Reliability Services Initiative – Phase 2:

Second Revised Draft Final Proposal

September 16, 2016

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1. Executive summary

Reliability Services Initiative – Phase 2 (RSI2) focuses on a variety of issues that pertain to Resource Adequacy (RA) processes that are necessary to effectively administer the RA program. In January 2016, the California ISO published a draft final proposal indicating its intent to present the proposal at the June 2016 Board of Governors meeting. The ISO subsequently deferred the initiative to reassess the proposal. The ISO has made several changes to the scope of the initiative and intends to present the proposal at the October 26-27, 2016 Board meeting. Listed below are the topics that the ISO has included in the scope of the second revised draft final proposal and will be presented to the ISO Board for its approval.

1) Forced outage substitute capacity for RA resources capacity in local capacity areas – The ISO proposes to allow system capacity to substitute for capacity located in a local area that is procured as system RA capacity and goes on a forced outage. The ISO will modify the RA showings and supply plan templates to allow entities to clearly designate the capacity that is being used to meet local capacity requirements and system capacity requirements. Capacity designated as local RA capacity will also count towards meeting the Load Serving Entity's (LSE) system RA capacity requirement.

2) Process to update Effective Flexible Capacity (EFC) list during the year – The ISO is clarifying the process by which a resource may change its EFC through the course of the RA year. The ISO will perform the process manually until an automation process is implemented in the fall of 2018.

3) RA showing tracking and notification –The ISO has built in a reporting tool in the California ISO Interface for Resource Adequacy (CIRA) application to track LSEs that have not submitted their monthly RA showing, and has implemented a communication process to ensure that all LSEs, regardless of size, are notified when an RA showing has not been submitted.

4) RA showing requirements for small LSEs – The ISO proposes to allow LSEs with a forecasted RA need of one MW or less in a given month to be exempted from flexible RA showings for that month as well as exempt an LSE from local showings if the LSE's local requirement is less than one MW in a Transmission Access Charge (TAC) area. The ISO is also proposing to amend the tariff so that an LSE's failure to submit individual monthly RA showings where the LSE's capacity obligation for that month is less than one MW would not constitute a violation of the Rules of Conduct in the ISO tariff.

The ISO is proposing to defer the following two items to a subsequent reliability services initiative (RSI) due to technology implementation limitations. In order to ensure timely implementation of some of the RSI 2 features in the fall of 2017, the ISO must narrow the scope.

1) Substitution for flexible capacity resources on planned outage – The ISO proposes substitution rules, including timelines, for flexible capacity resources on planned outages similar to those proposed in the Reliability Services Initiative – Phase 1 (RSI1) stakeholder initiative. The ISO also proposes that the substitute capacity must be capable of meeting the must-offer obligation for the duration of the resource's outage.

2) Address the RAAIM exemption currently in place for combined flexible capacity resources – Currently, combination flexible capacity resources are exempt from the Resource Adequacy Availability Incentive Mechanism (RAAIM). To eliminate the exemption to apply RAAIM to combination flexible capacity resources, the ISO proposes to create a quasi-resource[1] for the two resources in the combination. The quasi-resource would be used only for purposes of calculating RAAIM charges or payments and has no other implications on the combination.

Implementation Timeline

The table below describes the planned implementation date for each topic in this second revised draft final proposal.

Topic	Planned Implementation Date
1) Forced outage substitute capacity for RA resources capacity in local capacity areas	Fall 2017
2) Process to update EFC list during the year	Fall 2018
3) RA showing tracking and notification	Fall 2017
4) RA showing requirements for small LSEs	Fall 2017
5) Substitution for flexible capacity resources on planned outage	Deferred to future RSI initiative
6) Address RAAIM exemption currently in place for combined flexible capacity resources	Deferred to a future RSI initiative

2. Plan for Stakeholder engagement

The ISO is targeting the October 26-27, 2016 ISO Board of Governors meeting for consideration of the proposal. The schedule for RSI2 is shown below.

Date	Milestone
Sep 16, 2016	Second revised draft final proposal posted
Sep 23, 2016	Stakeholder call on second revised draft final proposal
Sep 30, 2016	Stakeholder comments due on second revised draft final proposal

[1] In the second revised straw proposal, the ISO referred to this concept as a pseudo resource. However, to avoid potential confusion with pseudo-tied resources, the ISO will use the term quasi-resource to describe this concept.

Oct 26-27, 2016	Board of Governors meeting

3. Changes to proposal

The changes to the proposal include additional detail of concepts, as well as specific changes requested by stakeholders.

- Section **Error! Reference source not found.** – Provides additional detail regarding the designation of local and system capacity.
- Section 4.2 - The ISO will manually update the EFC list until an automation process is implemented in the fall of 2018.
- Section **Error! Reference source not found.** – Changed the title of the section and provides additional detail on the ISO's notification process for LSEs that are late in submitting their RA showing.
- Section 4.4 – Includes language responding to SCE's request for reporting, as well as stakeholders questions regarding the potential magnitude of exemptions. The ISO has clarified the proposal by creating two sub-sections that details exemptions for small LSEs.
- Addition of Section 4.5- Created to describe two scope items that will be deferred to a future reliability services initiative.
- Section 4.5.1- Additional language detailing the context of the proposal as well as a detailed description of the substitution process. The ISO has revised language regarding the demonstration to substitute in response to a comment from the Six Cities.
- Section **Error! Reference source not found.** – The ISO will continue to file a temporary exemption with FERC for combination resources until this topic is addressed in a subsequent reliability services initiative.

