunity costs for use-limited gas plants is based on sound economic theory and merely provides these resources with an additional mechanism to manage the use-limitations and ensure a more optimal dispatch. The ISO believes that allowing flexible capacity resources to include opportunity costs in their start-up and minimum load costs will provide SC for these resources with an additional tool to manage potential risks of reaching a monthly or annual use-limitation. However, the ISO will defer this part of the FRAC-MOO proposal to a later initiative.

The ISO believes that the appropriate way to utilize VERs with curtailment provisions is for these provisions to be exercised consistent with system need as dispatched through the ISO market. Thus, the ISO believes the flexibility of these resources should be reflected as flexible capacity available to the market rather than adjusting the flexible capacity requirement.

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Numerous stakeholders have commented that resource/technology specific offer-obligations are complex, discriminatory, and may not provide the ISO with adequate flexible capacity to reliably operate the grid. As such, the ISO is proposing to break-out the flexible capacity requirements into technology agnostic categories with specific offer-obligations for each category. These categories should provide opportunities for all resources, including preferred resources, to provide flexible capacity. The categories proposed are derived from a needs-based approach of the flexible capacity categories needed to reliably operate the system. The ISO will be seeking additional comments on this new proposal as part of the next revised straw proposal.

Company	Date	Submitted By
Calpine Corp	November 27, 2013	Matt Barmack <u>barmackm@calpine.com</u> 925-557-2267
Opening Comments		

As discussed below, Calpine's primary concern about the straw proposal remains the potential mismatch between resource-specific must-offer obligations and flexible RA counting rules. Resources with more limited availability and/or a less onerous must-offer obligation should count less towards flexible capacity procurement requirements. If the CAISO continues to advocate widely varying must-offer obligations for different resource types, then the flexible RA counting rules, currently under development at the CPUC, must be adjusted accordingly

#### **ISO** Response

Numerous stakeholders have commented that resource/technology specific offer-obligations are complex, discriminatory, and may not provide the ISO with adequate flexible capacity to reliably operate the grid. As such, the ISO is proposing to break-out the flexible capacity requirements into technology agnostic categories with specific offer-obligations for each category. These categories should provide opportunities for all resources, including preferred resources, to provide flexible capacity. The categories proposed are derived from a needs-based approach of the flexible capacity categories needed to reliably operate the system. The ISO will be seeking additional comments on this new proposal as part of the next revised straw proposal.

1. The ISO has outlined a methodology to allocate flexible capacity requirements to LRAs. As detailed in the fourth revised straw proposal and at the 11/13 stakeholder meeting PG&E has put forward an alternative allocation methodology. Please provide comments for each of these proposals, particularly as they relate to cost causation. If your organization has a preference for one over the other, please state your preference and why

Calpine supports the first element of the PG&E proposal, i.e., the idea that flexible capacity procurement requirements should be allocated to all variable energy resources, including those that are not under contract to any LSE within the CAISO. This element of the proposal addresses a loophole in the CAISO proposal that Calpine has identified in

comments on previous versions of the proposal.

Calpine does not support the second element of the PG&E proposal. PG&E's proposal to allocate flexible capacity procurement requirements to load based on LSEs' largest net ramps, regardless of when they occur, ignores the fact that flexibility capacity requirements are driven by the largest coincident net load ramps. Ramps in load that are not coincident with the largest net load ramps do not drive flexible capacity requirements and hence should not drive the allocation of flexible capacity procurement obligations.

At both the November 13 stakeholder meeting as well as the November 15 MSC meeting, there was considerable discussion of whether different allocations of flexible capacity procurement to load are sufficiently robust given the inherent uncertainty about exactly when net load ramps are likely to occur. Calpine believes that the CAISO's proposal to calculate allocations to load based on the five largest net load ramps in a month strikes a reasonable middle ground between an allocation based on contributions to the single net load ramp peak in a month and PG&E's proposal, which does not reflect coincidence at all

# **ISO** Response

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.

The ISO appreciates the feedback on both the PG&E and ISO proposed allocation methodologies. The ISO believes the latest allocation proposal accurately reflects causation of flexible capacity needs as based on a 3-hour net load ramp. The ISO is proposing an additional break-out of the flexible capacity requirements into technology agnostic categories with specific offer-obligations for each category. The ISO does not believe that this change to the requirements necessitates a revision of the ISO's proposed allocation methodology, but will seek additional stakeholder input as part of the next revised straw proposal.

2. The ISO believes that demand response resources should have the opportunity to provide flexible capacity. The ISO has proposed how demand response resources could do so. Please provide comments on the ISO's proposal. Specifically, please identify concerns with the ISO's proposal and offer potential solutions to these concerns. Additionally, please comment on the proper forum (ISO, CPUC, etc.) where these concerns should be addressed.

Calpine believes in non-discriminatory procurement, i.e., resources that can satisfy uniform and clearly-defined performance requirements should be eligible to compete to satisfy the requirements. Consequently, Calpine does not generally support the CAISO's proposal to implement widely varying resource-type-specific performance requirements. Nevertheless, such widely varying performance requirements could lead to procurement that is effectively non-discriminatory to the extent that flexible capacity counting rules reflect resource-specific performance requirements, e.g., a 1 MW demand resource that is available only during a limited window of hours has a lower Effective Flexible Capacity (EFC) than a 1 MW resource with unlimited availability. Calpine believes that resource counting rules are currently being addressed in the CPUC Resource Adequacy proceeding (R.11-10-023). Calpine looks forward to learning more at upcoming workshops about the Effective Ramping Capability (ERC) modeling methodology that CPUC staff has proposed to calculate the EFCs of DR and storage. Potentially, the methodology could be extended to other use-limited resources.

Because flexible capacity counting rules and performance requirements are both important aspects of the implementation of flexible capacity procurement obligations, Calpine urges the development of counting rules and performance requirements in an integrated fashion.

As indicated in SCE's comments on the Third Straw Proposal and by multiple members of the MSC at their November 15<sup>th</sup> meeting, another potential approach to address operational flexibility requirements is through reliance on spot energy and AS markets. Eligibility and performance requirements for spot markets are unambiguous. A demand resource, or other use-limited resource, could capture spot market revenues in a specific hour to the extent that it is available in the hour. Rather than determining how a use-limited resource would count towards flexibility requirements based on ex ante projections of its availability during the largest net load ramps—the CPUC's apparent approach to flexible RA counting rules—reliance on spot markets would reward all resources, including use-limited resources, for their actual availability on an ex post basis

# **ISO** Response

Numerous stakeholders have commented that resource/technology specific offer-obligations are complex, discriminatory, and may not provide the ISO with adequate flexible capacity to reliably operate the grid. As such, the ISO is proposing to break-out the flexible capacity requirements into technology agnostic categories with specific offer-obligations for each category. These categories should provide opportunities for all resources, including preferred resources, to provide flexible capacity categories needed to reliably operate the system. The ISO will be seeking additional comments on this new proposal as part of the next revised straw proposal.

3. Please provide comments and recommendations (including requested clarifications) regarding the ISO's proposed must-offer obligations for the following resources types:

Calpine reiterates its general comment on previous versions of the proposal that resources with less onerous must-offer obligations should count less towards flexible capacity procurement requirements.

# **ISO** Response

The ISO is proposing to break-out the flexible capacity requirements into technology agnostic categories with specific offer-obligations for each category. The ISO will be seeking additional comments on this new proposal as part of the next revised straw proposal.

4. At the 11/13 stakeholder meeting there a significant amount of discussion regarding the appropriate method for setting the price for the proposed flexible capacity availability incentive mechanism. Please provide comments about how this issue might be resolved.

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Calpine agrees with the CAISO that penalties should be reasonable relative to the price of generic RA and sufficient to induce compliance. It is not obvious that the proposed penalty price of \$45.96/kW-year (i.e., \$3.83/kW-month) is reasonable relative to the price of generic RA. The price is significantly higher than prevailing prices for generic RA. For example, the CPUC's *2011 Resource Adequacy Report* suggests that the median price of RA was \$2.20/kW-month for deliveries in the 2010-2012 time frame.

With respect to process, one or a few stakeholder meetings dedicated to the topic likely could yield an acceptable price. The meetings should address both the level of the price as well as the process for updating it, perhaps as more pricing information for the flexible RA becomes available.

# **ISO** Response

While still critical to the overall design of flexible capacity marketplace, the ISO is prepared to defer additional development of the SFCP to a later date or subsequent stakeholder initiative to allow more time to collect additional information to accurately value the availability of flexible capacity.

5. The ISO has proposed an SFCP evaluation mechanism/formula that weights compliance with the real-time must offer obligation heavier than the day-ahead must offer obligation. Please comment on:

a. The merits of using such a weighting mechanism relative to the "lesser of" proposal from the previous proposal

b. The relative weights between the real-time and day-ahead markets

Calpine supports the change in the proposal to weight compliance in real-time more heavily. This change in the proposal seems to address the primary motivation for the introduction of FRACMOO, i.e., a perceived insufficiency of offers with which the CAISO can manage actual operations. In addition, weighting real-time compliance more heavily effectively would penalize day-ahead self-scheduling less severely. Day-ahead self-scheduling has been an important tool for Calpine to manage unit commitments and limit the cycling of its CCGT plants.

# ISO Response

As the ISO is proposing to defer the development of the SFCP, it is not necessary to make a determination on SFCP evaluation mechanism/formula or weights between the day-ahead and real-time must offer obligations. However, the ISO will reassess these comments prior to moving forward with the SFCP.

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

The fact that many generally non-dispatchable resources, such as VERs, currently count towards resource adequacy requirements may partly cause insufficiency of offers in CAISO markets and hence conclusions that new flexible RA products are necessary. Calpine

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believes that the RA counting of many VERs will be reduced downwards as the result of the application of ELCC methodologies to the calculation of NQCs for VERs, as required by state law and currently under way at the CPUC. Calpine suggests that reduced NQCs for VERs may lead to additional procurement of dispatchable resources to satisfy generic RA obligations and hence increase the volume of bidding in CAISO markets.

# **ISO** Response

While increased procurement of non-VER resources may increase the volume of generic capacity available to the ISO, it is less clear that this additional generic RA capacity will be made available to the ISO through the submission of economic bids.

Company	Date	Submitted By				
CHP Parties						
In Section 6 of the Fourth Straw Prop (page 28), the CAISO provided the fo issues raised by the CHP community:	In Section 6 of the Fourth Straw Proposal under the heading "RA Showings and Replacement" (page 28), the CAISO provided the following passage to adapt the prior proposals to address issues raised by the CHP community:					
The ISO has also reviewed the counting criteria for combined heat and power or similar resources that a primary industrial process of which electricity is a byproduct. Some of these resources have a "reliability must take" amount of capacity listed in the ISO's master file. The ISO believes that the reliability must take portion of these resources' capacity should be treated the same way as a PMin with greater than a 90 minute start-up time. This will reduce the EFC some qualifying facilities, but ensure that the resources are better able to maintain flexibility consistent with their underlying industrial processes.						
This above passage acknowledge Capacity. However, this passage proposal as specific CHP EFC crit Obligation for Different Resource	es some of the CHP F seems better placed teria under Section 7. Types).	Parties concerns regarding Flexible in the context of the CAISO's straw .1 (Flexible Capacity Must Offer				
The CAISO proposal suggests using a Regulatory Must Take (RMT) value instead of Pmin in the EFC calculation formula (NQC –Pmin). While this suggestion may be intended to address CHP minimum self-scheduling needs, it may reduce without justification the amount of EFC a CHP may be able to make available. Accordingly, the CAISO should permit a CHP facility to provide Flexible Capacity if the facility chooses to provide an economic bid below the facility's RMT for certain periods of the year. Rather than having RMT as a lower limit, the CAISO should allow a CHP resource to annually specify its EFC, provided it does not exceed NQC - Pmin.						
It is understood that EFC counting rules will be established for the required annual or monthly showings of availability. Like NQC, EFC will be established on an annual basis for each month of the subsequent counting year. However, the amount of available flexible capacity a CHP resource may be able to provide within a counting year could vary based on changes in host operations beyond the CHP resource's control. As a result, there may be situations where a CHP resource has additional flexible RA Capacity available on a month- ahead and day-ahead basis. The CHP Parties recommend that CAISO incorporate a methodology to allow a CHP resource to provide such excess flexible RA capacity to the bi- lateral and CAISO markets on month-ahead and day-ahead bases.						
The ISO is still considering the implications of allowing a CHP resource to select either the Pmin or the RMTG. However, as no other resource has the full discretion to set the EFC of the resource (only the ability to determine how much flexible capacity the resources sells once the						

ISO calculates the EFC, it is not clear that providing CHP resources with this ability is reasonable. Page 26 of 103 Flexible Resource Adequacy Criteria and Must-Offer Obligation Comments on Fourth Revised Straw Proposal

#### CHP Must Offer Obligation Under Section 7.1

The CHP Parties recommend the adoption of an additional subsection under Section 7.1 entitled "Flexible Capacity Must Offer Obligation – Combined Heat and Power Resources." This additional subsection would embrace the above referenced passage in Section 6 of the Fourth Straw Proposal with a set of clear criteria for CHP EFC counting and Must Offer Obligations, as follows:

Flexible Capacity Must Offer Obligation – Combined Heat and Power Resources

Combined Heat and Power (CHP) resources have unique operating and commercial conditions that challenge the proposed methodology for counting Effective Flexible Capacity (EFC). Due to obligations to meet operating requirements of their industrial hosts (e.g., thermal or electrical energy), CHP resources require a more defined counting formula and greater discretion in setting the value that will be used by the CAISO for designating EFC for RA showing purposes. The ISO has reviewed the counting criteria for CHP or similar resources associated with primary industrial process of which electric generation is a byproduct. Some of these resources have a "reliability must take" amount of capacity listed in the ISO's master file. The ISO believes that the reliability must take portion of these resources are better able to maintain flexibility consistent with their underlying industrial processes.

In order to accommodate CHP operations, the following criteria will apply:

1) Flexible Capacity is not intended to diminish a CHP resource's ability to self-schedule into the ISO's Day-Ahead and Real Time markets.

2) A CHP resource will be permitted to designate an EFC value annually for each month of a counting year 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 Must Offer Obligation does not interfere with its ability to self-schedule.

3) A CHP resource, or any generating resource, will have the ability to designate or sell any portion of its designated EFC as "generic capacity." Such generic RA capacity would have the option to submit either self-schedules or economic bids, but would not have the flexible RA capacity Must-Offer Obligation to submit economic bids.

4) A CHP resource may provide flexible capacity above its annual EFC designation on a month-ahead or day-ahead basis if such CHP resource determines that it is capable of submitting economic bids for such incremental capacity.

5) For outages (planned or unscheduled) and de-rates resulting in partial capacity availability, a generating resource that provides both generic and bundled generic/flexible capacity will have the discretion to designate whether the offered generation is generic capacity or flexible capacity by virtue of how generation is offered to the ISO Day-Ahead and

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Real Time Markets. Economically offered generation during the flexible capacity assessment hours would be allocated first to flexible capacity must offer obligations on a pro-rata basis. Any surplus economic offers would be allocated to generic capacity Must Offer Obligations. Generic capacity Must Offer Obligations can also be met with self-schedule generation.

### **ISO Response**

Generally speaking, flexible capacity requirements will not impact any resource's ability to selfschedule for up to the amount of generic or non-RA capacity. Flexible capacity requirements are only intended to apply to portions of the resource's capacity sold as flexible.

The ISO is still considering the implications of allowing a CHP resource to select either the Pmin or the RMTG. However, as no other resource has the full discretion to set the EFC of the resource (only the ability to determine how much flexible capacity the resources sells once the ISO calculates the EFC, it is not clear that providing CHP resources with this ability is reasonable).

The determinations regarding what capacity is bought and sold as flexible is between the parties of the contract. The ISO takes no position on this point.

Flexible capacity requirements are essentially RA showing requirements. Any resource may increase the amount of flexible capacity as long as a) it has excess flexible capacity to provide based in the resource's calculated EFC and b) there is willing or deficient buyer that needs the flexible capacity. Resources may submit economic bids for additional available capacity into the day-ahead and real-time markets, however, in order to receive credit as flexible capacity a resource must either be contracted to an LSE or picked up through backstop procurement by the ISO.

As noted in the fifth revised straw proposal, the ISO anticipates that the offer obligations associated with each category of flexible capacity will be applied to all resources equally, regardless of the resource type. Considerations for derates and outages should be considered by the resources SC when determining how much flexible capacity they should sell.

Company	Date	Submitted By
Clean Coalition and DECA	November 27, 2013	Aram Shumavon - Distributed Energy Consumer Advocates Kenneth Sahm White - Director, Economic and Policy Analysis, Clean Coalition

#### Opening Comments

Distributed Energy Consumer Advocates ("DECA") is a technology-neutral California public benefit organization that advocates on behalf of residential electricity customers who seek to more directly control their investments in energy infrastructure. DECA's California members live and invest throughout the state, including in the service territories of California's largest investor-owned and municipal utilities. DECA advocates on behalf of its members before the

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CPUC, CEC, and CAISO on a range of market design and policy implementation issues.

The Clean Coalition is a California-based nonprofit organization whose mission is to accelerate the transition to local energy systems through innovative policies and programs that deliver cost-effective renewable energy, strengthen local economies, foster environmental sustainability, and provide energy resilience. To achieve this mission, the Clean Coalition promotes proven best practices, including the expansion of Wholesale Distributed Generation (WDG) by renewable energy facilities connected to the distribution grid and serving local load. The Clean Coalition drives policy innovation to remove barriers to the procurement and interconnection of WDG projects, integrated with Intelligent Grid (IG) solutions such as demand response, energy storage, and advanced inverters. The Clean Coalition is active in numerous proceedings before the California Public Utilities Commission, the California Energy Commission, and other state and federal agencies throughout the United States. The Clean Coalition also designs and implements WDG and IG programs for utilities and state and local governments.

#### **ISO** Response

No response required.

#### Discussion

CAISO staff has asked for comments by stakeholders on the fourth revised straw proposal as presented on November 13, 2013.

The Clean Coalition and DECA (CC/DECA) comment here on a limited set of issues related to the FRAC-MOO. In particular CC/DECA emphasize that the current proposed form of FRAC-MOO will distort the wholesale market by biasing California's wholesale markets against out of state resources and precluding the full participation of a range of resources including those preferred by the state's environmental and energy policies. We do not comment here on the details of mechanisms for valuing opportunity costs and other issues from the November 13 stakeholder meeting because those issues are not timely in light of the larger issues than still need to be resolved within this process. CC/DECA support continued development of these issues via a working group as discussed at the November 13, 2013 stakeholder meeting, but caution that these processes must be designed to encourage the participation of non-traditional and emerging resources and likely cannot be accomplished by February 2014. Accordingly, CC/DECA strongly encourage the CAISO to revisit the proposed schedule and communicate with the California Public Utilities Commission (CPUC) in favor of a more comprehensive solution to the CAISO's ramping needs for the 2015 Resource Adequacy (RA) compliance year with 2016 delivery.

As part of that process CC/DECA strongly encourage the CAISO to take a "ramp mitigation" approach to FRAC-MOO with consideration of the lowest marginal cost of mitigations, rather than the current "flexibility for flexibility's sake" approach. Key to this is a revisiting of the Must Offer Obligation itself and the unwillingness to recognize the ramp mitigation enabled by relying in some quantified way on the broader WECC market via intertie scheduling.

In the CPUC RA proceeding (R.11-10-023), DECA proposed a "Flexibility Duration Curve



As emphasized in R.11-10-023 and elsewhere, including in these comments, the flexibility duration curve will change over time, and will likely require regular updates.

CC/DECA are not proposing the CAISO adopt a flexibility duration curve as part of this stakeholder process, but instead emphasize that any FRAC-MOO should similarly recognize the value of temporal granularity in structuring market products and compliance mechanisms.

#### **ISO** Response

The development of the Energy Imbalance Market and FERC Order 764 revisions will enhance the opportunities for interties resources to participate in ISO markets, particularly in the real-time markets. Additionally, the ISO has stated that pseudo-tied or dynamically scheduled intertie resources are capable of providing flexible capacity because they would be available to meet five minute dispatch instructions. The ISO has also noted that intertie resources would be reevaluated after there has been greater experience with 15-minute intertie schedules.

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Numerous stakeholders have commented that resource/technology specific offer-obligations are complex, discriminatory, and may not provide the ISO with adequate flexible capacity to reliably operate the grid. As such, the ISO is proposing to break-out the flexible capacity requirements into technology agnostic categories with specific offer-obligations for each category. These categories should provide opportunities for all resources, including preferred resources, to provide flexible capacity categories needed to reliably operate the system. The ISO will be seeking additional comments on this new proposal as part of the next revised straw proposal.

# A. Ramp Mitigation vs. Generic Flexibility

CC/DECA strongly encourages CAISO to revisit its proposed structure for the FRAC-MOO via a working group process to specifically address the biases inherent in its "flexibility for flexibility's sake" approach to future reliability needs. The actual need is for ramp mitigation, which may include proactive measures including load shifting and dispatchable load control that is economically and environmentally preferable to addressing an unmitigated ramp need through conventional resources. By creating a market designed around an idealized "infinitely flexible" resource the CAISO will be distorting the market by assigning value to resources that can provided flexibility when there is little or no need for it. The Must Offer Obligation is the principal mechanism for such bias, particularly in light of statements by CAISO regarding the staff's Straw Proposal that CAISO is "aiming to limit participation in the flex cap market to the highest quality resources" (i.e. most flexible, highest capacity and most available).

