



Reliability Services Initiative – Phase 2:

Straw Proposal

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1. Introduction

The western energy landscape continues to evolve, presenting new challenges and opportunities such as (1) integrating more distributed energy resources, renewable resources, and innovative new technologies, (2) expanding the ISO's Energy Imbalance Market, and (3) increasing regional coordination. On April 29, 2015, California Governor Jerry Brown issued an executive order targeting greenhouse gas reductions to 40 percent below 1990 levels by 2030,¹ illustrating that more changes are forthcoming. The ISO is tasked with maintaining grid reliability as the energy landscape changes. Although this new landscape holds the promise of a cleaner energy future, it also brings with it the challenge of maintaining reliability while managing a greater number of resources, a more diverse resource portfolio, and more variable loads and resources. If sufficient flexible capacity is available to the ISO's day-ahead and real-time markets through forward procurement, then the ISO will have the tools necessary to make a cleaner and more reliable energy future a reality.

The Resource Adequacy (RA) framework was originally designed to ensure that the ISO has access to sufficient capacity to maintain grid reliability under peak load conditions each month. After this initial ground work was put in place, the RA framework was enhanced to include a locational component. Although ensuring local resource adequacy was not envisioned at the onset of the RA program, it was a reasonable and necessary evolution of the program to maintain reliability. Similarly, with the increased penetration of variable energy resources throughout California, the ISO identified a need to enhance the RA program to include physical attributes for flexible capacity to ensure the ability to maintain grid reliability under rapidly changing conditions. The ISO and CPUC took the initial steps towards to address flexible capacity needs in 2013 -14 in the ISO's Flexible Resource Adequacy Criteria and Must Offer Obligation (FRACMOO) stakeholder initiative² and the CPUC's RA proceeding.³ Including local and flexible capacity in the RA program demonstrates that the program must consider more than just peak load, and in particular, must recognize and adapt to changing grid conditions that require specific attributes of RA capacity. In the Reliability Service Initiative – Phase 1 (RSI1), the ISO continued enhancing the RA framework by reviewing existing tariff provisions as they pertained to resource outages and availability. Based on this review, the ISO developed the RA Availability Incentive Mechanism (RAAIM), a new availability incentive to replace the existing Standard Capacity Product (SCP). RAAIM is a bid-based means for determining a resource's availability to the ISO, as opposed to the forced outage-based SCP tool. As part of RSI1, the ISO also redesigned the rules for replacement and substitution of resources that go on

¹ <http://gov.ca.gov/news.php?id=18938>

² <http://www.caiso.com/informed/Pages/StakeholderProcesses/FlexibleResourceAdequacyCriteria-MustOfferObligations.aspx>

³ http://www.cpuc.ca.gov/PUC/energy/Procurement/RA/ra_history.htm

planned and forced outages, respectively. Although RSI1 made several improvements to the availability and outage substitution and replacement rules, there are additional opportunities for improvement.

The goal of this initiative is to continue improving aspects of the ISO's availability, outage substitution and replacement rules, and clarifying the RA process. Specifically, the ISO looks to address the following five elements of the RA program:

- 1) Develop a standardized reporting of RA requirements that an LRA and LSE can provide to the ISO detailing their specific RA program,
- 2) Develop planned outage substitute capacity rules for flexible capacity resources,
- 3) Assess the adequacy of existing planned and forced outage substitution rules for local capacity resources,
- 4) Establish a change management process for resources that require updated Effective Flexible Capacity (EFC) quantities, and
- 5) Design the rules needed to apply the RAAIM to combination flexible capacity resources.

2. Summary

RSI2 will focus on a variety of issues that pertain to RA issues and processes not directly connected to the definition of the flexible capacity product, but which are necessary to effectively administer the RA program. Specifically, the ISO will cover five issues in RSI2. These issues, along with and a brief summary of the ISO's proposals, include:

- 1) Clarify Local Regulatory Authority interaction and process alignment – The ISO proposes providing a standardized template to all LRAs to provide necessary information about the LRA's RA program needed to validate an LSE's showing. This information includes such things as the planning reserve margin and capacity credit structure. Additionally, the ISO will establish September 1 as the deadline to receive this data or the ISO will apply its default RA provisions.
- 2) Substitution for flexible capacity resources on planned outage – The ISO proposes similar substitution timelines for flexible capacity resources on planned outages as those proposed in RSI1 for system and local RA resources. Further, the ISO also proposes that this substitute capacity be from the same category of flexible capacity or better as the capacity taking the outage. This is comparable to the requirement for flexible capacity on forced outages proposed in RSI1.
- 3) Separate local and system RA for purpose of forced outage substitution – The ISO reviewed the local capacity requirements study methodology to determine if it is possible to allow resources in a local capacity area procured for system capacity under an LRA's RA program to replace that capacity with system RA capacity. The ISO has identified three options to address this issue and not yet determined a preferred option.
- 4) Process to update EFC list during the year – The ISO reviewed two changes to resource parameters that may impact the resource's ability to provide Effective Flexible Capacity:

changes that impact the quantity of EFC provided and changes that impact the category of flexible capacity for which it is eligible. The proposed RAAIM mechanism from RSI1 is sufficient to address changes to the quantity of flexible capacity and no additional actions are required. However, changes that alter the flexible capacity category eligibility, like changes to the number of starts per day, require additional treatment under RAAIM. The ISO proposes to treat resources that no longer qualify for a category of flexible capacity assessed as unavailable under RAAIM.

- 5) Address the RAAIM exemption currently in place for combined flexible capacity resources – Currently combination flexible capacity resources are exempt from RAAIM. The ISO is proposing to eliminate this exemption. The ISO proposes to allow each LSE a waiver from the minimum start requirement for a category flexible capacity for one resource. In this instance, an LSE would be permitted to show a resource that qualifies for category 2 as a category 1 resource. If the use-limitation is reached, then the SC for the resource would be required to provide substitute capacity or would be subject to RAAIM charges.

