Flexible Resource Adequacy Criteria and Must-Offer Obligation

Market and Infrastructure Policy
Straw Proposal

December 13, 2012

Straw Proposal

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1 Introduction

ISO studies have shown that the need for flexible capacity resources will increase as large amounts of intermittent renewable resources come online to meet California's 33 percent Renewable Portfolio Standard.[1] In addition, the potential retirement of 12,079 megawatts of once-through cooling generation units and the potential addition of 12,000 megawatts of distributed resources will further increase the need for flexible resources. Given the growing intermittency of the supply fleet and the potential retirement of once-through-cooled resources, the ISO as the balancing area authority must consider its operational needs beyond what historically has been satisfied by system and local capacity, often termed "generic capacity." As discussed below, the ISO, with co-signatories, San Diego Gas and Electric and Southern California Edison, has submitted a proposal to the CPUC's Energy Division that would establish flexible capacity procurement requirements as part of the CPUC's RA program.[2] This proposal details an interim solution to addressing the ISO's flexible capacity needs while a long term solution is devised. The ISO, in collaboration with the CPUC and other local regulatory authorities, must ensure that the supply fleet has sufficient flexibility, including ramping and load following capabilities, to satisfy ramping and intra-hour variability needs, including sufficient contingency reserves to ensure the security and safety of the grid.

In this proposal, the ISO a) outlines the efforts that have been taken to date to address these challenges b) proposes interim changes to the ISO tariff for default flexible capacity provisions for Local Regulatory Authorities that do not have specific provisions in place, backstop procurement authority for LSE's that are deficient in meeting flexible capacity procurement obligations, and c) outlines relevant issues that must be resolved with respect to performance and must-offer obligations for resources that are used to meet the flexibility capacity obligations. The changes the ISO is proposing will occur in two stages.

In order to implement the new flexible capacity requirements in the CPUC's RA procurement obligations for 2014 RA compliance, the first stage of this stakeholder process focuses on:

- Crafting default provisions for LRA's that may not have flexible capacity procurement obligations
- ISO backstop procurement authority to procure flexible capacity resources when an LSE is deficient in meeting its flexible capacity procurement obligation.

The ISO plans to complete this stage of the stakeholder initiative by May of 2013 and have these measures in place for 2014 RA compliance.

Once the first stage design is complete, the ISO will commence the second stage of this process which will focus on:

[1] For detailed discussion of these studies, see http://www.caiso.com/Documents/SecondRevisedDraftFinalProposal-FlexibleCapacityProcurement.pdf.
[2] The CPUC has included the Joint Parties Proposal in the Scoping Memo issues in R.11-10-023 on December 6, 2012.

- Development of performance obligations for flexible capacity resources, including ISO market must-offer obligations
- Backstop procurement compensation for resources procured to remedy deficiencies in meeting flexible capacity resource obligations, and
- Revisions to the ISO Standard Capacity Product tariff provisions to apply to flexible RA capacity resources.

While the issues to be resolved in the second stage of this stakeholder process are outlined here, these issues will not be addressed until the issues within the first stage are resolved. The ISO will seek resolution of these issues by end of year 2013 and in place in time for 2015 RA compliance. These stages are discussed in greater detail below.

2 Overview of Stage 1 of the Flexible Resource Adequacy Capacity and Must-Offer Obligation Proposal

As noted above, the ISO faces new challenges to integrate more intermit and more distributed generation resources. In order to meet these challenges, in the first stage of this stakeholder initiative, the ISO proposes the following changes to the ISO tariff:

1) The ISO will issue a list detailing the total amount of flexible capacity a resource is eligible to contribute towards an LSE's flexible capacity procurement obligation based on its ramp rate, Pmin, and NQC.

2) The ISO will determine monthly flexible capacity requirements for each month of the upcoming year on a system level. For this interim solution the ISO will base flexible capacity procurement requirements on the need for incremental energy.[3]

3) The ISO will allocate these requirements to all Local Regulatory Authorities within the ISO's BAA based on each LRA's relative share of forecasted monthly system peak for their adoption.

4) LRA's without a flexible capacity procurement obligation in place will default to the ISO's allocation.

5) As part of an LSE's RA showings, both year-ahead and month-ahead, flexible capacity showings, each LSE will be required to demonstrate that it compliant with its local regulatory authority's flexible capacity provisions.

6) LSEs will be required to demonstrate that they have procured 90 percent of their flexible capacity in their year-ahead RA showings and 100 percent in their month-ahead showing.

[3] As shown in Figure 1, the ISO will need to work with all Local Regulatory Authorities and stakeholders to address decremental energy needs as part of a long-term solution.

7) LSE's will be permitted to substitute resources from their year ahead flexible RA showing with other resources in their month-ahead showings.

8) The ISO will develop a Flexible Capacity Procurement Mechanism, providing the ISO with backstop procurement tariff authority to procure additional flexible capacity if any LSEs are deficient in their annual or monthly flexible capacity showings.

9) Because Flexible Capacity Procurement Mechanism Designations will not be subject to any modifications to the performance obligations for flexible capacity resources Flexible Capacity Procurement Mechanism Designations in 2014, the ISO proposed that these resources l be compensated at the same rate as a CPM designation.

10) The ISO will allocate costs of flexible capacity backstop procurement to all LSEs that are deficient in meeting flexible capacity procurement obligations.

11) For at least the first year of implementation,

    I. Flexible Capacity will be subject to the same availability measurements and charges as exist under the existing provisions of the ISO tariff relating to the Standard Capacity Product (SCP). [4]

    II. Imports and intertie resources that are not pseudo-tie or dynamically scheduled capacity resources are not eligible to count towards meeting an LSE's Flexible Capacity requirement.

    III. Variable Energy Resources will be counted using the same mechanism as conventional resources

3 Background

As discussed below, the ISO is working to address the need for flexible capacity in multiple venues. The ISO's Flexible Resource Adequacy Criteria and Must-Offer Obligation proposal attempts to bring together work at the CPUC in the RA proceeding and the ISO Flexible Capacity Procurement stakeholder. In this section, the ISO outlines the efforts taken to address flexible capacity to date and how these efforts relate to the stakeholder initiative that is the topic of this straw proposal.

3.1 Connecting The ISO Stakeholder Processes and the CPUC's RA Process

The ISO believes, going forward, there are at least two overarching issues that must be resolved to ensure California is attracting and sustaining investment in the right type and mix of resources while meeting California's goal to increase energy efficiency, demand response, and renewable energy. These issues are:

[4] See ISO tariff section 40.9 for more details on existing resource adequacy availability standards and availability incentive payment s and charges.

1) Obligations for Flexible Capacity procurement obligations, and

2) Multi-year forward resource adequacy requirements.

Flexible Capacity Procurement Phase 1: Risk of Retirement FCP – Phase 1 was designed to provide an interim solution that would allow the ISO to backstop resources at risk of retirement in the absence of multi-year forward capacity procurement obligations. This stakeholder process, Flexible Resource Adequacy Criteria and Must-Offer Obligation, and the ISO's participation on the current RA proceeding are designed to create an interim mechanism to address flexible capacity procurement obligations. While the CPUC has not yet issued a proposal or guidance in the RA proceeding focused on flexible capacity based on the Joint Parties' Proposal, the ISO must initiate the current stakeholder process promptly in order to get the required revisions to its tariff in place and to complete all of the required implementation work in time for implementation for the 2014 RA compliance year. Moreover, in addition to the RA process underway at the CPUC, the ISO must also work with non-CPUC jurisdictional LSEs to implement workable flexible capacity programs. As such, the ISO's current approach based on the Joint Parties' Proposal that was submitted as part of the CPUC's current proceeding addressing flexible capacity. The ISO will work with stakeholders to incorporate the approach developed in that proceeding, as appropriate, into the flexible capacity related requirements to be put in the ISO tariff that are the topic of this ISO stakeholder initiative. Each of these proceedings is discussed in greater detail below.

3.1.1 *Resource Adequacy*

In recognition of the new challenges facing the ISO, the CPUC, in its 2013 resource adequacy decision, specified its intent to finalize a flexible capacity framework by the end of 2012 for implementation in the 2014 RA compliance year. At the August 13, 2012 resource adequacy workshop, the ISO presented how the flexible capacity attributes of maximum continuous ramping, load following, and regulation could be addressed for an interim 2014-2017 period as a single "dispatchability" attribute that could be woven into the existing bi-lateral resource adequacy procurement paradigm.