While much effort has been made to create exceptions for the state's preferred resources, which is commendable, the CAISO's market design appears to be focused on resources that may leave the market rather than on the billions of dollars that have been invested in the next generation of resources that will shape the nation's wholesale markets for the foreseeable future. It is understandably simpler to manage a smaller number of resources that are not use-limited, but this fails to respect loading order and can increase costs by failing to make all existing capacity available for dispatch through the market. For example, the State envisions rapidly increasing flexible capacity associated with the adoption of Battery and Plug-in Hybrid Electric Vehicles in the recently initiated Rulemaking 13-11-007 that will address their participation in the energy services markets. Energy Division analysis estimates 10,000 MW of EV capacity by 2015, growing to three times that by 2021, or nearly 60% of current Peak Summer Load, while vehicles are idle about 96% of the time. This suggests a considerable amount of flexibility to shift charging to minimize costs and maximize benefits to the grid even before two-way power flow is considered.2

Matching the availability of use-limited resources to the actual needs successfully avoided excluding the capacity of nearly half the resources that can be contributed from hydro. It is likewise important to move forward in recognizing the ways and circumstances under which each other use-limited resource can be leveraged to meet the actual flexibility needs. This includes recognizing that the greatest levels of flexible ramping are required for only a very limited number of hours per year, and that these needs can be met by resources that are only available for those hours.

CC/DECA emphasize that exit from the market is a necessary element of properly functioning markets. Wholesale products that are designed to prevent exit of particular kinds of resources, even when well intentioned, are market distorting. For this reason CC/DECA strongly encourage abandoning the current Must Offer Obligation structure in favor of a need-based ramp-mitigation solution. The FRAC-MOO should not require exceptional treatment for resources that cannot offer energy all the time, or discourage their participation in the market. Instead it should be focused on the lowest cost ramp mitigation solution. CC/DECA encourage in particular the utilization of scheduling across the interties as a necessary element of such a solution.

2 http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M080/K775/80775679.pdf

# **ISO** Response

Numerous stakeholders have commented that resource/technology specific offer-obligations are complex, discriminatory, and may not provide the ISO with adequate flexible capacity to reliably operate the grid. As such, the ISO is proposing to break-out the flexible capacity requirements into technology agnostic categories with specific offer-obligations for each category. These categories should provide opportunities for all resources, including preferred resources, to provide flexible capacity. The categories proposed are derived from a needs-based approach of the flexible capacity categories needed to reliably operate the system. The ISO will be seeking additional comments on this new proposal as part of the next revised straw proposal.

# B. Interstate Markets

CC/DECA believe that the CAISO's current FRAC-MOO proposal fails to reflect the growing and necessary trend for regional markets. This is in stark contrast to the progressive efforts by the CAISO with regard to the Energy Imbalance Market and similar regional value extracting solutions that result in greater efficiencies in the market. CC/DECA encourage consideration in the working group of ramp mitigation solutions that are focused on interstate resources playing an active role.

Such a solution does not need to be via dynamic transfers, and likely should not be. There is little reason to deny the function and purpose of wholesale markets to economically schedule out of balancing area electricity by forcing resources to dynamically schedule into a neighboring market. Instead the CAISO should consider mechanism by which regional deliveries, both imports and exports, can be quantified for purposes of mitigating potential ramp needs. Compliance with FERC order 1000 to move from one hour to 20 minute scheduling at the interties should not be considered to provide no incremental value relative to ramp mitigation or regional flexibility. Instead it may be better, as an example, to focus FRAC-MOO on 20 minute, sub-intertie scheduling durations. Such a solution would not bias regional markets and would allow non-exceptional treatment of newer resources to mitigate ramp need. Similarly, consideration of a solution that relies on a very limited number of smaller resources being available to ramp for 20 minutes and "leapfrog" over one another rather than creating thousands of MW of "need" for ramping capacity as a result of multiple hours of bundled energy Must Offer Obligations.

### **ISO Response**

The ISO's FERC Order 764 market design changes will provide for 15-minute dispatch on the interties. While the ISO agrees 15-minute dispatchable resources can provide flexibility, it believes it is best to examine these resource's potential to provide flexible capacity after the experience is gained under the FERC Order 764 changes that are scheduled to be first implemented this upcoming April.

#### C. Scheduling Issues

CC/DECA acknowledge that a broader revisiting of the fundamental assumptions of the FRAC-MOO will make a February 2014 CAISO board decision very unlikely if not impossible. For this reason it is essential that the CAISO begin conversations with the CPUC about the 2015 vs. 2016 RA compliance year goal in light of these issues. The ability to export even a small amount of daytime electricity to regional markets will greatly relieve the apparent over generation and ramp needs. Likewise, Preferred Resources, including small distributed resources, offer great cost effective potential aligned with procurement and Loading Order policies.

This schedule will also provide greater time for the CPUC to consider its procurement, program and rate designs to ensure that as many resources as possible can be utilized to mitigate ramp needs.

#### **ISO Response**

The ISO has proposed a new schedule that would seek board approval at the March 2014 Board meeting. The ISO is also working with the CPUC and other local regulatory authorities to coordinate efforts and design synchronized processes. While a broader region certainly diversifies variability and reduces ramping needs, the ISO does not agree that it can be assumed that the ISO can lean on other balancing authority areas to deal with over-generation and/or ramping without an assessment of these other balancing authority areas ability to support these needs.

#### II. Conclusion

For the above stated reasons CC/DECA support re-orienting the FRAC-MOO toward active inclusion of interstate resources via intertie schedule and look forward to the opportunity to participate in the working group(s) should they occur as well as the upcoming FERC comment cycle.

Finally, CC/DECA appreciate and strongly support the ISO's efforts to incorporate uselimited resources and responsiveness to an emerging class of stakeholders' inputs into this process. It will only be through facilitating the participation of emerging technologies that we will collectively move our energy markets into the future.

# **ISO** Response

The development of the EIM and FERC Order 764 revisions will enhance the opportunities for

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intertie resources to participate in ISO markets, particularly in the real-time markets. Additionally, the ISO has stated that pseudo-tied or dynamically scheduled intertie resources are capable of providing flexible capacity because they would be available to meet five minute dispatch instructions. The ISO has also noted that intertie resources would be reevaluated after there has been greater experience with 15-minute intertie schedules.

Company	Date	Submitted By
Comverge, Inc Environmental Defense Fund		Colin Meehan <u>cmeehan@comverge.com</u> 512-998-2207 Lauren Navarro <u>Inavarro@edf.org</u>
		(916)-492-7074

2. The ISO believes that demand response resources should have the opportunity to provide flexible capacity. The ISO has proposed how demand response resources could do so. Please provide comments on the ISO's proposal. Specifically, please identify concerns with the ISO's proposal and offer potential solutions to these concerns. Additionally, please comment on the proper forum (ISO, CPUC, etc.) where these concerns should be addressed

We propose that demand response be permitted to offer flexible capacity resources into the FRA market independently of generic capacity. The requirement under the "Adder Method" incentive mechanism that flexible and generic capacity be bundled together creates an unnecessary and potentially discriminatory hurdle for demand response resources. The requirement may apply readily to conventional generation capacity, where there are concerns about disincentives to offer both generic and flexible resources for a conventional generator. In the case of demand response, however, the resources developed to meet flexible capacity will likely need to be designed specifically for this market due to the peculiar nature of its requirements, and may not be developed to provide generic capacity. As a result, the generic capacity requirement acts as a direct disincentive to developing new flexible DR capacity. Additionally, as outlined in the CPUC's most recent RA decision, "A resource owner may sell the flexible and inflexible capacity in separate transactions and to different purchasers. A megawatt may be sold only once as either flexible or inflexible." We believe that the governing principle in the instance of the incentive mechanism should be that the megawatt may only be sold once, as either flexible or inflexible, as opposed to requiring bundling of the two resources to avoid selling the megawatt twice.

It is our understanding that CAISO Staff is reviewing the possibility of disaggregating the SCP and SFCP payments within the Adder Method; we strongly encourage staff to develop this capability. If it is determined that this approach is not reasonable, we recommend applying the "Bucket Method" for incentivizing DR participation in Flexible Resource Adequacy. We believe that DR resources can be treated equitably under either scenario relative to generation resources, while permitting DR participation by not insisting that they provide generic capacity.

### **ISO** Response

The ISO has proposed to require an SC to submit two RA showings for month-ahead and yearahead RA showings: One for system and local capacity and a separate showing for flexible capacity. Resources that are only on the flexible capacity showing will be subject to the flexible capacity must-offer obligations, resources on the generic, system and local, capacity showing will be subject to the generic system and local capacity must-offer requirements, and resources on both showings will be subject to both generic and flexible must offer requirements.

Please provide comments and recommendations (including requested clarifications) 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.
- b. Specialized must-offer obligations:1. Demand response resources

While the Fourth Revised Straw Proposal does not clearly delineate the ability to dynamically bid for each resource, it is our understanding from talking with Staff that resources will be allowed to dynamically bid within the monthly and yearly obligation periods. Demand response resources have a wider range of dispatch costs – depending on frequency, timing and length of dispatch – than other resources. A resource may have a low cost for the first several instances of dispatch within a month or year, but the cost of dispatches could increase over time as DR resources risk losing customers as a result of fatigue or if their ability to continue commercial operations is impacted by frequent dispatches. As a result, it is important for these resources to be explicitly permitted to bid dynamically within a must offer period and this clarification would put the proposal in line with the CAISO's other market operations.

In addition the current proposal is still unclear with regards to the applicability of the opportunity cost methodology to demand response providing FRAC. It is our understanding from consulting with Staff that the opportunity cost methodology is not meant to be applied to demand response resources.

We understand that staff is working to clarify both of these issues in the next iteration of this document. We look forward to seeing those revisions, as they will provide much needed clarity on the ability of demand response resources to provide FRAC.

# **ISO** Response

Demand response resources are may submit bids that are constrained only by the energy bid caps. These resources are not subject to the ISO's local market power mitigation provisions that reduce bids to reference prices.

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

While the Straw Proposal requires bundling with generic capacity in order for a resource to provide flexible capacity, the Proposal does not permit bundling among resources for the provision of flexible capacity. Combinations of resources, including demand response and storage, as well these resources and renewables, should be allowed to fully participate in the bidding system. As has been previously noted in stakeholder comments, allowing partnerships among diverse resources to provide the needed flexible resource would create a more viable market for DR resources, and a deeper pool of resources for CAISO to deploy. For example, DR could potentially partner with a natural gas facility to provide flexible capacity, thereby achieving multiple state policy goals simultaneously: by delivering an offset to natural gas generation when DR is available, greenhouse gas emissions would be reduced; and such a capability would lower the compliance burden for both the gas-fired facility and the demand response resource, creating greater market efficiency and additional market access for a Preferred Resource. Similarly, energy storage and DR may be able to partner to provide flexible resources. If accommodating different combinations of resources necessitates an update of CAISO's technological ability, we respectfully urge CAISO to do so in the near future as it will expand the pool of preferred resources that can meet FRACMOO requirements.

Going forward, we believe that other issues should be evaluated as CAISO and market participants garner experience with how DR and other resources can best provide the needed services. These may be best addressed as part of a working group process that includes CAISO, CPUC, and CEC staff. In particular, we have the following concerns, which should be noted in the final proposal, and directly addressed through a robust process that is attuned towards creating needed changes to auction processes.

Given that the market for Preferred Resources is emerging, while the utilization of fossil fuel resources is quite mature, we are concerned that rules and institutional bias will result in an over-procurement of fossil fuel resources counter to the loading order. To address this possibility, we recommend that if the primary resources relied on to meet the FRACMOO requirements turn out to be fossil fuels, the LSEs should be required to submit clear explanations as to why they were not able to secure sufficient Preferred Resources that meet FRACMOO criteria, so that it can be determined whether bidding mechanisms should be modified to draw in additional Preferred Resources. CAISO can then act on this intelligence, by, for instance, providing greater flexibility levels in terms of required service hours, resource combinations, and/or other factors.

Over time, CAISO should foster a market in which a wide variety of product characteristics and sizes can participate to provide the needed services. These could include activating time-variant tariffs to achieve load reductions during specific times or days, as well standalone and combined tranches of other types of demand response, storage, and other resources. In order to encourage market development and participation, we propose that a greater range of must-offer bidding hours be allowed, with different compensation levels attached to distinct bid tranches. For example, a minimum bid of two hours during specified time periods should be allowed at the lowest end, up to an eighteen hour bid at the highest

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end for regulation energy management, with these bids allowed to occur within a single time period. Likewise, providers should be able to bid distinct bundles of services on different days.

We encourage CAISO to look for opportunities to catalyze this market, through backstop procurement (see above), or as part of the design of the multi-year ahead auction proposal. In this respect, CAISO should be cognizant of how decisions made in the recently launched demand response proceeding might reveal additional types of resources that could potentially provide needed reliability services.

Lastly, we thank CAISO staff for their tireless work on this proposal, addressing concerns highlighted in previous comments, and for considering these comments.

## **ISO** Response

Considerations regarding various potential forms of aggregation is beyond the scope of the current stakeholder initiative. The ISO notes that this bundling does not appear to offer any benefit beyond what its market already delivers, e.g. the ISO market will "deliver...an offset to natural gas generation when DR is available" by dispatching demand response and dispatching natural gas down if this is economic.

The ISO is proposing to break-out the flexible capacity requirements into technology agnostic categories with specific offer-obligations for each category. Specific requirements that specific resource types be procured is up the local regulatory authority.

The ISO continues to explore opportunities for numerous different resource types. For example, see the ISO's DR roadmap. However, specific considerations for additional services are beyond the scope of the current initiative.

Company	Date	Submitted By
Dynegy Marketing and Trade	November 27,	Jason Cox, Dynegy
	2013	713-507-6413
		Jason.cox@dynegy.com
Dynegy supports the October 16, 201	3 WPTF comments a	and wants to reemphasize
preferences on the issues that are sti	Il under consideration	1:
<ul> <li>Counting rules for various class provides equity between the contri-</li> </ul>	sses of resources still ribution, the obligation	need to be resolved in a manner that and the compensation.
• We support the "adder method	d" for counting flexible	e performance.
<ul> <li>We continue to encourage allo does not support PG&amp;E's proposa selected allocation regime should</li> </ul>	ocation based on LSE al for allocation on no be consistent with th	e's coincident peak ramp. (WPTF n-coincident peak load.) The ISO's le ISO's overall FRAC drivers.
• Further refinement is needed they are incented to offer their flex bilateral contracting processes.	for combined heat an kible range into the IS	d power resources to ensure that O and to provide clarity for parties'
ISO Response		
Numerous stakeholders have comme complex, discriminatory, and may not operate the grid. As such, the ISO is into technology agnostic categories w categories should provide opportunitie provide flexible capacity. The catego the flexible capacity categories neede additional comments on this new prop	ented that resource/te provide the ISO with proposing to break-o vith specific offer-oblig es for all resources, in ries proposed are de ed to reliably operate posal as part of the ne	chnology specific offer-obligations are adequate flexible capacity to reliably but the flexible capacity requirements gations for each category. These ncluding preferred resources, to rived from a needs-based approach of the system.The ISO will be seeking ext revised straw proposal.
While still critical to the overall design defer additional development of the S allow more time to collect additional in capacity.	of flexible capacity n FCP to a later date on Formation to accurat	narketplace, the ISO is prepared to r subsequent stakeholder initiative to ely value the availability of flexible
The ISO is proposing an additional br	eak-out of the flexible	e capacity requirements into

technology agnostic categories with specific offer-obligations for each category. The ISO does not believe that this change to the requirements necessitates a revision of the ISO's proposed allocation methodology, but will seek additional stakeholder input as part of the next revised straw proposal.

See the responses to CHP parties comments for additional details regarding CHP resources

Dynegy comments specific to the 4th Revised FRACMOO Proposal:

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Physical test to determine Demand Response EFC (Section 6)

Dynegy supports using a physical test to determine the EFC of DR & recommends that the CAISO consider a look back to see if the DR actually performed as dispatched when committed for ramping needs.

# **ISO** Response

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

Must-Offer Obligation for Use-Limited Resources (Section 7.1.2)

The CAISO, not the Resource Owner (or SC) is the entity best positioned to optimize the use of a Use-Limited Resource, with input from the Resource Owner (or SC), taking into account all contractual obligations.

The MOO is problematic as the peak need for flexibility is October - March vs. peak energy need in June – September timeframe.

There is a chance that the MOO could result in exhausting a Use-Limited Resource's operating hours meeting ramping needs and not be available for the peak energy need, setting the resource owner (or SC) up for a capacity penalty.

How would CAISO reconcile the MOO for a Use-Limited Resource that was contracted for RA for the peak energy period (June – September); would it have a MOO for any period outside the RA contract period? Would it be for only the remaining available hours, equally distributed across the remaining months or specifically targeted at the most valuable remaining months?

# ISO Response

The ISO believes that allowing flexible capacity resources to include opportunity costs in their start-up and minimum load costs will provide SC for these resources with an additional tool to manage potential risks of reaching a monthly or annual use-limitation. However, the ISO will defer this part of the FRAC-MOO proposal to a later initiative.

Replacement Requirement for Exhausted Use-Limited Resources (Section 8.5.3)

Requiring Use-Limited Resources to be subject to a MOO then requiring them to replace the flexible capacity once exhausted is ridiculous and bad market policy in my view. Use-Limited Resources that exhaust their allowed operating parameters should be exempted from any penalty... or maybe the CAISO should share in the penalty since the optimization model messed up somewhere.

Potentially adding insult to injury, the Use-Limited Resource may be mitigated and forced to

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run until it exhausts its allowed operating hours (or emissions, starts, etc.) before the month is over, then be forced to replace the capacity or face a penalty! Let's just try to imagine the conversation with DMM on including those costs in the opportunity cost calculation.

# **ISO Response**

The ISO believes that allowing flexible capacity resources to include opportunity costs in their start-up and minimum load costs will provide SC for these resources with an additional tool to manage potential risks of reaching a monthly or annual use-limitation. However, the ISO will defer this part of the FRAC-MOO proposal, along with the replacement provisions to a later initiative.

Company	Date	Submitted By	
EnerNOC, Inc.	December 2, 2013	Mona Tierney-Lloyd Mtierney-lloyd@enernoc.com (415)238-3788	
2. The ISO believes that demand response resources should have the opportunity to provide flexible capacity. The ISO has proposed how demand response resources could do so. Please provide comments on the ISO's proposal. Specifically, please identify concerns with the ISO's proposal and offer potential solutions to these concerns. Additionally, please comment on the proper forum (ISO, CPUC, etc.) where these concerns should be addressed.			
EnerNOC very much appreciates the efforts that the CAISO has made to incorporate DR as a flexible capacity resource and recognize its operational characteristics relative to generation. EnerNOC's comments will focus on these aspects of CAISO's 4th Revised Straw Proposal: opportunity costs, use-limitations and replacements, testing and bundling of flexible and generic attributes.			
ISO Response			
No response required.			
3. Please provide comments and recommendations (including requested clarifications) regarding the ISO's proposed must-offer obligations for the following resources types:			
1. Demand response resources			
CAISO's proposed must-offer obl resources includes a requirement non-holiday weekdays either betw appreciates CAISO's proposal as	igation for DR resourd to bid into the day-al veen 7 AM and noon recognizing limitatior	ces to qualify as flexible capacity nead and real-time energy markets on or between 3 and 8 PM. EnerNOC ns for DR resources to be available to	
		Page 40 of 103	
Flexible Resource Adequacy Criteria and Must-Offer Obligation Comments on			
Fourth Revised Straw Proposal			

meet the peak ramping requirements on the system and when load is capable of providing reductions.

It was confusing, in the draft at page 40, wherein the CAISO references the ability for DR resources to utilize the "opportunity cost" methodology that was designated for use-limited gas-fired generation. However, in conversations with CAISO Staff, it was clarified that the reference to opportunity costs in the Straw Proposal for DR resources was an error. EnerNOC would appreciate that clarification in future drafts. Further, it would be helpful to also indicate that DR resources are not subject to a default bid. In essence, DR resources will be responsible for submitting hourly bids, which could be dynamic in nature. The CAISO will not mitigate those bids and the DR Provider will be responsible for documenting the variable costs associated with those bids. In other words, in addition to submitting daily and annual use limitations, DR resources will be dispatched based upon price if its offer price clears in the CAISO's optimization model and in excess of the net benefits test (NBT). EnerNOC will discuss the replacement proposal for use-limited resources below.

CAISO also proposed to use a random test, within the designated window, to determine the effective flexible capacity for DR resources. CAISO currently tests a generator's maximum capacity capability through a scheduled test<sub>2</sub>, not a random test. EnerNOC does not believe that a random test is the best way to determine the DR resource's EFC for several reasons:

i. If a DR Resource registers a certain amount of capacity, it is the resource owner's responsibility to provide that capacity or replace it or pay a penalty associated with the Standard Flexible Capacity Product (SFCP). Therefore, the DR resource owner's incentive is not to over-register capacity beyond its capability to perform.

ii. The DR Resource will be submitting bids reflecting the resources availability and ability to perform. Therefore, the bid parameters and the market clearing price will define the likelihood the DR resources will be dispatched. A random test could have no bearing as to market conditions, prices, etc.

iii. There is this perception that notification of an event is like cheating. However, the last thing you want for DR resources is for customers to be taken completely by surprise of a dispatch. What you do want is for there to be coordination between the ISO, the DR Provider and the customer to ensure the best performance possible. It is EnerNOC's responsibility to stay in very close contact with customers to give them the best possible information as to when and whether they will be dispatched. All a surprise dispatch would accomplish is a sense, from the customer, of a complete lack of communication across the board. It will produce a sub-optimal result for all involved.

#### **ISO** Response

The error noted here has been corrected.

Numerous stakeholders have commented that resource/technology specific offer-obligations are complex, discriminatory, and may not provide the ISO with adequate flexible capacity to reliably operate the grid. As such, the ISO is proposing to break-out the flexible capacity requirements

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into technology agnostic categories with specific offer-obligations for each category. These categories should provide opportunities for all resources, including preferred resources, to provide flexible capacity. The categories proposed are derived from a needs-based approach of the flexible capacity categories needed to reliably operate the system. As noted in the fifth revised straw proposal, the ISO anticipates that the offer obligations associated with each category of flexible capacity will be applied to all resources equally, regardless of the resource type.

The ISO's proposal for random testing is not designed to "take customers completely by surprise." Random testing simply implies that the ISO would randomly select a day and would provide day-ahead notice that a test event would occur the next day.