3. Stakeholder comments

In its issue paper, the ISO requested stakeholders to provide input on the proposed scope, process, and schedule of each of the stakeholder processes outlined in the issue paper. Stakeholder comments on the issue paper were generally supportive of the proposed scope of RSI2. However, some stakeholders suggested that the ISO consider other items as part of RSI2. The following provides an overview of these items and the ISO's response.

- (1) The CPUC has requested that the ISO consider seasonal local capacity requirements⁴ – This issue stems from a proposal initially put forward in RSI1 to cap local capacity requirements at an LSE's system capacity. Determinations regarding local capacity requirements and how they are established (including how frequently) falls within the scope of the ISO's annual local capacity requirements study process. As such, this issue is beyond the scope of the RSI2 stakeholder initiative.
- (2) "Partial" local RA capacity resources⁵ – This issue was raised by CDWR. This issue arises because a resource may sell part of its capacity as local capacity and part as system. It does not matter whether these two segments of capacity are sold to one LSE or more than one LSE. This issue falls within the scope of this initiative, and the ISO will consider it as part of the local capacity discussion covered in section 8.

4. Stakeholder engagement process

After the initial stakeholder call to discuss the issue paper, the ISO is conducting the typical ISO stakeholder process for the RSI2 initiative (*i.e.*, post straw proposals, hold stakeholder calls

⁴ CPUC comments at p. 3.

⁵ CDWR Comments at p. 4.

or meetings, solicit written stakeholder comments). The ISO is targeting February 2016 for ISO Board of Governors approval for this stakeholder initiative. The current schedule for RSI2 is shown below.

Date	Reliability Services Initiative – Phase 2
June 25, 2015	Issue paper posted
July 2, 2015	Stakeholder call on issue paper
July 10, 2015	Comments due on issue paper
August 19, 2015	Straw proposal posted
August 26, 2015	Stakeholder meeting on straw proposal
September 9, 2015	Comments due on straw proposal
October 7, 2015	Revised straw proposal posted
October 14, 2015	Stakeholder meeting on revised straw proposal
October 24, 2015	Comments due on revised straw proposal
November 4, 2015	Draft final proposal posted
November 11, 2015	Stakeholder meeting on draft final proposal
December 1, 2015	Comments due on draft final proposal
Feb 3-4, 2016	Board of Governors

5. Background

Originally, the ISO proposed a two phase process to address potential enhancements to the RA framework. In the Reliability Service Initiative – Phase 1 (RSI1), the ISO undertook the initial effort to address the ISO’s rules and processes surrounding RA resources. The primary enhancements adopted in RSI1 included:

- Default qualifying capacity rules for non-generator resources (NGR), distributed energy resources, and proxy demand resources
- The new RA Availability Incentive Mechanism (RAAIM) to ensure RA capacity is available to the ISO consistent with the specific category of RA capacity the resource is providing⁶
- Streamlined rules for planned and forced outage substitute capacity for system and local capacity and forced outage substitute capacity for flexible capacity resources.

The ISO originally intended that the scope of Reliability Service Initiative – Phase 2 (RSI2) include (1) developing a more durable flexible capacity product that built on the framework established the FRACMOO stakeholder initiative and (2) addressing other unresolved issues from the FRACMOO stakeholder initiative. The ISO has subsequently reviewed the outstanding issues from both RSI1 and FRACMOO and divided them into two distinct categories. The first category of issues pertains to enhancements to the existing flexible capacity product. The ISO will consider these issues as part of the ISO’s FRACMOO2 stakeholder initiative.⁷ The second category of issues pertains to RA issues and processes not directly connected to the definition of the flexible capacity product, but which are necessary to effectively administer the RA program. RSI2 will focus on these processes. Table 1 provides a list of specific topics that will be addressed in each stakeholder process.

Table 1: Issues identified in FRACMOO or RSI1

Issues directly connected to the flexible capacity product definition and covered in FRACMOO2	Processes improvements necessary for administering the RA program and covered in RSI2
Review the flexible product definition and develop any additional flexible capacity needs	Clarify Local Regulatory Authority interaction and process alignment
Provision of flexible capacity by inertie resources, including EFC calculation	Substitution for flexible capacity resources on planned outage
Flexible capacity from storage resources not using the NGR model	Separate local and system RA for purpose of forced outage substitution

⁶ As noted in the RSI1 Draft Final Proposal, the new RAAIM mechanism was designed to replace the existing Standard Capacity Product.

⁷ Information on the FRACMOO2 stakeholder initiative can be found at <http://www.caiso.com/informed/Pages/StakeholderProcesses/FlexibleResourceAdequacyCriteria-MustOfferObligations.aspx>

Flexible capacity impacts of uncontracted/merchant VERs, for which no LSE has associated flexible capacity requirements	Process to update EFC list during the year
	Address the RAAIM exemption currently in place for combined flexible capacity resources

6. LRA and LSE interactions and process alignment

The ISO has identified certain RA tariff provisions that, if further clarified, will provide additional benefits to both LRAs and LSEs. This section will first define the standard components that the ISO needs to identify to determine whether an LSE is in compliance with the ISO’s RA program as well as the local regulatory authority’s program. Second, the ISO proposes a timeline that provides clear guidance for both LSEs and LRAs on when the ISO will review RA showings and RA plans.

The ISO will clearly define the timelines and processes it will use when reviewing RA showings and RA plans. The goal is to provide LRAs and market participants clear guidance on when LRA requirements or ISO default provisions apply. Clearly defining these timelines and processes allows market participants to better understand their obligations under the ISO tariff and mitigate potential deficiencies.

6.1 ISO proposal for process alignment with LRAs

Local Regulatory Authorities may have official Resource Adequacy program materials⁸ that outline the various facets of their RA programs. The ISO Tariff gives due weight to the LRAs’ materials in evaluating whether jurisdictional load serving entities meet Resource Adequacy compliance obligations. For the ISO to effectively and efficiently use the LSAs’ compliance with applicable local regulatory authority RA requirements and ensure proper cost allocation for any backstop procurement, it must receive a LRA’s RA program information each year in a standard format. The ISO proposes to provide LRAs a standardized template for the annual and monthly RA showings that will specify the information needed regarding an LRA’s RA program. This template will not change the provisions of an LRA’s RA program, it will serve only to standardize the manner in which the information is provided to the ISO.