Commission recommended that "… parties work towards clearly defining flexibility in terms of specific operational characteristics of generators that the Commission should consider when authorizing new generation."[5] Accordingly, after the August 13 workshop, the ISO and IOUs worked collaboratively to craft a proposal (Joint Parties' Proposal, attached as Appendix 1) recommending modification to CPUC's current RA structure interim flexible capacity proposal that could:

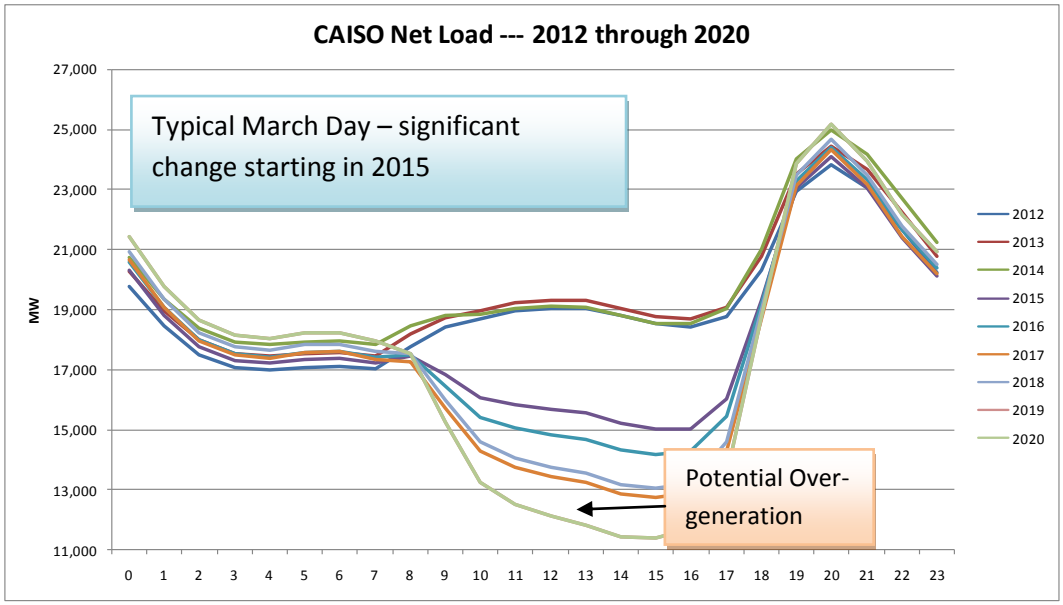
1) Be implemented by the 2014 RA compliance year
2) Minimize added complexity and modifications to the current RA program and
3) Start the process of adding flexibility to the forward procurement process, allowing a more comprehensive solution to be developed and implemented by the 2017 RA compliance year

[5] CPUC Decision 12-060025, June 21, 2012 at pg. 20-21.

The ISO, San Diego Gas and Electric (SDG&E), and Southern California Edison (SCE) reached agreement on nearly all elements of the Joint Parties' Proposal. Addition details regarding specific points of agreement can be found in the Joint Parties Proposal.

The Joint Parties refined the ISO's original "dispatchability tag" outlined in the August 13, 2012 workshop concept to ensure a more accurate assessment of the flexible capacity needed based on how much ramp capability a resource can offer and sustain over a continuous 3-hour period. The 3-hour ramping period was assessed from 2011 1-minute net load data. It is over a 3 hour period where the ISO must meet the steepest ramps. It also represents a reasonable ramping period that many resources can satisfy and still enable the ISO to meet its maximum continuous ramping and load following needs in the interim 2014-2017 period. This interim proposal is important given flexibility is being reduced to a single resource attribute, i.e. a continuous 3-hour ramping capability. Additionally, while the Joint Parties believe this is a critical first step, it is important to note that additional work is required. As noted in the ISO presentation at the August 13, 2012 CPUC workshop, the flexibility needs continue to evolve over time. As shown in Figure 1, the ISO will be managing a very different net load curve (load minus wind and solar output) as soon as 2015 and more dramatic changes in 2017. Figure 1 shows that net load in 2012-2014 remains fairly consistent with historic net load levels. However, ISO forecast show a significant amount of new renewable resources coming on line in 2105 and beyond as the ramp-up towards meeting 33 percent RPS goals accelerates. In fact, after 2017, the probability that the ISO will find itself in over-generation situations could increase substantially. As more renewable resources come on line, not only will the net load curve look substantially different than it does today but so will the need for load regulation and load following. Due to the intermittency of renewable resources the potential for inter-hour variations requiring load following and regulation will also increase. Addressing these needs will require more precise and forward looking capacity procurement. For these reason, the ISO believes this must be an interim solution to address the system's need for flexible capacity and a permanent solution is required.

Figure 1: Net load pattern changes 2012 through 2020



3.1.2 *Flexible Capacity Procurement – Phase 1: Risk of Retirement Stakeholder Process*

In September 2012, the ISO Board of Governors approved the ISO's Flexible Capacity Procurement – Phase1: Risk of Retirement proposal. The proposed backstop procurement mechanism described below provides a financial bridge through a cost-based payment to resources at risk of retirement that have been identified as needed for reliability for up to five years in the future. The ISO's proposal includes a cost-based payment based on the going-forward costs of the resource. The payment would only be offered if a) the resource has not received a capacity contract in the bilateral resource adequacy market; b) the ISO finds that the resource will be needed for its flexible or local characteristics two to five years in the future; and c) the resource owner has signed an attestation indicating that the resource will be retired without additional revenue. The proposed backstop procurement mechanism consists of six main elements:

1. Payments will be resource-specific cost-based.

2. Resources receiving payments under this backstop procurement mechanism will not have any performance or must-offer requirements in the ISO market.

3. The maximum payments will be based on a resource's going-forward costs.

4. The ISO will reduce the cost-based payment based on net revenues received in the ISO market and through bilateral contracts.

5. There will be no additional obligations for a resource at the end of a year in which it receives payments under the backstop procurement mechanism.

6. The costs of payments issued under the backstop procurement mechanism will be allocated to ISO market participants based on load ratio share.

The ISO plans to file tariff language at FERC in December 2012 seeking final approval of this backstop procurement authority.

4 Proposed Timeline for the ISO Stakeholder Process

It is critical that the ISO complete the stakeholder process by May 2013 in order to allow the ISO and market participants to complete all the necessary implementation processes in time for the 2014 RA compliance year. The ISO is working with CPUC to provide a stakeholder process that is synchronized to the CPUC's RA proceeding (R.11-10-023). As such, the ISO offers the following initial schedule for this stakeholder process:

Date	Action
December 14, 2012	Draft straw proposal
December 20, 2012	Stakeholder Meeting
January 9, 2013	Stakeholder comments due
January 31, 2013	Revised draft straw proposal
February 7, 2013	Stakeholder Meeting
February 18, 2013	Stakeholder Comments Due
March 6, 2013	Draft final proposal
March 13, 2013	Stakeholder call
March 20, 2013	Stakeholder Comments due
May 2013	ISO Board meeting for Stage 1 approval
June 2013	File Stage 1 at FERC
Early July, 2013	Revised draft straw proposal – Stage 2
Mid-August 2013	Second revised draft straw proposal – Stage 2
September 2013	Draft Final Proposal – Stage 2

Date	Action
November 2013	ISO Board meeting for Stage 2 approval
January 2014	File Stage 2 at FERC

5 The Joint Parties' Proposal

The ISO recommends that Local Regulatory Authorities establish an interim flexible capacity requirement that integrates into existing bi-lateral resource adequacy framework and is modeled after the ISO's existing annual local capacity needs assessment. As such, the ISO has worked with the IOUs to develop the Joint Parties' Proposal to enhance the RA program to include flexible capacity procurement requirements. The Joint Parties' Proposal outlines a) a process to establish flexible capacity requirements b) allocation of the requirements and c) counting conventions to determine how a resource will count towards these requirements. The ISO is working with the CPUC and parties in the current RA proceeding to continue refining the Joint Parties' Proposal. The Joint Parties' Proposal is attached as Appendix 1 and is the basis of the ISO's current proposal for the first stage of this proposal.

6 Default Flexible Capacity Provisions

The ISO tariff Sections 40.2.2 and 40.2.3 contain default provisions for generic system RA capacity for non-CPUC jurisdictional local regulatory authorities that have not established reserve margins. Similar to these default provisions for generic system RA capacity, the ISO proposes tariff provisions for default flexible capacity requirements for Local Regulatory Authorities that do not establish their own requirements. Therefore, the ISO proposes that the flexible capacity requirement for Local Regulatory Authorities that do not set their own requirement be the flexible capacity obligation identified by the ISO in the annual flexible capacity need study (see section 3 of the Joint Parties' Proposal).[6]

7 Flexible Capacity Showings at the ISO

Currently, the ISO conducts an annual and monthly Resource Adequacy process wherein both LSEs and Suppliers submit Resource Adequacy Plans. These Resource Adequacy Plans identify the specific resources that the LSE is relying on to satisfy its forecasted monthly peak Demand and Reserve Margin for the relevant reporting period. The ISO will integrate the Flexible Capacity procurement obligation discussed in section 3 of the Joint Parties' Proposal into the existing annual and monthly Resource Adequacy process.

[6] The proposed methodology may be modified in this stakeholder process in coordination with the CPUC flexible capacity proceeding

The ISO will ensure that the existing Resource Adequacy replacement requirement for planned generator outages applies to Flexible Capacity as well, allowing only flexible capacity to replace generator outages impacting the eligible flexible capacity of the resource.

With regard to unit substitution for forced outages, the ISO will allow only flexible capacity to replace forced generator outages impacting the eligible flexible capacity of the resource.

As discussed in section 5.2 of the Joint Parties Proposal, the ISO will require both the flexible and generic capacity to remain bundled in the annual and monthly Resource Adequacy process.