4. Second Revised Draft Final Proposal

4.1 Forced outage substitute capacity for RA resources capacity in local capacity areas

Currently, RA resources in local capacity areas that go on a forced outage must provide substitute capacity that is also located in a local capacity area or be subject to potential RAAIM availability charges. Some stakeholders assert that the ISO should only require that substitute capacity come from another local capacity resource if the resource has been explicitly procured to provide local RA capacity. These stakeholders argue that if the capacity on outage was not procured to provide local RA capacity, the ISO should only require substitute capacity from another system resource to avoid availability charges. As part of the RSI1 initiative, the ISO committed to review this policy.

Designating local versus system capacity and substitute capacity obligations

In the straw proposal, the ISO discussed the history and process of the Local Capacity Area Technical study, as well as four options it had considered to modify the existing local-for-local substitute capacity (i.e. provide substitute capacity from another resource in a local capacity area).[2] After assessing the options, the ISO proposes to incorporate an additional flag to monthly and annual RA submissions (RA showings template and supply plan template) to track system and local procurement, allowing for like-for-like substitute capacity for forced outages. Stakeholders appear to agree with this assessment.[3] In the revised straw proposal, the ISO proposed to limit local designations to whole resources. However, Calpine and NRG raised additional questions regarding the potential benefits of partial resource designations (i.e., part of a resource could be designated for local and another part could designated as system). The ISO believes it is both beneficial and feasible to allow specified MWs of capacity instead of requiring whole resources to be local RA.

The ISO believes that requiring whole unit local designations could create incentives that would inhibit a resource's ability to procure substitute local capacity. By definition, there are only a limited number of resources in a local area that can provide substitute capacity when another resource goes on outage. If one of those resources is procured as a system resource, it may be unwilling to provide local capacity substitution if it would be required to convert the entire resource into a local resource. Doing so, increases the potential substitution obligation for the new resource. This is particularly true if the quantity to be substituted is small, relative to the amount of system capacity the resource has sold. Therefore, to facilitate more efficient substitution practices, the ISO proposes to allow MWs of capacity, not whole resources, to be local capacity.

The ISO proposes to modify the templates for RA showings and supply plans for both the annual and month-ahead RA submissions and require entities to specify the MWs of capacity that have been procured to meet local and system RA capacity requirements. The designation of local and system MW capacity will not require a separate template for RA showings and supply plans, but will be built into the existing template. The ISO will use this new RA showing to determine whether a resource that goes on forced outage must replace with system or local capacity. The ISO is not proposing to change its local RA assessment methodology and will continue to assess whether an LSE is individually sufficient in meeting its local RA obligation using all of its capacity on its RA showings that is physically located in a local capacity area, exactly as is done today. Supply plans will also include a showing that identifies the specific

[2] See Section 5.3 of the straw proposal in this initiative for greater detail. Available at http://www.caiso.com/Documents/RevisedStrawProposal-ReliabilityServicesPhase2.pdf

[3] PG&E was the only stakeholder that commented on the ISO's revised straw proposal that felt no change was required

MW quantity of local RA capacity the resource is providing. The ISO will validate local RA showings to verify that the Scheduling Coordinators (SCs) for resources and LSEs have accounted for capacity comparably on both showings. If there is a discrepancy between the RA showing and supply plan, the ISO will notify both parties. If the discrepancy remains unresolved, the ISO will maintain its current practice of defaulting to the supply plan, but notifying both parties of the discrepancy.

All MWs of capacity designated as local on RA showings and supply plans will automatically count towards the LSE's system RA requirement. Therefore, there is no need to include a MW of capacity designated as local RA on the system RA showing or supply plan. Further, the sum of both the system RA plus the local RA may not exceed the NQC MW value for a resource.

This proposal will minimize the complexity associated with local capacity forced outage substitution rules. The ISO is not proposing to change the timing of planned or forced outage substitution.[4] However, the ISO must clarify how local RA resources can provide substitute capacity. Resources identified on both a system and local RA showing that are derated first have a substitution obligation for any system capacity unless the derate impacts the resource's ability to meet its local capacity obligation. Only to the extent the derate impacts the resource's ability to meet its local capacity obligation, will the SC have to substitute local capacity to avoid RAAIM non-availability charges. For example, if a 100 MW resource sells 60 MW local RA and 40 MW of system RA but is derated from 100 MW to 80 MW, then the resource would be required to provide 20 MW of system RA to avoid RAAIM charges (Figure 1). However, if the same resource is derated to 50 MW, then it would have to provide 10 MW of local substitute capacity and 40 MW of system capacity to avoid RAAIM charges (Figure 2).[5]

[4] As noted on p. 24 of the second revised straw proposal, the ISO is not proposing any changes to the planned outage process http://www.caiso.com/Documents/SecondRevisedStrawProposal-ReliabilityServicesPhase2.pdf

[5] Any CPM designated capacity will have a substitution obligation comparable to the deficiency that lead to the CPM designation.

