



Comments of Pacific Gas and Electric Company
Flexible Resource Adequacy Criteria and Must-Offer Obligation
Third Revised Straw Proposal

Submitted by	Company	Date Submitted
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Pacific Gas and Electric Company (PG&E) offers the following comments in the stakeholder process for the California Independent System Operator's (CAISO) Flexible Resource Adequacy Criteria and Must-Offer Obligation (FRAC-MOO) Initiative October 3, 2013 Third Revised Straw Proposal (Proposal).

PG&E's primary point of concern in our comments on the Third Revised Straw is related to the proposed allocation methodology. Specifically, PG&E does not believe the allocation methodologies proposed by the CAISO to date are supported by the principle of cost causation and proposes an alternate approach that is more consistent with cost causation.

Please submit comments (in MS Word) to fcg@caiso.com no later than the close of business on October 16, 2013.

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

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

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

There are two key design questions regarding the allocation of the flexibility requirement based on the net load contribution. The first question is whether to allocate based on an average or peak ramp contribution. The second design question is what peak to use. Specifically, should the allocation be based on coincident or non-coincident maximum ramps. The current proposed method averages the daily ramps across the month to determine contribution to the system's largest 3-hour ramp.

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

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

Regarding the second design question - which type of peak ramp should be used in the allocation: coincident versus non-coincident, PG&E recommends the non-coincident. Use of the coincident ramp methodology can create a "free ridership" problem. Again a simple example with two LSEs can illustrate the free ridership problem using a coincident methodology.

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

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

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

Use of averaging or coincident peak ramps can lead to unjust and unreasonable outcomes. PG&E recommends an alternate approach, described below.

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

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

PG&E proposes a methodology that addresses issues by using the non-coincident monthly maximum 3-hour ramp and not average across the month. Additionally, PG&E proposes to allocate a flexibility requirement to merchant variable energy resources (VERs) which is similar to the allocation methodology used in Westar's Balancing Area Services Agreement¹.

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

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

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

Example of Proposed Load Allocation Methodology

	LSE's maximum 3-hour load change in month	LSE's share of total LSE load ramps in month	System's load ramp coincident with system's maximum 3-hour net-load ramp in month	LSE's monthly allocation of load for flexible requirement
LSE 1	2,000 MW (Day 2, HE 14-HE17)	2,000 MW/8,000 MW = 25%	5,000 MW	25% * 5,000 MW = 1,250 MW
LSE 2	3,000 MW (Day 6, HE 15-HE18)	3,000 MW/8,000 MW = 37.5%		37.5% * 5,000 MW = 1,875 MW
LSE 3	1,000 MW (Day 15, HE 14-HE17)	1,000 MW/8,000 MW = 12.5%		12.5% * 5,000 MW = 625 MW
LSE 4	2,000 MW (Day 30, HE 14-HE17)	2,000 MW/8,000 MW = 25%		25% * 5,000 MW = 1,250 MW
Total	8,000 MW			

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

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

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

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

This is similar to the treatment of Merchant VERs in the Westar Order. Westar argued, that “it is inappropriate for its wholesale and retail customers to subsidize the costs of the regulation burden imposed by generators located in Westar’s balancing area that either export out of Westar’s balancing area or make sales into the SPP energy imbalance market.”³ Westar’s reasoning was accepted by FERC and is applicable to the CAISO. CAISO LSEs should not be responsible for the flexibility requirement of VERs that are not contracted with a CAISO LSE. Instead, merchant VERs or VERs that have a non-CAISO buyer should be allocated a portion of the flexibility requirement.

To address this issue, PG&E proposes:

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

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

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

The seasonal requirement would dull the signal in a manner similar to using monthly averages in place of monthly peak load does. Moreover, California Public

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

Utilities Commission (CPUC)-jurisdictional LSEs are already accustomed to monthly allocations of generic RA. Mirroring the generic RA process to the extent possible for the Flexible RA program is appropriate and preferred.

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

PG&E defines “causation” in a manner consistent with FERC’s cost causation principle as applied in FERC Order 890. Specifically, “the cost causation principle provides that costs should be allocated to those who cause them to be incurred and those that otherwise benefit from them.” As discussed in the Order, cost allocation should also be designed to address free rider problem. The alternative allocation methodology proposed by PG&E for the net load contribution addresses this issue.

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

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

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

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

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

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

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

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

a. Resources not identified as use-limited

No comments at this time.

b. Dispatchable gas-fired use-limited resources

No comments at this time.

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

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

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

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

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

No comments at this time.

c. Hydro Resources

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

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

1. Demand response resources.

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

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

2. Storage resources.

MOO for storage should not be incorporated at this time

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

3. Variable energy resources.

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

No comment at this time.

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

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

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

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

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

No comment at this time.

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

Applying the same availability rate as the SCP is too stringent

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

d. *The proposed SFCP evaluation mechanism/formula*

1. *The formula used to calculate compliance (including the treatment of long-start and use-limited resources)*
2. *The treatment of forced and planned outages*
3. *The minimum availability thresholds for use-limited resources*

e. The proposed substation rules for forced outages

Greater detail and discussion of substitution is necessary

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

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

If Resource A goes on a forced outage then:

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

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

Currently, the CAISO allows local RA resources to be prequalified as substitutes for other local RA resources with similar characteristics. Prequalified resources are allowed to be substituted in RT for each other. PG&E recommends an extension of the prequalification process for flexible RA resources, allowing for real-time (RT) substitution of one flexible resource for another if they have met the prequalification criteria.

- f. Please also include comments regarding issues the ISO must consider as part of the evaluation mechanism that are not discussed in this proposal.*
- 6. The ISO has proposed to include a backstop procurement provision that would allow the ISO to procure flexible capacity resources to cure deficiencies in LSE SC flexible capacity showings. Please provide comments regarding the following issues of ISO's proposed flexible capacity backstop procurement proposal:*
 - a. The inclusion of the adder methodology*

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

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

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

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