8 Flexible Capacity Backstop Procurement Authority

Currently, the ISO's backstop procurement authority, the Capacity Procurement Mechanism (CPM), allows the ISO to designate Eligible Capacity to provide CPM Capacity services under the CPM to address the following circumstances:

1) Insufficient Local Capacity Area Resources in an annual or monthly Resource Adequacy Plan;

2) Collective deficiency in Local Capacity Area Resources;

3) Insufficient Resource Adequacy Resources in an LSE's annual or monthly Resource Adequacy Plan;

4) A CPM Significant Event;

5) A reliability or operational need for an Exceptional Dispatch CPM; and

6) Capacity at risk of retirement within the current RA Compliance Year that will be needed for reliability by the end of the calendar year following the current RA Compliance Year.

The ISO is not, as part of the current stakeholder initiative, seeking backstop procurement authority for local flexibility needs. The Flexible Capacity Procurement Risk of Retirement stakeholder initiative addressed backstop procurement authority for resources at risk of retirement but needed for system flexibility. Further, significant events and operational needs caused by deficiencies in flexible capacity are already covered under the existing CPM tariff. However, the ISO is seeking backstop procurement authority to address insufficient flexible capacity resources in an LSE's annual or monthly RA plan. The reason to seek this tariff authority is made clear in section 43.3.2 of the ISO tariff, which states:

> The CAISO shall have the authority to designate CPM Capacity where a Scheduling Coordinator fails to demonstrate in an annual or monthly Resource Adequacy Plan, submitted separately for each represented LSE, procurement of sufficient Resource Adequacy Resources to comply with each LSE's *annual and monthly Demand and Reserve Margin requirements* under Section 40; provided that the CAISO shall not designate CPM Capacity under this Section 43.2.3 until after the Scheduling Coordinator has had the opportunity to cure the deficiency as set forth in Section 40.7; provide further that the CAISO shall not designate CPM Capacity under this Section 42.2.3 unless there is an

> overall net deficiency in meeting the total annual or monthly Demand and Reserve Margin requirements, whichever is applicable, after taking into account all LSE demonstrations in their applicable or monthly Resource Adequacy Plans. (Emphasis added)

In short, this demonstrates that the ISO does not have tariff authority to issue a CPM designation due to deficiencies in an LSE's flexible capacity RA plan. With the expected inclusion of flexible capacity procurement obligations at the CPUC and the above noted implementation of default flexible capacity provisions, the ISO will need to expand the circumstances trigger backstop procurement to include deficiencies in system flexibility showings. This will require explicit ISO tariff authority similar to the language provided for in item 3 above for flexible capacity needs. Therefore, the ISO proposes to create Flexible Capacity Procurement Mechanism. This tariff authority would allow the ISO to issue Flexible Capacity Procurement Mechanism designation if a) an LSE has insufficient flexible capacity in either its annual or monthly Resource Adequacy Plan and b) there is an overall net deficiency in meeting the total annual or monthly flexibility need requirements after taking into account all LSE demonstrations in their applicable or monthly flexible capacity showings.

This mechanism would allow the ISO to issue a Flexible Capacity Procurement Mechanism designation to either an existing RA resource from which the ISO requires additional flexible capacity or a non-RA resource that is capable of providing flexible capacity. Because the ISO is not proposing any changes to the must-offer obligations as part of the first stage of this stakeholder initiative, the ISO proposes to compensate resources receiving a designation under this mechanism at the exiting CPM rate until a Flexible Capacity Procurement Mechanism rate is established (see section 9.2, below).

8.1 Selection Criteria for Flexible Capacity Procurement Mechanism

As with procurement under the CPM criteria identified above, the ISO will look to procure only as much flexible capacity as is needed to resolve the identified deficiency. In determining which resource to offer a Flexible Capacity Procurement Mechanism designation, the ISO will use the following criteria in the order listed:

1) An RA resource that is not listed on RA plans has having fully providing all of its eligible flexible capacity
2) A resource that is not fully procured for RA resource and a) is not listed on RA plans has having fully providing all of its eligible flexible capacity or b) has additional capacity available that is eligible to provide flexible capacity
3) A non-RA resource which the ISO determines best satisfies the remaining need while considering resource's Pmin, ramp rate, and start-up time that is able to provide flexible capacity

If there is a deficiency in both generic capacity and flexible capacity, then the ISO will issue backstop procurement in such a way as to minimize the total costs of curing both deficiencies. In order to adhere to the bundling criteria identified in section 5.2 of the Joint Parties' Proposal criteria 1 requires additional detail. The ISO, like an LSE, cannot procure flexible capacity with also procuring the underlying generic capacity. Therefore, the ISO will first ask if any LSEs that have met their flexible capacity obligation have any additional flexible capacity available in their RA fleet that has not been

utilized in the LSE's flexible capacity RA showing. If an LSE does have additional flexible capacity that it is willing to show and will meet all applicable flexible capacity performance obligations, then the ISO will provide the LSE all applicable Flexible Capacity Procurement Mechanism compensation. This differs from CPM compensation, which is paid to the resource. However, unlike CPM, the resource under criteria 1 is already been procured for its generic capacity. Thus, an LSE willing to except the additional flexible capacity obligation as part of its RA plan should receive the compensation for the designation. Using this mechanism allows the ISO to minimize the cost of backstop procurement by first looking to LSEs that may have additional flexible capacity that has not yet been shown.

Criteria 2 allows the ISO to procure from resources that are no longer subject to limitations created by a resource's Pmin, thus ensuring the ISO is able to procure the exact quantity of flexible capacity needed to cure any deficiencies. Finally, the objective of criteria 3, is very similar to that of criteria 2 (allowing the ISO to procure only the amount of capacity needed to fill any deficiencies) but allows the ISO to procure a resource that best fulfills the need that lead to the designation. The above ranking criteria allow the ISO to minimize the cost of Flexible Capacity Procurement Mechanism designations of filling flexible capacity deficiencies and significant events. For example, if an LSE is deficient in it flexible capacity showing, the ISO could issue an Flexible Capacity Procurement Mechanism designation to an LSE with a resource that already has a flexible resource under an RA contract and only pay an FCMP premium instead of paying for new capacity and the accompanying flexibility.

9 Issues to Resolve in Second Stage

As noted above, the ISO will look to resolve several issues as part of a second stage of this stakeholder initiative. While the issues requiring resolution in the second stage of this stakeholder initiative are outlined here, the ISO proposes that these issues not be addressed until the issues within the first stage are resolved. This section details these items and the issues that must be resolved the second stage of this stakeholder initiative.

9.1 Flexible Capacity Bidding Obligations

The primary goal of implementing flexible capacity procurement obligations is to ensure that right mix of flexible generation resources are available to the ISO in the right places and at the right times. In order to ensure this occurs, the ISO will look to apply an enhanced must-offer obligation on top those that already exist for RA resources and CPM designations. The current RA and CPM must-offer obligation ensures the ISO has a sufficient resource pool to meet peak-load, but does not fully address the steep ramps that the balancing area will experience, particularly in the non-summer months. A resource can fulfill its must-offer obligations by either self-scheduled or economically bidding into the ISO day-ahead and real-time markets. However, many of these resources self-schedule in the day-ahead market, real-time market, or both. However, when RA resources meet their must-offer obligation by self-scheduling, they may not actually be available for dispatch by the ISO, and, therefore, are not "flexible." This can hinder the ISO's ability to meet its operational needs through adjusting flexible resources to help integrate variable energy resources. Thus, self-scheduling can lead to higher costs. For example, to attenuate load and resource variability, the ISO must have the ability to move resources

both up and down. If the ISO needs to curtail a self-schedule, i.e. move a resource down, the current economic bid floor to do so is -$30/MWh. However, the penalty parameter used in the real-time pricing run to move a self-scheduled resource is -$1100/MWh. This means that the ISO cannot curtail a self-schedule until all economic bids to curtail generation have been exhausted. As a result, the ISO must pay the self-scheduled generator the maximum possible amount to reduce the resource's output. However, requiring flexible capacity resources to submit economic bids would allow the ISO to dispatch flexible resources at a lower, non-penalty price cost.

The current standard capacity product availability requirements and performance measurements rely on a resource's availability during the peak periods of the day. However, at least for the interim period covered, by the Joint Parties' Proposal, the ISO's greatest demand for flexible capacity will not be during the times of peak demand. The ISO must establish new availability requirements and performance measurements for flexible capacity resources that expand the current parameters established by the standard capacity product.

The specific performance obligations for flexible capacity resources and availability criteria used for a standard flexible capacity product addressing flexibility requirements are complicated matters. For example, the ISO must develop the correct availability metric, measurement tool to determine if the resource has met the established availability metric, and availability charges for flexible capacity resources that fail to meet this metric. As such the ISO will seek to address these matters as part of second stage of this stakeholder initiative. However, given the complexities of these matters, the ISO believes it is, at this time, appropriate to frame the issues that need to be resolved to establish specific performance obligations for various technologies and a standard flexible capacity product.

The ISO flexible capacity must-offer obligation is currently focused on modifying resources ability to self-schedule. Specifically, the ISO is considering a requirement that would explicitly prohibit flexible capacity resources from self-scheduling during particular periods. This requirement would be effective beginning for 2015 RA compliance. Additionally, unless explicitly considered in section 9.1.2 below, all resource types would have the same must offer obligation in the ISO's markets.