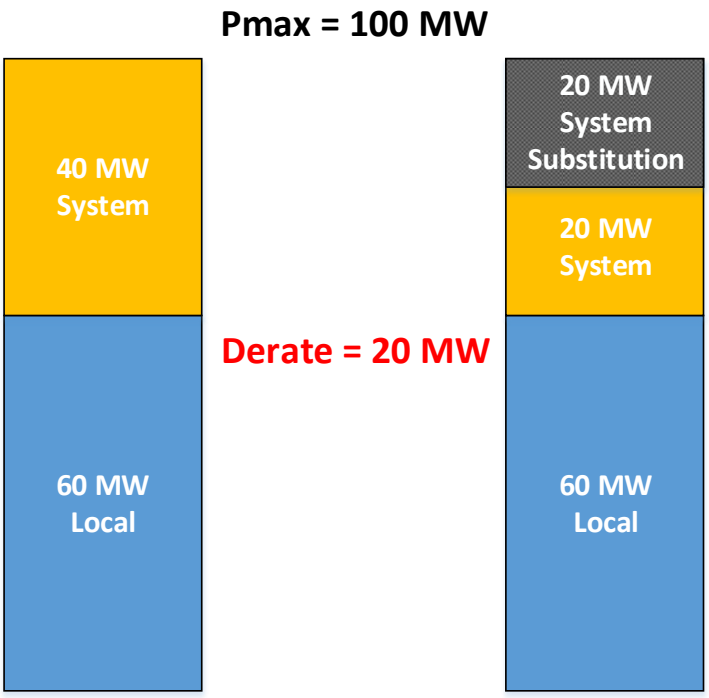

Figure 1: Substitution required for a Resource with a 20 MW derate to avoid RAAIM charges

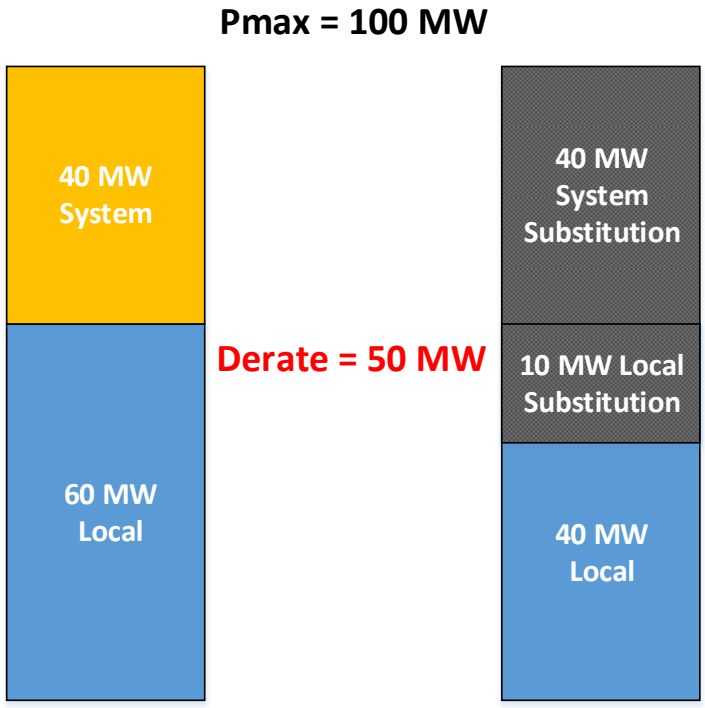

Figure 2: Substitution required for a Resource with a 50 MW derate to avoid RAAIM charges

The SC for the resource shown as local capacity going on outage would submit a substitution designating the capacity of another qualified resource as substitute capacity. If the substitute resource also has system capacity, and the substitution is incremental to that capacity, then the substitution will not impact the existing system capacity. The additional local substitute capacity will be added to the system capacity. For example, if a 100 MW resource located in a local area has sold 60 MW of system capacity and offers to provide an additional 25 MW of local capacity due to a forced outage of a local resource, then the resource would be subject to the must-offer obligations for 85 MW (60 MW plus 25 MW). Because this substitution is incremental, it fulfills both the system and local obligation of the capacity on outage.

4.2 Process to update Effective Flexible Capacity (EFC) list during the year

In the FRACMOO Phase 1 stakeholder initiative, the ISO established the methodology for calculating a resource's EFC. Specifically, the ISO calculates 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. Specifically, the ISO will clarify the process by which a resource may change its EFC through the course of the year. The ISO will manually update the EFC list until an automation process is implemented in the fall of 2018.

Updating EFC values

There are several reasons a resource may request an EFC update during the year, *e.g.,* when a new resource comes online and a resource's NQC increases. Several SCs have already contacted the ISO to change their EFC mid-year. The ISO will update a resource's EFC only upon request from the SC for the resource. The ISO will not automatically undertake these updates. If a non-dispatchable resource becomes dispatchable, the SC for that resource must request that the ISO review the EFC for the resource after the change takes effect. This also covers changes to the NQC of a resource. The SC for a resource must request that the ISO review the EFC value either at the same time or after the SC submits the request to change the NQC value.

Determining flexible capacity categories

In RSI 1, the ISO established a process by which SCs for use-limited resources provide the resources' use-limitations to the ISO. The use-limitations captured through this submission include any applicable monthly start-limitation for a resource. The ISO utilizes this data to determine whether a resource qualifies to provide Base, Peak, or Super-Peak flexible capacity. The ISO utilizes the use-plans provided for each resource from the previous year to help determine the resource's flexible capacity category. If the use-limitations for a resource are expected to change for the upcoming RA year, the SC for that resource may submit comments

and supporting documentation to the ISO as part of the comment period on the draft EFC list. Using 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 identify the resource's eligibility to provide Super-Peak flexible capacity.

