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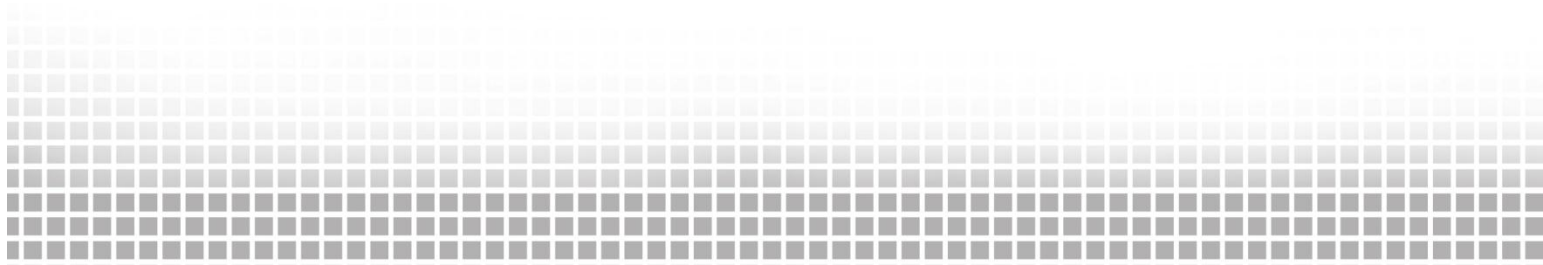
# Replacement Requirement for Scheduled Generation Outages

*Draft Final Proposal*

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California Independent System Operator



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## 1.0 Introduction and Background

In D.11-06-022<sup>1</sup>, the California Public Utilities Commission (CPUC) decided that, starting with the 2013 Resource Adequacy (RA) year, the CPUC would no longer apply a replacement rule requiring its jurisdictional load serving entities (LSEs) to provide replacement RA capacity under certain circumstances when RA resources were on planned outages. The ISO initiated this stakeholder process to develop changes to its outage management and resource adequacy procedures to address the elimination of the CPUC's RA replacement rule.

This Draft Final Proposal further builds on the Revised Straw Proposal that the ISO posted on April 18, 2012. It incorporates the discussion at the stakeholder web conference held on April 24, 2012, and comments received from stakeholders on the revised straw proposal.<sup>2</sup>

Resource Adequacy (RA) was instituted in California after the Energy Crisis to help ensure that sufficient resources would be available to meet the expected peak demand. Its structure requires a unique cooperation between the ISO and local regulatory authorities, including the California Public Utilities Commission. The program has changed since its inception, but the basics have so far remained unchanged: it is currently a one year forward and monthly demonstration that Load Serving Entities (LSEs) have sufficient capacity to meet their expected demand peak plus a planning reserve margin.

The RA program consists of an annual showing and monthly showings. The annual showing is submitted by LSEs in October for the following year. LSEs are required to meet two main requirements. First, they are required to show they have procured 90% of their need for the 5 summer months of the following year. Additionally, if their load is located in any of the Local Capacity Regions which the ISO has defined, they must demonstrate 100% of their need for local capacity for the entire year. The local capacity showings can also count towards the system level. The annual showing is preliminary and the LSEs can change their resources when they get to the monthly showings.

Currently, the ISO accepts or rejects each requested planned outage based on whether the outage presents a reliability risk when all possible generation that may avert that risk are considered. The ISO currently cannot reject planned outages or extensions to those outages by generators on the basis that they would reduce the level of RA generation below appropriate

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<sup>1</sup> June 23, 2011; [http://docs.cpuc.ca.gov/WORD\\_PDF/FINAL\\_DECISION/138375.PDF](http://docs.cpuc.ca.gov/WORD_PDF/FINAL_DECISION/138375.PDF)

<sup>2</sup> In the previous proposal for this initiative (April 18, 2012 revised straw proposal), the ISO described stakeholder comments on the straw proposal, and the overall evolution of the proposal. The revised straw proposal is available at the following link:  
[http://www.caiso.com/Documents/RevisedStrawProposal-  
ReplacementRequirementScheduledGenerationOutages.pdf](http://www.caiso.com/Documents/RevisedStrawProposal-ReplacementRequirementScheduledGenerationOutages.pdf)

levels. The ISO cross-validates the supply plans of generators and the corresponding RA plans of LSEs, and provides this information to the CPUC along with information on planned outages. The CPUC determines if its jurisdictional entities are RA sufficient, and orders them to cure any deficiencies. Today, the cure of deficiencies includes requiring the LSEs to replace any RA capacity which is scheduled to be on a planned outage exceeding certain requirements. The CPUC has eliminated this LSE Replacement Rule starting with the 2013 RA year.