⁸ Official Resource Adequacy program material must be an official document that details the LRA’s RA program.

6.1.1 Components of the template

The template would require specific information regarding the requirements of the LRA RA program in order to confirm the LSE's compliance with applicable LRA RA requirements. The LRA would provide the following information in the template for both their annual and monthly RA showing:

- 1) Annual/monthly planning reserve margin,
- 2) Annual/monthly evaluation of the requirements the LSE must show (percentage),
- 3) Annual/monthly individual peak demand & reserve margin requirement for each LSE,
- 4) Annual/monthly individual local capacity requirement for each LSE,
- 5) Annual/monthly individual local requirements if the LRA has a different local requirement allocation,
- 6) Annual/monthly individual flexible evaluation, and
- 7) Annual/monthly individual flexible requirements if an LSE has a different flexible requirement than the ISO.

The following components are for LRA RA programs that allow the use of credits to meet peak demand & reserve margin requirements in both an annual and monthly as well as a system and local evaluation.

- 1) Annual/monthly system/local demand response eligible,
- 2) Annual/monthly system/local demand response adjustment,
- 3) Annual/monthly system/local reliability must run eligible,
- 4) Annual/monthly system/local cost allocation mechanism eligible,
- 5) Annual/monthly system/local liquidated damages eligible, and
- 6) Annual/monthly system/local other credit eligible.

The CAISO will request these components through a standardized template to efficiently evaluate LSEs' RA showings in accordance with LRA programs. Please refer to Appendix A below for the proposed questionnaire.

6.1.2 Timeline

To implement the standard local regulatory authority configuration in a timely fashion, the ISO must receive the configuration information for the upcoming RA compliance year prior to the first business day in September of the current year. During the two months before RA showings are published, the ISO will run validations of the configuration data, gather the proper LRA documentation to align configurations and implement any system updates if needed. If the ISO does not receive the standard local regulatory authority configuration or any portion of the configuration by this date, the ISO will use its configuration defaults for that compliance year.

These default configurations are based on the ISO's default tariff provisions contained in section 40.8 of the tariff.⁹

7. Planned outage substitution rules for Flexible Capacity resources

7.1 Background and issues brief

In RSI1, the ISO reexamined many of the core principles underlying the replacement and substitution rules for resource adequacy resources. The ISO redesigned the framework outlining the roles and responsibilities for Scheduling Coordinators representing both LSEs and resources in terms of planned outages of system RA capacity and enhanced forced outage substitution rules. The provisions developed in RSI1 significantly improved the planned and forced outage substitute capacity rules for system capacity and created rules for forced outage substitution for flexible capacity resource. As a result of RSI1, flexible capacity on a forced outage would now be required to provide the ISO with the same category, or better, of substitute flexible capacity or be subject to the RAAIM. As part of the current stakeholder initiative, the ISO intends to expand outage rules to cover flexible capacity resources that go on a planned outage.

7.2 ISO proposal

7.2.1 Substitution rules for flexible capacity resources on a planned outage

In the event of a planned outage for flexible RA capacity, the ISO will allow the scheduling coordinator for the capacity to provide planned outage substitute capacity. Any substitution capacity must be eligible to provide at least the same category of flexible capacity as the capacity that goes on a planned outage. Accordingly, the substitute capacity must comply with the flexible RA category must-offer requirements of the resource on outage. The exception to this rule is if the resource providing the substitute capacity (i.e. the new resource) also has capacity shown at a higher category than the original capacity on outage. In these circumstances, the substitute capacity must comply with the higher category must-offer requirements for the entire resource's committed RA capacity. For example, a category 1 resource may substitute for a category 2 resource, but if the substitute resource also has a separate obligation to provide category 1 flexible capacity for a portion of its capacity because it was shown on an RA plan on that day as category 1, then it must take on the higher must-offer obligations for all of the RA capacity shown on the resource. The ISO discussed the need for this approach in RSI1 to reduce implementation complexity and recognizes that flexible categories were created to allow different resources to participate as flexible resources, not to reduce the obligation of resources fully capable of meeting the higher must-offer obligation.

⁹ ISO Tariff Section 40.8 – "CAISO Default Qualifying Capacity Criteria"

The ISO will allow a scheduling coordinator to provide flexible substitute capacity beyond the amount on outage and will not limit the amount provided to an assumed needed quantity. In the event of an outage, it is up to the scheduling coordinator to tell the ISO how much RA capacity it wants assigned to the substitute resource. The ISO will hold the substitute resource accountable for up to the provided substitute capacity value and hold the initial resource on outage accountable for the difference between the quantity shown on the resource's supply plan as RA capacity and the quantity told to the ISO that the substitute resource will provide.

For example, assume resource A was shown for 100 MW of flexible RA, has an EFC of 150 MW, and goes on outage for 50 MW. Although it may seem like the resource can still meet its flexible RA requirement, there may be other constraints on the resource that the ISO is not aware of and cannot account for in the tracking process. Therefore, the ISO will allow the scheduling coordinator to indicate a substitute value. For example, resource A can indicate resource B has a substitute capacity quantity of 20 MW. The ISO would then assess resource A under the flexible availability incentive mechanism for 80 MW (100 MW – 20 MW) and assess resource B under the flexible availability incentive mechanism for 20 MW.