9.1.1 *Flexible Capacity Must-Offer Obligation – Thermal Resources*

The ISO believes the Flexible Capacity Must-Offer obligation should, at a minimum, include all of the same must-offer obligations as an RA resource. In addition to the current RA availability requirements, the ISO believes flexible capacity resources should be required to submit economic bids in both the day-ahead and real-time energy and ancillary service markets for a minimum of the total amount of capacity that has been listed as flexible capacity. For example, if a resource has been used to meet 50 MW of an LSE's Flexible Capacity obligation, the resource should be required to submit economic bids for at least 50 MW in both the day-ahead and real-time energy markets. Further, the ISO is considering requiring all flexible capacity resources that is certified to provide AS must bid into ancillary service markets as non-contingent resources. However, flexible capacity resources certified to provide AS may still be used to self-provide AS.

The Joint Parties' Proposal was proposed as an interim solution designed to meet the longest continuous upward ramps and load following needs. The ISO's greatest concerns for flexible capacity for the interim period covered by the Joint Parties' Proposal are in the upward direction. Therefore, the ISO is considering a must-offer obligation for flexible capacity resources that would apply from 5:00 AM through 10:00 pm for all non-holiday weekdays. These are the hours in which significant upward ramps are most likely to occur. Requiring flexible capacity resources to submit economic bids during this set of hours gives the ISO the ability to economically dispatch resources and meet ramping and contingency requirements at least cost. For example, having an adequate supply of economic bids will reduce the frequency with which the ISO is forced to curtail self-schedules at the penalty price. The ISO could insert economic bids for resources that do not submit an economic bid consistent with a flexible capacity obligation. This is similar to bid insertion for RA resources that fail to meet the RA must-offer obligation.

9.1.2 *Exceptions to Standard Must-Offer Obligation for Flexible RA Capacity*

9.1.2.1 MOO for Hydro Resources

Hydro resources present numerous unique challenges when trying to account for flexible capacity capabilities. Hydro resources also create several unique challenges when trying to determine the appropriate performance and must-offer obligations. The ISO believes that hydro resources are capable of providing a significant amount of flexibility to the ISO system. Further, even if one where to accept the counting convention detailed in section 5.4 of the Joint Parties Proposal, it is still difficult to determine the proper performance and must-offer obligation for hydro resources.

In order for any resource to provide flexibility, the resource must be able to respond to dispatch instructions from the ISO. And while an economic bid provides the ISO economic signals about how to most effectively dispatch resources, hydro resources may not always be able to respond to a dispatch instruction. This begs the question as to what the appropriate must-offer obligation should be. Again, as noted in section 5.4 of the Joint Parties Proposal, an LSE has the ability to manage their exposure to the hydro restrictions by determining how much of the hydro resource it includes as flexible capacity in its RA plan. Thus, it may be reasonable to hold a hydro resource to the same bidding obligations as a thermal resource. However, due to water obligations hydro resources may not be able to meet this obligation at all times. Therefore, as noted in section 5.4 of the Joint Parties Proposal, the ISO is currently examining the possibility of allowing a certain amount of ambient derates without substitution or availability charges for hydro resources to account for day to day changes in water conditions as one such provision. For example, a hydro resource would be granted a hydro derate of some percent of its flexible capacity must offer obligation (e.g. 10 percent) if water requirements prohibit the resource from submitting economic bids for the full amount of their flexible range. However, the LSE utilizing a hydro resource as part of their flexible capacity showing that exceeds this derate range would have to offer substitute capacity or be subject to availability charges.

Today, hydro resources' provide the ISO a use plan as part of the resources RA submission. This plan helps the ISO plan around hydro resources and other use-limited resources. In the framework of the current stakeholder initiative, the ISO must consider if continuing to submit use plans is consistent with the goal of receiving flexible capacity from hydro resources. Further, if the ISO does determine that use

plans are sufficient to demonstrate that the resource will provide flexible capacity the ISO requires to meet flexibility needs, then the ISO must determine what, if any, changes need to be made relative to the current use plans to ensure the ISO receives the flexibility the resources claim to provide.

As noted in section 9.1.1, above, the ISO is considering the use of bid insertion for thermal resources that do not provide economic bids in both the day-ahead and real-time markets. However, given that hydro resources may be subject to water restrictions, the ISO must determine if bid insertion is appropriate for hydro resources. Ultimately, the handling of bid insertion is directly related to the hydro resource's bidding requirement.

9.1.2.2 Constrained Thermal Flexible Capacity

Some of the most flexible capacity resources in the ISO system are thermal resources. However, many of these resources are constrained by their operational characteristics. The ISO is particularly interested in addressing two types of resources: long start resources and use-limited resources.

While a long start resource may not be able to provide flexible capacity for zero through its Pmin, it may be able to supply flexible capacity from its Pmin to its NQC. However, if a long start resource is not dispatched to at least Pmin in the day-ahead market, then it will not be able to provide its flexible capacity in the real-time. Therefore, the ISO has two options when considering long-start units. The first option is to impose a start time cap for flexible capacity resources. For example, if a resource cannot start in less than 6 hours, then it is not eligible to provide flexible capacity. This would ensure that the ISO is able to rely on a full fleet of resources excluding resources that are not available in real-time if they were not committed by the day-ahead market. Alternatively, the ISO may simply require the resources to be bid into the day-ahead market. If the resource bids into the day-ahead market but is not dispatched, then the resource is presumed to have fulfilled its must-offer obligation and would not be required to bid into the real-time market. Though, this is similar to the current treatment for long start RA resources it may leave the ISO with fewer resources to resolve real-time flexibility needs, potentially leading to increased exception dispatch.

Peaking units typically have exception ramp rates. However, they also frequently have limitations based on starts or run hours. Similar to the issues associated with long start units, these limitations may require the ISO to impose special performance and offer obligations. The SC for the resource may be able to account for some of these limitations through the bids submitted into the ISO markets. However, others cannot be managed this way. For example, a resource that is limited to one start per day may not be able to account for this limitation purely through the use of economic bids. This may require the ISO to deem the resource to have fulfilled a flexible capacity requirement it is prohibited from starting a second time for an afternoon ramp. Therefore, the ISO must assess which use-limitations can be accounted for through bids and which limitations require additional considerations.

9.2 Compensation for Flexible Capacity Procurement Mechanism Designations

The nature of a Flexible Capacity Procurement Mechanism designation is an extension of the RA must-offer obligation or a CPM designation. Compensation for a Flexible Capacity Procurement Mechanism

designation is compensation based on the incremental capacity and attribute procured. Therefore, compensation for Flexible Capacity Procurement Mechanism will be determined based on a) how much additional capacity will be subject to ISO flexible capacity tariff provisions and b) how much new/non-RA capacity is procured. As discussed in greater detail above, a Flexible Capacity Procurement Mechanism designation will require a resource to submit economic bids into the ISOs energy and AS markets. This is a more onerous must-offer obligation than that of an RA contract or a CPM designation.[7] Resources that have already received compensation for providing generic RA capacity should only require additional compensation for providing the services beyond that which is already covered by a generic RA contract or CPM designation. Therefore, if the ISO issues a Flexible Capacity Procurement Mechanism designation to an RA or CPM resource, the ISO will apply an addition flat price to capacity that is already under an RA contract or has a CPM designation. Resources that are partial RA resources and issued a Flexible Capacity Procurement Mechanism designation for capacity not currently under contract, non-RA resources, and resources that do not have a CPM designation will receive the applicable CPM rate plus the additional flat price. This compensation mechanism is required to maintain consistency with the bundling criteria described in section 5.2 of the Joint Parties' Proposal. However, as part of the second stage of this stakeholder initiative, the ISO must determine the appropriate compensation for this additional price.

9.3 Standard Flexible Capacity Product

The current standard capacity product only accounts for availability during peak periods. There is not currently a clear metric that will ensure a similar standard during periods of greatest flexibility needs. However, if flexible capacity resources are compensated for providing a higher level of capacity to the ISO, then it is important to establish an availability requirement that reflects the need for which the resource is compensated. Additionally, establishing Standard Flexible Capacity Product will improve the liquidity and fungibility for flexible capacity just as the standard capacity product did for generic capacity. Designing this availability requirement will require additional time and will likely benefit from operating with a flexible capacity procurement obligation for at least part of a year.

10 Next Steps

The ISO will host a stakeholder meeting on meeting on December 20, 2012 to discuss the contents of this straw proposal. Stakeholder comments on this straw proposal will be due January 9, 2013. The ISO anticipates seeking ISO Board approval at the May 2013 Board Meeting.

[7] Currently RA and CPM resources may self-schedule as a way to fulfill their must-offer obligation.

APPENDIX 1

Resource Adequacy and Flexible Capacity Procurement Joint Parties' Proposal

October 29, 2012

Proposal

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1 Background

In its 2013 resource adequacy decision, the Commission specified its intent to finalize a flexible capacity framework by the end of 2012 for implementation in the 2014 RA compliance year. The Commission recommended that "… parties work towards clearly defining flexibility in terms of specific operational characteristics of generators that the Commission should consider when authorizing new generation."[1] Accordingly, the ISO and IOUs have worked collaboratively for the past three months to craft an interim flexible capacity proposal that could

1) Be implemented by the 2014 RA compliance year
2) Minimize added complexity and modifications to the current RA program and
3) Start the process of adding flexibility to the forward procurement process, allowing a more comprehensive solution to be developed and implemented by 2017 RA compliance

The ISO, San Diego Gas and Electric (SDG&E), and Southern California Edison (SCE) reached agreement on nearly all elements in the following proposal. At this juncture, and with the exception of section 5.4, this proposal includes the ISO, SDG&E, and SCE (the Joint Parties) as signatories. As noted in section 5.4 (Procuring and Counting Hydro Resources), SCE is not yet prepared to sign on to that one part of the proposal. Pacific Gas and Electric (PG&E) declined being a signatory at this time.[2] Therefore the ISO, SDG&E, and SCE submit this proposal today for Energy Division staff consideration so that the Commission can craft a final interim flexible capacity solution that can be approved and implemented for the 2014 resource adequacy compliance year.