A continuing tenet of the RA program is that RA capacity is secured in the appropriate amount and location to support reliability. The amount, location and operational characteristics of RA capacity is expected to become even more important in the future as once-through cooling units retire and increased renewable generation (which are largely variable in output and virtually all outside of the Local Capacity Requirement area) reduces the energy revenue for conventional generation. With the elimination of the CPUC replacement rule to address planned outages, a change in the ISO's outage management process to consider RA reliability requirements is fundamental to maintaining the appropriate level of capacity.

In this draft final proposal, the ISO describes a new mechanism by which RA capacity will be replaced in order to maintain RA planning reserve margin levels of capacity. This will ensure that sufficient generation is with a must-offer obligation is available to facilitate reliable grid operation. Please note that the term "replacement" as used in the ISO's proposal is not meant to indicate these provisions are the same as those in the current CPUC replacement requirement.

## 2.0 Summary of Stakeholder Comments

In the formulation of this draft final proposal the ISO considered numerous comments from stakeholders. The proposal has been modified to address stakeholder comments, and this is discussed first. Next, the ISO provides clarification to address some stakeholder comments that appear to be based on misconceptions relative to the design of the ISO proposal. Finally, the ISO responds to stakeholder comments that did not result in changes to the Draft Final Proposal.

While a few stakeholders accepted advancing the monthly RA showings, the majority of stakeholders opposed moving the showing up to 90 days before the month. Parties gave numerous reasons for their opposition, including potential problems with contracting and determining the forecasts to be used for monthly showings. The CPUC comments also specifically opposed monthly showings at 90 days before the operating month, but also suggested that a 45 day time frame would afford both the ISO and CPUC the additional time needed to process RA showings. The CPUC went on to say "even if a compromise agreement of a 45 day timeframe is not a perfect fit for everyone, it would provide less disruption of other RA program processes while providing the CAISO with a bit more time to in [sic] manage outages." The ISO recognizes stakeholder opposition to advancing the monthly showings by 60 days. In

accordance with stakeholder feedback and especially in light of CPUC feedback, the proposal has been restructured to enable advancement of the showing by only 15 days (*i.e.*, to a total of 45 days prior to the operating month). Thus, the ISO proposes that the monthly RA showing and supply plans are now due to the ISO 45 days prior to the month.

The CPUC's comments indicated that when their Replacement Rule was eliminated, their expectation was that replacement capacity would be supplied by the generator. However, a suggestion in the comments of PG&E indicates that at least sometimes it would be more cost efficient for the LSE to provide replacement, since the capacity may already have been cost-effectively procured. The ISO has incorporated this idea into this Draft Final Proposal. LSEs will still be required to submit their RA showing of designated resources to meet 115% of their monthly peak, but the proposal now also encourages LSEs to voluntarily inform the ISO of other RA resources they have under contract, but which they do not wish to designate as RA for the month. Briefly, the ISO proposes that LSEs have the option to voluntarily submit a prioritized list of "non-designated" RA resources, which would not be subject to the SCP availability provisions or RA must-offer requirements. These "non-designated" RA resources would be available to provide substitute capacity for an LSE's RA resources that are unavailable due to a planned outage. Having these potential replacement resources will allow the ISO to quickly resolve any conflicts between the RA showings and any planned outages of RA capacity. When substituted for a resource that is unavailable due to an outage, the substitute replacement capacity would be subject to the RA rules (SCP and the must-offer requirement) throughout the period during which it was providing the substitute capacity.

