



**Comments of the *Environmental Defense Fund*  
On the California Independent System Operator  
Flexible Resource Adequacy Criteria and Must-Offer Obligation  
Revised Straw Proposal (June 13, 2013)**

Submitted by	Company	Date Submitted
Lauren Navarro, JD Regulatory Attorney <a href="mailto:lnavarro@edf.org">lnavarro@edf.org</a>  David Miller, PhD Consultant to EDF <a href="mailto:renewableintegration101@gmail.com">renewableintegration101@gmail.com</a>	Environmental Defense Fund (EDF)	June 26, 2013

**I. Introduction**

Environmental Defense Fund (EDF) is a national non-profit consisting of passionate, pragmatic environmental advocates who believe in prosperity *and* stewardship, focusing on the most critical environmental problems. EDF appreciates the opportunity to provide comments to the California Independent System Operator (CAISO) on their “Flexible Resource Adequacy Criteria and Must Offer Obligation: Market and Infrastructure Policy, Revised Straw Proposal” (FRACMOO Straw Proposal), dated June 13, 2013.

EDF recognizes that as California continues on its bold journey towards a clean energy economy, the markets upon which the electric grid has historically been managed will need to evolve in order to facilitate the least cost integration of renewable resources that meets state environmental and consumer mandates. The FRACMOO Straw Proposal is designed to advance measures to implement the flexible capacity requirements for the 2015 Resource Adequacy (RA) compliance – ultimately, to facilitate the integration of renewables procured as a result of state environmental policy.

Failure to integrate renewable energy assets at least cost will not only lead to higher energy rates for electricity customers, but will also lead to excessive reliance on conventional generation to balance the grid. Under such a scenario, any greenhouse gas (GHG) emissions reductions resulting from increased reliance on clean energy assets may be lost through over reliance on polluting fossil fuel resources. EDF thanks the CAISO for proactively engaging in this critical market transition, in conjunction with the California Public Utilities Commission (CPUC) and the California Energy Commission (CEC).

In the following document, we define our position (Section II) and respond to the CAISO template questions (Section III).

## II. EDF Position on the FRACMOO Revised Straw Proposal

**(A) Any and all market enhancements, including FRACMOO, should be consistent with California environmental and energy laws, policies, and targets that govern electric energy development, generation, and procurement in this state.**

California is a national and international leader on environmental policy, including laws that reduce GHG emissions (AB 32) and require IOU's to have a 33% RPS (SBX1-2). The Public Utilities Commission and the Energy Commission have also established a clear loading order to define the utilities' approach to meeting our energy needs: energy efficiency first, followed by Demand Response (DR), then renewables and only then conventional resources. The FRACMOO revised straw proposal must reflect these mandates, as it will directly influence whether they are met by the utilities.

Currently, the FRACMOO revised straw proposal is not consistent with the loading order, and may act to exclude DR and other preferred, use-limited resources that would be able to meet some of the CAISO's Flexible Capacity Requirements (FCR). In doing so, it may inadvertently reduce the efficacy of California's landmark clean energy policies – and increase climate change and air pollution emissions.

EDF recognizes that the specific three hour ramping requirement defined by the CAISO is most easily met by resources with well-defined ramping characteristics – the conventional generation resources that have largely been relied on to date. At this point in the state's clean energy development, we believe that the rules designed to enable a resource to qualify as Effective Flexible Capacity (EFC) should ensure a place for clean, use-limited energy resources – reflecting the clean energy policies that are driving the need for this proceeding.

For these reasons, we appreciate CAISO's commitment to “working with DR providers to ensure that all necessary use-limitations of DR resources are identified and properly addressed.” As CAISO CEO Steve Berberich said recently, “Frankly, California needs to get much better at demand response. We have a tendency to look at one side of the equation as opposed to the demand side” (as quoted in Smart Grid Today on 6/10/13). We look forward to working with the CAISO in this endeavor, and offer preliminary comments below.