7.2.2 Timeline for flexible capacity resources on a planned outage

The ISO proposes to apply the same timeline for flexible capacity resources on planned outages as it proposed in RSI1 for system and local resources on planned outages. Specifically, the ISO will utilize the same timeline as in Appendix D of the RSI1 proposal. This timeline is included in Appendix B. As stated in RSI1, the new planned outage replacement process, which will be filed at FERC as part of the ISO's RSI1b filing, is as follows:¹⁰

Beginning at the green flag at T- 45, the ISO will validate LSE and supply RA plans for discrepancies (differences between LSE and supply plan) and for shortages (difference between LSE's monthly requirement and amount on RA plan). The ISO will ask for specific local, system, and flexible showings. These results will be given to the LRA, LSE, and supplier. The ISO will then allow a cure period for LSEs to cure any shortages until T-25. At this point, according to tariff section 43, the ISO has the authority to backstop for deficiencies using the CPM. The only change would be the addition of the ISO asking for LSEs to specifically indicate the RA type (flexible, system, local) and the timeline the RA process occurs. The ISO proposes no other changes to the traditional monthly RA process.¹¹ Currently this process begins at T-45 and is finalized at T-7. The ISO proposes that the

¹⁰ Reliability Services Initiative – Phase 1 at

¹¹ The impact on the CPUC RA program is that the ISO's timeline for being able to provide supplier data and LSE shortages has moved 15 days earlier than the current timeline and the amount of time between notifying the CPUC of a shortage and doing the CPM assessment has decreased from 14 to 10 days.

monthly RA process now run from T-45 to T-25. The new timeline is described fully in Appendix D (*appendix omitted*).

The revised monthly RA timeline allows the ISO to fully separate the monthly RA process from the planned outage analysis process. Therefore, the second purpose of the ISO's monthly planning process- to ensure planned outages do not affect real-time reliability- will be conducted entirely after the monthly RA plan process is completed at T-25. The ISO will then run the outage impact assessment and allocate any responsibility to provide planned outage substitute capacity on the supplier in last in, first out ("LIFO") order. Suppliers will then provide additional capacity or risk having their planned outage cancelled or denied, and risk availability incentive mechanism penalties if the outage is denied and the resource still goes on outage. If the ISO required additional capacity for the planned outage and the supplier did not provide the additional capacity, the outage capacity will be subject to the availability incentive mechanism. The availability incentive mechanism penalty is proposed to initially be \$3.79/kW-month.

If after the supplier provides planned outage substitute capacity, the planned outage moves for any reason, the ISO will allow the supplier to release any provided planned outage substitute capacity up to the substitute capacity amount.

8. Planned and forced outage substitute capacity for RA resources capacity in local capacity areas

The ISO may require replacement capacity for local resources that go on *planned* outages or deny the outage. As part of this stakeholder process, the ISO will assess if it is possible to allow for local substitute capacity as a means to allow the resource to take a planned outage. This would offer resource SCs another option when trying to take an outage.

Local RA resources that go on *forced* outages must provide comparable capacity or be subject to availability incentive charges. In other words, RA resources in local capacity areas that go on a forced outage must provide substitute capacity that is also in a local capacity area or be subject to availability charges. Some stakeholders have asserted that the ISO should only require that substitute capacity come from another local capacity resource if the resource is required for local reliability issue or has been explicitly procured to provide local RA capacity. These stakeholders argue that if the capacity on outage is not needed to meet an LSE's local requirement or was not procured to provide local RA capacity, the ISO should only require substitute capacity from system resources to avoid availability charges. As part of the RSI1 initiative, the ISO committed to reviewing this policy. The remainder of this section discusses each of these issues in greater detail.

8.1 Local capacity resources on planned outages

As noted above, when resources in a local capacity area go on planned outages, the ISO may require replacement capacity. If the capacity is not needed to meet local reliability, the ISO may approve the outage, but allow for replacement capacity from system resources. If, however, the resource is needed for local reliability, the ISO will deny the planned outage and request the SC of the resource reschedule the outage. If the resource cannot defer the outage, then the outage must be taken as a forced outage and is subject to RAAIM. Currently, these are the only two treatments for resources in a local capacity area deal with planned outages. The ISO is proposing a third option. If the resource is needed for local reliability and cannot defer the outage, it can provide replacement from another local capacity resource. This allows the resource to avoid taking a planned outage while also providing the ISO greater assurance that local reliability is not compromised by the outage.

8.2 Local capacity resources on forced outages

The ISO's current policy for RA resources located in a local capacity area that go on a forced outage is to require like-for-like substitute capacity (i.e. provide substitute capacity from another resource in a local capacity area) or be subject to RAAIM charges. The specific question before the ISO is: If an RA resource in a local area that was procured by an LSE for system capacity goes on a forced outage, could it provide substitute capacity from a system resource to avoid RAAIM charges? If such a change is warranted, the ISO must consider how potential new policies could be applied and what would be the implications of each of these options on local reliability. The remainder of this section outlines the ISO's review of the LCR study process, potential new policy options, and the implications of each option. The ISO will not propose changes to the existing like-for-like substitution policy for RA resources in a local capacity area that go on a forced outage unless the alternative represents a pareto improvement.¹²

8.2.1 The LCR study: The history and process

As described in the Final Manual: 2016 Local Capacity Area Technical study, the ISO conducts the LCR study process each year to "determine the minimum capacity needed in each identified transmission constrained "load pocket" or Local Capacity Area to ensure reliable grid operations."¹³ The ISO's LCR studies date back to 2006. Each year, the ISO conducts a stakeholder process to outline the assumptions and inputs that will be used in for that year's study process. The ISO runs the study for each of the ISO's 10 local capacity areas. The ISO clearly outlines the resource assumptions (including generation, transmission, and load inputs), as well as any applicable reliability standard. The ISO will identify the minimum amount of local

¹² A pareto improvement is a change that benefit some parties while leaving no other party worse off because of the change.

¹³ [Final Manual 2016 Local Capacity Area Technical Study](#) at p. 3.

capacity needed in each load pocket to maintain grid reliability as required by the LCR criteria. The ISO runs numerous simulations to determine the worst contingency for a given local area or sub-area. The total minimum resource capacity in the local area, required to mitigate the worst contingency, is the amount of the Local Capacity requirement. The ISO publishes draft and final versions of both the manual used to conduct the study and the technical study. This allows for a transparent stakeholder process that informs parties of all assumptions used in the study and the results facilitate procurement of local capacity resources.