Giving LSEs the option to provide not only their designated RA resources, but these extra non-designated RA resources provides a potential solution to concerns raised by several stakeholders that they were unable to procure replacement capacity because of the lack of a marketplace for capacity. In addition, in section 3.6 below the ISO proposes an option for LSEs to list on an ISO bulletin board any resources under RA contract but not included in the LSE RA showing that the LSE may be willing to sell to another LSE that does not have sufficient substitute capacity available to cover a planned outage.

Several parties expressed concern about the potential costs and issues which would result from having their approved planned outages cancelled close to the scheduled date for reliability reasons. The ISO is not proposing any changes to the provisions currently detailed in the ISO tariff and the Outage Management BPM with regard to the ISO cancelling planned outages as required by system conditions. A concern was raised that an RA generator may not know if its requested planned outage is approved until the monthly RA showings are made. This is true if the generator is an RA resource for the month and wishes to take the outage without providing replacement capacity. Nonetheless, the ISO maintains that it can't approve the planned RA outage without replacement until it can be certain that the outage won't reduce the system RA to less than 115% of the monthly peak.

There are options available to generators that can provide the generator with the advance approval they are seeking for when they can take their outage. They can either provide replacement RA capacity during the outage, or they can choose to not be an RA resource for the month when they wish to take the outage. In addition, the bulletin board proposal the ISO is including in this Draft Final Proposal should assist generators with finding replacement capacity to allow them to take planned outages when necessary.

The ISO is proposing that replacement capacity can be provided for only the period of the outage and is not be required for the entire month. This Draft Final Proposal recognizes that replacement capacity may only be needed for a few days, and not the entire month. This proposal is aimed at providing replacement capacity in a cost-effective and minimally burdensome manner. Stakeholders also requested that the ISO clarify the meaning of non-peak hours for the short term opportunity outages. Non-peak hours will be defined according to WECC rules except that Saturdays will also be considered non-peak. Stakeholders requested more details for how local RA resources will have their requests for planned outages approved. For local RA resources, the ISO clarifies that it will look at local reliability to approve the local RA planned outages, subject to the requirement that system RA must remain at 115% of the monthly peak.

There were several comments that there is no need for the ISO to do anything in response to the CPUC's elimination of its replacement rule. The ISO does not agree with this. RA is becoming more important as once through cooling units retire and other conventional units are expected to see their energy revenue reduced with the increase in renewable resources. It is fundamental to reliable grid operation that sufficient resources are available. Resources which are out of service due to planned or forced outages are not available to support grid reliability.

Other stakeholders suggest that the existing CPUC rule be continued. This is not something the ISO can do, and there appears to be minimal potential for this outcome. If parties desire to pursue this avenue further, they should engage the CPUC accordingly. Nevertheless, the ISO believes the current proposal is a superior alternative to the existing CPUC rule.

The ISO recognizes that there was general support for the proposal for short term maintenance outages and recognition of the challenges faced in coordinating outages for local RA resources. These elements have been included in this Final Draft Proposal.

### 3.0 ISO RA Outage Management Proposal

This proposal presumes that RA levels will be established as one of many aspects of reliability for the purposes of outage management. Separately or in combination with other reliability criteria, RA levels are a basis by which requests for planned outages may be approved or denied, and can be a determining factor in cancelling approved planned outages. In designing an RA outage management program, the desire of the ISO is not simply to replicate the existing CPUC Replacement Rule. While the existing rule does help ensure RA capacity is available, the current approach may fail to provide the ISO with the needed capacity for reliable operation of the grid and may create adverse incentives.<sup>3</sup>

The goal of the ISO in this RA Outage Management Proposal is to create a resource adequacy and outage management program that ensures sufficient capacity is available to reliably operate the grid and meet the load obligations of the LSEs while minimizing ISO procurement of capacity through its backstop mechanisms. The ISO's draft final proposal is outlined below, and is based on the premise that the ISO will manage outages to ensure the RA reliability requirements are maintained.

#### 3.1 Replacement Requirement

Because RA is a measurement of reliability for the purpose of outage management, the ISO proposes that the RA levels not only be considered among the criteria used to approve or deny outage requests from RA resources, but also to cancel approved outages should the RA levels fall below appropriate amounts. Further, as a reliability factor, RA levels will be considered when determining the need to exceptionally dispatch resources (thus incurring CPM designation) as a backstop to RA resources procured through the RA program.