4.3 RA showing tracking and notification

Each year, LSEs are required to submit year ahead RA showings. Monthly RA plans are currently due at t-45 days before the operating month. An LSE is currently allowed to submit monthly showings at the same time they submit their annual showings. Any monthly RA showing that is submitted after t-45 days will incur a penalty of $500 per day until the RA plan is submitted.[6]

The Small POU Coalition requested the ISO look at the process and penalties for only small POUs. The ISO is not proposing any changes to the existing penalty structure based on LSE size, because creating such delineation could be viewed as arbitrary, and is not necessary. However, the ISO has built a reporting tool in CIRA that provides a list of LSEs that have not submitted their RA showings at T-44, a day after the RA showings deadline.

RA Showing Reporting Tool and Communication

In addition to the reporting tool, the ISO has developed the following notification process to SCs that are one day late in their monthly RA showing: The notification process is detailed below:

1. One day after the monthly RA showing is due (T-44), the ISO will run the reporting tool.
2. A list of LSEs that did not submit a monthly RA showing at T-44 will be sent to ISO client services.
3. As soon as practical, ISO client services will send a notification via email and a phone call to LSEs that have failed to submit a monthly RA showing.
4. Within 3 business days after a client representative has confirmed notification with the SC, the ISO will run the reporting tool to confirm if all LSEs have submitted their monthly RA showing.
5. If an LSE has still not submitted their monthly RA showing, the notification process with ISO client services will restart.

[6] https://bpmcm.caiso.com/Pages/BPMDetails.aspx?BPM=Reliability%20Requirements

The ISO believes that the tracking tool and notification process, will ensure that all LSEs are made aware of the failure to submit a showing and mitigate the concern of potential, large, late information penalties being assessed for late RA showings.

4.4 RA showing requirements for small LSEs

The ISO has transferred consideration of this issue from the FRACMOO Phase 2 initiative. The ISO is proposing two changes to existing tariff provisions. The first is an upfront exemption from any RA showings. The second item is a waiver of penalties for late RA showings.

Exemption from RA showings

The ISO tariff currently exempts small LSEs from system RA showings if measured demand for the previous year was less than one MW.[7] This exemption was based on the challenge and cost associated with trying to procure less than a MW of capacity. However, unlike system RA, small LSEs are not exempt from flexible capacity requirements. Therefore, the ISO proposes to exempt LSEs whose largest forecasted contribution to the maximum three hour net load ramp of less than one MW from making a flexible RA showing. As an example, an LSE's total flexible capacity requirement is made up of the LSE's forecasted contribution to the three hour net load ramp and the LSE's share of max of the 3.5 percent expected peak load or the most severe single contingency. An LSE will be exempt if the first of these components is less than one MW. The ISO's proposed exemption is based on the driver of the need (*i.e.* the three hour net-load ramp), and should therefore not consider the potential for overlap.

The LSE is not exempted from flexible RA if only a specific category of flexible capacity is less than one MW. For example, an LSE whose contribution to the maximum three hour net load ramps for the year is 0.75 MW would be exempt from making a flexible capacity showing for the upcoming RA year. However, an LSE whose largest contribution to the maximum three hour net load ramps is 1.25 MW and a maximum contribution to base flexible capacity (category 1 flexible capacity) of 0.75 will still have an obligation to make an RA showing.

The ISO proposes to also exempt LSE from local showings if the LSE's local requirement is less than one MW in a Transmission Access Charge (TAC) area. This means the LSE would not be required to designate local capacity in that TAC area. As an example, if an LSE has a local requirement in PG&E TAC of 0.75 MW and a 1.25 MW in SCE TAC, then the LSE would be required to designate 1.25 MW of local in SCE TAC, but would not be required to designate any local RA in PG&E TAC.

These upfront exemptions relieve the LSE from making an RA showing and, therefore, any backstop procurement costs.

[7] In 2016, the ISO has identified that there is only one LSE that is exempted under this provision.

Late RA showing penalties for small LSEs

Although the exemption discussed above provides some relief for small LSEs, it still leaves many LSEs with monthly RA requirements of less than one MW that must be fulfilled. For example, a small LSE may have a peak load of 2.5 MW in June, but only .75 in January through May. This is a similar issue for small LSEs as the one discussed above (i.e. an obligation to by RA in increments of less than one MW. Therefore, the ISO proposes to amend the tariff so that an LSE's failure to submit individual monthly RA showings where the LSE's capacity obligation for that month is less than one MW would not constitute a violation of the Rules of Conduct in the ISO tariff (Section 37). More specifically, an LSE would not be subject to penalties for failure to make an RA showing for a given capacity product (system, local, or flexible) if its obligation for that product for that month is less than one MW. In the previous example, the LSE would not be subject to penalties for failure to show system RA for January, but would be for June.

Although the ISO will not penalize small LSEs for failure to submit a monthly RA showing for the months in which the requirement is less than one MW, this proposal does not exempt LSEs from making an RA showing. As such, the ISO is not proposing to exempt small LSEs from potential backstop procurement costs if they fail to submit an RA showing during a given month. The ISO will not penalize the LSE for the failure to submit a monthly RA plan, however, the ISO will notify them of the RA deficiency and provide them with the opportunity to cure the deficiency, just as is done with large LSEs today. If the LSE does not cure the deficiency and the ISO exercises its backstop authority, the LSE will be subject to cost allocation for capacity procured.

Consistent with the above policy for system capacity, the ISO also proposes to waive penalties for LSE whose contribution to the maximum three hour net load ramps for the year is less than one MW in a given month if the LSE fails to make a flexible RA showing. For example, a small LSE with a peak load forecast of 6 MW, but a flexible capacity requirement of 0.75 MW, would have to provide a system RA showing for the month for the 6 MW, but would not be penalized for failure to submit a flexible RA showing for that month.