5. The ISO has proposed an SFCP evaluation mechanism/formula that weights compliance with the real-time must offer obligation heavier than the day-ahead must offer obligation. Please comment on:

a. The merits of using such a weighting mechanism relative to the "lesser of" proposal from the previous proposal

EnerNOC appreciates that CAISO has to balance the electricity market in real time and needs to have resources available to it in order to do so. However, the requirement for flexible resources is to bid into both the day-ahead and real-time markets. It would seem that meeting that obligation should be weighted equally. Having resources bid in the day-ahead gives CAISO advance notice of the resources that it will have available the following day, which should reduce some of the stress of finding resources to meet real-time needs. If the requirement is to do both, and resources meet both requirements, then the resource should be given equal weight for those actions. Otherwise, the CAISO could be skewing the incentive and the market response could result in resources not bidding into the day-ahead market and only bidding into the real-time market. Then, the CAISO won't have any idea what resources are really available until real time.

## **ISO** Response

As the ISO is proposing to defer the development of the SFCP, it is not necessary to make a determination on SFCP evaluation mechanism/formula or weights between the day-ahead and real-time must offer obligations. However, the ISO will reassess these comments prior to moving forward with the SFCP.

6. There were several clarifying questions asked at the 11/13 stakeholder meeting regarding substitution of flexible capacity that is on forced outage. Please provide comments and / or questions (and potential answers) regarding any additional clarifications the ISO should make in the next revision to clarify this aspect of the proposal.

This is the most troubling part of the proposal. CAISO recognizes that use limitations exists, for daily and annual purposes, but does not want to acknowledge that use limitation as it

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relates to monthly limitation by requiring the resource that has met a monthly use limitation to either replace the capacity or pay the penalty. EnerNOC has, in previous comments, raised the concern about the use-limitations being limited to only daily and annual limitations and not including a monthly limitation. Demand response resources generally do have monthly limitations for dispatch which are separate and apart from daily and annual use limitations. If a resource cannot have a monthly limitation, then it is possible to over-use the resource in any given month and fatigue the resource. But, without a monthly limitation, then the resource could hit a use limitation and, rather than honor that limitation, the resource would be required to pay a penalty or replace the capacity. Otherwise, the resource would have to use price to indicate its unavailability. EnerNOC suggests consideration of monthly use limitations instead. Even the CAISO has acknowledged that DR could be a super-ramping resource, which is only required about 5-6% of the time. This would be another way of utilizing DR resources, with monthly limitations, is to only require the resource to meet the super ramping requirements on the system

## **ISO** Response

The ISO has proposed to allow for the inclusion of monthly use-limitations, but, in any case, will defer developing replacement provisions to a subsequent stakeholder process along with the SFCP provisions.

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

Bundling of generic and flexible capacity for demand response is concerning. The CAISO has made a policy decision that they will not separate flexible capacity resources from generic resources for purposes of meeting the flexible capacity must-offer obligation. A resource would have to designate so much of its capacity as generic and so much of its capacity as flexible. A resource could not designate all of its capacity as flexible, however, it could designate all of its capacity as generic. This makes a lot of sense when the resource is the same generating facility or group of generating facilities. This does not make sense for DR. The generic obligation for DR is to be available during the summer months between 1 and 6 PM and be able to be dispatched for 3 consecutive days for four hours each day. The requirement for flexible capacity is a daily must-offer obligation between either 7 AM and noon or 3 and 8 PM. These are very different and specific resource obligations that would require EnerNOC to recruit very different customers to participation in either resource. EnerNOC would develop two distinct resources to meet either generic or flexible capacity requirements. We would not providing both generic and flexible resource attributes from the same pool of customers. Therefore, bundling the resources together for DR for purposes of determining compliance with either a SCP or an SFCP doesn't make any sense. EnerNOC requests consideration of that concern in a future draft.

Also, on page 40, the draft continues to reference a pool of customers that could be rotated to meet the daily flexible capacity availability requirements. However, the assumption is flawed because it assumes that there is a diversity of customers at a sub-LAP to allow rotation of customers within a pool to minimize fatigue. While CAISO has deferred the issue of flexible capacity dispatch on a DLAP-basis versus a SLAP-basis for purposes of FRACMOO, it is that design that limits the ability to aggregate across a larger area and to

incorporate diversity across that pool so as to minimize fatigue.

#### **ISO** Response

The ISO has proposed to require an SC to submit two RA showings for month-ahead and yearahead RA showings: One for system and local capacity and a separate showing for flexible capacity. Resources that are only on the flexible capacity showing will be subject to the flexible capacity must-offer obligations, resources on the generic, system and local, capacity showing will be subject to the generic system and local capacity must-offer requirements, and resources on both showings will be subject to both generic and flexible must offer requirements.

Company	Date	Submitted By
Iberdrola Renewables		Laura Beane
		laura.beane@iberdrolaren.com
Flexible Capacity Allocation Methodo	logy	
Iberdrola Renewables supports the procurement requirements to each jurisdictional Load-serving Entities proposal builds upon the existing necessary foundation in light of the develop and implement the FRAC flexible resource adequacy require generators is misguided and should designed to eliminate risk of free contract to an LSE subject to the resources are operated in the Cal costs onto renewable resources. would inevitably result in contract "grandfathering" arguments from Iberdrola Renewables supports ful flexibility requirements imposed of alternative approach raised at the potential free ridership problem if Iberdrola Renewables also suppon obligation associated with the LSI adequacy requirements and alloc – which pose no incremental intra- proper credit relative to renewable	the CAISO proposal to h Local Regulatory A s' contribution to the 3 generic and local Re- generic and local Re- generic and local Re- the aggressive schedu CMOO proposal. PG& ements to the Schedu Ud not be adopted. P- ridership from variabl FRACMOO proposal lifornia market and PO This proposal would a ual disputes, potentia some renewable devo urther exploration of a n the CAISO system e stakeholder meeting analysis demonstrate orts the CAISO's prop E's renewable contrate ation. This approach ahour ramping or bala e contracts within the	allocate monthly flexible capacity uthority in proportion to their 3-hour net-load ramp. The CAISO's source Adequacy framework – a le under which the CAISO seeks to & a alternative proposal to allocate uling Coordinators of renewable G&E argues this alternative is e generation output not sold under . Few merchant variable generation G&E's proposal will impose additional also add significant complexity and ally prompting controversial elopers with existing long-term PPAs. a separate mechanism to address from merchant generators (the on November 13th) to address the es this issue is significant. osal to factor the CAISO's balancing cts into the overall flexible resource will help to ensure renewable imports incing burden on the CAISO – receive CAISO footprint.

**ISO** Response

The ISO believes the latest allocation proposal accurately reflects causation of flexible capacity needs as based on a 3-hour net load ramp. The ISO is proposing an additional break-out of the flexible capacity requirements into technology agnostic categories with specific offer-obligations for each category. The ISO does not believe that this change to the requirements necessitates a revision of the ISO's proposed allocation methodology, but will seek additional stakeholder input as part of the next revised straw proposal.

#### Wind Unavailability Threshold

Under the CAISO's current proposal, wind generators selling flexible resource adequacy capacity bear consider financial risk associated with availability. Wind's variable nature will result in limited hours of unavailability during the flexible resource adequacy must offer hours of 5:00 a.m. to 10:00 p.m. To better accommodate the natural limitations of a variable, renewable wind resource, Iberdrola Renewables recommends the CAISO implement a 10% monthly unavailability threshold where wind generators will not be penalized if the wind forecast is flat and the resulting economic bid is less than the obligated quantity. Adopting this threshold will achieve the CAISO's stated goal of enabling renewable generators to contribute to the flexibility solution without unduly penalizing them for operational characteristics outside of their control. This defined threshold will improve the CAISO's ability to plan for reliable operation and wind's reduced contribution can be appropriately valued in the bi-lateral flexible resource adequacy market.

#### **ISO** Response

As noted in the fifth revised straw proposal, the ISO anticipates that the offer obligations associated with each category of flexible capacity will be applied to all resources equally, regardless of the resource type. The ISO is still considering the implications of any unavailability threshold. Further, such a matter is best addressed in the context of a standard flexible capacity product and, while still critical to the overall design of flexible capacity marketplace, the ISO is prepared to defer additional development of the SFCP to a later date or subsequent stakeholder initiative to allow more time to collect additional information to accurately value the availability of flexible capacity.

Company	Date	Submitted By
Independent Energy Producers Assoc ("IEP")	Nov 27, 2013	Steven Kelly Policy Director IEP 916-448-9499 steven@iepa.com
1. The ISO has outlined a methodology to allocate flexible capacity requirements to LRAs. As detailed in the fourth revised straw proposal and at the 11/13 stakeholder meeting PG&E has put forward an alternative allocation methodology. Please provide comments for each of these proposals, particularly as they relate to cost causation. If your organization has a preference for one over the other, please state your preference and why		
preference for one over the other, please state your preference and why With regards to current proposals to allocate flexible capacity requirements, IEP supports the CAISO proposal to allocate monthly flexible capacity procurement requirements to each Local Regulatory Authority ("LRA") in proportion to its jurisdictional Load-serving Entities' ("LSEs") contribution to the 3-hour net-load ramp. This approach aligns more closely with common, historical practice for securing needed capacity, e.g. the existing resource adequacy ("RA") program in which an obligation to procure both local and generic RA capacity currently is imposed on LSEs. In addition, the CAISO proposal aligns best with the current procurement practices in which the LRAs (e.g. CPUC or Local Governing Boards) direct their jurisdictional LSEs to procure sufficient resources to meet public policy objectives such as the statewide RPS. Altering this paradigm for purposes of the flexible capacity requirement would undermine procurement efficiency and consistency and, thereby, impose greater risks on overall electric grid reliability.		

On the other hand, the PG&E proposal to allocate flexible capacity requirements to each Scheduling Coordinator ("SC") simply has the effect of shifting an RA obligation onto the backs of preferred resources, i.e. Variable Energy Resources (VERs), that opt to serve as their own SCs, rather than relying on the utility to serve as the SC. This is impractical and unnecessary for the following reasons:

First, the PG&E proposal raises issues of fairness and concerns regarding undermining procurement policy and practices. While perhaps limited in scope, PG&E's proposal will impose additional costs on VERs in which the resource serves as its own SC. This is particularly problematic for VER resources that entered into a fixed price contract for a number of years after having been selected by a utility in its Least-Cost/Best-Fit ("LCBF") RPS procurement. Thus, this approach inequitably and unfairly places these resources in double-jeopardy or, alternatively, imposes additional unnecessary costs on these preferred resources. As a result, existing contracts would need to be grandfathered for their duration, and this would inevitably result in a bifurcated regulatory environment related to the flexible capacity obligation which will only complicate and undermine market and administrative efficiency.

Second, PG&E argues that its approach is necessary in order to mitigate the risk of "free ridership," particularly free ridership associated with a relatively small amount page of offeros from VEEx to the red source and international international internation of the red source and international international and the relatively small amount page of the red source and the relatively small amount page of the red source and the relatively small amount page of the red source and the relatively small amount page of the red source and the relatively small amount page of the red source and the relatively small amount page of the red source and the relatively small amount page of the red source and the red source an

share of flexible capacity obligations without undermining the progress made in RPS procurement over the years.

## **ISO** Response

The ISO believes the latest allocation proposal accurately reflects causation of flexible capacity needs as based on a 3-hour net load ramp. The ISO is proposing an additional break-out of the flexible capacity requirements into technology agnostic categories with specific offer-obligations for each category. The ISO does not believe that this change to the requirements necessitates a revision of the ISO's proposed allocation methodology, but will seek additional stakeholder input as part of the next revised straw proposal.

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 that demand response resources should have the opportunity to provide flexible capacity. The ISO has proposed how demand response resources could do so. Please provide comments on the ISO's proposal. Specifically, please identify concerns with the ISO's proposal and offer potential solutions to these concerns. Additionally, please comment on the proper forum (ISO, CPUC, etc.) where these concerns should be addressed.

See IEP Comments below in response to Question 8.

## **ISO** Response

See response below.

3. Please provide comments and recommendations (including requested clarifications) regarding the ISO's proposed must-offer obligations for the following resources types

See IEP Comments below in response to Question 8

#### **ISO Response**

See response below.

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

IEP supports the CAISO's active engagement in developing a Flexible Resource Adequacy Criteria and Must-Offer Obligation. Since the beginning of this stakeholder process, we have expressed our general support while awaiting full development of the

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concept/proposal. As a general matter, our view has been that the CAISO should focus on developing a specific product (or set of products) needed to meet the flexible operational requirements of the electric grid. In this regard, we have believed that the critical goal must be to: (a) define the flexible capacity operational needs and translate those needs into one or more products; (b) recognize that most, if not all, supply and demand resources have use limitations in one form or the other, which can and should be reflected in the Resources Master File; (c) recognize that use-limitations may hinder resource availability, whether the limitations of ERCs for gas-fired generators), but the goal should be to expand supply of bidders to the extent practical; and, (d) facilitate open, transparent competition between supply and demand resources to meet the flexible operational needs at the least-cost. Importantly, IEP believes these goals can and should be met in a non-discriminatory manner.

The CAISO began this process with the intent to develop a standard flexible capacity product (SFCP) for the CAISO markets, aligned with the CPUC's policies related to resource adequacy. In striving to achieve this outcome, the CAISO now proposes a SFCP including a Must-Offer Obligation. The SFCP is based on a 17-hour availability in order to cover two, 3-hour ramps forecast for each day. The SFCP imposes a Must-Offer Obligation ("MOO") for the duration of the 17-hour period, and the MOO includes a performance/availability obligation on all resources providing the standard product. Associated with this performance obligation is a so-called "incentive payment," i.e. penalty imposed on resources for non-performance.

As the CAISO has learned during this stakeholder process, the reality is that many resources, including "preferred resources," face individually and collectively myriad uselimitations. These use-limitations often effectively constrain individual resources (supply and/or demand) from meeting the availability requirements of a 17-hour SFCP product. In response, the CAISO has proposed a "rule-based" system in which the CAISO sets a SFCP performance obligation overall, but then establishes various 'rules' that essentially exempt specific resources (e.g. storage, DR, hydro.) from meeting the full availability requirement. While not required to meet the same performance obligation for the entire 17-hour obligation, the selected use-limited resources apparently will be fully counted (and apparently compensated) as if they were meeting the same performance obligations as other resources. It is important to note, that the magnitude of the penalty for non-performance/unavailability is many multiples of the revenue opportunity for being available and clearing the market. Hence, lessening the must-offer obligation for specific resource types pursuant to the CAISO's latest proposal provides a significant competitive advantage derived solely from the rule-based approach.

Ultimately, regarding the creation of a new product in a FERC-jurisdictional wholesale market, IEP suspects that the SFCP has to meet the following test: are all resources being treated in a non-discriminatory manner? For certain preferred resources, the CAISO's Fourth Straw Proposal relies on rule-based exemptions to meeting the SFCP product definition (i.e. 17-hour availability/continuous 3-hour ramp), while counting and compensating these preferred resources as if they were meeting 100% of the 17-hour flexible capacity must-offer obligation. IEP is increasingly concerned the CAISO's "rule-based" approach to implementing a SFCP risks discriminatory outcomes. Other parties

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have raised similar concerns in response to the CAISO's proposal -- see SCE Comments on Third Straw Proposal.

At this point, IEP offers two recommendations.

First, IEP recommends adding time to the current stakeholder process as needed to fully assess the market design being proposed. It serves no one's interest to have the SFCP proposal overturned at the FERC. This would impose at least a two year delay in implementing a flexible capacity product in California. Currently, the schedule has the staff presenting a final proposal for CAISO Board consideration and approval in February 2014. Given the holidays in November/December, and the heavily workload in January that always appears, we believe that a modest delay in this schedule is warranted; tackling the issue of potential discriminatory effects now is warranted even if it risks delaying CAISO Board consideration a few months.

Second, IEP recommends that the CAISO should consider more fully how best to align the product definition for a SFCP with the use limitations faced by resources, including the "preferred resources." Currently, as noted above, the proposal is to have a single product, and then create rules to facilitate greater participation of use-limited resources. Yet, this approach has raised concerns regarding discriminatory treatment.

Alternatively, the CAISO might consider further specification of the product or products sought to meet the multiple daily ramping requirements. For example, currently the CAISO seeks a single daily SFCP product based on a 17-hour availability to cover two discrete 3-hour ramps per day. This 17-hour availability requirement constitutes the basis of the proposed Must-Offer requirement. However, as noted by many in the stakeholder process, some resources may not be operationally capable of being available for a 17-hour requirement nor have the latent capacity to meet both 3-hour ramps during the day. To date, the CAISO has proposed "rules" to enable certain resources to count fully for flexible RA and get compensated accordingly, while recognizing that these resources are effectively avoiding the otherwise standard 17-hour availability/must-offer requirement.

Perhaps to start, the single product needs to be dis-aggregated into two discrete products, namely a "morning-availability SFCP" and an "afternoon-availability SFCP." This should enable various use-limited and/or preferred resources the opportunity to provide flexible capacity in the market based on their physical capabilities, and they would be accounted for accordingly in the marketplace. On the other hand, resources tested to be capable of meeting both products, i.e. morning and afternoon availability/ramp, also would be afforded a market-based opportunity to do so and realize the presumably associated higher value. By disaggregating a single product into two discrete product periods, the CAISO may obviate the need for designing a "rule-based" market with the concomitant claims of discrimination, while ensuring the availability of sufficient resources to meet the operational needs of the CAISO over the entire day.

#### ISO Response

Numerous stakeholders have commented that resource/technology specific offer-obligations are

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complex, discriminatory, and may not provide the ISO with adequate flexible capacity to reliably operate the grid. As such, the ISO is proposing to break-out the flexible capacity requirements into technology agnostic categories with specific offer-obligations for each category. These categories should provide opportunities for all resources, including preferred resources, to provide flexible capacity. The categories proposed are derived from a needs-based approach of the flexible capacity categories needed to reliably operate the system. The ISO will be seeking additional comments on this new proposal as part of the next revised straw proposal.

As the ISO is proposing to defer the development of the SFCP, it is not necessary to make a determination on SFCP evaluation mechanism/formula or weights between the day-ahead and real-time must offer obligations. However, the ISO will reassess these comments prior to moving forward with the SFCP.

The ISO has proposed a new schedule that proposes to seek Board approval in March.

Company	Date	Submitted By	
Large-scale Solar Association	November 27,	Rachel Gold,	
(LSA)	2013	Rachel@largescalesolar.org	
1. The ISO has outlined a methodology to allocate flexible capacity requirements to LRAs. As detailed in the fourth revised straw proposal1 and at the 11/13 stakeholder meeting PG&E has put forward an alternative allocation methodology. Please provide comments for each of these proposals, particularly as they relate to cost causation. If your organization has a preference for one over the other, please state your preference and why.			
The Large-scale Solar Association (LSA) has significant concerns with PG&E's alternative cost allocation methodology. Specifically, LSA is concerned with the suggestion that the allocation be used to directly attribute the costs of flexibility to individual generators in the case of merchant generator /non-CAISO loads or directly to scheduling coordinators. LSA can understand PG&E's interest in not wanting to carry costs associated with merchant generation/or non-CAISO loads but does not support this approach as it effectively is proposing a generator specific allocation across the board. As LSA has explained previously, this approach negates the fact that the flexibility requirements are based on multiple factors beyond the control of an individual generator, including the aggregate portfolio decisions made by individual load serving entities (LSEs), the state's renewable policy mandates and would be inconsistent with the allocation of other RA obligations. Furthermore, an individual generator is poorly positioned to assess and manage these still unknown costs and risks and doing so will likely be more costly than assigning these costs to the LSE (or in the case of CAISO's proposal to the Local Regulatory Authority), who can manage and balance those costs across a large portfolio.			
The logical and best place to address flexibility costs at the individual generator level is not in the FRAC and MOO but in the procurement process at the CPUC where LSA and others (including PG&E) have been advocating for the development of an integration adder. PG&E's proposal combined with the lack of an integration adder at the CPUC should not signal to the CAISO that it is advisable to allocate these costs directly to individual			
generators. Doing so is inefficient	, very likely not cost e	ettective and sets up the potential for Page 50 of 103	

a double hit for those generators once the CPUC establishes an integration adder.

Separately, LSA continues to have concerns that neither CAISO's proposed allocation methodology nor the proposed calculation of the flexibility requirement account for the ability of some variable energy resources to reduce flexibility needs (via existing economic curtailment provisions). LSA's recommendation about how the CAISO should properly account for these provisions is forthcoming.

# ISO Response

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.

The specific treatment of VER in the determination of the flexible capacity requirement is a subject for the flexible capacity requirement assessment. The ISO is has received LSA's comments on this matter and will address them further in that initiative.

Company	Date	Submitted By	
NGK Insulators, Ltd.	November 28, 2013	Edward G. Cazalet MegaWatt Storage Farms, Inc. ed@MegaWattSF.com 650-949-0560	
1. The ISO has outlined a methodology to allocate flexible capacity requirements to LRAs. As detailed in the fourth revised straw proposal and at the 11/13 stakeholder meeting PG&E has put forward an alternative allocation methodology. Please provide comments for each of these proposals, particularly as they relate to cost causation. If your organization has a preference for one over the other, please state your preference and why			
NGK has no preference with respect to the allocation of flexible capacity requirements to LRAs.			
However, NGK urges the CAISO to maintain the use of three-hour criteria as a benchmark for flexible capacity need evaluation and also to recognize that the need is for two ramps per day (a morning and an evening ramp). Resources that cannot ramp up and down twice per day when required should be granted a lower Effective Flexibility Capacity (EFC) than those that can ramp twice per day. Hydro resources are already required to provide six hours of storage to qualify as flexible capacity			
ISO Response			
Numerous stakeholders have comme	ented that resource/te	chnology specific offer-obligations are	

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complex, discriminatory, and may not provide the ISO with adequate flexible capacity to reliably operate the grid. As such, the ISO is proposing to break-out the flexible capacity requirements into technology agnostic categories with specific offer-obligations for each category. These categories should provide opportunities for all resources, including preferred resources, to provide flexible capacity. The categories proposed are derived from a needs-based approach of the flexible capacity categories needed to reliably operate the system. The ISO will be seeking additional comments on this new proposal as part of the next revised straw proposal.

2. The ISO believes that demand response resources should have the opportunity to provide flexible capacity. The ISO has proposed how demand response resources could do so. Please provide comments on the ISO's proposal. Specifically, please identify concerns with the ISO's proposal and offer potential solutions to these concerns. Additionally, please comment on the proper forum (ISO, CPUC, etc.) where these concerns should be addressed.