The ISO proposes that, up until the final showing of RA capacity, outages be managed so as to maintain each LSE's System RA level at the 115% requirement. This Draft Final Proposal therefore incorporates this opportunity for LSEs and generators to work together to provide replacement capacity in the most efficient method possible so that resource adequacy means exactly that. If the LSEs and/or generators fail to provide needed replacement capacity, the ISO will procure that capacity to ensure that the 115% planning reserve margin for the month is met, and allocate the costs to the LSE. Allocating the costs of this replacement capacity procured in the month-ahead time frame to the LSE creates the incentives for the LSE to both to work with the generators on outage scheduling and to provide its "non-designated RA" as possible replacement capacity.

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<sup>3</sup> For a more detail description of these issues please see the initial ISO Straw Proposal, available at: <http://www.caiso.com/Documents/StrawProposal-ReplacementRequirement-ScheduledGenerationOutagesMar6-2012.pdf>

The ISO recognizes both the importance of generation being able to take planned outages and the challenges facing units designated as local RA resources in combination with annual RA requirements. Therefore, with regard to outage management purposes, the ISO will primarily consider non-RA reliability measures in the local RA, as long as the system RA remains at or above 115%. This is consistent with how local RA outages are currently approved.

As in current practice, all approvals for planned outages are subject to change due to changes in systems conditions that may occur as a result of unanticipated events (including forced outages, forecast error, significant events, unanticipated events, etc.) The ISO has the responsibility to maintain grid reliability, which may from time to time adversely affect planned outages. Existing provisions regarding compensation for cancelled planned outages will remain unchanged.

Requests for planned transmission outages will similarly be evaluated in combination with generation outages with consideration of RA capacity levels.

### **3.2 Timing of monthly RA showings**

The ISO proposes to extend the RA showing from the current timing of 30 days prior to the start of the operating month to 45 days prior to the start of the operating month. This change is consistent with the change the CPUC recommended in its comments on the ISO revised straw proposal. The ISO concurs with the CPUC that the 45-day timeline provides for “less disruption of other RA program processes while providing the CAISO with a bit more time to manage outages.”<sup>4</sup> Supply plans will also be due 45 days before the month.

Please see the details on the proposed timeline in the next section of the paper.

### **3.3 Short-term opportunity outages**

The ISO proposes to allow for short-term opportunity (STO) outages. Short-term opportunity outages may be requested after 10 days before the operating month and throughout the operating month (following the same principles as per the Outage Management BPM for planned outages) and will not be considered forced outages provided the following criteria are met:

- The outage is requested prior to 72 hours from the start of the requested outage period.
- The outage is fewer than 12 hours.
- The outage is during non-peak hours. The ISO proposes that “non-peak” for the purpose of these short-term opportunity outages be consistent with the WECC

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<sup>4</sup> [http://www.caiso.com/Documents/CPUC\\_Comments-  
ReplacementRequirementForScheduledGenerationOutagesSRevisedStrawProposal.pdf](http://www.caiso.com/Documents/CPUC_Comments-ReplacementRequirementForScheduledGenerationOutagesSRevisedStrawProposal.pdf)



definition of non-peak except that non-peak also include weekends and holidays (as defined by WECC)

- The outage is allowable based on system conditions and enables the ISO to maintain established reliability criteria.

Extensions of the outage will not be allowed on a planned basis. If an outage requested through the short-term process extends beyond the time approved by the ISO, the outage would then be deemed a forced outage and subject to SCP availability charges.

Short term opportunity outages requested after the 72 hours prior to the requested outage period may seek a forced outage waiver which the ISO will grant based on the following criteria:

- The outage is fewer than 12 hours.
- The outage is during non-peak hours (as defined above).
- The outage is allowable based on system conditions and enables the ISO to maintain established reliability criteria.

### **3.4 Option to specify “non-designated” RA capacity**

The ISO proposes that LSEs have the option to provide “non-designated RA” capacity in ranked order of the LSE’s preference to be used to substitute for an RA resource with scheduled planned outages that requires replacement RA capacity. Non-designated RA capacity on the supply plan will not be subject to SCP provisions nor will they have a must-offer obligation unless they are used to substitute for designated RA capacity. Having these potential replacement resources will allow the ISO to quickly process any planned outages in the RA showings. When substituted for a resource that is unavailable due to an outage, the substitute replacement capacity would then be deemed as designated and be subject to the RA rules (SCP and the must-offer requirement) throughout the period during which it was providing the substitute capacity.