In response to stakeholders inquiring about the potential magnitude of the exemption, the ISO stated in the revised draft final proposal that in 2016, only one LSE has been granted an exemption. Also, the ISO has a total 52 LSEs, in which the magnitude of the exemption would result in no more than 52 MW. Therefore, the ISO does not believe that this exemption will create a major impact on the total RA capacity needed.

4.5 Scope items deferred

Due to technology implementation limitations, the ISO will not include the following two topics in the proposal to the Board of Governors on October 26-27, 2016. The ISO is deferring the two topics below to a subsequent reliability services initiative.

4.5.1 Substitution for flexible capacity resources on planned outage

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 (SC) 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 a flexible capacity resource. As a result of RSI1, flexible capacity on a forced outage is required to provide the ISO with capacity that is capable of meeting the must-offer obligation of the same flexible capacity 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.

ISO proposal

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 SC for the capacity to provide planned outage substitute capacity. In response to stakeholders, the ISO clarifies that the proposal does not require resource substitution. Demonstration of substitution is never required at the moment a resource requests a planned outage. Any substitute capacity must comply with the flexible RA category must-offer requirements of the resource on outage. The ISO's proposal is based on the Board of Governor approved timeline from RSI 1 that is currently awaiting FERC approval and will be implemented by the fall of 2017.

Six Cities provided comments stating that the "Same Category or Better" for flexible RA planned outages was inconsistent with the proposal it filed with FERC. Specifically, Six Cities asserts that ISO Tariff section 40.10.6 supports that Flexible RA capacity should only require that a substitute resource be capable of meeting the must-offer obligation. Upon further review of the tariff language referenced by Six Cities, the ISO finds the language in section 40.6 to be ambiguous as currently written. The ISO's intent, is to ensure that substitute capacity can provide a comparable quality of flexible capacity to the resource going on planned outage. In the revised straw proposal, the ISO proposed a "category-or-better" requirement for any substitute capacity. Although this proposal had the benefit of eliminating the need to validate that the substitute capacity is providing a comparable level of flexible capacity, it may be overly limiting in determining what resources may be provided for flexible capacity. For example, based on feedback provided by the Market Surveillance Committee and Six Cities, requiring

resource to provide 60 starts, which is required for a base flexible capacity resource, would be excessive if the resource is substituted near the end of a month. Although the ISO agrees such a requirement may be overly limiting, there is still a need to ensure that the quality of the flexible capacity is maintained. For example, an SC could show a resource qualified for a given category on the first day of the month, only to substitute it with a lower quality flexible capacity resource on the second day.

The ISO notes that Section 40.10.6 defines the must-offer obligations of the flexible capacity resources shown in specific flexible capacity categories. As such, any resource providing substitute flexible capacity must provide confirmation that the substitute capacity has sufficient starts and run hours to meet the flexible capacity obligations of the resource going on planned outage. This demonstration must be made at the time of the substitution. The specific timing of this process is further clarified below. If this demonstration is not made, the ISO will reject the substitution and deny the planned outage request. Further, with respect to the rules developed in RSI1, the ISO proposes to apply a similar confirmation for flexible capacity on a forced outage. This confirmation will reflect that the substitute capacity has sufficient starts to perform comparably to the flexible capacity it is replacing given the timing and duration of the must offer obligation, and will be assessed under RAAIM for that flexible capacity category. For example, if a category 1 flexible capacity resource takes a one week outage,

1) The substitute resource must confirm that it can start or ramp twice a day for every day of the outage (*i.e*., has 14 starts remaining in the month if two starts per day are required of the resource or seven if one start per day is required) and will be required to economically bid all flexible capacity of the resource into the day-ahead and real-time markets from 5:00 a.m. through 10:00 p.m., and
2) The ISO will evaluate all flexible capacity from the resource according to the availability rules for the category one flexible capacity must offer obligation.

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, then 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. In its decision on RSI1a, FERC affirmed this approach as just and reasonable because it reduces 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.

As a point of clarification, the ISO proposes that a resource that has been shown for multiple flexible capacity categories be required to provide substitute capacity capable of meeting the must offer obligations associated with the highest flexible capacity category shown for the resource. The rationale for this is comparable to the rationale FERC agreed with in its decision on the ISO tariff amendment for the RSI1a. Specifically, the ISO stated:

> [I]ntroducing multiple categories for a single resource for purposes of determining whether the resource has met the must offer obligation for each category in each hour would add enormous complexity for the CAISO to implement, track, and settle multiple categories, and would decrease transparency.[8]

In response, FERC stated that it "believe[s] the complexity of [the] alternatives would undermine the benefits of CAISO's proposal."[9] Similar complexity is created if the ISO is forced to track outages and determine substitution obligations for resources shown in multiple flexible capacity resources.

It is possible that multiple resources with varying categories can provide substitute flexible capacity at different but overlapping times during a month. For example, as shown in **Error! Reference source not found.** below, resource A is shown as Category 1 on RA showings as a partial RA unit and is used as a substitute unit to mitigate the impact of forced outages on three other RA units. Resource A is used in different categories as a substituting unit, but the ISO would only consider the highest quality category from a must offer and RAAIM perspective. Specifically, resource A has an obligation to serve as a Category 1 on day 2 because it was used as a Category 1 for sub 2.