**(B) DR can be used to directly reduce peak load, which reduces both the largest three hour contiguous ramp contribution as well as the peak load contribution to the FCR. Therefore any combination of DR resources that can reliably be dispatched by the CAISO to decrease peak load, regardless of their temporal duration, should count as EFC and be considered in calculating FCR.**

The CAISO has set its target on a three hour ramping product to meet forecast changes in net load, not accounting for DR's ability to directly reduce peak load and – as a result – the need for this capacity. Reflecting this ability – in accordance with DR's priority by the loading order - reduces the largest three hour contiguous ramp contribution, as well as, assuming the Most Severe Single Contingency (MSSC) condition is not binding, the peak load contribution to the FCR. Therefore any combination of DR resources that can reliably be deployed by the CAISO to reduce system peak load, regardless of their temporal duration, directly reduces the FCR. Stated in a different way, any combination of DR resources that reduce system peak load, regardless of temporal duration, should count as EFC.

In fact it is precisely during peak load conditions when DR resources typically have the most discretionary capacity available, and therefore the greatest ability to reduce the FCR, so long as the CAISO is willing to account for this equivalent effect. This also provides a strong argument

for enabling DR to participate directly in wholesale energy markets, where direct control of DR resources by the CAISO will be of enormous system benefit.

In the FRACMOO revised straw proposal section 6.1.4, the CAISO requests stakeholder comments "...regarding the best way to manage DR resources' use – limitations based on the hours in which they can be called. The goal is to allow a demand response resource to count towards flexible capacity for what it is able to drop over a three hour period instead of looking at a single moment in-time." This approach unnecessarily compares DR to conventional generation, not recognizing the contribution that DR can make towards directly reducing the FCR by judicious application during peak load conditions.

While there are instances where DR resources can be aggregated to create a three hour ramping product consistent with the definition of EFC described in the FRACMOO revised straw proposal, we do not believe that this is the only approach allowing DR to satisfy the FCR, nor does it adequately reflect the loading order. We suggest that in addition to allowing DR to count towards EFC in the same manner as conventional generation, that the CAISO allow DR to count as an equivalent quantity of EFC consistent with the DR resources ability to reduce peak load and the FCR.

**(C) Time Of Use (TOU) rates being actively considered within the CPUC's residential rate design rulemaking will reduce peak load over the next 2 - 5 years, changing the FCR over time. The CAISO should be prepared for a potentially large reduction in FCR resulting from adoption of TOU rates rather than procuring excess FC now.**

The CPUC's residential rate design rulemaking (R.12-06-013) is in the process of considering more widespread adoption of TOU rates. Such price responsive demand will impact the amount of FC needed by the CAISO. If the CAISO does not account for any reduction in FCR resulting from some adoption of residential TOU rates in the near future, then the state may end up over procuring expensive thermal resources to meet this FCR, resulting in excess greenhouse gas (GHG) emissions as well as depressed wholesale energy prices. Because of the demonstrated ability of TOU rates to reduce peak load, we respectfully recommend that the CAISO consider the impact of the residential rates proceeding on an evolving FCR, and avoid procuring excess FC now.

**(D) The FCR adopted by the CAISO should reflect actual need, and Load Serving Entities (LSEs) should not be required to procure or to assume costs for FC resources in excess of their actual need.**

Many existing resources have historically supplied "flexibility" to the grid without explicit real time dispatch instructions from the CAISO. Such resources are capable of increasing their contributions in the future. As noted in the CAISO's "Roadmap for DR and EE," these include price responsive demand (a subset of Demand Response (DR)), out of state imports/exports of economy energy, the emerging Energy Imbalance Market (EIM) in WECC, limited self-scheduling of resources not capable of submitting to full dispatch by the CAISO, and spot purchases and sales from other California balancing authorities. In addition, the 15 minute energy market being developed by the CAISO will give even more options to purchase flexible capacity on the spot market.

LSEs will no doubt continue to rely on these traditional strategies to provide flexibility and should be encouraged to do so. Significantly, however, none of these resources would have an EFC value and thus be eligible to be procured and receive RA payments under the Proposed Decision's adopted "Flexible Capacity Framework" or the FRACMOO. As a consequence, the

amount of flexible capacity to be dispatched by the CAISO is highly likely to be considerably less than that calculated by the FRACMOO formula. LSEs should not be required to procure or to assume costs for flexible capacity resources in excess of their actual need. The CAISO should ascertain what FC resources have been used in the past to meet ramping needs before mandating any particular set or quantity of FC resources – and these should be consistent with the loading order.

Whatever formula is eventually approved by the CAISO as the basis of its FCR should be demonstrated over a reasonable length of time to be consistent with actual need for flexible resources to be dispatched by the CAISO. Failure to do so would not only result in excessive costs but would prematurely require the development of new infrastructure which may never be needed. As discussed further below, EDF supports the approach by the CPUC described in the recent proposed decision in the RA proceeding.

