



**Environmental Defense Fund Comments On CAISO  
Flexible Resource Adequacy Criteria and Must-Offer Obligation  
Straw Proposal, July 25, 2013**

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### **Introduction**

Environmental Defense Fund (EDF) is a national non-profit consisting of passionate, pragmatic environmental lawyers, economists and scientists 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 Straw Proposal of July 25, 2013 (FRACMOO Proposal).

To ensure that the utilities follow the loading order, the RPS, AB 32 and the other clean energy mandates as outlined in state law, it is essential to account for the specific use limitations of clean resources – including Demand Response (DR) - in developing new markets. EDF acknowledges the CAISO’s ongoing efforts to engage preferred resources such as wind, solar, and demand response in the evolution of our electrical grid.

Specifically, we recognize that the current version of the Proposal begins to reflect the use characteristics of DR resources, the focus of these comments. The following comments address 1) remaining issues that must be addressed to allow demand response to viably participate in flexible capacity markets, 2) the need to ensure that existing resources are fully accounted for in the development of FRACMOO, and 3) concerns around market complexity.

### **The Role of Demand Response in FRACMOO**

California’s clean energy mandates - including the 33% RPS which has been a key impetus for the FRACMOO contemplate electricity generation that displaces fossil fuels and reduces air pollution and greenhouse gas emissions.<sup>1</sup> The success of these policies ultimately depends on the design of FRACMOO: as noted by the California Counsel on Science and Technology, “if electric generation is predominantly intermittent renewable power, using natural gas to firm the power would likely result in

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<sup>1</sup> SBX1 2, Findings and Declarations, codified at Cal. Pub. Util. Code § 399.11 (West 2013)

greenhouse gas emissions that would alone exceed the 2050 [GHG] target for the entire economy.”<sup>2</sup> As an alternative to natural gas, DR can provide a low cost, low-emission mechanism for increasing the elasticity of load and integrating renewable generation. Because of its beneficial attributes, California has made DR a top priority in its loading order, directing its deployment before fossil-fuel generation.

In theory, energy markets alone incentivize generation to meet load in real time simply by providing adequate price signals. But, CAISO’s choice to instead define the characteristics of the flexible ramping resource results in the need for specific allowances for DR, renewable and “use-limited” resources. Fortunately, CAISO has taken some steps to allow demand response to be utilized in the FRACMOO, providing the beginnings of a solid foundation to support state law. For DR, the Proposal now begins to allow these resources into the market by permitting them to bid either in the morning (6am to 11am) or afternoon (4pm to 9pm) and limiting the submission requirement to non-holiday weekdays.

These improvements are significant, but aren’t enough to overcome the risk to the end-use customers who ultimately supply the DR resource: actual business, industrial, and residential customers that must curtail their electricity use. Thus, without some additional changes, it is quite likely that DR will not be able to participate in the FRACMOO market at all, and that the air-quality and GHG benefits of renewable resources will be overwhelmed by emissions from the natural gas used to integrate them. EDF recommends the following additions/clarifications:

1. Concerns with sub-LAP design of PDR: While flexible capacity is a system resource, the actual vehicle for delivering this DR to the CAISO is through the Proxy Demand Response (PDR) program, which requires DR providers (DRPs) to bid at the sub-LAP level. The sub-LAP design of PDR limits the number of participants able to participate locally in PDR, and will therefore limit the ability of DRPs to aggregate flexible capacity, informing the following comments.
2. Determination of Bid Capacity: Given the seasonal nature of load availability, we request that the MOO be calculated on a monthly, rather than annual, basis.
3. Appropriately defining availability windows: By adjusting the availability window from a single 17 hour window to one of two windows - from 6 AM - 11 AM or from 4 PM to 9 PM - the CAISO has made significant progress in developing rules that allow DR to more meaningfully participate in FRACMOO. However, while some loads have flexible hours of operation, some are only available during normal business hours. Therefore, the current DR availability windows could unnecessarily restrict the DR available to participate in FRACMOO. EDF therefore suggests modifying the availability windows to reflect the characteristics of various types of load participating in these DR programs. Another possibility would be to combine different resources to meet the CAISO’s restrictions - for example, storage with DR resources.
4. Start Limitations and Opportunity Cost Methodology: The FRACMOO Proposal recognizes that some resources, including demand response, have “use limitations” such as start limits, and states that DR can manage them through its opportunity cost methodology.<sup>3</sup> However, because of the variable nature of the processes of the businesses participating in DR, opportunity costs will vary by hour of day, day of week, and day of year. A static cost-based approach may be insufficient to manage the risks to the individual customers who make up the DR resource primarily because those costs vary significantly by time of day or day of year. Until the CAISO’s opportunity cost methodology has been proven to function in practice, we recommend the

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<sup>2</sup> California Counsel on Science and Technology, *California Energy Future - The View to 2050*, 4 (May 2011), <http://www.ccst.us/publications/2011/2011energy.pdf>.