### **3.5 Short-term Replacement RA Capacity**

The ISO proposes to provide in its tariff a provision to allow the ISO to procure, in the month ahead time frame, short-term replacement RA capacity for circumstances in which RA levels for the month are less than the established requirements, and for which replacement RA capacity has not been otherwise arranged as per the timeline described in section 4 below. The costs of this Short-term Replacement RA Capacity would be allocated the LSE which had counted the RA capacity which has requested a planned outage.

LSEs which include “non-designated RA” in their RA showings would indicate their willingness sell that capacity to the ISO at the rate for Short-term Replacement RA Capacity for another LSE’s RA capacity. If the ISO uses that capacity to fulfill another LSE’s 115% RA level, the Short-term Replacement RA Capacity program will provide a capacity payment to the LSE

supplying capacity used by the ISO. The cost of the short-term replacement capacity will be allocated to the LSE for which the short-term capacity was procured.

The ISO proposes that the capacity payment to the short-term replacement RA capacity be equal to the *pro rata* (daily) of CPM payment multiplied by the number of days the resource provides replacement capacity. During the period the resource is providing replacement capacity it would be subject to all RA conditions, including the must-offer obligation and SCP Availability penalties.

### **3.6 Substitute capacity bulletin board**

The ISO proposes to establish an electronic “bulletin board” as a forum through which market participants can make arrangements for replacement RA capacity as needed. The bulletin board would only list available capacity – any agreement to procure the capacity for replacement would be the responsibility of the parties. The entities which have negotiated for substitute capacity would then communicate the information regarding the substitute capacity to the ISO as is the practice today.

In addition to being able to participate in the Short-term Replacement RA Capacity program, those LSEs who submit “non-designated RA” can agree to be listed on a bulletin board of potential replacement RA capacity resources.

Parties agreeing to provide such capacity would be willing to sell this capacity to accommodate requests to provide replacement RA capacity from 1 day to 31 days during the month.

### **3.7 Flexibility requirements for RA**

The CPUC RA decision for 2013 will determine which of the ISO’s proposed Flexibility Requirements will be included as part of the total RA reliability requirements for the 2013 RA year. The ISO envisions that approval of planned outages would be based on meeting and maintaining the Flexibility Requirements. For 2013, the ISO has requested that the CPUC approve the Flexible Capacity categories in its proposal and adopt only targets for flexible requirements which are not procurement requirements. The ISO is proposing that actual procurement requirements be adopted for 2014. Thus, for the RA Outage Management the inclusion of the flexible requirements in the RA Outage Management process will also be implemented for 2014. This will provide time for all parties to become familiar with both the RA Outage Management Process and the RA Flexible Requirements. More information on how the Flexible Capacity requirements will be calculated and measured can be found in the ISO documents in the CPUC’s 2013 RA proceeding and in the ISO’s Flexible Capacity Procurement Stakeholder Process.

## 4.0 Proposed Time Line for Resource Adequacy Outage Management

### 4.1 Requests for Planned Outages submitted *before* the monthly RA showings

Generators submit requests for planned outages as described in the ISO Tariff and Outage Management BPM. The ISO proposes to continue to approve planned outages on a first-come-first-served basis.