2 Introduction

Given the growing intermittency of the supply fleet and the potential retirement of once-through-cooled resources, the ISO as the balancing area authority must consider its operational needs beyond what historically has been satisfied by system and local capacity, often termed "generic capacity." The ISO, in collaboration with the CPUC and other local regulatory authorities, must ensure that the supply fleet has sufficient flexibility, including ramping and load following capabilities, to satisfy ramping and intra-hour variability needs, including sufficient contingency reserves to ensure the security and safety of the grid. For these reasons, the Joint Parties recommend the Commission establish a monthly interim flexible

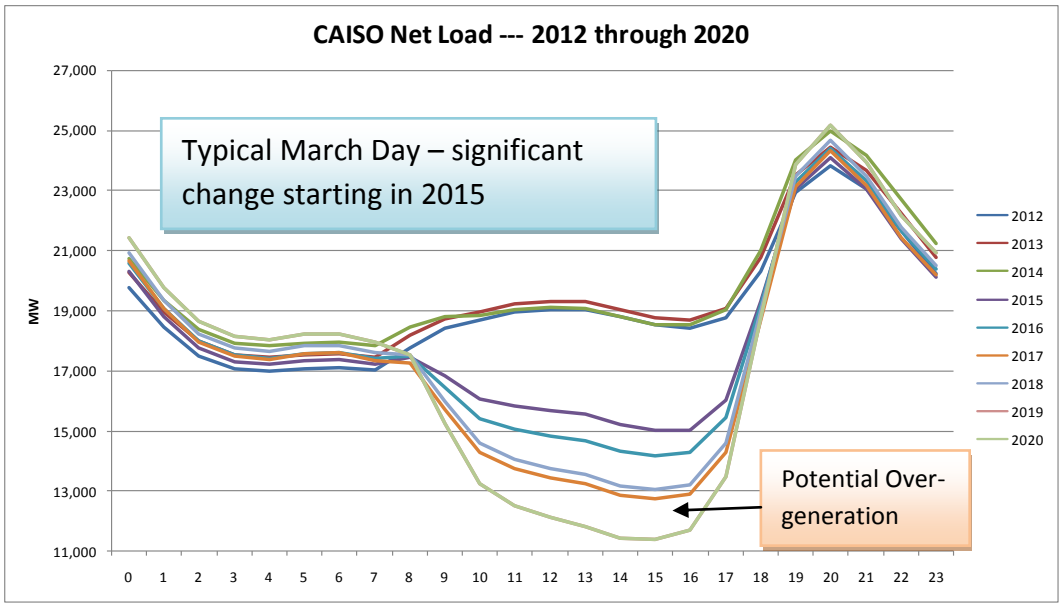
[1] CPUC Decision 12-060025, June 21, 2012 at pg. 20-21.
[2] PG&E participated in the discussions that eventually lead to this proposal.

capacity procurement obligation that is assessed based on ISO identified flexible capacity needs and contingency reserves as part of the CPUC's annual resource adequacy program.

The Joint Parties recognize that the ISO, as the system operator and balancing authority, has the unique ability and expertise to ascertain flexible capacity needs, and it has the processes and data to perform the needed flexible capacity technical analysis. Therefore, similar to the ISO's local capacity technical analysis conducted, the ISO will likewise perform a flexible capacity study each spring to establish the flexible capacity need for each month of the upcoming resource adequacy compliance year. Following completion of the assessment of both local and flexible capacity needs, the ISO will submit its findings to the CPUC and other local regulatory authorities for their adoption as a flexible capacity procurement obligation.

At the August 13, 2012 resource adequacy workshop, the ISO presented how the flexible capacity attributes of maximum continuous ramping, load following, and regulation could be addressed for the interim 2014-2017 period as a single "dispatchability" attribute that could be woven into the existing bi-lateral resource adequacy procurement paradigm. The Joint Parties refined the ISO's original "dispatchability tag" concept to ensure a more accurate assessment of the flexible capacity needed based on how much ramp capability a resource can offer and sustain over a continuous 3-hour period. The 3-hour ramping period was assessed from 2011 1-minute net load data. It represents a reasonable ramping period that many resources can satisfy and still enable the ISO to meet its maximum continuous ramping and load following needs in the interim 2014-2017 period. This interim proposal is important given flexibility is being reduced to a single resource attribute, i.e. a continuous 3-hour ramping capability. Additionally, while the Joint Parties believe this is a critical first step, it is important to note that additional work is required. As noted in the ISO presentation at the August 13, 2012 CPUC workshop, the flexibility needs continue to evolve over time. As shown in Figure 1, the ISO will be managing a very different net load curve as soon as 2015 and more dramatic changes in 2017. Addressing these needs will require more precise and forward looking capacity procurement. For these reason, the Joint Parties believe this must be an interim solution to address the system's need for flexible capacity and a permanent solution is required.

Figure 1: Net load pattern changes 2012 through 2020



The following proposal provides further details as to how the Joint Parties recommend assessing the balancing area's flexible capacity needs, how this need would be translated into a flexible capacity procurement obligation by local regulatory authorities, the amount of flexible capacity a resource can provide, and how a must offer obligation would apply to designated flexible capacity resources.[3]

3 Establishing the Requirement

The Joint Parties recommend the CPUC establish an interim flexible capacity requirement that integrates into the CPUC's existing bi-lateral resource adequacy program and is modeled after the ISO's existing annual local capacity needs assessment. As such, the Joint Parties propose a process whereby the ISO studies and notifies local regulatory authorities (both CPUC and non-CPUC jurisdictional entities) of its flexible capacity needs for the upcoming RA compliance year, and the CPUC sets a flexible capacity procurement obligation for its jurisdictional load-serving entities.

3.1 Flexible Capacity Terms

Before describing the process by which flexible capacity needs are determined, it is important to define two terms that distinguish the ISO's role to study and identify the flexible

[3] Specific must offer obligations for flexible capacity resources will be developed through an ISO stakeholder process, but they are discussed in this proposal at a high level to provide a framework for future discussion and thinking thus far on the issue.

capacity need and the local regulatory authority's role for setting a flexible capacity requirement. Specifically, the Joint Parties define these two terms:

a) Flexible Capacity Need – The quantity of flexible capacity identified as needed by the ISO to meet ramping and contingency reserves

b) Flexible Capacity Procurement Obligation – The amount of flexible capacity an LSE is required to procure per the local regulatory authority's resource adequacy rules.

3.2 Determination of Flexible Capacity Need

As the number of energy policy objectives expand, the existing practice of procuring only generic resource adequacy capacity with no consideration of special resource attributes can no longer ensure the balancing area will have an adequate supply of ramping capability and contingency reserves. There is a need to expand the resource adequacy program to specifically focus on procuring resources that are able provide these services. Additionally, it is important to note that the 3-hour ramping need outlined in this interim proposal will not fully address all of the ISO's flexible capacity needs (i.e. additional ramping, load following and regulation) in the future. Addressing these needs will require more precise definition ramping need and of the obligation of capacity being procured. Thus, a longer-term solution must be developed over this interim period to address the balancing area's ramping needs and the must offer obligations associated with flexible capacity.

Currently, the ISO maintains contingency reserves of approximately seven percent of "load responsibility," with 50 percent of reserves required to be spinning, or synchronized to the grid.[4] To meet WECC and NERC reliability needs, the ISO must have contingency reserves equal to the greater of 1) the most severe single contingency (MSSC) (at least half of which must be spinning reserve) or 2) the sum of five percent of the load responsibility served by hydro generation and seven percent of load responsibility served by thermal generation (at least half of which must be spinning reserve). Currently, the ISO MSSC is the loss of one of the Diablo Units. Following a disturbance, the ISO must also meet other control performance standards such as restoring its area control error (ACE) within 15 minutes, restoring any system operating limit violation to established reliable limits within 30 minutes and replenishing operating reserves within 60-minutes.

There is an important interaction between flexible capacity and contingency reserves. The Joint Parties, therefore, are incorporating a portion of the contingency reserves need into the

[4] Spinning reserve is the portion of unloaded capacity from units already connected or synchronized to the grid and that can be delivered within 10 minutes of notification and run for at least two hours. Non-spinning reserve is capacity that can be synchronized and ramped to a specified load within 10 minutes of notification.

flexible capacity procurement obligation. The capacity held as contingency reserves can only be exercised for emergencies and cannot be dispatched to provide ramping capability. For example, consider a day where the largest 3-hour ramp is 5,000 MW and the MSSC is 3,500 MW. Simply setting a flexible capacity procurement requirement at 5,000 MW would mean the ISO could not be assured of meeting both the ramping capability and the MSSC. For example, the ISO would not be assured of having any contingency reserves during that ramp. Once provided with a pool of resources capable of providing both flexible capacity and contingency reserves, the ISO would be responsible for dispatching those resources to meet system needs in real-time.