NGK supports the use of all flexible resources for meeting the ISOs dispatch flexibility needs. However, all resources are not equal in meeting the ISOs flexibility needs and those resources that provide lesser availability, responsiveness, and duration should be assigned a lower Effective Flexibility Capacity (EFC) than fully flexible, fully available, multi-hour, two-way storage resources. Since the baseline for demand response compensation typically involves estimation and many demand response programs have customer opt-out provisions; such factors need to be accounted for by downward adjustments to the demand response resource EFCs. And demand response resources should also be required to be aggregated to provide twice per day ramping up to 3 hours or be assigned a lower EFC if only once a day is provided

# ISO Response

Numerous stakeholders have commented that resource/technology specific offer-obligations are complex, discriminatory, and may not provide the ISO with adequate flexible capacity to reliably operate the grid. As such, the ISO is proposing to break-out the flexible capacity requirements into technology agnostic categories with specific offer-obligations for each category. These categories should provide opportunities for all resources, including preferred resources, to provide flexible capacity. The categories proposed are derived from a needs-based approach of the flexible capacity categories needed to reliably operate the system. The ISO will be seeking additional comments on this new proposal as part of the next revised straw proposal.

3. Please provide comments and recommendations (including requested clarifications) 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.

The Proposal awards a generator with a start-up time of up to 90 minutes with an EFC between zero and its NQC as limited by its ramp rate. Such a resource should not be

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awarded an EFC that is equivalent to a fast start generator or an always on, instantaneous dispatch resource such as battery storage.

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

NGK has no comment.

- a. Specialized must-offer obligations:
  - 1. Demand response resources

Demand response resources should be required to provide 3 hours of energy in both the morning and evening ramps and not just either the morning or evening net load ramp. If only one daily ramp is provided by a resource, their EFC should be reduced by about 50%.

2. Storage resources

The ISO is proposing that energy storage resources elect one of two options for providing flexible capacity and for determining their EFC: (1) Regulation Energy Management (REM) or (2) Fully Flexible Capacity (FFC).

REM requires only 15-minutes of energy storage. The Proposal is that FFC require at least 3 hours of storage. The Proposal awards the same EFC to both REM and FFC and both are paid the same incentive price. As we show below, this does not make sense.

The CPUC in its AB 2514 decision adopted a storage procurement target of 1,325 MW for 2020 (operation by 2024) for the three investor owned IOUs. Other Load Serving Entities (LSEs) in the ISO footprint will also have storage obligations. The total for all ISO LSEs would be approximately 1,500 MW. These storage targets are allocated to each LSE by year.

Under the ISO proposal the CPUC storage target may be interpreted as being satisfied by either the REM or the FFC storage as defined by the Proposal. REM 15-minute storage obviously will require less investment than 3-hour FFC storage; so LSEs may procure only REM 15-minute storage to meet their storage target.

Clearly, the ISO cannot effectively use 1.5 GW of 15-minute REM storage. Recognizing that fully flexible storage and generation also provide regulation services, the ISO at most, may efficiently use an additional 100 MW of 15-minute REM regulation capability by 2020; this would be about 7% of the 2020 LSE storage target. NGK therefore proposes that the contribution of storage REM to flexible capacity be capped at 7% of each LSEs annual storage obligation under AB 2514.

In previous comments NRG, SCE, and PG&E, have also questioned the basis for 15-minute REM storage as a flexible resource.

A FFC battery storage resource, as defined in the Proposal, with 3 or more hours of storage can provide nearly instantaneous (less than 1 second) ramping from its full negative Pmin

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charge state to its full Pmax MW discharge state for at least 3 hours. Typically this is about twice its 0 to Pmax range. Clearly, such flexibility needs to be recognized by setting the Effective Flexible Capacity (EFC) of fully flexible storage with 3 or more hours of storage at its negative Pmin to Pmax range. The current Proposal discriminates against such storage by only recognizing its EFC over its discharge MW range from 0 to Pmax.

The ISO has publically stated its concern with the increasing down ramp requirements. FFC storage with at least 3 hours of storage, will address both up and down ramps which is another reason to recognize is EFC over its full negative Pmin to Pmax range.

A fully flexible, 3-hour plus storage resource with twice a day capability will lift the mid-day belly of the ISO duck curve by charging as well as lower the evening head of the duck by discharging and thereby reduce the 3-hour net load ramp by is full negative Pmin to Pmax EFC. It will then reduce the down ramp in the late evening and absorb excess night energy. And by raising the early morning net load by charging and then discharging during the morning ramp and over the morning peak reduce the morning ramp and the need to commit more fossil generation.

And on another day, when 4-hour mid-day generic RA capacity is needed a 4-hour storage battery can be dispatched to meet an LSE RA capacity requirements. And when it is not dispatched to consume or produce energy it can provide regulation, other ancillary services, voltage support and 5-minute load following.

NGK therefore supports a requirement for FFC resources of both morning and evening ramps and not either morning or evening ramps with a total daily discharge requirement of six hours, just as the Proposal requires for hydro resources. Resources that cannot provide this six hour discharge (3 hours, twice per day) capability should be awarded a lower EFC.

#### **ISO** Response

Numerous stakeholders have commented that resource/technology specific offer-obligations are complex, discriminatory, and may not provide the ISO with adequate flexible capacity to reliably operate the grid. As such, the ISO is proposing to break-out the flexible capacity requirements into technology agnostic categories with specific offer-obligations for each category. These categories should provide opportunities for all resources, including preferred resources, to provide flexible capacity categories needed to reliably operate the system. The ISO will be seeking additional comments on this new proposal as part of the next revised straw proposal.

4. At the 11/13 stakeholder meeting there a significant amount of discussion regarding the appropriate method for setting the price for the proposed flexible capacity availability incentive mechanism. Please provide comments about how this issue might be resolved.

NGK suggests that the ISO clarify that the price for flexible capacity availability is intended as an incentive to offer this capacity into the ISO DA and RT markets for dispatch by the ISO. The incentive is not designed to incent the development of new or the retention of existing flexible capacity.

NGK suggests a modification to the proposal on the assignment of EFC to each resource. The assignment of the EFC has a significant impact on the required capacity availability incentive price.

The gold standard for flexibility should be the "perfect resource" rather than the "perfect generator". (This was advocated in previous comments by DECA). Such a perfect resource is a perfect storage resource with a negative Pmin and a positive Pmax. The EFC for this resource would be its (Pmax – Pmin). For example a 100 MW storage resource that can discharge and charge at 100 MW can provide 200 MW of flexible capacity. The "perfect resource" would ramp up or down over the full Pmax – Pmin MW range in less than 1 second. The perfect resource would have infinite storage, but as a practical matter 3 hours of storage dispatchable twice per day would be a reasonable current definition given the projected maximum ramping needs of the ISO. The required availability for discharge and charge and charge of this perfect resource would be all hours of the year.

If the perfect resource is to also provide Generic RA then it will need at least 4-hours of discharge capacity; once per day, three days in a row.

The perfect generator with zero Pmin, 24/7 availability, and full ramp in less than a second would be awarded an EFC of Pmax – Pmin MW where the Pmin is 0. This will be about 50% of a perfect storage resource EFC. Real generators, storage resources with less than 3 hours of energy storage dispatched twice per day, non-zero Pmin, slower startup and ramp, and lower availability, and the various DR resources each would be awarded an EFC that is percentage of the perfect storage EFC based on CPUC/ISO modeling studies.

The price for the proposed flexible capacity availability incentive should be relatively high for the perfect storage resource, and should be set so that all necessary flexible resources have the required availability incentive (flexibility price times the EFC) necessary to meet ISO flexible dispatch needs. Looking to current real-time market results at a time when the full impact of increased renewables is not yet in the market, and when the market currently has a capacity surplus, seems likely to underestimate the required price for Flexible RA.

Furthermore, with a surplus of Generic RA capacity, the incentive price for Flexible RA may become the primary capacity incentive and therefore need a relatively high incentive price.

#### **ISO Response**

While still critical to the overall design of flexible capacity marketplace, the ISO is prepared to defer additional development of the SFCP to a later date or subsequent stakeholder initiative to allow more time to collect additional information to accurately value the availability of flexible capacity.

While the ISO appreciates that fast ramping resources may provide additional benefits in terms of load following and even some inter-hour ramping needs, specific provisions to account for and address changes in the EFC calculations to account for these differences are beyond the scope of the current initiative.

5. The ISO has proposed an SFCP evaluation mechanism/formula that weights compliance with

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the real-time must offer obligation heavier than the day-ahead must offer obligation. Please comment on:

a. The merits of using such a weighting mechanism relative to the "lesser of" proposal from the previous proposal

NGK supports compliance with both day-head and real-time must offer obligations.

b. The relative weights between the real-time and day-ahead markets

NGK support the 80/20 proposed weights for real-time/day-ahead compliance

## **ISO** Response

As the ISO is proposing to defer the development of the SFCP, it is not necessary to make a determination on SFCP evaluation mechanism/formula or weights between the day-ahead and real-time must offer obligations. However, the ISO will reassess these comments prior to moving forward with the SFCP.

Company	Date	Submitted By
Northern California Power Agency (NCPA)	November 26, 2013	Tony Zimmer 916-781-4229 tony.zimmer@ncpa.com
1. The ISO has outlined a methodology to allocate flexible capacity requirements to LRAs.		

As detailed in the fourth revised straw proposal and at the 11/13 stakeholder meeting PG&E has put forward an alternative allocation methodology. Please provide comments for each of these proposals, particularly as they relate to cost causation. If your organization has a preference for one over the other, please state your preference and why

NCPA supports CAISO's proposed methodology for allocating Flexible Capacity Requirements as described in Section 5 of the fourth revised straw proposal. The methodology accurately reflects the principles of cost causation with respect to the factors contributing to the need for greater flexibility in the resource mix, and the allocation of responsibility to LSEs in accordance with their contribution to that need. NCPA further supports the CAISO determination regarding satisfaction of the responsibility by loadfollowing MSS entities.

## **ISO** Response

The ISO has proposed some minor changes to the allocation methodology in the latest straw

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proposal to mitigate the potential impact of anomalous data points.

3. Please provide comments and recommendations (including requested clarifications) 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.

The ISO made a number of changes between the third and fourth iterations of its straw proposal, and some of them were more extensive than would be expected this late in the stakeholder process. One such change was the CAISO's reversal of position on whether use-limited gas-fired resources offering flexible capacity would be required to provide substitute capacity if the CAISO exhausted the resource's use limitations during the relevant period (such as all the allowable starts in a month). The third iteration of the proposal did not contain such a requirement. NCPA believes that a gas-fired use-limited resource should be treated as having fully satisfied its Must-Offer Obligation when one or more of its use-limits have been reached during a defined period of time (based on the type of use-limit reached) for the balance of the defined period in which the resource is subject to a Must-Offer Obligation (e.g., a monthly period or annual period). If gas-fired, use-limited resources are subject to such a requirement, their owners will have some incentive to refrain from offering all of their use-limited resources to the CAISO in order to retain some flexible capacity as insurance in the event that they must provide substitute capacity. The CAISO's new approach could result in fewer gas-fired use-limited resources being made available to CAISO than otherwise. The CAISO should return to its previous position in order to encourage maximum participation of resources with the ability to offer flexible capacity.

However, if CAISO elects to adopt a FRAC-MOO framework including this changed requirement, NCPA requests that CAISO provide more clarity regarding how frequently CAISO will update its calculation of opportunity cost for each constraint a resource has defined. The CAISO states in its fourth revised straw proposal that "more frequent updates are anticipated if the resource's usage differs appreciably from what was projected in the model run, or if energy or fuel prices deviate appreciably from what was assumed in the original model run." Since the opportunity cost "adder" will be the main tool a resource may use to properly reflect its use-limitations, the frequency of updates to the opportunity cost adder will be a very important factor in the decisions generator owners make as to whether to make a flexible resource available to the CAISO as flexible capacity. In addition, to ensure that a use-limited resource is not prematurely exposed to replacement requirements, NCPA requests that CAISO further describe what factors would be considered "appreciable differences" that would trigger a recalculation of the opportunity cost.

#### **ISO Response**

While still critical to the overall design of flexible capacity marketplace, the ISO is prepared to defer additional development of the SFCP to a later date or subsequent stakeholder initiative to allow more time to collect additional information to accurately value the availability of flexible capacity. The ISO believes that allowing flexible capacity resources to include opportunity costs in their start-up and minimum load costs will provide SC for these resources with an additional tool to manage potential risks of reaching a monthly or annual use-limitation. However, the ISO will defer this part of the FRAC-MOO proposal to a later initiative. Along with deferring the opportunity cost provisions, the ISO will also defer specific rules for replacement and substitute capacity for flexible capacity on outages (planned or forced).

5. The ISO has proposed an SFCP evaluation mechanism/formula that weights compliance with the real-time must offer obligation heavier than the day-ahead must offer obligation. Please comment on:

b. The relative weights between the real-time and day-ahead markets

NCPA believes that the economic bids from the day-ahead market and the real-time market should be equally weighted at 50% day-ahead and 50% real-time. The proposed Must-Offer Obligation applies equally to both day-ahead and real-time, therefore a balanced weighting is logical. Also, long start units are not required to bid into the real-time market, so it seems more equitable that economic bids submitted into each market are weighted equally

# **ISO** Response

As the ISO is proposing to defer the development of the SFCP, it is not necessary to make a determination on SFCP evaluation mechanism/formula or weights between the day-ahead and real-time must offer obligations. However, the ISO will reassess these comments prior to moving forward with the SFCP.

Company	Date	Submitted By
NRG Energy, Inc. ("NRG")	November 27,	Brian Theaker
	2013	brian.theaker@nrgenergy.com
		530-295-3305

1. The ISO has outlined a methodology to allocate flexible capacity requirements to LRAs. As detailed in the fourth revised straw proposal1 and at the 11/13 stakeholder meeting PG&E has put forward an alternative allocation methodology. Please provide comments for each of these proposals, particularly as they relate to cost causation. If your organization has a preference for one over the other, please state your preference and why.

As NRG understands it, PG&E's allocation methodology proposal is intended to address the following issues that arise under the CAISO's Fourth Revised Straw Proposal: (1) the fact that some non-CAISO LSEs with variable resources in the CAISO's balancing authority area

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may be "leaning" on the flexible capacity in the CAISO Balancing Authority Area, but would not be allocated a flexibility requirement because they are not serving load in the CAISO BAA, and (2) allocating the flexibility requirement solely on the basis of an LSE's contribution to the maximum monthly coincident ramp, while not recognizing any need from flexibility that may arise apart from the maximum monthly coincident ramp.

NRG, as a non-LSE, is not directly affected by the differences in these allocation proposals. However, with regards to issue (1), NRG would agree with PG&E that non-CAISO LSEs whose variable energy resources within the CAISO BAA should be allocated a flexibility requirement to address the "free rider" problem. With regards to issue (2), NRG is not yet persuaded that modifying the allocation mechanism to incorporate flexibility needs that arise from periods other than the monthly coincident peak ramping period is necessary, as (1) it does not expect that LSEs' load shapes will be radically different and (2) the level of the CAISO's flexibility requirement still will be driven by the maximum coincident peak ramp.

#### **ISO** Response

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.

The ISO believes the latest allocation proposal accurately reflects causation of flexible capacity needs as based on a 3-hour net load ramp. The ISO is proposing an additional break-out of the flexible capacity requirements into technology agnostic categories with specific offer-obligations for each category. The ISO does not believe that this change to the requirements necessitates a revision of the ISO's proposed allocation methodology, but will seek additional stakeholder input as part of the next revised straw proposal.

2. The ISO believes that demand response resources should have the opportunity to provide flexible capacity. The ISO has proposed how demand response resources could do so. Please provide comments on the ISO's proposal. Specifically, please identify concerns with the ISO's proposal and offer potential solutions to these concerns. Additionally, please comment on the proper forum (ISO, CPUC, etc.) where these concerns should be addressed.

Preferred resources, including demand response, should have the opportunity to provide flexible capacity. However, as it stands, the CAISO's proposal would impose much different (far less stringent) offering obligations on demand response resources than would be imposed on other resources providing the very same flexible capacity product.

Having different performance requirements for the same product will not facilitate standardizing that product, nor will it lead to developing consistent ways to value that product.

Whether these concerns are addressed at the CPUC or at the CAISO is a secondary matter, as long as the CAISO, CPUC and market participants are all involved in the discussions.

#### **ISO Response**

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Numerous stakeholders have commented that resource/technology specific offer-obligations are complex, discriminatory, and may not provide the ISO with adequate flexible capacity to reliably operate the grid. As such, the ISO is proposing to break-out the flexible capacity requirements into technology agnostic categories with specific offer-obligations for each category. These categories should provide opportunities for all resources, including preferred resources, to provide flexible capacity categories needed to reliably operate the system. The ISO will be seeking additional comments on this new proposal as part of the next revised straw proposal.

3. Please provide comments and recommendations (including requested clarifications) 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.

The CAISO's proposal to calculate and apply energy and start-up opportunity costs in an attempt to ration the use of use-limited resources that are providing flexible capacity is reasonable, assuming that the calculated energy and start-up opportunity costs are reasonable.

NRG is concerned about the CAISO's proposal to levy Standard Flexible Capacity Product (SFCP) penalties against use-limited resources that become unavailable because they reach monthly or annual use limits.

While the opportunity cost adders are intended to prevent use-limited resources from reaching their use limits prematurely, these adders cannot guarantee that they will accomplish their intended goal, nor can the CAISO guarantee that the resources' use limits will not be used up through exceptional dispatch. If the resource is bidding in accordance with the adders developed by the CAISO, the CAISO should not apply SFCP to resources whose use limits are reached as a result of exceptional dispatch.

- b. Specialized must-offer obligations:
- 1. Demand response resources
- 2. Storage resources
- 3. Variable energy resources

All resources, including preferred resources, should have the same offering obligation and performance requirements for providing the same product (flexible capacity). NRG opposes affording different, less stringent offering and performance obligations for certain resources. To the extent that certain resources cannot provide the same type and duration of flexibility service as other resources, some mechanism (e.g., adjustment to those resources' EFC) is needed to differentiate the value of the flexibility those resources provide. Absent such

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mechanisms, there will be nothing to differentiate the quality of flexibility service provided, especially if the offering obligations are not consistent across technologies.

## **ISO** Response

While still critical to the overall design of flexible capacity marketplace, the ISO is prepared to defer additional development of the SFCP to a later date or subsequent stakeholder initiative to allow more time to collect additional information to accurately value the availability of flexible capacity.

The ISO believes that allowing flexible capacity resources to include opportunity costs in their start-up and minimum load costs will provide SC for these resources with an additional tool to manage potential risks of reaching a monthly or annual use-limitation. However, the ISO will defer this part of the FRAC-MOO proposal to a later initiative.

Numerous stakeholders have commented that resource/technology specific offer-obligations are complex, discriminatory, and may not provide the ISO with adequate flexible capacity to reliably operate the grid. As such, the ISO is proposing to break-out the flexible capacity requirements into technology agnostic categories with specific offer-obligations for each category. These categories should provide opportunities for all resources, including preferred resources, to provide flexible capacity categories needed to reliably operate the system. The ISO will be seeking additional comments on this new proposal as part of the next revised straw proposal.

4. At the 11/13 stakeholder meeting there a significant amount of discussion regarding the appropriate method for setting the price for the proposed flexible capacity availability incentive mechanism. Please provide comments about how this issue might be resolved.

As NRG has shared in prior comments, both written and at the meetings, NRG perceives from discussions with possible RA counterparties that LSE buyers currently place little, if any, incremental value on flexibility as an attribute.

NRG is sympathetic to the CAISO's desire to have an SFCP value defined before the presumed implementation of flexible capacity requirements for RA year 2015. And while NRG has found the CAISO's mathematical exercises that attempt to assign such a value to be interesting, though NRG strongly believes that the proposed SFCP values that those exercises have yielded to be very far – an order of magnitude, at least - above the perceived value of flexibility.

In the spirit of exploration, NRG offers its own mathematical exercise deriving a possible SFCP value. The combined 2014 MW-month flexible capacity requirement from Figure 2 of the Fourth Revised Straw Proposal totals 108,531 MW-months. As NRG understands, the total value paid out through the Flexi-Ramp Constraint in 2012 was approximately \$21 million. Understanding the temporal disconnect between the 2012 FRC value and the 2014 projected flexible capacity requirements, dividing the 2012 FRC value by the 2014 capacity requirement yields a value of \$193/MW-month, which translates to approximately \$2.32/kW-year, or approximately \$0.19/KW-month. This value seems much closer to NRG's anecdotal

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sense of the current value of flexibility.

If the true purpose of the SFCP is to provide an appropriate financial incentive for parties to make flexible capacity available to the CAISO, and the SFCP is not intended to derive a surrogate figure for the value of RA capacity prior to the implementation of RSA, NRG would support Doug Parker's suggestion of convening a work group to try to negotiate such a value. The current SCP penalty – the CPM rate – is almost certainly well above the going rate for system, and even most local, RA capacity. NRG is not eager to create a second penalty rate that suffers from that same feature.

## **ISO** Response

The ISO greatly appreciates the efforts of NRG to propose an SFCP pricing mechanism. While still critical to the overall design of flexible capacity marketplace, the ISO is prepared to defer additional development of the SFCP to a later date or subsequent stakeholder initiative to allow more time to collect additional information to accurately value the availability of flexible capacity. At that time, the ISO will reevaluate NRG's proposal.

5. The ISO has proposed an SFCP evaluation mechanism/formula that weights compliance with the real-time must offer obligation heavier than the day-ahead must offer obligation. Please comment on:

a. The merits of using such a weighting mechanism relative to the "lesser of" proposal from the previous proposal

b. The relative weights between the real-time and day-ahead markets

As is noted below, while NRG would agree that the CAISO markets would be more efficient and liquid if the amount of self-scheduling decreased, NRG views self-scheduling as a necessary evil under some conditions (e.g., to avoid unfavorable outcomes for MSGmodeled units). As a result, NRG from time to time self-schedules its resources, primarily in the real-time market. As a result, NRG is concerned about the CAISO's proposal that a resource that self-schedules is deemed unavailable from a flexibility standpoint, and further concerned that the CAISO is placing four times the weight for self-scheduling in the real-time market as in the Day-Ahead market.