**(E) Adoption of a formal tariff should be postponed until the FRACMOO fully accounts for and integrates loading order preferred resources, use limited resources and existing sources of flexibility.**

The CPUC's most recent Proposed Decision (PD) in the RA rulemaking (R.11-10-023) issued on May 28, 2013 adopted 2014 annual RA obligations applicable to CPUC jurisdictional electric LSEs and an interim flexible capacity framework. The PD makes several key findings that directly affect both the timing and content of the FRACMOO. Specifically, the PD concludes that "there is no compelling need to adopt a flexible capacity requirement for the 2014 Resource Adequacy year" and that the determination of flexible capacity need in 2015 through 2017 must be refined to ensure that "a wide range of use-limited, preferred, and other resources can qualify to meet flexible capacity needs." (PD at pp. 3, 25, 39)

EDF shares the CPUC's view that the need for such flexibility is not so immediate that it cannot wait to get the rules right to incorporate "a wide range of use-limited, preferred, and other resources." Thus, any CAISO procurement tariff must meet identified "reliability" concerns and do so in a manner that complies with important State policy mandates that require energy needs to be met by a specific resource mix that places a preference on energy efficiency, demand response, and renewable generation to reduce pollution and GHG emissions. Over procurement of fossil resources not only conflicts with these policies, but imposes additional and unnecessary costs on California electric ratepayers. (See, e.g., PD at p. 3.)

Given this conclusion, EDF agrees with the PD that the CAISO should take the time necessary to "best...identify and procure flexible capacity resources in a manner consistent with the Commission's Loading Order." (PD, at p. 50). The clear direction from the CPUC is that "preferred" and use limited resources, such as DR and energy storage, will play a role in meeting any identified flexible capacity need. An informal technical working group on the role of DR in the FRACMOO may be a timely next step to delineate ways to better integrate these resources into the Revised Straw Proposal.

**(F) The costs to the CAISO of having flexible capacity on hand to manage any and all system needs, including conventional generation forced outages and ramping restrictions; intra schedule ramping; as well as changes to variable generation and load, should be allocated in a consistent manner.**

Many types of system events, including conventional generation forced outage rates and ramping restrictions; intra schedule ramping; as well as changes to variable generation and load, impact the CAISOs need for flexible capacity. However, in the FRACMOO revised straw

proposal, the CAISO assigns costs of the FCR resulting from changes in variable generation resources and load to the cost causer, while the costs of system events resulting from changes in conventional generation are socialized to load.

The effect of changes in conventional generation can be reframed in terms of its impact on net load. For example, a conventional generator forced outage can be described as an equivalent spike in the net load: Changes in conventional generation can be reframed in terms of their impact on net load and consequently the FCR. Therefore, allocating the cost of the FCR resulting from changes in variable generation and load to the cost causer, while at the same time socializing the cost of the FCR resulting from changes in conventional generation is *per se* discriminatory. The CAISO should either socialize the costs of the FCR across all load, consistent with how the costs of changes in conventional generation are currently allocated, or should account for the contribution of changes in conventional generation to the FCR, and allocate the pro rata share of FCR costs to conventional generators, consistent with how the proposed FCR charges variable generation resources and load.

### III. EDF Responses to CAISO Template Questions

1. The ISO has outlined the a methodology to allocate flexible capacity requirements to LSE SC based one possible measurement of the proportion of the system flexible capacity requirement to each LSE SC based on its contribution to the ISO's largest 3 hour net-load ramp change each month. Please provide comment regarding the equity and efficiency of the ISO proposed allocation. Please provide specific allocation formulas when possible. The ISO will give greater consideration to specific allocation proposals than conceptual/theoretical ones. Also please provide information regarding any data the ISO would need to collect to utilize a proposed allocation methodology. Specifically,
  - a. Has the ISO identified the core components for allocation? Are more needed? If so, what additional components should be considered and how should ISO consider them? Are fewer needed? If so, what should the ISO include?

*See Section II.F above.*

- b. Has the ISO used the right allocation factors for the identified components (i.e. load ratio share, percent of total capacity contracted)? If additional or fewer components should be considered as identified in 1a, above, please provide specific allocations factors for these components.
  - c. Does your organization have any additional comments or recommendations regarding the allocation of flexible capacity requirements?