Table 1: Resource A's RA category obligation

	Day 1	Day 2	Day 3	Day 4	Day 5
Res A on RA showing	2	2	2	2	2
Res A used for Sub 1	2	2			
Res A used for Sub 2		1	1		
Res A used for Sub 3			3	3	3

[8] ISO RSI1a transmittal letter at p. 41. Available at http://www.caiso.com/Documents/May29_2015_TariffAmendment_Implement_Phase1A_ReliabilityServicesInitiative_ER15-1825.pdf

[9] FERC Order Conditionally Accepting Tariff Revisions. ER15-1825-000 at paragraph 62. Available at http://www.caiso.com/Documents/Oct1_2015_OrderConditionallyAcceptingTariffRevisions_ReliabilityServicesInitiative_ER15-1825.pdf

Obligation	2	1	1	2	2

An SC may use a substitute resource in multiple categories for a day, but the ISO will assess the resources based on the highest quality category for its must offer obligation and RAAIM.

The ISO will allow a SC 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 SC to indicate a substitute value. For example, resource A can indicate that 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.

Timeline for flexible capacity resources on a planned outage

The ISO proposes to apply the same substitution timeline for flexible capacity resources on planned outages as it proposed in RSI1 for resources on planned outages. Specifically, the ISO will utilize the same timeline reflected in Appendix D of the RSI1 proposal[10], which will be in effect in 2017. The timeline is included in Appendix B of this document.

The new planned outage substitution process, which the ISO will file at FERC as part of the ISO's RSI1b filing, is as follows:[11]

> 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 made available to the LRA, LSE, and supplier. The ISO will then allow a cure period for LSEs to cure any shortages until T-25.

[10] http://www.caiso.com/Pages/documentsbygroup.aspx?GroupID=B7589653-DF76-4D38-B471-3DEB44B7408F

[11] Reliability Services Initiative – Phase 1 at http://www.caiso.com/Documents/DraftFinalProposal-ReliabilityServices.pdf

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.[12] Currently this process begins at T-45 and is finalized at T-7. The ISO proposes that the 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 [for flexible RA] 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 the planned outage moves for any reason after the supplier provides planned outage substitute capacity, [[13]] the ISO will allow the supplier to release any provided planned outage substitute capacity up to the substitute capacity amount.

4.5.2 Address the RAAIM exemption currently in place for combined flexible capacity resources

After FERC conditionally approved the ISO's FRACMOO Phase 1 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.[14] Originally, the ISO had proposed that both

[12] 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.

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-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."[15] 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.

The ISO is deferring this item to a subsequent reliability services initiative and the temporary exemption for combination flexible capacity resources will continue.

Tracking the daily maximum performance from the combination flexible capacity resources

In its April 10, 2015, FERC filing in ER14-2475 RSI1, the ISO stated that RA capacity is a daily product that comes from a given MW of capacity. This means that the ISO only needs a single resource from the combination to provide that flexible capacity on any given day, and the ISO only needs to assess the availability of a single resource over the duration of a day. **The ISO proposes to assess the combined resource's availability using the maximum *daily* availability of the two resources.** The ISO would calculate the combined resources' availability on a given day using the resource that was most available (*i.e.*, complied with the applicable flexible capacity must offer obligation for the most hours that day). For example, the following is a hypothetical combination flexible capacity resource:

Resource	Pmax	System RA	Flexible RA[16]
Resource A	125	100	75 (combined)
Resource B	100	50	75 (combined)
Total	225	150	75

In this example, Resource A has a 100 MW system RA requirement and Resource B has a 50 MW system RA requirement. Additionally, Resource A is combined with Resource B to provide 75 MW of flexible capacity. Therefore, the must-offer obligation of Resource A is to provide 100 MW of capacity. If Resource B is not providing flexible capacity on a given day, then 75 MW of Resource A must meet the flexible capacity must offer obligation while the remaining 25 MW of capacity would be subject to the system RA must-offer obligation. Because Resource B is shown for less system capacity than flexible capacity, it can meet both its system and flexible capacity must-offer obligation by meeting the combination flexible capacity obligation.

For a hypothetical 10 day month, the two resources have the following availability for flexible capacity:

Resource	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10	Total
Resource A	95%	93%	92%	90%	75%	0%	0%	80%	90%	97%	
Resource B	75%	80%	90%	92%	80%	90%	92%	75%	80%	50%	
Maximum	95%	93%	92%	92%	80%	90%	92%	80%	90%	97%	90.1%

It does not matter which resource is more available during a specific hour within the day, only which resource is the most available for the entire day. This is a simplified example of how the ISO will assess the flexible capacity availability for combined resources. However, the ISO must be able to calculate the total availability obligations, system and flexible, of both resources. Only the flexible capacity aspect of the resources are combined, not the system obligations. System obligations remain cumulative. As such, the appropriate way to measure the availability of the resources is to assess the *total* obligation.