<sup>3</sup> Proposal page 29

CAISO append a similar approach to the one discussed for “Monthly or Annual Energy of Environmentally Limited Resources,” utilizing an additional layer of “monthly or daily limits, or ‘hard stops’ on the amount a resource can be dispatched.”<sup>4</sup>

In doing so, it may be more appropriate for the Scheduling Coordinator (SC) to establish the resources' opportunity cost instead of the CAISO or a third party. For example, the CAISO could limit the requirements for DR based on the characteristics of the resource, incorporating daily, weekly, and monthly start limitations. Additionally, the CAISO could allow demand response resources and their aggregators to black out certain days when primary business responsibilities render them unable to respond as a system resource, such as peak shopping days for retail outlets. These limitations should be treated as a floor (minimum) for participation, not a ceiling (maximum). Over time, experience will help determine accurate and appropriate opportunity costs for this resource in this market.

EDF also requests clarification from the CAISO as to the distinction between the opportunity cost and default energy bid.

### **Defining the Scope of FRACMOO: Study Design**

Non-FRACMOO system resources that are able to meet operational needs in real time will continue to exist on the system. These include DR, curtailment, and imports, which may not meet the detailed FRACMOO requirements but will be able to meet the need for the resource. It is absolutely essential that these other resources be taken into account in developing FRACMOO procurement obligations to avoid duplication of unnecessary and costly resources. Thus, non-FRACMOO resources must be fully accounted for in the study methodology that CAISO utilizes to determine flexible capacity requirements (FCR) determined for FRACMOO obligation as determined each year.

Relatedly, understanding and accounting for the temporal distribution of FCR needs in a given month will lead to more realistic and cost effective FRACMOO procurement obligations. Thus, the annual study to determine FCR should examine the number of hours per month that will actually experience this maximum flexible capacity need and the extent it can be met with the existing resources described above. The flexible capacity requirements should then be limited to the remaining, net need.

Additionally, creating a truly equitable allocation of flexible capacity requirements to LSEs is a challenging if not somewhat arbitrary task. For example, the CAISO is proposing to allocate load share to LSEs based on a monthly average load factor. However this monthly average load factor makes no distinction between a perfectly flat net load profile, which could be balanced with a perfectly flat conventional generation profile with zero need for flexible capacity, or a highly variable net load<sup>5</sup> profile, which would incur significant balancing costs resulting from the need for significant flexible capacity. Ideally, any flexible capacity assessment would more closely reflect the specific need for flexible capacity.

### **Market Design and Complexity**

In general, EDF strongly supports the use of market based solutions to address the CAISOs reliability concerns. However, while EDF recognizes the importance of developing markets that provide the CAISO

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<sup>4</sup> Proposal page 25.

<sup>5</sup> Net load is system load minus wind and solar.

with dispatchable resources for meeting load in real time, we are concerned with their complexity. The proposed rules for flexible capacity, along with the operational flexible ramping product, could dramatically increase the complexity of the California energy markets.

For example, while EDF appreciates the CAISO's efforts to develop rules that will allow preferred resources such as DR and renewables as well as non-preferred resources such as storage to participate in FRACMOO, we are concerned that developing carve outs by technology type creates additional complexity that will be challenging to get right the first time. We therefore urge the CAISO to allow for sufficient time to learn and evolve as we develop experience with these new markets.

The complexity arising from the creation of these new markets raises two challenges: First, the market rules being developed may make it difficult for resources to economically and efficiently comply with and operate in these markets and could lead to significant barriers to entry for new market participants. Such a scenario would impede development of the very resources the CAISO is looking to develop. For example, average energy prices in the CAISO's system is roughly \$50 / MWh, while the Net Benefit Test (NBT) threshold, which is the price below which DR is not economic, is also about \$50 / MWh. Such energy prices and NBT thresholds as are currently being experienced within the CAISO are barely sufficient to encourage market participation. Adding the types of transaction costs and risk associated with FRACMOO will further limit market participation. Second, the complexity of these new markets may give rise to gaming opportunities by predatory market participants.

The costs of these missteps will fall on California ratepayers, both in higher electricity prices and missed opportunities for clean, renewable energy. Accordingly, EDF urges caution in development and implementation of these new markets, and asks the CAISO to look for simple solutions whenever possible. Specifically, EDF asks that the CAISO set a process to revisit the role of clean, preferred resources in FRACMOO every few years to ensure that it takes into account their changing characteristics and those of the system as a whole.

## **Conclusion**

EDF is concerned that the FRACMOO and associated markets are a move away from sending clear price signals to market participants that establish the types of operational attributes required by the CAISO to meet net load, diverging from other successful markets such as PJM. Approaching the market structure in this way creates the need to define specific rules to allow clean resources like demand response and renewables to play the vital role envisioned in California's clean energy mandates.

EDF would like to thank the CAISO for their ongoing efforts towards developing solutions that take into account the value of these clean resources in meeting the needs outlined in FRACMOO, and requests that this process be revisited every few years. EDF looks forward to continuing to work with the CAISO to integrate renewables in a way that both improves air quality and greenhouse gas emissions and fosters a robust and resilient electricity system.