## **ISO** Response

While still critical to the overall design of flexible capacity marketplace, the ISO is prepared to defer additional development of the SFCP, including specific availability criteria, to a later date or subsequent stakeholder initiative to allow more time to collect additional information to accurately value the availability of flexible capacity.

6. There were several clarifying questions asked at the 11/13 stakeholder meeting regarding substitution of flexible capacity that is on forced outage. Please provide comments and / or questions (and potential answers) regarding any additional clarifications the ISO should make in the next revision to clarify this aspect of the proposal.

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NRG supports allowing parties to substitute other flexible resources for flexible resources that become unavailable so as to avoid incurring SFCP penalties. However, there are problems inherent in the ways the CAISO currently provides for substitution, namely, (1) the CAISO's inability to allow for more than one substitution from a single resource, regardless of the amount of un-contracted capacity available on that substituting unit, and (2) requiring capacity within a local area that is sold as *system* capacity to be replaced with *local capacity*. These limitations unnecessarily interfere with providing substitute capacity. In crafting the rules for allowing for substitution of flexible capacity, the CAISO must not impose similar kinds of limitations on the provision of substitute flexible capacity.

## **ISO** Response

The ISO is deferring any specific substitution and replacement provisions to a subsequent stakeholder initiative and will consider these comments at that time.

7. Please provide comments regarding how, or if, the SFCP adder price and the flexible capacity backstop price should be related.

It is not clear that they should be. Arguably, these two prices should be related if the CAISO would always procure backstop replacement flexible capacity for unavailable flexible capacity. However, the CAISO is not proposing this, nor is NRG advocating it. Because these two things do not appear to be linked, the SFCP penalty rate would seem to serve primarily as an incentive to make flexible capacity available to the CAISO. As an incentive rate, not as the cost of replacement, the SFCP penalty rate could be very different from the backstop replacement rate.

## **ISO** Response

The ISO proposes to use the same price for the backstop procurement of flexible capacity as it uses for the procurement of generic system and local capacity under its capacity procurement authority. This pricing scheme will remain in effect until the ISO replaces its capacity procurement mechanism, which expires in February 2016. Additionally, while still critical to the overall design of flexible capacity marketplace, the ISO is prepared to defer additional development of the SFCP to a later date or subsequent stakeholder initiative to allow more time to collect additional information to accurately value the availability of flexible capacity. The final relationship between the SFCP and long-term backstop price at that time.

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

Yes.

**Flexibility as spot market operational attribute instead of forward-procured capacity attribute.** The CAISO is advocating procuring flexibility through forward capacity procurement, rather than through its spot energy and ancillary service markets. NRG is well aware of the CAISO's position that forward procurement of reliability services is necessary

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to ensure that the capability exists at the time when it will be needed. Yet, in light of the increasing complexity of the CAISO's FRACMOO proposal, NRG still holds it would be preferable to use well-designed spot markets to facilitate the provision of flexibility.

**SFCP will impose additional risks and costs on suppliers.** NRG is concerned that the current direction the CAISO is taking with FRACMOO will impose additional costs and risks on parties that supply flexibility for which those parties will not receive commensurate compensation. In NRG's experience, while LSEs are increasingly requiring that RA suppliers bundle a resource's flexibility attributes with its RA attributes, there is no evidence that LSEs have increased or are willing to increase RA prices to reflect acquiring the flexibility attribute along with the generic capacity attribute. As the SFCP is implemented, suppliers will be taking on additional penalty risk, for which the prospects of earning higher RA prices seem unclear at best. Further, while NRG agrees that the CAISO's markets would be more liquid and efficient if all parties submitted in those markets through economic bids and not self-schedules, NRG nevertheless views self-schedules as a necessary evil under some conditions to protect against unfavorable CAISO market actions or outcomes.

Considering all these things together, NRG sees the imposition of the proposed FRACMOO and SFCP rules as a move towards a world in which NRG and other flexibility suppliers will take on additional risk (SFCP and market risk) for which the prospects of receiving additional payment are unclear at best.

#### **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.

While still critical to the overall design of flexible capacity marketplace, the ISO is prepared to defer additional development of the SFCP to a later date or subsequent stakeholder initiative to allow more time to collect additional information to accurately value the availability of flexible capacity.

Company	Date	Submitted By
PG&E		
		Marie Fontenot (415) 973-4985
		Peter Griffes (415) 973-3335
Opening Comments		

PG&E chief comments are:

- 1. The flexibility requirement caused by Variable Energy Resources (VERs) needs to be allocated to VERs;
- 2. The allocation load-driven requirement should be based on each LSE's largest, non-

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coincident ramp;

- 3. The flexibility Adder is already included in the CPM price of \$67.50;
- 4. The frameworks proposed thus far by the CAISO to determine the flexibility Adder have been insufficient; and
- 5. The CAISO should expand the conditions for outage substitution.

# ISO Response

See responses below

1. The ISO has outlined a methodology to allocate flexible capacity requirements to LRAs. As detailed in the fourth revised straw proposal1 and at the 11/13 stakeholder meeting PG&E has put forward an alternative allocation methodology. Please provide comments for each of these proposals, particularly as they relate to cost causation. If your organization has a preference for one over the other, please state your preference and why.

PG&E appreciates the continued dialogue and work on this element of the initiative. As discussed during the November 13, 2013 stakeholder meeting, there are two elements of the allocation methodology that must be addressed: allocation to load and allocation to VERs.

- 1. PG&E believes the flexibility requirement caused by VERs output should be allocated to VERs.
- 2. PG&E believes allocation to load should be done based on each LSE's largest monthly ramp, regardless of coincidence to net-load peak ramp.

## ISO Response

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.

As explained in the fourth revised straw proposal the ISO believes that the flexible capacity requirement has been defined based on the maximum three-hour net-load ramp. As such it is most appropriate to reasonably allocate to the LRAs based on their jurisdictional LSEs' contribution to the maximum three-hour net-load ramps, not an individual LRA's peak. Additionally, as further explained in the fourth revised straw proposal, allocating to LRAs based on their individual peak may not provide incentive for LRAs to reduce during peak three-hour net load ramps, when the flexibility need is greatest.

Flexibility Requirement Caused by VERs Output Should be Allocated to VERs

PG&E supports allocating the flexibility requirement caused by VERs to VERs. An allocation to VERs is fair, helps create efficient procurement outcomes and does not put at risk grid reliability.

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As discussed in PG&E's previous comments, allocation of the flexibility requirement of merchant VERS or VERs with non-CAISO off-takes to CAISO participants is unjust and unreasonable. Other control areas, such Puget Sound Energy (Puget)<sup>3</sup> and Westar Energy<sup>4</sup> have recognized the need to fairly allocate the fixed capacity costs associated with regulation services. Puget developed FERC-approved regulation services charges for generators that include the capacity cost of resources needed to balance intermittent generation. These costs are allocated by Puget to generators that export their power or serve the energy needs inside the control area. The CAISO should take a similar approach in allocating flexibility requirements to generators that export their energy or serve CAISO load.

The allocation of the flexibility requirement to VERS will also promote efficient procurement outcomes. If the true cost of VERs is allocated to VERs, then these costs will be reflected in their offers to energy and capacity solicitations. This means that the true costs will be reflected in the offers, and the procurement will be based on a more accurate cost basis resulting in better procurement decisions.

Moreover, having these costs correctly accounted is also fairer to competing resource technologies that have lower or little flexibility requirement costs.

Allocation of the flexibility requirement to VERs will not put at risk grid reliability. One possible solution suggested at the stakeholder meeting to eliminate the possibility of CAISO load procuring flexibility on behalf of non-CAISO load was for the CAISO to remove the generation and variability produced by VERs from non-CAISO off-takers from the requirement calculation. This is a fundamentally flawed approach. Either the CAISO needs the flexibility or it does not. The requirement does not disappear simply because there is a non-CAISO off-taker (assuming the generator is not dynamically metered). If the requirement is needed for reliable grid operations, then it should be procured. Artificially reducing the requirement puts the CAISO's reliability at risk.

Finally, the issue of grandfathering for VERs is irrelevant. This is a new requirement for both load and generators to better reflect the changing energy market. The CAISO is not seeking to eliminate an established CAISO settlement calculation. The fair allocation of this new requirement to all participants (load and generation) needs to be considered. This is similar to the approach taken in the FERC settlement for the Flexible Ramping Constraint cost. Like the flexible capacity requirement, this was a new cost. The issue of cost allocation among load and generation was considered in the settlement, and generators are allocated that portion of the cost that was determined attributable to them (25%).<sup>5</sup> Similar to the Flexible Ramping Constraint, a portion of the flexibility requirement should be allocated to

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<sup>&</sup>lt;sup>3</sup> Puget Sound Energy's Compliance Filing Regarding Revisions to Settlement and Submission of Schedules 3 and 13 of Puget Sound Energy, Inc.'s Open Access Transmission Tariff, Feb. 6, 2013. <u>http://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=13173234</u>

<sup>&</sup>lt;sup>4</sup> Westar Balancing Area Services Agreement and Schedule 3A to Open Access Transmission Tariff, June 3, 2009. <u>http://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=12041334</u>

<sup>&</sup>lt;sup>5</sup> CAISO Fifth Replacement Tariff, Section 11.25.3. http://www.caiso.com/Documents/Section11\_CaliforniaISOSettlements-Billing\_Nov1\_2013.pdf

the generators causing the requirement.

#### **ISO** Response

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.

Allocation to Load Should be Done Based on Each LSE's Largest Monthly Ramp, Regardless of Coincidence to Net-Load Peak Ramp

PG&E maintains that the principled framework laid out in our comments on the Third Revised Straw is preferred over the CAISO's allocation based on ramps coincident to the system net load ramp. Our description referred to "free-ridership" which we intended to mean one LSE benefiting from the flexible capacity procured by another LSE and not sufficiently contributing to the procurement of flexible capacity as we showed can happen using the coincident peak approach.

Regardless of what we call this consequence, the fact is, as shown in the simple example in our previous comments, a fairness issue exists with the coincident approach. A non-coincident approach addresses this flaw.

PG&E believes that entities benefitting from procured flexibility should be required to pay a portion of the procurement costs, just as entities benefitting from the investment of transmission are required to pay for a portion of the costs of that transmission<sup>6</sup>. This is the key underlying argument of PG&E's proposed allocation methodology – that all entities will utilize and benefit from procured flexible capacity, regardless of their contribution to the coincident system net load ramp.

## **ISO** Response

As explained in the fourth revised straw proposal the ISO believes that the flexible capacity requirement has been defined based on the maximum three-hour net-load ramp. As such it is most appropriate to reasonably allocate to the LRAs based on their jurisdictional LSEs' contribution to the maximum three-hour net-load ramps, not an individual LRA's peak. Additionally, as further explained in the fourth revised straw proposal, allocating to LRAs based on their individual peak may not provide incentive for LRAs to reduce during peak three-hour net load ramps, when the flexibility need is greatest.

2. The ISO believes that demand response resources should have the opportunity to provide

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<sup>&</sup>lt;sup>6</sup> FERC Transmission Planning and Cost Allocation by Transmission Owning Utilities, Notice of Proposed Rulemaking, Issued June 17, 2010, Docket RM10-23-000, p79-80. <u>http://www.ferc.gov/whats-new/comm-meet/2010/061710/E-9.pdf</u>

flexible capacity. The ISO has proposed how demand response resources could do so. Please provide comments on the ISO's proposal. Specifically, please identify concerns with the ISO's proposal and offer potential solutions to these concerns. Additionally, please comment on the proper forum (ISO, CPUC, etc.) where these concerns should be addressed.

## An Example of the Proposed Calculation of Opportunity Cost for Demand Response Resources is Necessary

The CAISO's plan to calculate opportunity cost for Demand Response (DR) resources requires additional clarification. The cost of interrupting customers will vary on a customer by customer basis, by time of day, season, and frequency of usage. For this reason, a single, simple calculation seems inadequate to address the unique characteristics of these resources. PG&E requests an example of calculating opportunity cost for DR in the Draft Final Proposal.

## Testing Demand Response Resources is the Responsibility of the CPUC

PG&E also notes that the CAISO's plan for testing DR appears to be a duplicative effort. Determination of EFC for DR is currently being addressed in Phase 3 of the CPUC's R.11-10-023. The CAISO should allow the CPUC's regulatory process to conclude rather than address it in the FRAC-MOO stakeholder process. Should the CAISO insist on moving forward on this duplicative provision, the test event should not be random as the CAISO has stipulated in its proposal. The discretionary load of a demand response resource may vary throughout the day so a random test event will often yield an inaccurate result.

## **ISO** Response

The ISO believes that allowing flexible capacity resources to include opportunity costs in their start-up and minimum load costs will provide SC for these resources with an additional tool to manage potential risks of reaching a monthly or annual use-limitation. However, the ISO will defer this part of the FRAC-MOO proposal to a later initiative. However, the ISO will not seek to apply the opportunity cost provisions to DR resources.

The ISO is working collaboratively with the CPUC to align the goals and criteria for flexible capacity. However, ultimately, the ISO will be charged with calculating the EFC for all resources in order to release the draft and final EFC lists.

3. Please provide comments and recommendations (including requested clarifications) 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

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resources with use-limitations to include the opportunity costs in the resource's default energy bid, start-up cost, and minimum load cost.

# An Interim Availability of a Hard-Stop Option Alternative is Needed Due to the Complexity and Uncertainty of the Opportunity Cost Methodology

PG&E understands the challenging considerations and trade-offs associated with the CAISO's proposed selection of an opportunity cost methodology to best allow market participants to manage the scheduling and dispatch of dispatchable gas-fired use-limited resources in conjunction with the Flexible RA bidding obligations. Each of the outlined options (no must-bid obligations, the use of hard-stops, opportunity cost methodology) have benefits and limitations.

While not objecting to the selection of the opportunity cost methodology, PG&E is concerned about the complexity and development time. The proposal indicates that "the ISO plans to develop a unit commitment optimization model based on the proposed methodology presented by the Market Surveillance Committee"<sup>7</sup>, however PG&E highlights that the MSC's own assessment indicates that "opportunity costs are difficult to estimate...", "this calculation would be complex, costly...", and that there are "practical challenges involved in the design and implementation".<sup>8</sup>

Given the complexity, PG&E recommends that the CAISO offer an interim use of the hardstop alternative as an available option for market participants if there are unforeseen difficulties that preclude the timely implementation by the CAISO of a robust and accurate opportunity cost methodology.

## The Proposed Opportunity Cost Methodology Should Include a Negotiated Option

Given the difficulty of the opportunity cost methodology, market participants should further be allowed the option of using a negotiated option to establish cost adders, rather than restricted to the use of CAISO (or Potomac Economics) established values that are otherwise lower than those believed to be appropriate by the market participant. A similar process currently is provided with default energy bids.

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

2. Storage resources

Energy Storage Resources' EFCs Should Reflect the Total Energy Provided by these

<sup>7</sup> FRAC-MOO Fourth Revised Straw Proposal, page 35.

http://www.caiso.com/Documents/FourthRevisedStrawProposal-

FlexibleResourceAdequacyCriteriaMustOfferObligation.pdf

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<sup>&</sup>lt;sup>8</sup>Market Surveillance Committee Opinion on Bid Cost Recovery Mitigation Measures and Commitment Costs Refinement, May 7, 2012. http://www.caiso.com/Documents/MSCFinalOpinion-BidCostRecoveryMitigationMeasures\_CommitmentCostsRefinement.pdf

#### **Resources**

PG&E remains opposed to the CAISO's plan to allow energy storage resources to seemingly qualify for an undue amount of flexibility (i.e. equal to nameplate rating) for those resources that provide regulation energy management. This element of the proposed market design is likely to result in hundreds of MW of regulation energy management in excess of what the CAISO needs to run its system. At a minimum, any storage resource providing regulation energy management should count as no more than one-twelfth of its nameplate rating, based on the three-hour energy requirement applied to other resources. This is the appropriate measure since this resource will be providing fifteen minutes (one quarter of an hour) of energy, based on PG&E's understanding that resources must be able to ramp to and sustain their output for three hours to qualify.

Such an approach would be consistent with concerns raised at the Market Surveillance Committee meeting on November 15, 2013 that these specialized MOOs may unfairly overvalue use-limited resources.

3. Variable energy resources

The MOO for VERs Requires Additional Clarification

The MOO for variable energy resources (VERs) requires additional language and clarity in the Draft Final Proposal for this initiative. There are a number of elements yet to be addressed. PG&E requests clarification of the following points in the Draft Final Proposal:

- How will the EFC for VERs be calculated? What is the VER's EFC related to its NQC?
- What are the substitution rules for VER unavailability?
- Define the relationship between energy storage and VERs. Specify, how will the EFC for VERs with on-site storage be calculated?

Since the eligibility and counting of VERs for to provide flexibility has not yet been determined, it is impossible to tell whether the proposed must-offer obligations are appropriate.

PG&E also has questions related to the CAISO's proposal to treat VERs by counting availability as the lower of the bid or the resource's forecast. This elicits a number of operational questions.

- Following the CAISO's example on page 43 of the Proposal, if a VER forecasted 10MW of flexible capacity in the day-ahead, but only 0MW in real-time it is unclear whether or not that resource would be subject to the incentive mechanism.
- Are flexible VERs allowed to provide substitute flexible capacity in the real-time and what are the rules for this substitution?
- PG&E notes that if existing real-time substitution rules are required to avoid incentive

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mechanism penalty charges, it is unlikely that that flexible VERs will be claimed to meet flexible capacity.

## **ISO** Response

The ISO believes that allowing flexible capacity resources to include opportunity costs in their start-up and minimum load costs will provide SC for these resources with an additional tool to manage potential risks of reaching a monthly or annual use-limitation. However, the ISO will defer this part of the FRAC-MOO proposal to a later initiative. In the interim, the ISO has proposed use-limited resource be required, consistent with their applicable use-limitations, to submit economic bids for their flexible capacity category into the real-time market.

Numerous stakeholders have commented that resource/technology specific offer-obligations are complex, discriminatory, and may not provide the ISO with adequate flexible capacity to reliably operate the grid. As such, the ISO is proposing to break-out the flexible capacity requirements into technology agnostic categories with specific offer-obligations for each category. These categories should provide opportunities for all resources, including preferred resources and storage, to provide flexible capacity categories needed to reliably operate the system. The treatment of storage resources will be assessed based on the resources ability to provide three-hours of energy or regulation. See section 5.5 of the fifth revised straw proposal for examples or how storage might provide flexible capacity.

Additionally, with regard to VERs, the ISO believes the 3-hour counting criteria described in section 6 of the fifth revised straw proposal can be applied to solar (both PV and thermal), wind, demand response, long discharge storage resources. The EFC for storage resources electing the regulation energy management would be set at the lesser of resource's 15 minute output capability or NQC. To the extent that VERs have on-site storage that increases the NQC of the resource, this benefit would be captured in the EFC of the resource. It is up to the LSE and the resource to assess the potential risks of providing flexible capacity within a given category and applicable must-offer obligations. As noted in the fifth revised straw proposal, the ISO envisions the offer-obligation within each of the categories will apply to all resources shown in that category, regardless of the technology of the resource. For example, hydro resources and a use-limited gas fired resources shown as category 2 flexible capacity resources will both have the same offer and replacement requirements. The ISO will be seeking additional comments on this new proposal as part of the next revised straw proposal.

Finally, while still critical to the overall design of flexible capacity marketplace, the ISO is prepared to defer additional development of the SFCP to a later date or subsequent stakeholder initiative to allow more time to collect additional information to accurately value the availability of flexible capacity. The ISO is also deferring any specific substitution and replacement provisions to a subsequent stakeholder initiative.

4. At the 11/13 stakeholder meeting there a significant amount of discussion regarding the appropriate method for setting the price for the proposed flexible capacity availability incentive

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#### mechanism. Please provide comments about how this issue might be resolved.

## Methodology for the Adder Price is Currently Unproven

Although PG&E is open to considering an Adder approach, we do not support the methodologies for calculating the flexible capacity Adder price proposed by the CAISO to date. The CAISO needs to develop an Adder framework that is fundamentally sound, transparent and reproducible. The frameworks proposed thus far have not met these requirements. The CAISO must provide mathematical examples of its calculations that can be vetted and replicated by stakeholders.

We do support the notion first raised by SDG&E that the current CPM price of \$67.50 already includes payment for both generic capacity and an adder for flexibility. The CPM price coming out of the FERC settlement conference was envisioned to compensate flexible resources. In fact the original CAISO filed rate was based on the going forward cost for a combined cycle unit. The real question is how much of the \$67.50 is represented by the flexibility adder.

The types of resources that receive CPM payments supports the assertion that the CPM price was established to compensate units that are flexible. For example, in 2012 four resources received CPM payments: Huntington Beach Unit 1, Huntington Beach Unit 3, Huntington Beach Unit 4 and Encina Unit 4.<sup>9</sup> These are natural gas, powered steam units and appear to be flexible. The CAISO has procured flexible resources through the CPM, and so, while the Adder methodology may be appropriate, the total of the flexible and generic values should equal the effective CPM rate.

The implication is that any flexibility adder should not be added to the CPM price of \$67.50 to determine the incentive or backstop price for flexible capacity. The \$67.50 is the price that should be used for flexible capacity. The incentive or backstop price for non-flexible capacity should be something less than \$67.50 and will be calculated by subtracting the flexibility Adder from the CPM price.

# ISO Response

The ISO proposes to use the same price for the backstop procurement of flexible capacity as it uses for the procurement of generic system and local capacity under its capacity procurement authority. This pricing scheme will remain in effect until the ISO replaces its capacity procurement mechanism, which expires in February 2016.