Finally, the ISO must account for intra-hour load following needs in the real-time market. The methodology used by the Joint Parties to establish the 3-hour ramp begins with actual 2011 1-minute net-load data that had a significant amount of variability and uncertainty already included in the data. Significant portions of variability and some level of uncertainty for subsequent years were already built into the 1-minute profiles making additional procurement to address variability and uncertainty difficult to quantify. Therefore, the Joint Parties recommend including an error factor (called "ε") [5] when establishing the flexible capacity need.[6] For the 2014 compliance year, this error factor will be set to zero, but would be subject to annual review and potential modification based on historic system performance measurements such as adherence to control performance standards, exceptional dispatches, etc. Therefore, the ISO must consider ramping, contingency reserves, regulation and load following needs, and calculate a single flexible capacity need as a function of all attributes.[7] Given these considerations and challenges, the Joint Parties recommend that the flexible capacity need for a given month be determined using the following formula:

$$\text{Flexibility Need}_{MTHy} = \text{Max}[(3RR_{HRx})_{MTHy}] + \text{Max}(MSSC, 3.5\% * E(PL_{MTHy})) + \varepsilon$$

Where,

- $\text{Max}[(3RR_{HRx})_{MTHy}]$ = Largest three hour contiguous ramp starting in hour x for month y
- E(PL) = Expected peak load
- MTHy = Month y

[5] While this error term will primarily focus on accounting for intra-hour variations, it can also be used for deficiencies found in procurement of the ramping or contingency components if necessary.

[6] It is recognized that in order to provide some level of certainty for procurement purposes, the error factor will need to be bounded. However, the level of that bounding will need to be considered in light of the overall need and availability of resources. It is expected that these details will be developed as the proposal works through the stakeholder process.

[7] The ISO markets will be responsible for efficient dispatch instructions to ensure all real-time ramping and contingency needs are addressed using this pool of resources.

- MSSC = Most Severe Single Contingency
- ε = Annually adjustable error term to account for uncertainties such as load following

Note: 3.5% of the monthly maximum load ensures the ISO gets at least 100 percent of the spinning reserve capacity that's needed to cover the MSSC.

The ISO will determine the multi-hour ramp need using a 1-in-2 year load forecast and estimate the largest ramping need for each month.[8] The ISO will then forecast the expected peak load for the month to determine the capacity needed for contingency reserves and add the capacity need for ramping and contingency reserves for each month. Lastly, while the above proposed method for establishing flexibility requirements should provide the balancing area with sufficient flexibility in the short term, it is not designed as a long term solution. As the build out of intermittent resources continues and the ramping needs become clearer, specific products and better methods for determining and allocating the flexible capacity procurement obligation must be developed.

3.3 Allocation of Flexible Capacity Requirement

The Joint Parties considered three primary methodologies to allocate flexible capacity procurement needs:

1. LRA's share of system peak;
2. LSE's relative monthly load factor; and
3. LSE's load characteristics *and* the composition of its RA resource portfolio.

For each option, the Joint Parties evaluated the impact of each option on the quantity of flexible capacity each LSE must procure, the reason/causation that would support using a given allocation methodology, and the challenges associated with implementing each option. These are outlined in Table 1.

Table 1: Outline of Allocation Methodology Assessments

Allocation Methodology	Impact	reason/causation	Implementation challenges
LSE's relative size share of system peak	The higher the relative size share of system peak, the higher the flexible	System flexible capacity need is assumed to be directly attributable	Same data and method used to allocate System RA

[8] Using a 1-in-2 largest ramping need is appropriate given the changing ramping needs of the grid as more intermittent resources are added to the grid. Using 1-in-5 year ramping needs at this time would not yield accurate results.

	capacity procurement obligation	to monthly peak in most months during time period of interest	
LSE's relative monthly load factors	The lower the load factor, the higher the flexible capacity procurement obligation	As a measure of load change, monthly Load factor may be a better indicator than peak load of a an LSE's relative contribution to system flexible capacity need	Requires monthly or hourly energy forecasts for each LSE, new analysis and validation and CEC reconciliation processes
Combination of an LSE's load characteristics *and* the composition of its RA resource portfolio	The higher the percentage of intermittent RA resources, the higher the flexible capacity procurement obligation	Incorporates both drivers that contribute to system flexible capacity need	Requires new forecasts of future LSE loads and RA portfolios, addition of new validation and reconciliation processes, changes to month-ahead forecast true-up and load migration processes, and likely significant changes to RA showing timelines

On balance, and given the interim nature of this proposed solution, the Joint Parties recommend the Commission allocate flexible capacity procurement obligations to LSEs based on each LSE's relative share of monthly system peak. Resource adequacy obligations are currently allocated in this manner, thus eliminating the need to develop a separate allocation methodology for the flexible capacity procurement obligation. While the correlation between system peak and the need for ramping/flexibility will decrease as the amount of intermittent resources on the system increases, system peak-to-ramping should remain correlated for the interim period for which this solution is designed.

In the long-run, establishing obligations based on load factors may yield flexible capacity needs more in line with causation. However, designing an allocation methodology using LSE monthly load factors would require, at minimum, monthly (and perhaps even hourly) load forecasts for each LSE. Additionally, the CEC would have to analyze, validate, and reconcile this process. Attempts to determine the individual LRA's obligation based on a load and RA portfolio will require significant assumptions about the RA portfolios within a particular LRA and then disaggregation to allocate to the LSEs under the LRA. Determining the appropriate assumptions is a worthwhile, but time consuming process. Therefore, the Joint Parties do not recommend allocation based on load factors.

Allocating flexible capacity procurement requirements using relative share of monthly system peak to its jurisdictional load serving entities also allows the CPUC to avoid many of the complications outlined above. Therefore, the Joint Parties recommend the Commission allocate flexible capacity procurement requirements to its jurisdictional load serving entities based on an LSE's contribution to system peak.

3.4 Annual and Monthly Flexible Capacity Showings

The Joint Parties propose the Commission require both year ahead and month-ahead showings for flexible capacity similar to the requirement to show system resource adequacy capacity. Each load serving entity would be required to demonstrate it has procured 90 percent of each monthly flexible capacity procurement obligation in its year-ahead showing. Additionally, each LSE would be required to show 100 percent of its flexibility capacity procurement obligation has been procured in its monthly showing. Any CPUC jurisdictional LSE that is deficient in its flexible capacity showing would be subject to penalties of 50 percent of the applicable system level RA penalties and potentially costs associated with the ISO backstop procurement.[9] Based on ISO studies, there is not currently a need for local flexible capacity. In other words, flexible capacity provides system level benefits and can be replaced by other flexible capacity that exists in the system.

4 Flexible Capacity Must-Offer Obligations

While a specific flexible capacity must-offer obligation is ultimately a matter for an ISO stakeholder initiative, it is import to understand, if only as an initial proposal, that flexible capacity resources will be subject to a more stringent must-offer obligation than is currently required for generic capacity in the ISO market. The Joint Parties expect the ISO's stakeholder

[9] Penalties caused by deficiencies in procuring adequate flexible capacity would be in addition to any penalties caused by other procurement deficiencies (i.e. system or local deficiencies).

process will be coordinated with the current CPUC RA proceeding and will include CPUC staff and ISO stakeholders.[10]

In addition to the must-offer obligations that currently apply to RA resources, the flexible capacity must-offer obligation would likely require resources to submit economic bids into the ISO's real-market between a predetermined set of hours (e.g. 5:00 am and 10:00 pm), unless otherwise explicitly exempted. While the current RA must-offer obligation ensures the ISO has a sufficient resource pool to meet peak-load, it does not fully address the steep ramps that the balancing area will experience, particularly in the non-summer months. Because current RA resources can meet their must-offer obligation by self-scheduling, they may not actually be available for dispatch by the ISO, and, therefore, are not "flexible." Requiring flexible capacity resources to submit economic bids during a set of hours gives the ISO the ability to economically dispatch resources and meet ramping and contingency requirements at least cost. The ISO will consider what, if any, additional obligations should be imposed in the day-ahead market on flexible capacity resources.

5 Procurement and Counting

One of the primary goals of the Joint Parties is to incorporate an interim flexible capacity requirement into the existing RA framework without significant dislocation to the program or existing RA contracting practices. To achieve this goal, the Joint Parties propose flexible capacity procurement obligations and counting conventions are much more simplistic than the ISO's or Energy Division's previous proposals,[11] can be implementable under the existing RA program, and can be implemented for the 2014 RA compliance year.

This section describes the core concepts and principles of the proposed flexible capacity resources as applied to different resource types, including eligibility requirements, bundling flexible capacity with the underlying generic capacity, determining the conversion of NQC to flexible capacity, and the counting conventions for determining a resource's contribution to and LSE's flexible capacity procurement obligation. It is important to recognize that special considerations are required for hydro resources, which are discussed below (see section 5.4). Finally, while the counting conventions may differ slightly based on the resource type, the LSE would have the ultimate ability to manage the associated risks and obligations of flexible

[10] The ISO is planning to initiate a stakeholder process in late November to establish the specific details of a flexible capacity must-offer obligation. This stakeholder process is scheduled for consideration by the ISO Board of Governors in March 2013

[11] The ISO submitted its Supplemental Information to Proposal on March 2, 2012 in the current proceeding. Energy Division released its proposal on March 23, 2012.

capacity resources based on the resources they elect to use in the flexible capacity procurement showings.