As part of the RA program, the ISO receives both annual and monthly RA showings. These showings demonstrate the resources that have been procured towards meeting an LSE's system and local RA requirements. Using these showings, the ISO assesses whether sufficient capacity has been procured in each local capacity area. The ISO does not differentiate resources based on whether or not they were procured as local or system RA. This differentiation only occurs at an LRA level. The ISO only looks at the impact each resource in the showing has on a local capacity area because, from a reliability standpoint, it does not matter whether the resource was procured for local or system requirements. What matters is the impact the resource has on mitigating the local area constraints. The ISO's Tariff as well as the LCR study methodology requires that all available resources that impact the local area be included in its local capacity study as well as the RA showing validation. Therefore, any new policy that allows for a resource in a local area that was not procured as local capacity and goes on planned outage to be replaced with system capacity would also have to address how the ISO should account for that resource in the local capacity study and ensure local reliability is not degraded.

8.2.2 Options considered by the ISO

The ISO considered the following three options:

- 1) Make no change;
- 2) Remove the resource from the local capacity study process; and
- 3) Leave the resource in the LCR study process, but allow ISO discretion regarding whether system or local capacity is needed if the resource goes on forced outage

Accommodating either option 2 or 3 would require an additional RA showing in LSE and supply plans for resources demonstrating what capacity is local versus system. All of the options are discussed below.

8.2.2.1 Make no change

The ISO tariff as well as the LCR study process have a long history and have been developed into their current form through several iterations and improvements.¹⁴ Further, FERC has found the ISO's LCR study process and treatment of resources in local capacity areas to be just and reasonable.¹⁵ Therefore, absent a compelling alternative that ensures local reliability is not degraded by replacing a resource in a local capacity area going on a forced outage with a system resource, the ISO will consider the status quo as the default policy.

8.2.2.2 Removing system resources from the LCR studies and RA showings validations

As noted above, the ISO must consider all resources that impact the constraints into a local capacity area. Under this option, the ISO would only study capacity reflected in the local RA showing towards meeting local capacity requirements. All other capacity would be considered system capacity and would not be included in the LCR assessment. Several potential issues that make this an unworkable solution.

First, by removing capacity resources that the ISO knows impact the local capacity area, the ISO will not be able to accurately reflect the need or the extent of compliance with the LCR criteria for any given local area or sub-area. There would be no way for the ISO to accurately account for the impact, positive or negative, a system resource (regardless of its location) has on a local capacity area requirements. For example, a system resource in a local area may have a negative impact on that local area under certain conditions. If the ISO did not model that system resource as part of the local capacity assessment and/or validation, it may appear as though there are adequate local and system resources in an area when in reality, there are not. Alternatively, a resource may provide valuable counter flow that, if properly modeled, would avoid a potential CPM designation. Because this option would significantly degrade the effectiveness of the existing ISO assessment practices, the ISO considers it to not be a responsible option.

8.2.2.3 ISO has discretion regarding local or system substitution

The timing of forced outages makes reassessing local capacity needs infeasible. However, it may be possible to defer to ISO discretion regarding the type of capacity that is needed at the time of the forced outage. Under this scenario, a resource in a local capacity area that goes on a forced outage would have to request the ISO to grant a waiver of the local-for-local substitution requirement.

Although superior to removing a resource from the local study, this option also has shortcomings that require further evaluation by the ISO. Although granting ISO discretion may

¹⁴ For the complete history of the ISO's LCR study, see <http://www.caiso.com/informed/Pages/StakeholderProcesses/LocalCapacityRequirementsProcess.aspx>

¹⁵ Need a citation for this statement.

enable the resource on outage to substitute with system capacity, it forces the ISO to make a discretionary decision that might work at a given point in time depending on general grid conditions, but may not work in other particular grid conditions, given subsequent changes in load and transmission availability condition. This is further complicated by the fact that multiple resources may be on outage at a given time. The ISO would face the difficult task of needing to develop a mechanism by which it could determine when system replacement was allowable and when it is not.

8.2.3 ISO still considering options

As noted above, the ISO's standard for deciding whether to pursue a change to the existing local-for-local substitution rule for RA resources in a local capacity area that go on forced outage is that the compliance with the ISO's local reliability standards should not be degraded by changing the rules. The ISO is considering the three options discussed above that would allow for a resource located in a local capacity area, but not procured as local capacity, to substitute with system capacity if it goes on a forced outage. The ISO believes that not modeling resources in a local capacity area study is not a responsible option. The ISO is still reviewing the feasibility of allowing ISO discretion regarding the type of substitute capacity required for the forced outage. The ISO is concerned with changing the existing local-for-local substitution rules at this time. While the ISO has considered three options at this time, there may be other options that have not yet been considered. The ISO remains open to other potential options and welcomes stakeholder comments on the options discussed above and alternative options.

9. Process for updating resources' EFC and/or operational parameters

In the FRACMOO stakeholder initiative, the ISO established the methodology for calculating a resource's EFC. Specifically, the ISO will calculate a resource's EFC annually using a resource's NQC and other operational attributes of the resource. Now that flexible capacity requirements are in place, the ISO has identified a need to improve the EFC calculation and change management process. The ISO, as part of the Commitment Cost Enhancements – Phase 2 (CCE2), created a process to more accurately track resources' use-limitations. This tracking can be used to more accurately determine the category of flexible capacity a resource is eligible to provide. Additionally, resources have requested adjustments to their operational parameters that either increase or decrease their flexible capacity quantity. The ISO has received requests to increase the EFC of a resource based on an NQC increase, switch from non-dispatchable to dispatchable status (making a resource eligible for an EFC), and change the number of starts for a base flexible capacity resource in the ISO Masterfile from two starts per day to one start per day. The changes submitted fall into two categories: changes that impact the quantity of EFC a resource is eligible to provide and changes that impact the category of flexible capacity the

resource is eligible to provide. This section discusses how the ISO will address each of these change requests.

9.1 Using reported use-limitations to determine flexible capacity categories

To date, the ISO has not captured specific monthly use-limitations. However, in CCE2, the ISO established a process by which SCs for use-limited resources will provide resources' statutory, regulatory, court-imposed, or operational use-limitations to the ISO. The use-limitations captured through this submission include any applicable monthly start-limitation for a resource. The ISO will utilize this data to determine whether a resource qualifies to provide Base, Peak, or Super-Peak flexible capacity. The use of the monthly use-limitation data ensures the ISO has more data than daily limits to base category qualifications. For example, under the current rules, a resource with one start per day, but only 15 starts per month, may qualify as a Peak flexible capacity resource. However, by accurately capturing the 15 starts per month, the ISO will be able to more properly identify the resource as eligible to provide super-peak flexible capacity.