5. The ISO has proposed an SFCP evaluation mechanism/formula that weights compliance with the real-time must offer obligation heavier than the day-ahead must offer obligation. Please comment on:

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<sup>&</sup>lt;sup>9</sup> Department of Market Monitoring 2012 Annual Report of Market Issues & Performance, page 217. <u>http://www.caiso.com/Documents/2012AnnualReport-MarketIssue-Performance.pdf</u>
a. The merits of using such a weighting mechanism relative to the "lesser of" proposal from the previous proposal

### b. The relative weights between the real-time and day-ahead markets

The CAISO's proposed 80%/20% weighting for real-time vs. day-ahead bids requires explanation and justification. It is unclear why the CAISO believes it is four times more important for resources to be flexible in real-time than in the day-ahead.

### **ISO** Response

As the ISO is proposing to defer the development of the SFCP, it is not necessary to make a determination on SFCP evaluation mechanism/formula or weights between the day-ahead and real-time must offer obligations. However, the ISO will reassess these comments prior to moving forward with the SFCP.

6. There were several clarifying questions asked at the 11/13 stakeholder meeting regarding substitution of flexible capacity that is on forced outage. Please provide comments and/or questions (and potential answers) regarding any additional clarifications the ISO should make in the next revision to clarify this aspect of the proposal.

The CAISO has only identified one type of resource substitution in its proposal: substitution for forced outages. PG&E recommends that the CAISO clarify that a many-to-many approach will be allowed similar to generic RA. Also, the CAISO should expand substitution for needs beyond forced outages. Lastly, PG&E is seeking the CAISO to clarify the replacement policy.<sup>10</sup>

## Forced Outage Substitution – Include Many-to-Many Approach

The proposal includes forced outage substation. Scheduling Coordinators (SCs) may substitute non-committed flexible RA capacity for flexible RA capacity that is unavailable due to a forced outage. Consistent with existing rules for substitution of generic RA, the CAISO should allow Forced Outage Substitution to be provided no later than 5 a.m. prior the close of the day-ahead market. PG&E recommends the CAISO should allow the "many-to-many" approach for this form of substitution that it is currently implementing for generic RA.

## Expand Substitution Rules to Include Non-Outage

PG&E recommends the proposal be expanded to include substitution for other situations beyond forced outage. SCs should be able to substitute non-committed flexible RA capacity for flexible RA capacity that is not on outage but cannot meet its flexible RA MOO due to events such as unit testing or anticipation of exceeding a use-limitation. The CAISO should

<sup>10</sup> As defined in the Proposal, the time window for "replacement" is from 25 days prior through 11 days prior to the start of the RA month (page 27). Whereas "substitution" is applicable to flexible RA resource that reach their use-limitation during the RA month (Proposal, page 8) or that experience forced outages (Proposal, pages 27 and 52).

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allow this type of substitution to occur any time before the close of the day-ahead market. As described above, the CAISO should allow a "many-to-many" substitution approach.

Clarify No Replacement Requirement in 2015

Replacement may occur as a result of either a planned outage or for failure to meet the flexible allocation requirement. The proposal is confusing regarding the rules for replacement. The CAISO should make clear there will be no replacement requirement in 2015 for approved outages.<sup>11</sup>

## **ISO** Response

The ISO is deferring any specific substitution and replacement provisions to a subsequent stakeholder initiative and will consider these comments at that time.

7. Please provide comments regarding how, or if, the SFCP adder price and the flexible capacity backstop price should be related.

SFCP and Backstop Must be the Same Price

The SFCP and backstop price must be the same. PG&E believes that potential for gaming or manipulative behavior exists if the prices are different and become increasingly likely if the backstop price is greater than the price of SFCP.

PG&E further points to the CAISO's use of the the Standard Capacity Product (SCP) as a model for the SFCP and suggests that if it is to serve as a model, that model should be employed consistently. The SCP and current backstop are the same price and settle at monthly granularity.

## **ISO** Response

While still critical to the overall design of flexible capacity marketplace, the ISO is prepared to defer additional development of the SFCP to a later date or subsequent stakeholder initiative to allow more time to collect additional information to accurately value the availability of flexible capacity. The final relationship between the SFCP and long-term backstop price at that time.

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

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

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<sup>&</sup>lt;sup>11</sup> The Proposal states on page 27 that, "the ISO will notify SCs for LSEs at least 25 days prior to the start of the month if there are any deficiencies or if replacement flexible capacity is needed to address a planned or approved outage," and also states that "ISO will not implement backstop procurement for planned and approved outage replacement (i.e. the ISO's recently approved replacement rule) flexible capacity starting in the 2016 compliance year. Footnote 19 states that "the ISO is continuing to assess the need to implement a rule for replacing flexible capacity on planned outage.

## **Clarify the Rules Related to Recalculation of Flexible Capacity Requirement**

SFCP penalties and resettlement in the event that an LSE submits inaccurate data requires additional clarity. Page 14 of the Proposal states that the CAISO "may rerun the flexible capacity requirement assessment during the year and recalculate flexible capacity requirement..." The Proposal lacks detail as to what thresholds will be set to trigger such penalties or how such a process might work if the discrepancy is found after the current 36-month settlement publication process. Use of the word "may" further suggests a level of optionality in the process.

## Define the Relationship Between the Flexible Ramping Constraint and FRAC-MOO

PG&E would like further details as to how capacity declared under the FRAC-MOO process will interact with the current Flexible Ramping Constraint (FRC) and future products. Given that the FRC incorporates a no-pay provision for resources that fail to provide flexibility when dispatched, we would like determine if this process will impact any flexibility nominated under FRAC-MOO. If the nominated energy is treated differently, then it will be critical that the different market products be easily distinguished in the CAISO dispatch system and through any resulting calculations.

## Clarify the Rules for Flexible CHP Resources

PG&E generally supports the CAISO's proposed treatment of flexible planning capacity from CHP resources. The proposed structure appears to create the correct incentives for CHP resources to lower their RMT max if the revenues for providing flexible capacity exceed the resource's operational opportunity cost. This price signal will promote more efficient usage of CHPs.

The CAISO must also clarify rules for counting CHP EFC. According to Tariff section 30.5.2.2, CHP resources offering supply bids must submit their regulatory must-take maximum (RMTmax) value to represent the highest possible quantity to be utilized by their industrial steam host. Any value between RMTmax and the nameplate value of the resource should be expected to be potential flexible capacity, eligible for EFC designation.

Not unlike the EFC treatment for hydro, CHP resources should be able to claim the largest value between the RMTmax and NQC as the EFC of the resource. On a monthly basis, SCs must determine what portion of the resource's EFC it can claim as flexible capacity based on the amount it anticipates can meet the flex RA must offer obligation. Substitution and replacement rules should apply.

## **ISO** Response

The ISO may rerun the flexible capacity requirement assessment if, based on the ISO assessment of the inaccuracy of the data provided, a significant allocation of flexible capacity requirements would result. The ISO does expect that there would be discretion in the option to rerun the assessment based on the potential changes that could come about. If discrepancies

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are identified after the 36 month settlement period, they will not be subject to dispute or adjustment under tariff section 11.29.8.4.7 unless directed by the CAISO governing board or a FERC order.

The final interaction between the FRC and the SFCP will be established in a subsequent stakeholder initiative.

See the responses to the CHP parties above for additional information on CHP resources.

Company	Date	Submitted By
Powerex Corp.	December 2, 2013	Gifford Jung 604-891-6040

1. The ISO has outlined a methodology to allocate flexible capacity requirements to LRAs. As detailed in the fourth revised straw proposal1 and at the 11/13 stakeholder meeting PG&E has put forward an alternative allocation methodology. Please provide comments for each of these proposals, particularly as they relate to cost causation. If your organization has a preference for one over the other, please state your preference and why.

Powerex will provide a general overarching comment on the cost allocation issue as it relates to the proposal to allocate all costs for required ramp to the LSEs as well as specific comments assessing the ISO versus PG&E proposals.

As an initial matter, Powerex has a fundamental conceptual concern with the ISO's proposal to allocate all costs for required ramp to the LSEs, since not all resources that precipitate the need for ramping service are contracted to LSEs. Moreover, the rationale that all energy eventually flows to load is insufficient to satisfy cost allocation principles that require customers benefiting from and causing the cost being incurred to pay for the service. Such a rationale is exceedingly broad and applying such an indirect application of cost causation would suggest that it is appropriate to allocate all CAISO costs to load (not just ramping costs) since all energy ultimately serves load. The overarching cost-causation principle as articulated by the Federal Energy Regulatory Commission and affirmed by the courts is that customers who receive the benefit of a service should pay the costs for that service, while non-benefiting customers should avoid liability for payment. See Williston Basin Interstate Pipeline Co., 71 FERC ¶ 61,019 (1995); ANR Pipeline Co., 92 FERC ¶ 61,284 (2000), Alabama Elec. Coop., Inc. v. FERC, 684 F.2d 20, 27 (D.C. Cir. 1982); Tejas Power Corp. v. FERC, 908 F.2d 998, 1005 (D.C. Cir. 1990). In its Cost Allocation Guiding Principles Draft Final Proposal issued on March 15, 2012, CAISO provided seven elements that it proposed to guide its cost allocation decisions: 1) causation, 2) comparable treatment, 3) accurate price signals, 4) incentivize behavior, 5) manageable, 6) synchronized, and 7) rational. Powerex will refer to these factors in assessing the consistency of the ISO and PG&E proposals with cost causation principles.

The proposal to assume that all ramping needs are associated with LSE purchases and thus that all ramping costs should be borne by LSEs fails to meet these cost causation principles. LSEs should be charged only for the costs that they caused to be incurred. The costs associated with the ramping needs of generating resources such as VERs – particularly

those contracted to third parties - are not directly caused by LSEs and should not be paid for by LSEs or their customers. Doing so shifts costs from those that caused the incurrence of the costs to the LSEs inappropriately, creating a class of free riders. This discriminates against LSEs, is economically inefficient, and fails to incentivize appropriate behavior, among other problems. While the approach benefits from its simplicity, the assumption fails even the least rigorous cost causation inquiry. The ISO's approach to allocating those flexible ramping costs caused by generators to LSEs appears motivated by its misplaced views of "fairness", primarily as it relates to VERs, and perhaps simplicity – neither of which justifies such a direct and material violation of cost causation principles. In Powerex's view, the ISO's role is not to determine which entity ultimately funds flexible ramping costs. The ultimate funding entity must be determined via commercial agreements, in which the ISO has no role. The ISOs obligation is to develop a framework that applies these flexible ramping costs to scheduling coordinators based on the ISO's established cost allocation principles, while being agnostic to the ultimate payer of such costs. If fairness issues between VERs and LSEs arise as a result of this principled approach to cost allocation, then these issues are best addressed by the CPUC, not the ISO.

Powerex recommends that the ISO allocate costs at a scheduling coordinator level based on each SCs aggregate ramping needs, including generation and load contributions. Powerex further recommends that the ISO provide a framework for the assignment of this ramping requirement from one SC to another, based on mutual agreement. This transferability framework would allow, for example, a VER that had an existing commercial agreement specifying that an LSE is required to pay for any integration costs to transfer its aggregate ramping requirement to the respective LSE. This would also allow VERs that are currently responsible for their own integration costs to enter into new commercial agreements with LSEs to transfer their aggregate ramping needs to an LSE. This would enable VERs to leverage an LSE's geographical diversity as well as its processes for flexible resource adequacy procurement, while leaving the VERs with the option to procure their own flexible resource adequacy requirements if they choose to do so.

The ISO asserts in the Fourth Revised Straw Proposal on the Flexible Resource Adequacy Criteria and Must-Offer Obligation (FRACMOO) that "the equitable way to allocate monthly flexible capacity procurement requirements to each LRA under the interim requirements is in proportion to their jurisdictional LSEs' contribution to the 3-hour net-load ramp." One component of the formula ISO proposes to use to allocate the 3-hour net load ramp is change in load, which it proposes to calculate based on the LSE's average contribution to load change during the top five daily maximum three-hour net-load ramps within a given month from the previous year times the total change in ISO load. Without further explanation, and certainly without reference to the seven principles Powerex has highlighted above, ISO asserts this method "reasonably reflects general cost causation principles". It acknowledges that stakeholder consensus has not been reached for the allocation of the change in load component.

In the October 13 presentation and in its comments on the Third Revised FRACMOO Straw Proposal PG&E took issue with two aspects of the ISO's proposal, explaining that both the monthly averaging of the maximum peak ramps and the use of coincident peak ramps are inappropriate. As to the use of the average of the peak load contributions over the month versus the actual peak ramp, PG&E asserts that ISO will procure system flexibility to meet

the expected peak ramp, not the average ramp, and the use of an average unfairly would charge an LSE with stable load ramp more than one with the same maximum ramp but a lower average ramp. PG&E provided as an example two LSEs with a maximum load ramp of 1,000 MW each month in which one, LSE A, has the same maximum ramp each day, and the second, LSE B, has a maximum ramp of 1,000 MW on one day of the month but 500 MW of ramp on other days of the month. PG&E explained that ISO would have to procure 2,000 MW of ramp regardless of the flexibility averages and thus it is inappropriate to charge LSE B less based on the averaging approach that ISO has proposed.

As to the use of the coincident peak (CP) versus the non-coincident peak, PG&E asserts that use of the CP results in a free ridership problem and is inconsistent with cost causation principles. PG&E gave an example in which LSE A has a 1,000 MW ramp on one day and 0 ramp the rest of the month, while LSE B has a 950 ramp occurring on a different day than LSE A's 1,000 MW ramp and 0 ramp the rest of the month. Using the CP method, LSE A is allocated the entirety of the flexibility requirement and LSE B is a free rider. To address its concerns, PG&E proposed an alternative in which ISO would use a non-coincident peak-ramp ratio share based upon the LSE's maximum historic load change over a month to allocate the change in load requirement. In response, ISO defended its approach and indicated that PG&E's proposal would not reflect the value of an LSE that is mitigating the ramp needs of another LSE during the monthly peak 3-hour net-load ramp.

ISO has asked for comments that provide the basis for a preference as between its proposed approach and PG&E's, with a focus on the consistency of each with cost causation principles. With a modification to address the concern ISO raised, Powerex believes that PG&E's proposal is most consistent with these cost causation principles. The modification is that any LSE that has a positive impact on the worse coincident peak ramp for the CAISO grid should have its own worse ramp offset by the amount of its positive impact during this coincident peak ramp and charges assessed reflecting such credit.

Powerex strongly opposes the CAISO's approach since it creates a free-rider concern for those entities which have large ramps in periods outside of the coincidental peak. It is also important to note that the coincidental peak ramp period may not always be the most difficult one for the CAISO to manage. For example, a large ramp during periods when most flexible units are online (i.e. evening peak) may be easier to manage and place less operational and economic challenges to the grid than a slightly smaller ramp when many units are not online (i.e. off-peak or early morning ramps). This further provides support for the PG&E approach.

Since flexibility procurement will be based on expected peak ramp needs and not average ramp needs, PG&E's proposal to eliminate averaging is consistent with cost causation principles, while ISO's averaging approach is not.

Referring back to PG&E's LSE A and LSE B example, and the ISO's own cost allocation guiding principles document, Powerex will explain why cost causation principles dictate the use of the expected ramp versus the average ramp.

1) causation requires that those that drive the costs should pay the costs: As PG&E aptly

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explained, ISO would have to procure 2,000 MW of ramp regardless of the flexibility averages. As such, each of LSE A and LSE B precipitate the purchase of 1,000 MW of ramp and thus it is inappropriate to charge LSE B less than LSE A based on the averaging approach.

2) comparable treatment requires non-discrimination as between similarly situated customers: it would be discriminatory to charge LSE B less than LSE A (as would occur in the ISO proposal) when 1,000 MW of ramp is being procured for each LSE.

3) accurate price signals will support state and federal policy goals, economic efficiency is achieved through accurate allocation of costs: when 1,000 MW of ramp are required and acquired for each respective LSE, it is economically efficient for each LSE to pay for its share as would occur in the PG&E proposal.

4) incentivize behavior involves encouraging customers to reduce costs. Reducing peak ramp needs would reduce the amount of ramp that ISO must procure. The ISO proposal does not encourage the reduction of the CP ramp.

5) manageable means that market participants should be able to manage the exposure to the allocation. Ramp needs are generally caused by variations in load and variable resource output. With Powerex's modification to the PG&E proposal, market participants will be able lower their cost allocations by reducing their own peak ramps and by providing positive contributions to the coincidental peak ramp.

6) synchronized means that over a period of time the outcome should align with expectations: ISO's proposal is not true to this principle because ISO will not be procuring the average of the flexibility needs over time but will continue to obtain the maximum monthly flexibility needs while charging LSE A more than LSE B. PG&E's proposal, on the other hand, would synchronize the cost with the amount of product purchased for each LSE.

7) rational means the proposal is justified based on weighing implementation costs and complexities with benefits. Neither proposal suffers from undue complexity in relation to its benefits.

ISO's CP approach creates free riders that may have significant ramp but that will not be charged to the extent the ramp is not coincident with the peak. This is inconsistent with cost causation principles.

Referring back to PG&E's LSE A and LSE B example, and the ISO's own cost allocation guiding principles document, Powerex will explain why cost causation principles require elimination of the free ridership problem created by ISO's consideration of coincident peak ramping needs.

1) causation: LSE B has ramping needs but would not be charged for them if its needs are not coincident with the peak per the ISO proposal. This free rider status for LSE B is inconsistent with cost causation principles. LSE B is receiving the benefit of ramping supply and should pay the costs for that service. While non-benefiting customers should avoid liability for payment pursuant to cost-causation theory, LSE B is a benefiting customer of

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ramping service and should not be permitted to shirk payment responsibility.

2) comparable treatment: PG&E's proposal is true to the comparability principle because all contributors to ramping needs would be allocated costs for ramping service; obligations would not be avoided simply because the needs occur during a time not-coincident with the peak, since ramping service is required both during peak and non-peak times. ISO has criticized the PG&E proposal because an LSE may be reducing ramp needs during the peak ramp but would not receive any credit for its beneficial activity if only the non-coincident demands are considered. While it is unclear the extent to which the issue ISO raises actually will occur, a simple modification can be implemented to the PG&E proposal to address the ISO's concern. That is, any LSE that has a positive impact on the worse coincident peak ramp can receive a credit against its own worse ramp equal to its positive impact on the CP ramp.

3) accurate price signals: ramp procured during non-coincident peak times is not without value and thus it does not send an accurate price signal to permit acquirers of ramping service during such times to avoid payment obligations.

4) incentivize behavior: free ridership is not behavior that should be encouraged, yet ISO's proposal would create the opportunity for users of a service to avoid payment for that service based upon a temporal factor that is not tied to cost.

5) manageable: Ramp needs are caused and increased by the state's renewable mandates and neither proposal is designed to minimize these needs.

6) synchronized: ISO's proposal is not true to this principle because ISO will not be procuring ramp only during the time of the coincident peak but will acquire it during all hours when needed, whether or not coincident with the system peak. Thus, the LSE requiring ramp during non-coincident periods of time should be required to pay for it. PG&E's proposal accomplishes this comity while the ISO proposal does not.

7) rational: Neither proposal suffers from undue complexity in relation to its benefits.

# **ISO Response**

The ISO is not allocating costs, but flexible capacity requirements to LSE's that have contracted with intermittent resources. The flexible capacity requirements assessment covers only internal ISO load, and does not address imports or exports. The ISO understands Powerex's assertion that all flexible capacity costs should be allocated direct to the SC of a VER resource. However, allocating an RA requirement to generating resource is a significant change to the current RA construct. While the ISO believes that proposal such as PG&E's and those implied here by Powerex, likely merit additional consideration, such changes to the RA construct are beyond the scope of the current stakeholder initiative. The ISO will assess the proper manner for merchant VERs as part of the flexible capacity requirements assessment.

In reposnse to Powerex's question regarding the causation principles that are reflected in the ISO proposed allocation of changes in load, the ISO believes that this allocation mechanism is consistent with each cost allocation principle. Causation – Each the LRA's jurisdictional LSEs'

changes in load are a significant component to the 3-hour net-load ramps. It is reasonable to allocate flexible capacity requirements to these load changes as they cause the need. Using last year's load data provides reasonable estimate for proportionate contribution of each LRA for the next year. Comparable treatment - All LRA's are allocated the proportion of the net load change using the same process. Accurate price signals and incentivize behavior - The ISO's greatest flexible capacity needs are defined as the need to address the largest 3-hour net load ramps. In the future, this will likely change as downward ramps and load following constraints begin to bind more frequently. However, for now, allocation based on the contribution to LRA based on proportionate load changes over three hours sends the proper signal and incentive to LRAs to encourage their jurisdictional LSEs to mitigate their load changes over these peak net load ramping events. Manageable - The ISO's proposed allocation method is a much more manageable methodology than the one proposed by PG&E. Synchronized – The allocation methodology is synchronized to the identified 3-hour net-load need. As noted above, as downward ramps and load following constraints begin to bind more frequently, there will likely be a need to expand the definition of this need. At that time, the ISO would reassess how well this allocation methodology remains synchronized to the identified and defined need. Rational -At this time, the flexible capacity discussed here has been defined in quantity to meet the maximum three-hour net-load ramp with sufficient resources with 5-minute real time dispatch capability. It is not rational to allocate contributions to load based on ramps that do not fall within the ramps that do not fall within the largest three hour net-load ramping needs. Additional details about how of peak ramp contributions are considered in the ISO's assessment of flexible capacity categories is provided in the fifth revised straw proposal. Additionally, the use of the top five net load ramps in a month should mitigate the impact of anomalous net-load ramps for any single LRA. As stated in the fourth revised straw proposal, the ISO believes that free-rider problem asserted by PG&E is not, in fact, resolved by their proposal, but instead the LRA that contributes significantly during peak 3-hour net-load ramping events will be allowed a free-ride during the time of greatest need.

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

Yes, Powerex wishes to comment on two issues relating to the interties as well as provide an overall comment relating to the multitude of stakeholder processes that are proceeding simultaneously.

Intertie Concerns that must be addressed include eliminating the restriction that would preclude suppliers at the interties from provide ramping service and restricting external transactions that contribute to ramping needs during ramp constrained periods.