5.1 Eligibility Criteria

Flexibility can take many forms and be provided by many different types of resources. As such, the Joint Parties support a "technology agnostic" approach in determining a resource's eligibility to be a flexible capacity resource. After analyzing various possible flexible characteristics, the Joint Parties determined that three-hour ramping capabilities offered the best single characteristic to ensure the ISO could meet its ramping and contingency needs and enable a large pool of resources to qualify as flexible capacity resources. Therefore, the Joint Parties recommend that a resource must be able to ramp *and* sustain energy output for a minimum of three hours.[12] Resources willing to provide flexible capacity would not be subject to the flexible capacity must-offer obligation unless it has been submitted to the CPUC and ISO as part of an LSE's flexible capacity procurement obligation showing. This is similar to how, under the ISO's new replacement rule for RA resources, LSEs include in their RA showing only those resources they require to meet their monthly RA showing, and only these resources are subject to the must-offer and other RA obligations.

5.2 Bundling Capacity Attributes

The Joint Parties propose that resources able to ramp within three hours *and* sustain either their ramping capabilities or output for the three hours may be listed as "dispatchable" in the ISO masterfile. This dispatchable tag identifies the resource as flexible and makes the resource eligible to sell flexible capacity. The specific counting conventions are discussed in sections 5.3.3 and 5.4, below.

For procurement purposes, the flexible capacity a resource offers must remain "bundled" with the generic capacity for the specific megawatt. In other words, in this interim proposal, flexible capability of that megawatt of capacity cannot be stripped off and sold as a separate product. For example, a resource, for the same megawatt, may not sell the system capacity to one LSE and its flexible capability of that megawatt of capacity to another. Allowing unbundling of flexible capability of that megawatt of capacity and generic capacity for each megawatt will lead to numerous implementation complexities that will likely require complicated and time consuming resource capacity tracking solutions. For example, as discussed above, the Joint Parties propose flexible capacity resources have stricter must offer obligations in the ISO

[12] Resources that are not able to sustain output for three hours may create additional ramping challenges for the ISO. For example, meeting a steep three hour ramp could be exacerbated by relying on a resource that is only able to produce energy for 60 minutes and no longer.

markets (see section 4 above). Thus, the Joint Parties recommend flexible capability of a megawatt of capacity must be bundled with the underlying generic capacity consistent with the counting conventions detailed below, or not at all (i.e. the resource either has a flexible capacity or it does not). This requirement prevents a resource from selling a megawatt of generic capacity to one LSE and the flexible capability of that same megawatt of capacity to another LSE. Allowing this would lead to conflicts between both the LSEs that could be the scheduling coordinator for the same megawatt. For example, the LSE that procured the generic capacity may wish to self-schedule the generic capacity into the ISO market, while the LSE that has bought the flexible capacity may be required to submit an economic bid. Requiring both the flexibility and generic capacity to remain bundled for procurement purposes does not mean that an LSE must submit all of the flexible capacity range from a resource as part of its flexible capacity procurement obligation. In fact, an LSE should look to provide the Commission and the ISO with a balanced portfolio of flexible resources that spread non-performance and outage risks over many resources. For example, an LSE that shows a resource with 300 MW of generic RA capacity (50 MW of PMin) and 250 MW of flexible capacity, is not obligated to offer all 250 MW as flexible capacity to satisfy its flexible capacity procurement obligation. It could show all 300 MW as generic RA capacity and only 100 MW as flexible capacity. It is the LSE's choice.

5.3 Thermal Resource Contribution Toward Flexible Capacity Procurement Obligations

This section focuses on counting thermal resources toward an LSE's flexible capacity procurement obligation and their treatment under a flexible capacity must-offer obligation. In Section 3 above, the Joint Parties described the methodology for the flexible capacity needs determination. However, not every megawatt of a resource is actually flexible or dispatchable. For example, the Pmin of a resource may not be flexible. Thus, it is necessary to establish counting conventions to determine the Effective Flexible Capacity (EFC) of resources relative to a resource's NQC.

5.3.1 *Converting Net Qualifying Capacity into Effective Flexible Capacity*

To provide flexible capacity, a resource must first have a NQC and be eligible to sell generic RA capacity. This requirement is based on the capacity "bundling" principle previously described above. A non-dispatchable resource is eligible to sell generic capacity. However, it is not possible to offer flexible capacity without being specifically identified as a dispatchable resource in the ISO masterfile. Additionally, a resource is not able to offer more flexible capacity than its rated NQC. For example, a combustion turbine selling flexible capacity that can fully ramp in 10 minutes can offer up to its full NQC as generic or flexible capacity.

5.3.2 *Flexible Capacity Counting Conventions*

Joint parties evaluated three options for counting how a resource's flexible capacity quantity would satisfy a flexible capacity procurement obligation. The three options are:

1) **Pro-rata Option**: Pro-rata sharing of flexible and generic capacity;

2) **Differentiated Capacity Option**: Distinguish flexible capacity from generic capacity; and

3) **Count-all Option**: Count all capacity from "dispatchable" generators as flexible.

5.3.2.1 Defining the Options

It is easiest to understand each option through the use of an example. Therefore, all options will use the following example:

Example 1: Resource A

NQC	300 MW
Pmin	50 MW
EFC (NQC -Pmin)	250 MW
RA capacity sold	100 MW

Additionally, all options assume the flexibility and generic capacity are bundled. However, the options may account for the bundling in a slightly different manner.

Pro-rata –The amount of flexible capacity is based on the ratio of a resource's effective flexible capacity to NQC. The flexible capacity procurement obligation would also be based on this same ratio. For example, Resource A has an EFC of 250 MW and an NQC of 300 MW. Therefore, Resource A has an EFC to NQC ratio of 250/300, or 0.833. Every MW of generic RA capacity sold from this resource would count as 0.833 MW of flexible capacity. Additionally, this resource would have to submit bids under a must offer obligation for 0.833 MW for every megawatt of generic capacity used as part of an LSE's flexible capacity procurement showing, regardless of the resources Pmin. Therefore, Resource A, which sold 100 MW of RA capacity, including 83 MW of flexible capacity, would be required to make 133 MW of capacity available to the ISO in order to meet its flexible capacity obligation if the LSE used all of the capacity in its flexible capacity procurement showing (50 MW of Pmin plus 83 MW of flexible capacity).

Differentiated Capacity – This option requires a resource keep its generic and flexible capacity bundled, but capacity that is inflexible, such as megawatts associated with Pmin, must be sold

as generic capacity, not flexible capacity. Using the above example, Resource A could sell 50 MW of generic capacity and 250 MW of flexible capacity. Any flexible capacity must-offer obligation would only apply to the flexible portion of the capacity, i.e. 250 MW for Resource A. A resource may not elect another flexible-to-generic capacity composition. In other words, Resource A could not sell 100 MW of generic capacity and 200 MW of flexible capacity; it can only sell up to 50 MW of generic capacity and up to 250 MW of flexible capacity. Further, if a resource sells flexible capacity it is assumed that this capacity will meet the flexible capacity must-offer obligation even if the resource has not sold the inflexible capacity. In Example 1, Resource A sold a portion of its RA capacity. Thus, there are at least two ways to account for the 100 MW of capacity sold by Resource A. The first is that Resource A could have sold 50 MW of generic capacity, which is subject to the current standard RA must-offer obligation and 50 MW of flexible capacity, which would be subject to a more stringent flexible capacity must offer obligation. Alternatively, it is possible that Resource A sold all 100 MW as flexible capacity. This requires the generator to meet the flexible capacity must offer requirement for 100 MW, which implies that the 50 MW of capacity below Pmin is obligated to be scheduled or bid even though it is not being counted as generic capacity by any LSE. In other words, there is no other way to make the flexible capacity available for dispatch by the ISO if the Pmin is not also scheduled. Finally, under this option, LSEs and generator owners buying or trading capacity must make explicit what "type" of capacity they transacted, either flexible or generic.

Count-all – This option identifies a resource as either dispatchable or not. In other words, if a resource is dispatchable in the ISO's masterfile, then it counts toward meeting an LSE's flexible capacity procurement obligation, regardless of the resource's Pmin. The flexible capacity must-offer obligation, however, would only apply to the flexible portion of the capacity. For instance, Resource A, because it sold 100 MW, will count for 100 MW of flexible capacity. Resource A will be subject to the generic RA must-offer obligation for 50 MW, for the Pmin, and to a specific flexible capacity must-offer obligation for the 50 MW of flexible capacity (the difference between the RA quantity sold and the resource's Pmin.) The ISO's flexible capacity procurement need would account for the inflexible range of resources, which accounts for the difference between a resource's NQC and EFC.[13] In other words, if the flexible capacity need is 10,000 MW, 12,000 MW of dispatchable resources would need to be procured to account for the "inflexibility" in the overall portfolio, such as the aggregation of Pmin from all dispatchable RA resources. In this example, 2000 MW of flexible capacity "margin" would have to be

[13] The flexible capacity need would be the same as in the pro-rata and differentiated capacity options, but in the count-all option a reserve margin would be included in flexible capacity procurement obligations allocated to LSE to account the fleet's inflexibility.

procured to account for the inflexibility in the overall fleet of flexible capacity RA resources. Table 2 below outlines pros and cons of each option discussed above.