9.2 Masterfile changes that impact the quantity of EFC the resource may provide

There are several Masterfile variables that can impact how much EFC a resource may be able to provide. For example, start-up time determines whether a resource's PMin is eligible to provide flexible capacity. It is possible, however, that a resource may request a change to Masterfile that increases the start-up time. There have been four such requests since the ISO board approved the original FRACMOO proposal. The ISO has reviewed Masterfile changes such as these that only impact the quantity of EFC a resource is eligible to provide and has determined that the RAAIM tool developed in RS11 is sufficient to address these changes. Specifically, if a resource SC makes a change that lowers its EFC (*e.g.*, increasing its start-up time), then it needs to ensure the change does not impact its ability to economically bid sufficient capacity to fulfill its flexible capacity must offer obligation, provide substitute capacity, or be subject to RAAIM for any unfulfilled capacity requirements. As such, there is no need to modify the ISO's current practices regarding Masterfile changes that impact the quantity of EFC a resource provides.

9.3 Masterfile changes that impact the eligibility to provide a category of flexible capacity

As noted above, the ISO determines the category of flexible capacity a resource is able to provide based on several Masterfile variables, including start-up time and daily starts. It also requires the resource be listed as dispatchable to be eligible for an EFC calculation. Start-up time and daily starts are of particular importance because they determine whether a resource qualifies to provide base ramping flexible capacity. For example, if a resource has one start per day, then it would only be eligible to provide base flexible capacity if its other operational

parameters create an operational limit that prohibits the resource from starting more once per day.¹⁶ As such, changes to Masterfile parameters like start-up time, daily starts, and dispatchability could change the category of flexible capacity the resource is eligible to provide or if it is even eligible to provide flexible capacity at all. As an example of how this might impact the availability of the resource to the market, a short start resource that changes the number of starts per day from two to one would not be eligible to provide base ramping flexible capacity. Even if the resource bid into the ISO's market for all 17 hours required under the base ramping must-offer obligation, the resource would be optimized in the ISO's market as a short-start resource with a single start. Since the start of 2015, five resources have requested changes to the Masterfile data that should result in a resource no longer being eligible to provide the flexible capacity category for which it was originally deemed eligible.

Unlike Masterfile changes that only impact the quantity of EFC a resource can provide, the new RAIM tool may not capture the impact of changes to a resource's flexible capacity category. Therefore, the ISO proposes to apply the RAIM to resources where Masterfile changes disqualify them from providing a flexible capacity category. Specifically, the ISO proposes to assess as unavailable under RAIM resources that change Masterfile parameters that lower the flexible capacity category eligibility to a category below the one for which it is shown. These resources may provide substitute capacity to avoid exposure to RAIM charges. The ISO will assess the resource as unavailable starting on the effective date of the Masterfile change and will cover the entire EFC for which the resource was shown in the higher flexible capacity category. Further, the resource SC is obligated to ensure that any Masterfile changes are consistent with the flexible capacity category for which the resource is shown.

10. Combination Flexible Capacity Resources RAIM exemptions

After FERC conditionally approved the ISO's FRACMOO tariff, Six Cities sought rehearing regarding a specific provision of the must-offer obligation for "combination" flexible capacity resources. Flexible capacity combination resources allow LSEs an opportunity to meet their flexible capacity requirements with resources that may not qualify for a higher flexible capacity category combining two resources.¹⁷ Originally, the ISO had proposed that both resources in the combination be subject to the economic bidding must-offer obligations. Six Cities asserted that the ISO should not hold both resources in the combination to the flexible capacity must-

¹⁶ This means the resource would only be eligible to provide flexible capacity above PMin.

¹⁷ Combination flexible capacity resources are a pair of flexible capacity resources that individually do not meet the requirements for a higher flexible capacity category, but when combined are able to meet the requirements for the higher category. For example, two resources with 30 starts per month and 2 starts per day would not qualify for the Base Ramping flexible capacity category. However, when combined, they would meet the minimum number of starts required to qualify for the flexible capacity Base Ramping flexible capacity category. Details on combination flexible capacity resources can be found in Section 40.10.3 of the ISO tariff.

offer obligation. As a result, the ISO agreed to clarify the tariff to state that at least one of the resources in the combination must provide economic bids during the must-offer obligation window.

In its April 10, 2015 filing to FERC submitting this revision, the ISO stated that the provision “allows either resource in a use-limited combination to meet the must-offer obligation; however, only one resource in the combination can submit bids each day.”¹⁸ FERC approved the revised proposal. The revised tariff language approved by FERC ensures that at least one of the combined resources is available to the ISO for up to the EFC of the combination. However, approval of this language occurred after the ISO Board approved the RSI1 policy. As such, the ISO was not able to develop the tariff provisions and structure needed to appropriately apply the RAAIM rules to combination flexible capacity resources consistent with this new tariff language. As a result, the ISO proposed a temporary exemption from the RAAIM calculation for combination flexible capacity resources.

With the must-offer obligation for combination flexible capacity resources now clearly defined, the ISO proposes to eliminate this exemption and develop RAAIM rules that can be applied consistent with those applied to other resources within the same flexible capacity category. The ISO is considering an option that allows for a limited exemption from the minimum criteria for monthly starts for a flexible capacity resource. This option is outlined below, and the ISO seeks stakeholder input on both of them.

10.1 Limited exemption from minimum monthly start requirement

The ISO proposes to create a limited exception to allow for one flexible capacity resource per LSE that does not meet the monthly start limitations for a given category to be shown in a higher flexible capacity category. However, the resource will be held to all of the performance and availability requirements of the higher flexible capacity, including daily starts and must-offer obligation hours.