Powerex understands that the FRACMOO effort is considered an interim step while the ISO, CPUC and others cooperate to endorse the mechanism that will provide a longer term resource adequacy construct and alleviate the missing money problem that has caused the Department of Market Monitoring to conclude that "net operating revenues earned by typical new gas units from the ISO energy market continue to fall well short of the fixed costs of new capacity". (See Slide 5 of the May 15, 2013 DMM Briefing on 2012 Annual Report on Market Issues and Performance). However, even as an interim approach, FRACMOO suffers from substantial and avoidable flaws as it pertains to the interties. It should be modified to avoid these flaws prior to its implementation.

First, even though ramping needs occur over a multi-hour period, ISO initially has proposed

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artificially and discriminatorily to limit those who can provide the service to participants in the five minute market. It has dictated that flexible capacity must be able to respond to five minute dispatch instructions, but has not justified this requirement. As the interties will generally participate in the fifteen minute market but not the five minute market, in one fell swoop this restriction has eliminated approximately 25% of the resources that otherwise might assist in meeting ISO's needs by providing ramping service. Casting these resources aside, ISO has stated "intertie resources and imports that are not pseudo-tied or dynamically scheduled into the ISO are not eligible to provide flexible capacity at this time." (p. 28). ISO has indicated that it will assess the ability of imports to provide flexible capacity after having some experience with the fifteen minute market. (n.21). However, there is no need for experience with the fifteen minute market to conclude that imports scheduled on a fifteen minute basis should be permitted to provide ramping service. ISO is making a distinction without any rational justification and thus unduly discriminating against imports, which it may lean on to provide energy that satisfies ramping needs without providing the same compensation opportunity that is provided to internal resources.

The ramping needs of the CAISO grid are not a five minute problem. ISO knows its historical ramping requirements and understands that the ramping service it requires is generally needed across a multi-hour period. This is clear from a review of the balance of ISO's ramping criteria, all of which are multi-hour criteria: ISO looks to the contribution to the "3-hour net load ramp" in allocating procurement requirements, requires economic energy bids to be submitted by flexible resources for the 15 hour period between 5 a.m. and 10 p.m., requires demand response resources to bid for a minimum five hour period and to provide a minimum of three hours of energy, and imposes a six hour requirement on hydro-electric resources. Put simply, fifteen minute resources at the interties are undeniably able to meet ISO's needs for ramping service and should be permitted to provide the service.

DMM has commented on this issue as follows: "At the last two stakeholder meetings, market participants have brought up the possibility of counting imports toward meeting the flexible RA requirement. However, the proposal does not include discussion of this issue. The volume of imports that would potentially be eligible to count against a flexible requirement (presumably in the context of the 15-minute market per FERC Order 764) is significant and could have a very pronounced impact on procurement and pricing of flexible capacity from internal resources. DMM suggests clarification be provided regarding the role of imports in meeting the flexible capacity requirements and whether or not resources that can be dispatched in the 15-minute market but not in the 5-minute market are eligible to provide flexible capacity." In its response to comments on the Third Revised Straw Proposal, ISO stated that any resource that is able to address flexibility needs can do so. Imports at the interties are able to address these needs and should be permitted to do so. The artificial restriction that eliminates participation by resources at the interties should be removed.

Second, to potential peril, FRACMOO short-sightedly has ignored the effect of scheduling imports and exports on ISO's ramping requirements. Unlike traditional resource adequacy constructs which are protected from free-ridership by external participants via the ability to curtail or not award exports when system resource adequacy needs dictate, this interim construct contains no such protection from intertie participants consuming the flexible ramping capabilities of the ISO grid. For example, ISO may project a need for 10,000 MW of ramp over a three hour period, but if importers decrease their imports by 5,000 MW during

this period (or exporters increases their exports by 5,000 MW during this period), ISO's actual ramping needs may be 15,000 MW. The ISO has not addressed this potential freeriding issue on the interties which has the potential to cause both reliability challenges as well as to undermine the economic efficiency of the FRACMOO program via free-ridership.

Importantly, this intertie free-ridership concern is not merely speculative, but a very plausible outcome. While ISO and the west in the past have benefited from seasonal diversity in their overall energy needs, the ramping needs in the Pacific Northwest - particularly in the winter months - coincide directly with the peak ramping needs identified on the ISO grid in the coming years. Accordingly, it is very possible that increased exports from California to the Pacific Northwest and decreased imports to California from the Pacific Northwest may occur at the precise time that ISO is experiencing a need for ramping service resulting in a very meaningful impact on the overall amount of service that is needed.

ISO should eliminate this flaw. Otherwise, externalities not factored into ISO's projections and left outside of its control will contribute to the FRACMOO framework falling short of meeting ramping needs, while creating a significant free-ridership issue. ISO could address this gap by requiring block or "ramp beneficial" awards during those hours that are contemporaneous with its ramping needs such that an importer providing 5,000 MW of imports in hour one, must maintain or increase that level for the three hour ramp period rather than reducing its imports in the second or third hour. In New England, Operating Procedure 9 (Scheduling and Dispatch of External Transactions) addresses ramp constraints that must be mitigated during the Scheduling process. OP 9 requires reductions to External Transactions contributing to the ramping constraint on all selected external interfaces simultaneously to reduce the ramp constraint. ISO similarly should take steps to address external transactions that contribute to ramping needs. The developed framework will not work effectively in the absence of a mechanism that eliminates free ridership on the interfaces during times when ramping constraints exist.

ISO's ambitious program of market rule changes occurring on concurrent timeframes is taxing market participant resources to the detriment of robust stakeholder input.

Powerex understands that certain ongoing initiatives such as the development of the fifteen minute market have mandatory timeframes for development and must proceed swiftly to meet required deadlines. Others, however, such as the Full Network Model overhaul of the interties, need not imminently be pursued (beyond the required reliability requirements), but fall in the realm of initiatives that could be addressed in the longer term. Powerex has become increasingly concerned that the number of concurrent stakeholder initiatives (Full Network Model, Fifteen Minute Market, Energy Imbalance Market, and Flexible Resource Adequacy Criteria and Must-Offer Obligation to name those currently at issue) and the timing between the issuance of straw proposals and the comment due dates is such that most, if not all, market participants are unable to follow the multitude of initiatives and provide meaningful input to all the stakeholder processes based on the sheer volume of initiatives. Powerex urges the ISO to recognize that the contemporaneous pursuit of these initiatives is taxing its market participants' resources to the detriment of ISO's receipt of robust and thoughtful stakeholder comments. Powerex is not alone in this concern as it notes that several other participants have raised similar concerns in these ISO stakeholder processes. As to initiatives whose implementation timeframes are not mandatory, ISO

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should consider less aggressive comment timelines and pursuing certain initiatives consecutively rather than concurrently.

Powerex notes that for the above reasons, it has not been able to follow this FRACMOO initiative in sufficient detail and may have further comments at a later date.

### **ISO** Response

The ISO must also address load following needs, however, at this time, the flexible capacity product contemplated here will simultaneously address 3-hour net-load ramps and load-following needs. In order to assure both are met, the ISO must require 5-minute dispatchability from flexible capacity resources. However, once these needs are split into separate needs, the ISO may be able to rely intertie resources to address longer ramps while specified internal resources are available for meeting load following needs.

Numerous stakeholders have commented that resource/technology specific offer-obligations are complex, discriminatory, and may not provide the ISO with adequate flexible capacity to reliably operate the grid. As such, the ISO is proposing to break-out the flexible capacity requirements into technology agnostic categories with specific offer-obligations for each category. These categories should provide opportunities for all resources, including preferred resources, to provide flexible capacity. The categories proposed are derived from a needs-based approach of the flexible capacity categories needed to reliably operate the system. The ISO will be seeking additional comments on this new proposal as part of the next revised straw proposal.

It needs to be recognized that by enforcing the flexible ramping constraint in the process RTPD run that schedules interchange, however, the CAISO is enforcing a ramp constraint, and a much more sophisticated ramp constraint than those enforced by the eastern ISOs because the CAISO flexible ramping constraint will take account of the ramp needs of the internal system, so would schedule more ramp for exports if that helped the internal ramp, i.e. if internal net load were falling, and schedule more ramp for imports if that helped internal ramp, ie if internal net load were rising. In the end state, with the flexible ramping product in place, the CAISO will be scheduling imports and exports and will not schedule exports that reduce ramp capability, or will charge a price reflecting the impact of the exports on ramp capability. That is, a price taking export bid could cause the CAISO to go short on ramp capability but the price paid for the export would reflect the penalty price for the foregone ramp capability.

Nevertheless, the CAISO could at times be ramping in exports at the same time that the wind dies, creating more extreme ramps for internal generation. This, however, is a problem of imperfect forecasting. This outcome would not be avoided by any kind of ramp scheduling process as the ramp scheduling process would not know that the wind was going to die in 20 minutes either.

Company	Date	Submitted By
San Diego Gas & Electric	Dec 2, 2013	Randall Nicholson Nuo Tang
Opening Comments		
Opening Comments           SDG&E appreciates the opportunity to comment on the Flexible Resource Adequacy Criteria and Must-Offer Obligation Fourth Revised Straw Proposal issued on November 7, 2013. As a general observation, SDG&E is concerned that the proposed structure has become unwieldy, and is quickly trending towards becoming unworkable. Given the complexity and divergent opinions on critical, core components, SDG&E has difficulty envisioning a path forward that ends in anything other than a protracted dispute at FERC. Looking ahead to that probability, SDG&E here highlights two components of the proposed framework that are unpalatable in their current form: 1) The Must Offer Obligation for dispatchable, gas-fired use-limited generation, including the proposal to include the opportunity costs in the resource's default energy bid, start-up cost, and minimum load cost; and 2) the SFCP adder price as it applies to CPM designations.		
ISO Response		
The ISO is proposing an additional break-out of the flexible capacity requirements into technology agnostic categories with specific offer-obligations for each category. The ISO does not believe that this change to the requirements necessitates a revision of the ISO's proposed allocation methodology, but will seek additional stakeholder input as part of the next revised straw proposal. While still critical to the overall design of flexible capacity marketplace, the ISO is prepared to defer additional development of the SFCP to a later date or subsequent stakeholder initiative to allow more time to collect additional information to accurately value the availability of flexible capacity.		
1. The ISO has outlined a methodology to allocate flexible capacity requirements to LRAs. As detailed in the fourth revised straw proposal1 and at the 11/13 stakeholder meeting PG&E has put forward an alternative allocation methodology. Please provide comments for each of these proposals, particularly as they relate to cost causation. If your organization has a preference for one over the other, please state your preference and why.		
SDG&E prefers CAISO's methodology of allocating requirements to LRAs over PG&E's proposal. The flexible capacity requirement is determined based on a coincident maximum ramp where LSEs contribute to that ramp. To allocate a coincident ramp based on non-coincident LSE contributions would be like picking oranges from an apple tree.		
ISO Response		
The ISO is proposing an additional br	eak-out of the flexible	e capacity requirements into

technology agnostic categories with specific offer-obligations for each category. The ISO does not believe that this change to the requirements necessitates a revision of the ISO's proposed allocation methodology, but will seek additional stakeholder input as part of the next revised straw proposal.

2. The ISO believes that demand response resources should have the opportunity to provide flexible capacity. The ISO has proposed how demand response resources could do so. Please provide comments on the ISO's proposal. Specifically, please identify concerns with the ISO's proposal and offer potential solutions to these concerns. Additionally, please comment on the proper forum (ISO, CPUC, etc.) where these concerns should be addressed

SDG&E believes the CPUC is the proper forum to address how Demand Response may provide flexibility and how EFCs should be determined for those resources. The ISO is the proper forum to define the rules and must offer obligations for DR to bid and participate. Please see SDG&E's comments<sup>12</sup> on the revised straw proposal with regards to bucketing of DR and ULRs as minimum participation criteria for the ISO to adopt.

## ISO Response

While the ISO agrees the CPUC is the appropriate forum to address rules for CPUC regulated entities to procure demand response, the ISO believes its FERC-jurisdictional tariff is the appropriate vehicle to address standards for resources need to maintain reliability of the wholesale interconnected electric system.

Please provide comments and recommendations (including requested clarifications) 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.

The cap on opportunity cost approach cannot work because it may not allow the resource to recover the most significant cost/risk now facing the resource -- the cost of replacement, potentially in every single month. Taking a large step back, SDG&E believes the existing tools to manage these use-limited resources -- i.e., SLIC tickets to indicate that a resource's use limitation has been reached, with no replacement obligation under SCP – is sufficient for Flexible resources governed by this "interim" framework. Any other outcome that requires replacement where none exists today exposes gas-fired ULRs to far too much incremental risk, and significantly jeopardizes the ability of highly flexible resources to provide needed flexibility. Even the ISO's own proposal contradicts itself in different sections:

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<sup>&</sup>lt;sup>12</sup> Pg 2 – 3 of SDG&E's comments <u>http://www.caiso.com/Documents/SDGE-Comments-</u> <u>FlexibleResourceAdequacyCriteriaMustOfferObligationsRevisedStrawProposal.pdf</u>

"Additionally, for 2015 RA compliance, the ISO will not propose to require flexible capacity to be replaced due to intra-month outages of."13

"If a resource is operationally constrained, then the ISO will provide dispatch instructions that consider these limitations. If the resource, in operating consistent with ISO dispatch instructions, reaches an operational limit, then the hours for which that resource is constrained will not count towards the resource's SFCP calculation...the ISO also believes it is prudent to require use-limited resources that are shown as flexible capacity and reach their use-limitation before the end of the month should be required to provide substitute capacity or be subject to SFCP availability charges."14

The opportunity cost approach with replacement requirement should be rejected.

- b. Specialized must-offer obligations:
- 1. Demand response resources
- 2. Storage resources
- 3. Variable energy resources

The ISO's must offer obligations must not be technology or resource specific. 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. Special carve outs may be created for when a resource is exempt from penalties or incentives, but the goal of flexibility as well as generic RA obligations is to ensure there is sufficient capacity to meet the requirement.

#### **ISO** Response

The ISO believes that allowing flexible capacity resources to include opportunity costs in their start-up and minimum load costs will provide SC for these resources with an additional tool to manage potential risks of reaching a monthly or annual use-limitation. However, the ISO will defer this part of the FRAC-MOO proposal to a later initiative.

Numerous stakeholders have commented that resource/technology specific offer-obligations are complex, discriminatory, and may not provide the ISO with adequate flexible capacity to reliably operate the grid. As such, the ISO is proposing to break-out the flexible capacity requirements into technology agnostic categories with specific offer-obligations for each category. These categories should provide opportunities for all resources, including preferred resources, to provide flexible capacity. The categories proposed are derived from a needs-based approach of the flexible capacity categories needed to reliably operate the system. The ISO will be seeking additional comments on this new proposal as part of the next revised straw proposal.

<sup>13</sup> Pg 27 of ISO 4<sup>th</sup> Revised Proposal
 <sup>14</sup> Pg 55 of ISO 4<sup>th</sup> Revised Proposal

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4. At the 11/13 stakeholder meeting there a significant amount of discussion regarding the appropriate method for setting the price for the proposed flexible capacity availability incentive mechanism. Please provide comments about how this issue might be resolved.

SDG&E reiterates its belief that the existing CPM framework and compensation levels are adequate to procures flexible resources. History has shown that nearly every single resource procured under the current CPM framework has been flexible. SDG&E believes the ISO should abandon the incentive and penalty mechanism for the interim proposal and focus on the CPM backstop efforts that may be needed for 2015 compliance year and 2016 for when the current CPM authority ends. The ISO should also consider better energy-market based pricing solutions for when a resource cannot provide the necessary flexibility.

## **ISO** Response

The ISO proposes to use the same price for the backstop procurement of flexible capacity as it uses for the procurement of generic system and local capacity under its capacity procurement authority. This pricing scheme will remain in effect until the ISO replaces its capacity procurement mechanism, which expires in February 2016.

7. Please provide comments regarding how, or if, the SFCP adder price and the flexible capacity backstop price should be related.

The CAISO believes the SFCP adder price, and CPM price for backstopping Flexible RA deficiencies should be related. SDG&E disagrees. There is no rational basis for presuming that flexible capacity is, at present, inherently more valuable than generic capacity, and that it cannot be adequately compensated by the existing CPM structure. Given current supply and demand projections for flexible capacity, it may be years before the actual prices for flexible and generic capacity begin to meaningfully diverge. Indeed, the only justification for price divergence between generic and flexible CPM designations today is the latter's inability to self-schedule following the designation. To suggest the proposed SFCP adder is an appropriate proxy for that lost "opportunity" is at best unfounded. At worst, applying proposed adder to Flex CPM designations risks prematurely setting the broader market price for Flex capacity going forward.

#### ISO Response

While still critical to the overall design of flexible capacity marketplace, the ISO is prepared to defer additional development of the SFCP, including the development of the pricing mechanism, to a later date or subsequent stakeholder initiative to allow more time to collect additional information to accurately value the availability of flexible capacity.

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

SDG&E urges the ISO to refocus on the core components of the flexibility requirement and must offer obligations for this interim framework. The discussions on availability incentives

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are creative but detract from the main goal of having a flexible requirement through an efficient market. As the MSC members have expressed multiple times, trying to achieve a flexibility need through the capacity construct as opposed to the ISO energy market is not the best solution. The ISO should study and plan how it might improve its market to better incent resources to bid in economically rather than self scheduling.

## **ISO** Response

While still critical to the overall design of flexible capacity marketplace, the ISO is prepared to defer additional development of the SFCP, including the development of the pricing mechanism, to a later date or subsequent stakeholder initiative to allow more time to collect additional information to accurately the availability of flexible capacity.

Company	Date	Submitted By
Shell Energy	11/27/2013	Mike Evans 858-526-2103 michael.evans@shell.com

3. Please provide comments and recommendations (including requested clarifications) 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.

The ISO's proposal to calculate an opportunity cost component and add it to a variable cost to establish a new bid cap for MLCC is overly complex and will likely not result in an optimized "dispatchable gas-fired use-limited resource" ("peaker") dispatch matching the monthly or annual permit limitations with the optimal hours in which the unit should have been dispatched.

We recommend that the ISO continue to utilize its present market controls, including the 150% cap on start-up and MLCC and the existing energy bid cap, and allow market participants which manage peaker fleets to continue to manage those fleets to their daily, monthly, annual or rolling 12-month permit limitations. The ISO may have underestimated the complexity of managing these units, and it is unlikely that the ISO has the resources or the time to sufficiently optimize these resources.

The opportunity cost calculations proposed by the ISO calculate a marginal opportunity cost based on a applicable time period. However this is very complicated, when optimized across monthly and then annual limitations. Further, and unclear in the proposal but implied, the ISO would need to optimize across the hours of operation expected for that particular peaker, given its heat rate and permit limitations. This results in essentially

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individual calculations of opportunity costs for each peaker in the ISO BAA. Again, the ISO should consider that there is an inherent incentive for the market participant to bid economically. In fact, a peaker resource has a strong incentive to keep competitive bids in place as the majority of its fixed cost recovery will come from only a very few hours during a year, with disastrous financial results if the unit is not available or the ISO ADS fails to dispatch the unit. The ISO has the ability to moniter the functioning of markets and bidding practices, and can revisit both the bid structure as well as bidding behaviors which it believes to be improper. Further, the ISO has required market participants with peakers to submit annual operational plans, and has this data to compare and ensure that units are being operated according to plans.

The ISO has introduced two concepts, "legitimate costs" and "economic withholding" in its whitepaper. Page 39; 2nd Paragraph: The ISO states: "…in order to provide an estimate of legitimate costs to include in the resource's bid." Page 38; 7.1.2.3 "Economic Withholding" - The ISO has introduced a concept called "economic withholding", and defined this as "when a resource artificially increases its bid price above variable costs to avoid being dispatched for the purpose of forcing the market to dispatch higher-priced bids and establish a higher market clearing price to benefit the remainder of that supplier's portfolio that was dispatched by the market." In fact, FERC and the DMM have the authority and have investigated cases when a market participant intentionally withholds or manipulates the market. Thus, controls are in place. It would be helpful for the ISO to either remove these concepts from its whitepaper or clarify that bidding a peaker to manage and optimize its output to its permitted hours of operation is not either economic withholding or an illegitimate cost (bid).

Finally, it would appear that the bucket methodology as being discussed at the CPUC would match resources to an expected number of hours of operation, and that LSE's could then procure resources in various buckets to match up to the needs of the grid. Thus, the concept that a market participant registers a peaker in a particular bucket, then bids and operates the unit to that forecast number of hours appears to be the best way to manage the peaker fleet.

## **ISO** Response

The ISO believes that allowing flexible capacity resources to include opportunity costs in their start-up and minimum load costs will provide SC for these resources with an additional tool to manage potential risks of reaching a monthly or annual use-limitation. However, the ISO will defer this part of the FRAC-MOO proposal to a later initiative.

The ISO understands this concern and is proposing to break-out the flexible capacity requirements into technology agnostic categories with specific offer-obligations for each category that should allow a resource to be optimally categorized and mitigate replacement risks. The ISO will be seeking additional comments on this new proposal as part of the next revised straw proposal.

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

New Mandate to Bid all Certified Ancillary Services; On "non-contingent" Basis

On Page 31, Section 7.1.1, the ISO "proposes all flexible capacity resources that are certified to provide ancillary services <u>must</u> bid or self-schedule into ancillary service markets on a non-contingent dispatch basis for each ancillary service for which they are certified." We appreciate the ISO's desire to ensure that ancillary services are provided to the ISO, however, to introduce a mandate to bid ancillary services and to remove the contingency-only offering is too broad and encompassing, and requires more discussion and thought than a paragraph in a whitepaper. We have established ancillary services markets with FERC approved rules, in which suppliers <u>may</u> bid resources. There are likely situations when a supplier may choose to not bid ancillary services and may need to bid "contingency" status.

It would be reasonable that without a broader stakeholder vetting, that at this time, the ISO should remove this portion of the proposal, paragraph 2 under Section 7.1.1, from the whitepaper.

Fix ISO Peaker dispatch to allow a unit to be dispatched to Pmax based on its Economic Bid; Don't ramp to Pmin.