*The FRACMOO Straw Proposal should distinguish between solar thermal generation with and without storage. Such renewable generation assets are fundamentally different: Solar thermal without storage behaves more like a solar photovoltaic resource, and solar thermal resources with storage behave more like a conventional resource. The CAISO should explicitly distinguish between solar thermal resources with and without storage in its FCR determination.*

2. The ISO believes that there are either tools in place or under development to manage a resource's use-limitations while still be subject to economic bid must offer obligation. The ISO, consistent with the CPUC's RA proposed decision, will require hydro resources to be able to provide a minimum of 6 hours of energy at Pmax to be eligible to provide flexible capacity. However, some resources, including demand response and storage resources may have use limitations that may do not fit well within these mechanisms.
  - a. Please provide comments regarding what use-limitations are currently managed by existing or proposed ISO tools and what must-offer obligation should apply to these resources.
  - b. Should the ISO consider other minimum energy or run time limits for other types of use limited resources to be eligible to provide flexible capacity? If so, what should these limits be? Why?
3. The ISO is assessing how bid validation rules could work for flexible capacity resources that are subject to an economic bid must offer obligation. The ISO provided two examples of bid validation rules and potential interpretations. Please provide comments regarding how the ISO should address each of these examples and any others that may need to be considered.
4. The ISO currently has a tool in place that allows for a resource to include the opportunity costs associated with run-limitations into the default energy bid. The ISO is considering a similar mechanism to allow resources with annual or monthly start limitations to include the opportunity costs of start-up in the resource's start-up and minimum load costs. Please provide comments on how the ISO should consider the opportunity costs for start limitations and how that opportunity cost should be calculated.
5. The ISO is proposing that all flexible capacity resources should be required to submit economic bids between 5:00 am and 10:00 pm. Please provide comments regarding this proposed must-offer obligation. Please connect to the response to this question to any responses to questions **Error! Reference source not found.** or 5 as appropriate.

*The FCR as proposed by the CAISO addresses two distinct needs: First, the FCR addresses the need to have flexible resources available to meet the diurnal ramp caused in part by the increase in solar resources on the grid. Second, the FCR addresses the need for having flexible resources available to meet the additional uncertainty and variability in the net load that comes with having increasing quantities of variable generation resources in the fleet. The first type of FCR is addressing a need that can be predicted as accurately as the rising and setting of the sun, while the second type of FCR is addressing a need that reflects solar and wind forecast errors.*

*Both types of FCR are needed by the CAISO, since without the MOO associated with the FCR, resources capable of meeting either of these needs would have the option of self scheduling, thereby limiting the ability of the CAISO to economically dispatch resources to manage changing grid conditions. The difficulty with the FCR as proposed by the CAISO in their revised straw proposal is that it makes no distinction between these two types of FCR, with the result that the cost of procuring this FCR will likely be driven by the more expensive of the two. In addition, FC resources must be available 17 hours each day, even though the significant*

*ramping events occur within much smaller time intervals. So while the revised RA compliance obligation will provide the CAISO with tools to reliably meet load, it does so at a higher cost to ratepayers.*

*While EDF recognizes that the current RA rulemaking has placed limits on the types of FC that the CAISO is able to propose, we note that the CAISO has historically been able to meet large forecastable system ramps without the need for this FC construct. EDF is concerned that the CAISO is creating a framework for managing forecast net load that does not adequately utilize preferred resources and will prove excessively costly to ratepayers. We have suggested approaches to lower the cost of this approach – we would also support the CAISO working with the CPUC to distinguish between these two difference resource requirements.*

6. The ISO has proposed to include 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 ISO's flexible capacity backstop procurement proposal.

*Any exercising of the CAISO's backstop procurement provision implies a failure either in the CPUC RA process or in the CAISO FCR forecasting. Furthermore, backstop procurement in lieu of the use of preferred resources to meet the FCR is inconsistent with California's mandated loading order. Therefore any use of backstop procurement should be treated as a signal that the RA process is not functioning properly, and should encourage rethinking and possibly reworking the FCR construct, especially with respect to including the use of preferred resources.*

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

*Thank you for the opportunity to provide these comments. We consider these comments as the start of a dialogue and look forward to working with the CAISO as it considers the issues contained herein.*