To be eligible for this exemption, the resource must have either a calculated or negotiated opportunity cost for its use-limitation. Further, the ISO will calculate the resource’s opportunity cost using the minimum availability requirements for the flexible capacity category for which it is shown. For example, if a resource with 45 starts per month is shown as a base flexible capacity resource, then the ISO would calculate the opportunity cost of those starts assuming 60 starts per month. This would be done to appropriately reflect the requirements of the applicable flexible capacity category. If the resource reaches its use-limitation, then it would still be subject to RAAIM availability charges. The ISO will develop a nature of work outage to reflect that the outage is not exempt from the RAAIM. However, the SC for the resource would

¹⁸ See ISO’s April 10, 2015 filing in ER14-2574 at p. 3.

still be able to avoid RAIM charges by providing substitute flexible capacity of at least the same flexible capacity category or better in a timely manner. Currently, the ISO requires substitute capacity be provided by 22 days prior to the RA month. The ISO will apply the existing timing rules to such a substitution.

The ISO would design this option to ensure that any resource granted this limited exemption from the minimum operational requirements and shown for a given flexible capacity category is held to the same availability standard as other resources in that category. Specifically, use-limited resources that qualify for this exemption will be held to the same availability standards, charges, and risk management tools as all other resources shown in the same flexible capacity category.

11. Next Steps

The ISO will host a stakeholder meeting on August 26, 2015 to discuss the contents of this straw proposal. Stakeholder comments on this straw proposal will be due September 9, 2015. The ISO anticipates seeking ISO Board approval for the Reliability Services Initiative – Phase 2 in February 2016.

Appendix A: Standard Local Regulatory Authority Configuration Template

If your LRA RA program requires an annual evaluation, the ISO will need the following:

Question	Answer Format
Evaluations. Does your LRA RA Program require the following evaluation parameters?	
ANNUAL PLANNING RESERVE MARGIN: What Planning Reserve Margin do you use for the annual evaluation?	Each month for a full calendar year (%)
ANNUAL EVALUATION FACTOR: In your annual peak demand & reserve margin evaluation, what is your Evaluation Factor?	Each month for a full calendar year (%) (For example, if you require 90% of the normal peak demand and reserve margin requirement, then the Evaluation Factor is 90%)
ANNUAL INDIVIDUAL SYSTEM EVALUATION: In your annual evaluation, do you evaluate the individual LSE Peak Demand & Reserve Margin requirements in each of the following months?	Each month for a full calendar year (Y/N)
ANNUAL INDIVIDUAL LOCAL EVALUATION: In your annual evaluation, do you evaluate the individual LSE local capacity requirement in each of the following months?	Each month for a full calendar year (Y/N)
ANNUAL INDIVIDUAL LOCAL REQUIREMENTS: If you have a local requirement allocation that differs from the ISO allocation of local capacity requirements for your jurisdiction LSEs, provide the following information for each LSE under your jurisdiction. The sum total requirements across all LSEs under your jurisdiction must equal the MW requirements the ISO allocated to your local regulatory authority.	LSE – Compliance Year – Compliance Month (January-December) – TAC Area (PGE, SCE, SDG) – Local Requirement (MW)
ANNUAL INDIVIDUAL FLEXIBLE EVALUATION: In your annual evaluation, do you evaluate the individual LSE flexible capacity requirement in each of the following months?	Each month for a full calendar year (Y/N)
ANNUAL INDIVIDUAL FLEXIBLE REQUIREMENTS: If you have a flexible requirement allocation that differs from the ISO allocation of flexible capacity requirements for your jurisdiction LSEs, provide the following information for each LSE under your jurisdiction. The sum total requirements across all LSEs under your jurisdiction must equal the MW requirements the ISO allocated to your local regulatory authority.	LSE – Total Flexible Capacity Need (MW) – Base Ramping Minimum (MW) – Peak Ramping Maximum (MW) – Super Peak Ramping Maximum (MW)
Credits. Does your LRA RA Program allow LSEs to use credits in your annual evaluation?	
<i>For the annual <u>peak demand and reserve margin</u> evaluation:</i>	
ANNUAL SYSTEM DEMAND RESPONSE ELIGIBLE: Does your LRA RA Program allow load serving entities to	Full Calendar Year (Y/N)

Question	Answer Format
count demand response towards meeting its peak demand & reserve margin requirement?	
ANNUAL SYSTEM DEMAND RESPONSE ADJUSTMENT: Does your LRA RA Program allow the planning reserve margin to be added to the DR credit in the peak demand & reserve margin evaluation?	Full Calendar Year (Y/N)
ANNUAL SYSTEM RELIABILITY MUST RUN ELIGIBLE: Does your LRA RA Program allow load serving entities to count ISO-procured reliability must run capacity towards meeting its peak demand & reserve margin requirement?	Full Calendar Year (Y/N)
ANNUAL SYSTEM COST ALLOCATION MECHANISM ELIGIBLE: Does your LRA RA Program allow load serving entities to count cost allocation mechanism capacity towards meeting its peak demand & reserve margin requirement?	Full Calendar Year (Y/N)
ANNUAL SYSTEM LIQUIDATED DAMAGES ELIGIBLE: Does your LRA RA Program allow load serving entities to count liquidated damages contracts towards meeting its peak demand & reserve margin requirement?	Full Calendar Year (Y/N)
ANNUAL SYSTEM OTHER CREDIT ELIGIBLE: Does your LRA RA Program allow load serving entities to count any other credits towards meeting its peak demand & reserve margin requirement?	Full Calendar Year (Y/N)
<i>For the annual <u>local</u> evaluation:</i>	
ANNUAL LOCAL DEMAND RESPONSE ELIGIBLE: Does your LRA RA Program allow load serving entities to count demand response towards meeting its local requirement?	Full Calendar Year (Y/N)
ANNUAL LOCAL DEMAND RESPONSE ADJUSTMENT: Does your LRA RA Program allow the planning reserve margin to be added to the DR credit in the local evaluation?	Full Calendar Year (Y/N)
ANNUAL LOCAL RELIABILITY MUST RUN ELIGIBLE: Does your LRA RA Program allow load serving entities to count ISO-procured reliability must run capacity towards meeting its local requirement?	Full Calendar Year (Y/N)
ANNUAL LOCAL COST ALLOCATION MECHANISM ELIGIBLE: Does your LRA RA Program allow load serving entities to count cost allocation mechanism capacity towards meeting its peak demand & reserve margin requirement?	Full Calendar Year (Y/N)
ANNUAL LOCAL LIQUIDATED DAMAGES ELIGIBLE: Does your LRA RA Program allow load	Full Calendar Year (Y/N)