In order to apply RAAIM to combination flexible capacity resources, the ISO proposes to create a quasi-resource for the two resources in the combination. This quasi-resource is used only for purposes of calculating RAAIM charges or payments and has no other implications on the bidding behavior, dispatches, or other settlements for the two resources in the combination. The need for creating this quasi-resources comes from the need to capture both the full system and flexible capacity obligations contained by the combined resources. In the example above, the total system capacity sold is 150 MW, while the flexible obligation is 75 MW. In RSI1, the ISO developed a rule that stated that RAAIM would calculate a resources availability by assessing the resource's adherence to its highest quality must offer obligation. Therefore, the ISO's RAAIM assessment uses compliance with the flexible capacity must-offer obligation for 75 MW flexible capacity first, then assess compliance for must-offer obligation for system capacity. Without using the quasi-resource, the RAAIM assessment would look at the compliance of each resource separately. For a combination flexible capacity resource, this would be seen as both resources meeting the flexible capacity must-offer obligation because if

one resource meets the flexible capacity must-offer obligation, then both resources meet the obligation. In the above example, if Resource A meets flexible capacity must-offer obligation, so does Resource B. However, although it appears as though Resource B met it must-offer obligation for flexible capacity, because of the structure of the combination resource it might not have met its system level must-offer obligations. As an example, assume that Resource B goes on an outage. If the ISO were to apply the RAAIM calculation developed in RSI1 to each resource in that combination, then it would calculate the availability of the resources as follows:

Table 2 Availability of resources

Resource	Flexible Capacity Availability	Incremental System Capacity Availability[17]	Total
Resource A	75	25	100
Resource B	75	0	75

In the table above, Resource B has a must offer obligation for flexible capacity that is greater than the obligation for system RA. However, Resource A may be the resource that is used to meet the flexible capacity obligation for the combination. If Resource B goes on outage and Resource A is used to meet the flexible capacity requirement, then there would appear to be no need to provide substitute capacity for Resource B's outage. If Resource B goes on a forced outage, then the ISO would be short of 50 MW of system capacity. Therefore, it is necessary to develop a tool that will apply RAAIM in such a way that provides the incentive to substitute the remaining 50 MW of system capacity.

The ISO proposes to create a single quasi-resource that will capture all of the requirements of both resources. The single resource will use the sum of the system level obligations and the combined flexible capacity obligation of the two resources. As an example the above combination flexible capacity resource would have the following RAAIM requirements:

Table 3: RAAIM requirements of the combo flex capacity resource

Resource	Flexible Capacity Availability	Incremental System Capacity Availability	Total
Resource C	75	75	150

Once the ISO creates this quasi-resource, using the daily available flexible capacity calculation described above, the ISO will be able to apply the RAAIM calculation in the same manner as it

does is for all other resources. Further, for purposes of settlements, because the resources in the combination are required to have the same SC, it is not necessary to determine the specific contribution of the each specific resource in the combination. For example, the ISO would settle RAAIM charges with the SC as if the combination was a single resource providing 75 MW of flexible capacity and an additional 75 MW of system capacity. Therefore, it is not necessary to determine the applicable contributions for Resource A and/or Resource B, the calculation only needs to be done on Resource C's compliance.

5. Next Steps

The ISO will host a stakeholder call on September 23, 2016 to discuss the contents of this second revised draft final proposal. Stakeholders are welcome to submit written comments by September 30, 2016 to initiativecomments@caiso.com. Stakeholders should submit their written comments using the template that has been posted to the web page for this initiative at: http://www.caiso.com/informed/Pages/StakeholderProcesses/ReliabilityServices.aspx.

Appendix A: Stakeholder comments and ISO responses

(1) Forced outage substitute capacity for RA resources capacity in local capacity areas – Calpine, CDWR, SVP, Six Cities, and NRG support the ISO's proposal to unbundle local and system RA. Although, Calpine agrees with SDG&E and PG&E, that the proposal would lead to an inconsistency between what resources the ISO considers in determining collective deficiencies and LSE-specific deficiencies. Calpine is not convinced that this inconsistency is procured as local capacity for purposes of determining whether there is an individual RA deficiency. Calpine recognizes the need for the ISO to consider all RA resources, not just RA resources procured as local RA capacity, to represent accurately the expected topology of the system in determining collective deficiencies. PG&E and SDG&E seem to suggest that the proposal could lead to additional CPM designations within the month if a local resource sold as system RA capacity and assumed to be available in the ISO's month- or year-ahead local reliability assessments is substituted with a resource outside of the relevant local area.

The ISO believes that the proposal provides a mechanism by which an LSE can show the ISO the capacity it is relying on to meet its local capacity obligation. Further, the substitution obligation is closely aligned to the category of capacity that was procured, i.e., system or local, as are the costs of substitution. The ISO's proposal provides the incentive for LSEs to properly identify the resource as local RA capacity. *If an LSE wishes to avoid any potential risks for CPM designations it may do so by ensuring that resources in the local area are, in fact, shown as local RA and therefore have a substitution obligation (local for local) on the resource's SC that mitigates potential risks of CPM designation. The proposal is a more equitable solution because substitution requirements mirror the capacity category of the procured capacity.* The ISO's revised proposal focuses on substitution rules and does not seek to modify individual or collective deficiency assessments.

(2) Process to update Effective Flexible Capacity (EFC) list during the year – NRG, Olivine, and SCE either supported or did not oppose the proposal. Six Cities continues to recommend that the ISO target publication of revised NQC and EFC lists by T-45 days to help inform procurement of RA requirements for the annual showing. CDWR suggested that the EFC update be linked to NQC update request by an SC. DMM sees the benefit in additional flexibility for updating a resource's EFC mid-year upon request but mentions that if a resource changes its characteristics and no longer qualifies for its flex RA category then it should be disqualified.

The ISO continues to work collaboratively to publish NQC and EFC lists based on the LRA QC lists. However, because the process relies on an exchange of information between the ISO and LRAs, it is not possible to establish a firm date for publishing the NQC and EFC lists.

(3) RA showing tracking and notifications – CDWR expressed support and SCE did not oppose the proposal to dropping the previous proposal to automatically roll over LSE's RA showings. NRG asked if supply plans are tracked and if suppliers would be able to receive notifications. Six Cities, the Small POU Coalition, and SVP oppose the proposal. Stakeholders believe that the notification process has not yet demonstrated to lead improvements and SVP recommended caution with any notification process due to a specific error that occurred due to CIRA.