On Page 34, Section 7.1.2.1, the ISO explains that a resource can be committed to minimum load, yet oddly, the ISO dispatch still looks at a peaker which can reach full load in 10 minutes as a resource which needs to be dispatched to minimum load before it can be dispatched for economic energy. It seems opportune with the issues of flexible capacity resource procurement and dispatch before us, that the ISO address a dispatch system fix that would allow ISO dispatchers and the ISO EMS system to dispatch peakers for their full output (output in 10 minutes) and to not dispatch a unit to "Pmin" and then wait for hours to ramp a unit up just a few more MW based on an "economic" bid. This would also have the positive impact of not artificially affecting (depressing) RT prices, as when the ISO makes an out of market dispatch of a peaker to "Pmin", this energy is not priced according to a bid or its variable cost is not factored into the Pnode price, and thus the market prices end up distorted. This is particularly oriented towards peakers that are smaller, <50 MW. For the newer, larger peakers, approximately 100 MW, this would likely not be applicable.

#### **ISO** Response

The goal of flexible capacity is to ensure the ISO has ready access to resources needed to manage net-load deviations. Flexible capacity resources bidding into AS markets as contingency only means that, if cleared for that ancillary service, the ISO would only have access to the resource during a contingency event. As such, the ISO has proposed that flexible capacity resources be non-contingent for some time.

Addressing dispatch system fixes along the lines proposed are beyond the scope of this stakeholder initiative.

Company	Date	Submitted By
Silicon Valley Power ("SVP")	November 27, 2013	Ken Kohtz <u>kkohtz@santaclaraca.gov</u> (408) 615-6676

1. The ISO has outlined a methodology to allocate flexible capacity requirements to LRAs. As detailed in the fourth revised straw proposal1 and at the 11/13 stakeholder meeting PG&E has put forward an alternative allocation methodology. Please provide comments for each of these proposals, particularly as they relate to cost causation. If your organization has a preference for one over the other, please state your preference and why.

SVP supports the CAISO's methodology to allocate flexible capacity requirements to Local Regulatory Authorities. SVP recognizes the CAISO's efforts to reach out to various stakeholders to find consensus on this issue and appreciates the hard work the CAISO has done in reaching a satisfactory compromise.

Although some elements of PG&E's alternative allocation methodology may have merit, SVP has not had the opportunity to fully analyze the implications of this proposal. As CAISO has indicated, the allocation based on non-coincident ramp may inappropriately allocate requirements to load serving entities whose ramping is beneficial to the CAISO markets. If so, that allocation would be inconsistent with cost causation.

Because PG&E's proposal has been introduced at a late stage in the proceeding, SVP encourages the CAISO to move forward with the CAISO's proposed methodology.

### **ISO** Response

The ISO appreciates the support on this aspect of the proposal. The ISO has proposed some minor changes to the allocation methodology in the latest straw proposal to mitigate the potential impact of anomalous data points.

 Please provide comments and recommendations (including requested clarifications) regarding the ISO's proposed must-offer obligations for the following resources types: a. Dispatchable gas-fired use-limited resources

SVP is concerned with the CAISO's proposal that an entity with use-limited resources would be subject to penalties or replacement obligations if the must-offer results in the resource's use limitations being exceeded. This element of the proposal could have unintended consequences by discouraging entities from making flexible capacity available because they might need the resource as a replacement.

#### **ISO** Response

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The ISO understands this concern and is proposing to break-out the flexible capacity requirements into technology agnostic categories with specific offer-obligations for each category that should allow a resource to be optimally categorized and mitigate replacement risks. The ISO will be seeking additional comments on this new proposal as part of the next revised straw proposal.

4. At the 11/13 stakeholder meeting there was a significant amount of discussion regarding the appropriate method for setting the price for the proposed flexible capacity availability incentive mechanism. Please provide comments about how this issue might be resolved

It is not readily apparent that the proposed price for the flexible capacity availability incentive mechanism is appropriate or reasonable. SVP believes further vetting is necessary and encourages the CAISO to develop a working group on this issue to establish a just and reasonable price for this mechanism.

### **ISO** Response

While still critical to the overall design of flexible capacity marketplace, the ISO is prepared to defer additional development of the SFCP to a later date or subsequent stakeholder initiative to allow more time to collect additional information to accurately value the availability of flexible capacity.

Company	Date	Submitted By
Six Cities	November 27,	Bonnie Blair
	2013	202-585-6905

1. The ISO has outlined a methodology to allocate flexible capacity requirements to LRAs. As detailed in the fourth revised straw proposal1 and at the 11/13 stakeholder meeting PG&E has put forward an alternative allocation methodology. Please provide comments for each of these proposals, particularly as they relate to cost causation. If your organization has a preference for one over the other, please state your preference and why.

The Six Cities support the methodology to allocate flexible capacity requirements to LRAs as set forth in the Fourth Revised Straw Proposal. With respect to the method for determining each LSE's contribution to the change in load component, the Cities support the method proposed by the ISO as opposed to the non-coincident approach recommended by Pacific Gas and Electric Company. The method set forth in the Fourth Revised Straw Proposal will allocate the change in load component in a manner that aligns more closely with the methodology for determining the system flexible capacity requirement and, therefore, will result in allocations more consistent with the cost causation principle.

#### ISO Response

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The ISO appreciates the support on the proposed allocation methodology. The ISO has proposed some minor changes to the allocation methodology in the latest straw proposal to mitigate the potential impact of anomalous data points.

Please provide comments and recommendations (including requested clarifications) regarding the ISO's proposed must-offer obligations for the following resources types:

 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 must-offer obligation for gas-fired use-limited resources described in the Fourth Revised Straw Proposal will impose even greater risks than the previous proposal for such resources that seek to participate as Flexible RA Resources to the extent consistent with their use limitations. Although the Cities support the concept of including opportunity costs in a uselimited resource's default energy bid, start-up cost, and minimum load cost, the Cities oppose the ISO's conclusion that use limitations should be managed exclusively through recognition of opportunity costs. That aspect of the ISO's proposal is especially problematic in light of statements during stakeholder meetings indicating that the ISO intends to set opportunity costs at levels expected to exhaust use limitations by design. The ISO's proposal to require "management" of use limitations solely through inclusion of opportunity costs in bids at levels likely to exhaust use limits will discourage participation by many uselimited resources as flexible capacity resources by imposing unacceptable risks. Fundamentally, the proposed algorithm to maximize revenues given the use limitation constraint is flawed in that it does not take into account the cost of replacement capacity or the penalty that could be assessed to the flexible RA resource if the use limitation is reached before the end of the month. Further, modeling an annual use limitation constraint by assuming equal monthly increments is overly simplistic and is likely to yield unreasonable results.

To the extent the ISO intentionally seeks to discourage participation by use-limited resources as flexible capacity resources, as suggested during the most recent stakeholder meeting, that policy is inconsistent with the preservation of system reliability at the most reasonable cost. While it is reasonable to structure the flexible RA program in a manner that offers greater compensation to resources that can make flexible capacity available during any and all hours of the extended must-offer periods proposed by the ISO, it makes no sense to effectively foreclose participation by resources that can make flexible capacity available during a substantial portion of the availability period by imposing unacceptable risks. Reducing the pool of available flexible capacity in this manner will both drive up the costs of maintaining adequate flexible capacity and potentially limit operational flexibility, reducing reliability. Moreover, the ISO's proposal to apply must-offer requirements to gasfired use-limited resources so stringent as to effectively preclude such resources from participating as flexible RA resources while simultaneously applying more relaxed must-offer requirements to other types of resources (*e.g.*, Demand Response and Variable Energy Resources) violates the ISO's commitment to craft market participation rules that are technology neutral.

In addition, currently there are arrangements under the Metered Subsystem (MSS) paradigm whereby the MSS entities may elect net load settlement. Under this net settlement arrangement, the MSS entities are prevented from recovering start-up and minimum load costs from the ISO markets. The current net settlement paradigm does not, however, prevent the MSS entities' resources from fully participating in the ISO market as RA resources despite the use limitations of some of these resources. If, however, the ISO's proposed treatment of use-limited, dispatchable gas-fired generation is adopted, MSS entities' resources will be faced with multiple economic disadvantages to effectively function as flexible RA capacity resources, *i.e.*, (a) inability to recover opportunity costs associated with start-up and minimum load, and (b) the cost of replacement capacity or performance penalties as described above. Such an outcome is contrary to the goal of the MSS paradigm of incentivizing MSS resources to participate in the market to the fullest extent possible while preserving MSS entities' ability to effectively manage MSS entities' system and/or resource limitations.

The Six Cities again urge the ISO to give serious 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 Second 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.

The bucket approach would allow the ISO to attach the highest value to resources that can make flexible capacity available over the full range of the availability period proposed by the ISO. At the same time, it 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 in a nondiscriminatory way the 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, provided that it is implemented on a technology neutral basis,

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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.

If the ISO remains unwilling to give serious consideration to a bucket approach, at a very minimum, the ISO should revert back to its proposed methodology in section 8.5.3 of the Third Revised Straw Proposal outlining an opportunity cost calculation methodology that would allow use-limited resources some flexibility in managing monthly use limitations. The ISO's previous proposal included a two part flexible capacity availability standard that would allow use-limited resources an exception from having the monthly use limitation count against them on their SFCP calculation. The two parts of the standard are:

1) Economically bid-in up to that point all of the resource's flexible capacity for at least 90% of Standard Flexible Capacity Product hours, and

2) Economically bid in at least 20 days over the month.

If both of the conditions are met, then the resource would be exempt from the SFCP for the remainder of the month. Any "hard stop" usage during a day prior to meeting these thresholds would count as if the resource had not economically bid-in for those hours. If an annual limitation is reached within a month, and the resource has economically bid-in up to that point at least 90% of the SFCP hours during at least twenty days of the month, then the resource would be exempt from the SFCP for the remainder of the month. If the resource is shown on subsequent monthly RA showings and no substitute capacity is provided, the resource would be subject to SFCP availability charges.

The Six Cities' comments on the Third Revised Straw Proposal challenged the 90% hours/20 days in the month thresholds as creating potentially unmanageable risks for uselimited resources. The thresholds included in the Third Revised Straw Proposal, however, were preferable to the latest change in the Fourth Revised Straw proposal imposing an absolute requirement on resources that reach their use limitations before the end of the month to provide substitute capacity or be subject to SFCP availability charges. As described above, the approach included in the Fourth Revised Straw Proposal is unworkable and will impose unnecessary additional costs on much needed resources. In the event the ISO rejects the bucket approach outlined above, it should reinstate the threshold approach from the Third Revised Straw Proposal at a minimum.

## **ISO** Response

The ISO believes that allowing flexible capacity resources to include opportunity costs in their start-up and minimum load costs will provide SC for these resources with an additional tool to manage potential risks of reaching a monthly or annual use-limitation. However, the ISO will defer this part of the FRAC-MOO proposal to a later initiative.

Additionally, numerous stakeholders have commented that resource/technology specific offerobligations are complex, discriminatory, and may not provide the ISO with adequate flexible capacity to reliably operate the grid. As such, the ISO is proposing to break-out the flexible capacity requirements into technology agnostic categories with specific offer-obligations for

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each category. The ISO will be seeking additional comments on this new proposal as part of the next revised straw proposal.

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

As noted in the Cities' comments on the Second and Third Revised Straw Proposals, 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 and, therefore, not resolved by the ISO. For the reasons discussed above, the Six Cities strongly oppose the ISO's apparent policy of seeking to discourage participation as Flexible RA resources by all gas-fired resources that, for reliability or environmental reasons, cannot economically bid their capacity for the entire availability period proposed by the ISO. Such a policy is not technology neutral and will impose unnecessary costs for procurement of flexible capacity.

- b. Specialized must-offer obligations:
- 1. Demand response resources
- 2. Storage resources
- 3. Variable energy resources

As discussed above, allowing special accommodations for certain types of resources while simultaneously denying parallel accommodations for gas-fired use-limited resources violates the principle of technology neutrality and, therefore, will distort market outcomes.

## **ISO** Response

The ISO is prepared to defer both the development of the SFCP and the substitution requirements. As such the ISO proposes to address this issue in the context of assessing a resources compliance with the SFCP.

The ISO is proposing an additional break-out of the flexible capacity requirements into technology agnostic categories with specific offer-obligations for each category.

Company	Date	Submitted By
SCE	Nov 27, 2013	Joe M <sup>c</sup> Cawley (626-302-3301)
1. The ISO has outlined a methodology to allocate flexible capacity requirements to LRAs.		
As detailed in the fourth revised straw proposal and at the 11/13 stakeholder meeting PG&E		
has put forward an alternative allocation methodology. Please provide comments for each of		
these proposals, particularly as they relate to cost causation. If your organization has a		
preference for one over the other, please state your preference and why		

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#### Allocation Factors

SCE believes that PG&E's proposal has merit, but further development and discussion is required before it can be adopted. In the meantime, the ISO's current proposal to use an LSE's average contribution to load change during the top five daily maximum three-hour net-load ramps within a given month is a reasonable starting point.

SCE continues to believe that the more pertinent issue is how the ISO's current allocation method creates a false impression of the flexible capacity value for wind and specifically solar PV resources. At a minimum, the best overall allocation approach is to develop seasonal allocation factors (please refer to SCE's detailed response in our comments on the 3<sup>rd</sup> Revised Straw Proposal).

## Allocation to VERs in CAISO BA but with contracts to LSEs outside the CAISO BA

In order to prevent unfair cost allocation to CAISO LSEs, the CAISO's determination of monthly flexible capacity requirements should exclude any VER resources not contracted with CAISO LSEs. SCE supports the suggestion made during the Nov. 13 FRAC-MOO workshop that discussions on determining how to allocate flexible capacity requirements to such VERs should be held as part of a new (e.g. Flexible Capacity Requirements) stakeholder process.

## **ISO** Response

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. The ISO will assess the proper manner for merchant VERs as part of the flexible capacity requirements assessment.

2. The ISO believes that demand response resources should have the opportunity to provide flexible capacity. The ISO has proposed how demand response resources could do so. Please provide comments on the ISO's proposal. Specifically, please identify concerns with the ISO's proposal and offer potential solutions to these concerns. Additionally, please comment on the proper forum (ISO, CPUC, etc.) where these concerns should be addressed.

SCE believes that the CPUC is the proper forum within which to address questions regarding how monthly and/or annual EFC values for demand response resources should be determined.

ISO Response

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The ISO is working collaboratively with the CPUC to align the goals and criteria for flexible capacity. However, ultimately, the ISO will be charged with calculating the EFC for all resources in order to release the draft and final EFC lists.

 Please provide comments and recommendations (including requested clarifications) 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.
- b. Specialized must-offer obligations:
  - 1. Demand response resources
  - 2. Storage resources
  - 3. Variable energy resources

SCE's concerns with this aspect of the CAISO's proposal remain unchanged from those included in our comments on the 3<sup>rd</sup> Revised Straw proposal (Comment #4).

SCE continues to believe that a distinct technology neutral "bucket approach" should be developed to house these types of resources and allow them to count towards meeting flexible capacity needs. The challenge will be to appropriately size the bucket to allow meaningful participation of these types of preferred loading order resources, while still maintaining reliability of the system. Because the current quantity of these resources is small, the "bucket approach" will allow these resources to count during this interim period while additional experience is gained. The determination of the appropriate technology neutral MOOs and bucket size needs to be discussed and resolved within the stakeholder process.

## **ISO** Response

Numerous stakeholders have commented that resource/technology specific offer-obligations are complex, discriminatory, and may not provide the ISO with adequate flexible capacity to reliably operate the grid. As such, the ISO is proposing to break-out the flexible capacity requirements into technology agnostic categories with specific offer-obligations for each category. These categories should provide opportunities for all resources, including preferred resources, to provide flexible capacity. The categories proposed are derived from a needs-based approach of the flexible capacity categories needed to reliably operate the system. The ISO will be seeking additional comments on this new proposal as part of the next revised straw proposal.

4. At the 11/13 stakeholder meeting there a significant amount of discussion regarding the appropriate method for setting the price for the proposed flexible capacity availability incentive mechanism. Please provide comments about how this issue might be resolved

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SCE believes that there is no plausible foundation for either of the CAISO's proposed calculation methods and resulting values. As suggested during the Nov. 13 workshop,

SCE believes that just as settlement discussions were required in the past when the CAISO and stakeholders needed to agree upon an administratively determined value representing forward-looking market prices, so too should a settlement-type discussion be initiated now to facilitate resolving this issue.

## **ISO** Response

While still critical to the overall design of flexible capacity marketplace, the ISO is prepared to defer additional development of the SFCP to a later date or subsequent stakeholder initiative to allow more time to collect additional information to accurately value the availability of flexible capacity.

5. The ISO has proposed an SFCP evaluation mechanism/formula that weights compliance with the real-time must offer obligation heavier than the day-ahead must offer obligation. Please comment on:

- a. The merits of using such a weighting mechanism relative to the "lesser of" proposal from the previous proposal
- b. The relative weights between the real-time and day-ahead markets

SCE's understanding is that the CAISO is requiring a MOO that entails only energy bids (vs. energy bids and self-schedules) in an effort to ensure a sufficient amount of dispatchable flexible capacity is available to the CAISO.

SCE believes, that rather than try to develop creative ways (e.g. the proposed RT-DA weighing factors) to encourage resources to bid rather than self-schedule, the CAISO should:

Initiate open discussions with stakeholders regarding the percentage of resources that do, on a regular basis, self-schedule, and

Pursue identifying and resolving why the current market incentives do not encourage a sufficient amount of resources to bid into the market.

Should this aspect of the CAISO's proposal remain, SCE does not oppose the CAISO's proposed 80/20 rule for SFCP provided that the CAISO preserves the exemptions currently stated in Section 8.5 of the proposal.

#### **ISO Response**

The ISO is designing the flexible ramping product and other real-time market incentives to improve incentives for resources to submit economic bids in real-time. This product will help the

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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.

As the ISO is proposing to defer the development of the SFCP, it is not necessary to make a determination on SFCP evaluation mechanism/formula or weights between the day-ahead and real-time must offer obligations. However, the ISO will reassess these comments prior to moving forward with the SFCP.

6. There were several clarifying questions asked at the 11/13 stakeholder meeting regarding substitution of flexible capacity that is on forced outage. Please provide comments and / or questions (and potential answers) regarding any additional clarifications the ISO should make in the next revision to clarify this aspect of the proposal.

Would the ISO please clarify that within the following sentence (pg. 52):

"As with the SCP, any substitute capacity provided to account for a flexible capacity outage must be received and approved by the ISO prior to the close of the IFM.",

The excerpt "prior to the close of the IFM" represents the time periods as reflected within the BPM, which currently require the SC to submit a request by 6:00 a.m. and the ISO then approving by 10:00 a.m. (i.e. the actual time the IFM closes).

## **ISO** Response

The ISO is also deferring any specific substitution and replacement provisions to a subsequent stakeholder initiative.

7. Please provide comments regarding how, or if, the SFCP adder price and the flexible capacity backstop price should be related.

See SCE's response to 4.

## **ISO** Response

See above response.

Company	Date	Submitted By
Western Power Trading Forum	November 27,	Ellen Wolfe, Resero Consulting for
	2013	WPTF, 916791-4533, ewolfe@resero.com
WPTF wishes to reiterate comments	previous submitted th	at are still "in play"
<ul> <li>Counting rules for various classes of resources still need to be resolved in a manner that provides equity between the contribution, the obligation and the compensation.</li> </ul>		
• We support the "adder me	thod" for counting fle	xible performance.
<ul> <li>We continue to encourage allocation based on LSE's coincident peak ramp. (WPTF does not support PG&amp;E's proposal for allocation on non-coincident peak load.) The ISO's selected allocation regime should be consistent with the ISO's overall FRAC drivers.</li> </ul>		
<ul> <li>Further refinement is needed for combined heat and power resources to ensure that they retain their ability to self-schedule above Pmin while being incented to offer economic bids associated with flexible capacity and to provide clarity for parties' bilateral contracting processes.</li> </ul>		
ISO Response		
The ISO believes that The 3-hour counting criteria can be applied solar (both PV and thermal), wind, demand response, long discharge storage resources. The EFC for storage resources electing the regulation energy management would be set at the lesser of resource's 15 minute output capability or NQC. See CHP parties for additional responses on CHP resources.		
While still critical to the overall design of flexible capacity marketplace, the ISO is prepared to defer additional development of the SFCP to a later date or subsequent stakeholder initiative to allow more time to collect additional information to accurately value the availability of flexible capacity.		
The ISO has proposed some minor changes to the allocation methodology in the latest straw proposal to mitigate the potential impact of anomalous data points. The ISO believes the latest allocation proposal accurately reflects causation of flexible capacity needs as based on a 3-hour net load ramp. The ISO is proposing an additional break-out of the flexible capacity requirements into technology agnostic categories with specific offer-obligations for each category. The ISO does not believe that this change to the requirements necessitates a revision of the ISO's proposed allocation methodology, but will seek additional stakeholder input as part of the next revised straw proposal.		
The FRAC MOO replacement policy a	and penalty prices rec	quires rethinking

The ISO first needs to develop a clear policy on the backstop procurement of FRAC in cases where one or more FRAC suppliers have not offered economic bids for their flexible range. WPTF supports a policy whereby the ISO would backstop the FRAC only if the ISO believed doing so was necessary for reliability purposes. In other words if market conditions and/or other showings suggest sufficient FRAC has bid into the markets then the ISO would not replace any FRAC that failed to offer economic bids. In any event this policy needs to be clear to support a design of penalty pricing.

Consistent with the discussion at the recent ISO stakeholder meeting, WPTF supports the establishment of a stakeholder work group to establish a workable penalty policy for a FRAC resource's failure to offer economic bids for flexible range during any particular period. Especially in light of (1) the likely surplus supply of FRAC in the short run and (2) the likely development of a reliability auction mechanism, an interim penalty that reflects the market-value of FRAC yet provides some incentive to bid is appropriate. The ISO's previous discussions and MSC discussion suggests that the Flexible Ramping Constraint does not provide a fruitful metric for the value of the flexible capacity. Thus we suggest a focused stakeholder work group to recommend a penalty value that balances various objectives.

# **ISO Response**

The ISO proposes to use the same price for the backstop procurement of flexible capacity as it uses for the procurement of generic system and local capacity under its capacity procurement authority. This pricing scheme will remain in effect until the ISO replaces its capacity procurement mechanism, which expires in February 2016.