#### 45 days prior to the operating month (t-45) – Monthly RA Showing and Supply Plans

- As described above, the ISO proposes that monthly RA showing and Supply Plan submittal will be at 45 days before the operating month.
- The ISO will perform its cross validation of the RA showings and supply plans, as well as check for planned outages of RA resources to assure reliable RA levels are maintained. As part of the cross-validation of supply and RA plan, the ISO will analyze the planned outages scheduled for RA resources. Outages which would result in an insufficient amount of RA capacity for the month will be indicated as needing RA Replacement capacity.
- If a system RA resource has a planned outage, and there is system RA capacity above 115% then the outage would not require RA replacement. The ISO will consider outage requests in first come first served order and will require RA replacement capacity for outages in reverse order received as needed to maintain reliability criteria and RA margins.
  - Planned outages for System RA units may require RA replacement capacity as necessary to assure that system RA resources are greater than 115% forecast system load. The ISO proposes that planned outages for System RA resources be required to provide RA replacement reserves in reverse order received according to the Outage Management BPM. Further, the System RA resource requesting an outage can exempt the outage from the RA aspects of outage management by assuring that substitute capacity is provided. If they don't provide replacement capacity when requesting the planned outage, they can take the chance there will be enough RA capacity that their outage will not reduce system RA to less than 115% of monthly peak after the monthly showing, which would require RA replacement capacity for the outage. In other words, for non-RA units and RA units with replacement, the ISO proposes to approve/deny the outage, subject to forecast grid conditions as is the current practice. This replacement can be accomplished as is done under current SCP practice, or through the automatic replacement with "non-designated RA" as described above.

- After the monthly RA showings, if the System RA capacity is less than 115%, the ISO will determine which RA plans include RA units which have scheduled outages which require RA replacement capacity and which have not provided the replacement capacity. If the plans fail to provide replacement capacity by the final date of 10 days before the month, the ISO will procure Short-term RA Replacement Capacity and charge the LSE.
- For RA units, for which there is no substitute RA capacity identified by seven (7) days prior to the start of the operating month, the outage will be considered a forced outage for the purpose of SCP provisions. This provides an incentive for the resource owner to work with the LSE to coordinate RA supply and outage planning in advance of the outage month, or to be prepared to provide substitute capacity or to accept and manage the risk of potential cancellation/rescheduling of their outage.
- After the monthly RA showings, RA suppliers may request planned outages only under the following two scenarios:
  - Outage with replacement: these outages will be approved using system reliability considerations, and will be exempt the outage from RA considerations since RA capacity is provided.
  - Short-term opportunity outages as described above in element 3 of the ISO's proposal.

#### 25 days prior to the operating month (t-25)

- The ISO will notify the CPUC if there are inconsistencies between RA supply plans and RA showings.
- The ISO will inform suppliers and LSEs about which outages require RA Replacement capacity. A generator and/or LSE will have an opportunity to provide substitute capacity for any affected RA resource. If an "automatic" replacement has occurred as described above, the ISO will inform the LSE and the supplier. Alternatively, a supplier can provide the ISO with a notice that the generator is withdrawing the outage request.

#### 10 days prior to the operating month (t-10)

- Final monthly RA showings must have reconciled any inconsistencies between the RA supply plan and the RA showing made at 45 days prior to the start of the operating month.
- Deadline for submission to the ISO of substitute capacity for planned outages. If replacement capacity has not been specified, the ISO will procure replacement capacity by way of the short-term RA replacement provision described in section 3.5.

- After this time, generators may request a short-term opportunity outage as described above. The short-term opportunity outage may be requested up until 72 hours prior to the requested outage period.

#### **4.2 Requests for Planned outages received *after* the monthly RA showings**

45 days before the month through the operating month (t-45 through t+30, for example)

- Requests for planned outages from non-RA resources will be treated exactly as today
- Requests for planned outages from RA resources received after the due date of the monthly RA showings:
  - Requests for planned outages from RA resources with substitute capacity will be evaluated primarily based on reliability measures other than the RA levels used in the showings of RA capacity procurement.
  - Short-term opportunity outages, and short-term opportunity outage forced outage waivers may be requested as described above in this proposal.

## 5.0 Next Steps

The ISO is proposing an aggressive schedule in order to allow us to file required tariff changes at FERC to be effective January 1, 2013.

<b>Date</b>	<b>Event</b>
April 18	Revised straw proposal posted
April 24	Stakeholder conference call
May 2	Comments due on revised straw proposal **
May 17	Draft final proposal posted
May 24	Stakeholder conference call
June 1, 2012	Comments due on the draft final proposal **
July 12-13, 2012	Board of Governors Meeting
August, 2012	FERC Filing
January 1, 2013	Implementation

\*\* Please submit comments to [OutageReplacement@caiso.com](mailto:OutageReplacement@caiso.com)