Question	Answer Format
serving entities to count liquidated damages contracts towards meeting its local requirement?	
ANNUAL LOCAL OTHER CREDIT ELIGIBLE: Does your LRA RA Program allow load serving entities to count any other credits towards meeting its local requirement?	Full Calendar Year (Y/N)

If your LRA RA program requires a monthly evaluation, the ISO will need the following:

Question	Answer Format
<i>Evaluations.</i> Does your LRA RA Program require the following evaluation parameters?	
MONTHLY PLANNING RESERVE MARGIN: What planning reserve margin do you use for the monthly evaluation	Each month for a full calendar year (%)
MONTHLY EVALUATION FACTOR: In your monthly evaluation, do you evaluate the individual LSE Peak Demand & Reserve Margin requirements in each of the following months?	Each month for a full calendar year (Y/N)
MONTHLY INDIVIDUAL SYSTEM EVALUATION: In your monthly evaluation, do you evaluate the individual LSE local capacity requirement in each of the following months?	Each month for a full calendar year (Y/N)
MONTHLY INDIVIDUAL LOCAL EVALUATION: In your monthly evaluation, do you evaluate the individual LSE local capacity requirement in each of the following months?	Each month for a full calendar year (Y/N)
MONTHLY INDIVIDUAL LOCAL REQUIREMENTS: If you have a local requirement allocation that differs from the ISO allocation of local capacity requirements for your jurisdiction LSEs, provide the following information for each LSE under your jurisdiction. The sum total requirements across all LSEs under your jurisdiction must equal the MW requirements the ISO allocated to your local regulatory authority.	LSE – Compliance Year – Compliance Month (January-December) – TAC Area (PGE, SCE, SDG) – Local Requirement (MW)
MONTHLY INDIVIDUAL FLEXIBLE EVALUATION: In your monthly evaluation, do you evaluate the individual LSE flexible capacity requirement in each of the following months?	Each month for a full calendar year (Y/N)
MONTHLY INDIVIDUAL FLEXIBLE REQUIREMENTS: If you have a flexible requirement allocation that differs from the ISO allocation of flexible capacity requirements for your jurisdiction LSEs, provide the following information for each LSE under your jurisdiction. The sum total requirements across all LSEs under your jurisdiction must equal the MW requirements the ISO allocated to your local regulatory authority.	LSE – Total Flexible Capacity Need (MW) – Base Ramping Minimum (MW) – Peak Ramping Maximum (MW) – Super Peak Ramping Maximum (MW)

Credits. Does your LRA RA Program allow LSEs to use credits in your monthly evaluation?	
<i>For the monthly <u>peak demand and reserve margin</u> evaluation:</i>	
MONTHLY SYSTEM DEMAND RESPONSE ELIGIBLE: Does your LRA RA Program allow load serving entities to count demand response towards meeting its peak demand & reserve margin requirement?	Each month for a full calendar year (Y/N)
MONTHLY SYSTEM DEMAND RESPONSE ADJUSTMENT: Does your LRA RA Program allow the planning reserve margin to be added to the DR credit in the peak demand & reserve margin evaluation?	Each month for a full calendar year (Y/N)
MONTHLY SYSTEM RELIABILITY MUST RUN ELIGIBLE: Does your LRA RA Program allow load serving entities to count ISO-procured reliability must run capacity towards meeting its peak demand & reserve margin requirement?	Each month for a full calendar year (Y/N)
MONTHLY SYSTEM COST ALLOCATION MECHANISM ELIGIBLE: Does your LRA RA Program allow load serving entities to count cost allocation mechanism capacity towards meeting its peak demand & reserve margin requirement?	Each month for a full calendar year (Y/N)
MONTHLY SYSTEM LIQUIDATED DAMAGES ELIGIBLE: Does your LRA RA Program allow load serving entities to count liquidated damages contracts towards meeting its peak demand & reserve margin requirement?	Each month for a full calendar year (Y/N)
MONTHLY SYSTEM OTHER CREDIT ELIGIBLE: Does your LRA RA Program allow load serving entities to count any other credits towards meeting its peak demand & reserve margin requirement?	Each month for a full calendar year (Y/N)
<i>For the monthly <u>local</u> evaluation:</i>	
MONTHLY LOCAL DEMAND RESPONSE ELIGIBLE: Does your LRA RA Program allow load serving entities to count demand response towards meeting its local requirement?	Each month for a full calendar year (Y/N)
MONTHLY LOCAL DEMAND RESPONSE ADJUSTMENT: Does your LRA RA Program allow the planning reserve margin to be added to the DR credit in the local evaluation?	Each month for a full calendar year (Y/N)
MONTHLY LOCAL RELIABILITY MUST RUN ELIGIBLE: Does your LRA RA Program allow load serving entities to count ISO-procured reliability must run capacity towards meeting its local requirement?	Each month for a full calendar year (Y/N)
MONTHLY LOCAL COST ALLOCATION MECHANISM ELIGIBLE: Does your LRA RA Program allow load serving entities to count cost	Each month for a full calendar year (Y/N)

allocation mechanism capacity towards meeting its local requirement?	
MONTHLY LOCAL LIQUIDATED DAMAGES ELIGIBLE: Does your LRA RA Program allow load serving entities to count liquidated damages contracts towards meeting its local requirement?	Each month for a full calendar year (Y/N)
MONTHLY LOCAL OTHER CREDIT ELIGIBLE: Does your LRA RA Program allow load serving entities to count any other credits towards meeting its local requirement?	Each month for a full calendar year (Y/N)

Appendix B: Timeline for substitute capacity for flexible capacity on planned outage