The ISO believes that the current reporting tool and notification process detailed in the proposal will provide stakeholders sufficient and equal treatment regardless of its size. The ISO believes that the proposed changes can be readily implemented in a manner results in an efficient but effective way to assist stakeholders that are late in submitting their monthly RA showing. The ISO will closely monitor the customer service's communication process and if needed, will be open to further development. The ISO at this time, will not notify suppliers. Supply plans must be submitted only if an LSE procures a resource. This dependency on a RA showing creates a level of implementation complexity.

(4) RA showing requirements for small LSEs – PG&E, the Small POU Coalition, Six Cities, and NRG are either supportive or not opposed to the proposal. Supporters of the proposal did note that the key aspect of the proposal is to keep small LSEs responsible for potential backstop procurement costs. SCE requested that the ISO publish information to report the amount of MW by category that are being waived for LSEs to allow stakeholders to be aware of the magnitude of the exemption.

The ISO understands that certain stakeholders are cautious of the magnitude of the exemption. To frame the magnitude of the exemption, in 2016, the ISO has only granted one LSE an exemption from its monthly RA showing. Due to the ISO's expectation that the exemption will only apply to a small subset of LSEs out of a total of 52 LSEs, the ISO will not publish a report.

(5) Substitution for flexible capacity resources on planned outage – Stakeholders were generally looking for additional details regarding the substitution process for planned outages for flexible capacity resources. Specifically, PG&E asked for scenarios of when substitution would be needed during planned outages. SDG&E asked questions regarding the substitution process at various time stages and how the mechanics of the substitution. Specifically, SDG&E asks how substitution will work at the T-45 stage as well as if an SC will have to provide specified and non-specified capacity. DMM requested that, "The ISO should elaborate on how the confirmation process will be implemented and how the ISO will verify the demonstration when approving the outage." NRG and SCE did not oppose the proposal and understood the ISO's proposal

that any flexible resource going on a planned outage will go through the same process as a generic RA resource to determine if substitution is needed. WPTF did not support the proposal because the ISO has not developed a permanent flexible RA product. WPTF also stated that the ISO has not included the critical details on planned outage rules.

The ISO agrees with stakeholders that further details are detail needed for the substitution process. The ISO will assess the sufficiency of category 1 and system resources before approving a planned outage. If substitution is needed, the last resources that made requests will be the first to provide substitution. SDG&E's first question regarding the substitution timeline does not consider that the ISO's proposal for flex capacity planned outages are in the context of the RSI 1 proposed substitution timeline. The ISO does not expect substitution to occur at the T-45 stage. The CAISO has modified Section 4.5.1 to explain in greater detail the timeline and substitution process the ISO is proposing. Regarding DMM's comments on the confirmation of deliverability of a substitute resource, the ISO will hold the SC accountable for the submission of the resource's true and accurate information. Due to the deferral of this item, stakeholders will have an opportunity to continue to help develop this proposal in a subsequent reliability services initiative.

(6) Address the RAAIM exemption currently in place for combined flexible capacity resources – Six Cities supports applying RAAIM to combination flexible capacity resources. NRG does not oppose the proposal. PG&E requested clarification on the ISO's response to its previous comment on exempting hydro resources from RAAIM. DMM supports the proposal but expressed concern over the possibility that if one resource from the combination is shown as local and the other can show for flex and system, the local resource can take a forced outage and not be subject to RAAIM.

The ISO believes that PG&E's request for a RAAIM exemption for hydro resources is out of scope because the current proposal was to eliminate the temporary RAAIM exemption for combination flexible capacity resources. Due to the ISO deferring this item to a subsequent reliability services initiative, PG&E's request cannot be considered at this time.

(7) Clarify LRA interaction and process alignment – The ISO received comments from CDWR, SCE, the CPUC, and Six Cities, who do not oppose the ISO's decision to not pursue an LRA template.

(8) Other Comments – DMM recognized that the ISO had included necessary improvements to the RAAIM but recommended that "the ISO incorporate an assessment of resources' actual performance when dispatched rather than rely solely on whether or not a resource submitted a bid." DMM also included the consideration of reevaluating the process for planned outages for maintenance outages. There are concerns regarding the use of maintenance outages for non-maintenance purposes. Olivine requested

clarification of the implementation of the various aspects of the reliability services initiatives due to the division of various phases. CPUC, SDG&E and WPTF stated that the proposal was not ready for board approval due to various areas that lacked detail.

The ISO recognizes that DMM has concerns of the RAAIM as well as the current use of maintenance outage and will take its recommendations into consideration for future initiatives. Per Olivine's requests for clarity around the implementation of RSI2, the ISO has included in the executive summary as well as throughout the proposal, the planned implementation dates. In response to stakeholders that believe various areas of the proposal are not ready for Board approval, the ISO notes that it has deferred two topics to a future reliability services initiative and added details to clarify aspects of the topics within the proposal that will be presented to the Board for approval at its October 26-27, 2016 meeting. The ISO believes that the changes made to the proposal will allow for critical enhancements to the RA program, while taking additional time to develop other topics in a subsequent reliability services initiative.

Appendix B: Timeline for Substitute Capacity for Flexible Capacity on Planned Outage

Timeline approved in RSI 1b Initiative, still to be filed with FERC, and expected to be effective at time when RSI2 Topics would be implemented