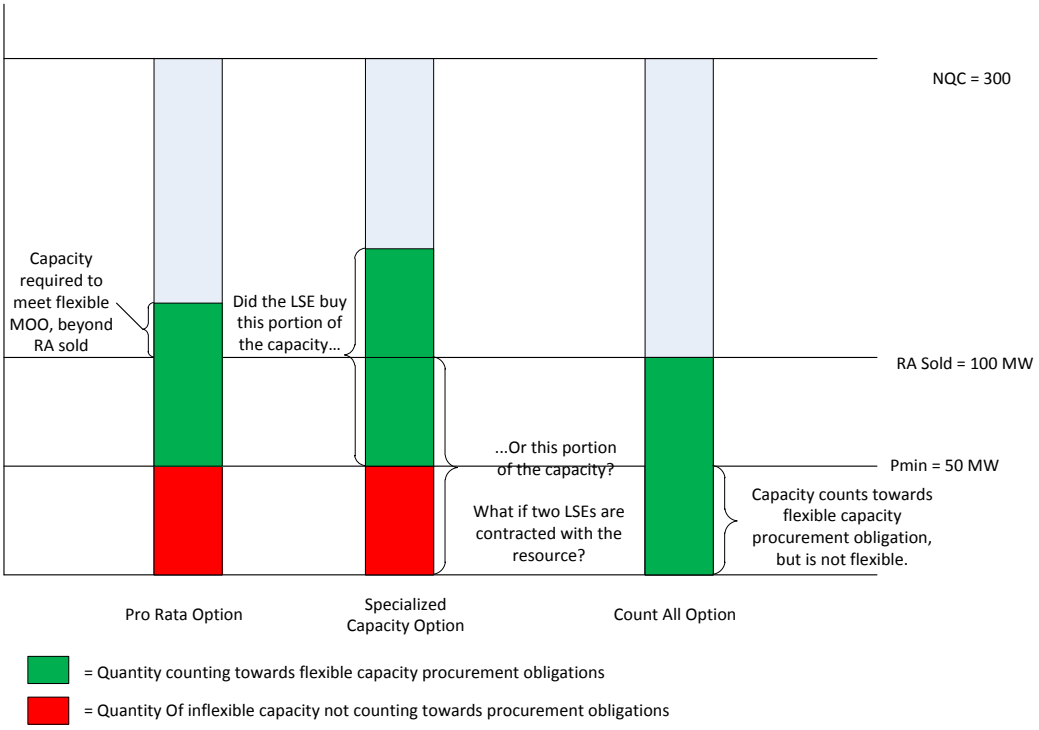
Table 2: Pros and Cons of Each Counting Convention.

Option	**Pros**	**Cons**	**Comparison to other options**
Pro-rata	Flexibility need = Procurement obligation. Pre-determined quantity of flexible capacity assigned to each resource.	Flexibility MOO may be greater than quantity of RA MOO. Where a partial RA resource, requires generator to make more capacity available than RA sold. Not likely to be a durable product after the interim period	Differentiated Capacity option may also have flexibility must-offer obligation that is greater than RA must-offer obligation
Differentiated Capacity	Flexibility need = Procurement obligation. Separates flexible and generic capacity, potentially durable product after interim period.	Flexibility MOO may be greater than quantity of RA MOO (depends on contractual terms). Requires explicit consideration of who has bought what type of capacity. Likely requires rule to determine how to handle existing contracts, e.g., did flexibility come with the existing contract or not?	Possible LSE and generator conflict as to what RA capacity type was sold under existing contracts.
"Count all"	No need to distinguish between MW (Pmin or flexible) of a resource. Easy transition with little need to consider grandfathering provisions.	Flexibility need ≠ Procurement obligation, Requires an estimated "flexibility reserve margin"	Setting the level for flex reserve margin will be controversial and is avoided in the other options

Distinctions between options are most obvious for partial RA resources with existing RA contracts or resources with RA contracts with multiple LSEs. Assume that Resource A has an

existing RA contract for 100 MW of the 300 MW resources. Figure 2 shows the counting challenges with each of the three options under these two scenarios.

Figure 2: Counting Convention for Partial RA Procurement and with Existing RA contracts



This diagram demonstrates the challenges with each option. The Pro-rata option may require generators to increase their flexible capacity asking price to account for the additional capacity they will have to bid under the must offer obligation to account for a portion of the inflexible Pmin. The challenge with the Differentiated Capacity option, particularly for existing contracts, is determining what type of capacity, flexible or generic, has been procured and by whom. Lastly, the Count-all option requires the establishment of a "flexible capacity margin" be added to the flexible capacity procurement obligation to account for inflexible capacity, like Pmin, that exists in the pool of flexible capacity resources.

5.3.2.1 Joint Parties Recommend the Differentiated Capacity Option

Given that there is no perfect option, on balance, the Joint Parties recommend the Commission adopt the Differentiated Capacity option. While the Count-all option originally presented by the ISO at the August 13 workshop provides consistency between the amount of capacity and flexibility sold by a resource, the added complexity of determining a "flexibility capacity margin" makes this an infeasible interim solution. Additionally, while there may be inconsistencies between the generic RA must-offer obligation and the flexible capacity must-offer obligation in the Pro-rata option and the Differentiated Capacity option, the

straightforward nature of counting capacity towards the flexible capacity need make these superior options relative to the Count-all option.

Comparing the Pro-rata and the Differentiated Capacity options, the Differentiated Capacity option provides superior incentives for resources to enhance their ability to provide flexible capacity. For example, if Resource A was able to lower its Pmin by 10 MW (from 50 MW to 40 MW), then its EFC-to-NQC ratio would increase from 0.833 to 0.867 (i.e. 260 MW/300 MW) using the Pro-rata option. Meaning the 10 MW decrease in Pmin would allow Resource A to increase its flexible range 10 MW, from 250 MW to 260 MW. Instead, under the Pro-rate option, Resource A's 100 MW RA contract would only see its flexible capacity increase by 3.4 MW given the application of the EFC-to-NQC ratio (i.e. 100 MW of generic capacity equals 83.3 MW of flexible capacity at Pmin of 50 MW compared to 86.7 MW, or 3.4 MW with a Pmin of 40 MW). In contrast, the Differentiated Capacity option allows Resource A to count all 10 MW as incremental flexible capacity. Further, the Differentiated capacity option will only create inconsistencies between the RA must-offer obligations and a flexibility must-offer obligation if the generator chooses to sell flexible capacity without first selling the generic capacity associated with the inflexible portion of the resource. Additionally, the Differentiated Capacity option is likely more durable than the Pro-rata option. For example, the development of a long-term solution is more likely to include greater separation of flexible capacity attributes, not a Pro-rata accounting of attributes. Therefore, the Joint Parties recommend using the Differentiated Capacity option for determining a resources' contribution to meeting a flexible capacity procurement obligation.

5.3.3 *Resource Eligibility and Counting Conventions*

To meet the ISO's flexible capacity needs, a resource must be able to ramp within a three-hour window. A resource that requires three hours to start-up and reach its Pmin does not provide flexibility during this 3-hour start-up time. This resource may provide a fixed ramp rate as it moves to its Pmin, but is not dispatchable and cannot support variations within a contiguous three-hour period. However, this same resource may be able to provide flexible capacity once it reaches Pmin. A resource that is able to ramp quickly to Pmin would be capable of providing flexibility within the three-hour ramp period. Therefore, a balance must be struck between a resource's start-up time and its effective flexible capacity amount within a three-hour period.

5.3.3.1 Resource Eligibility and Counting Conventions for Non-Use-Limited Thermal Resources

The Joint Parties examined the fleet of dispatchable resources and determined that resources with start-up times greater than 90 minutes would be eligible to offer flexible capacity between PMin and NQC. In other words, resources with a start-up time greater than

90 minutes could not offer flexible capacity that includes its Pmin. Conversely, a resource with a start-up time of 90 minutes or less would be permitted to provide flexible capacity for the entire range of the resource, including the resource's Pmin, e.g. a quick start combustion turbine.

The Joint Parties also believe that it is necessary to cap a resource's flexible capacity at its NQC, not its Pmax. Allowing a resource to sell flexible capacity up to its Pmax versus its NQC would violate the "bundling" principle outlined above. It is not reasonable to presume, for planning purposes, that a resource could provide a given level of generic capacity, but could somehow provide flexible capacity in excess of its generic capacity.[14] Given the requirements and limitations outlined above, the Joint Parties propose a thermal resource's EFC contribution be calculated as follows:

<u>If start-up time greater than 90 minutes:</u>

EFC is limited to the MW range between Pmin and NQC as limited by ramp rate

EFC = minimum of (NQC-Pmin) or (180 min * RRavg)

<u>If start-up time less than or equal to 90 minutes:</u>

EFC is limited to the MW range between zero and NQC as limited by start-up time and ramp rate

EFC = minimum of (NQC) or (Pmin + (180 min – SUT) * RRavg)

Where: SUT = Longest (cold) RDT start-up time in minutes

RRavg = average MW/min ramp rate between Pmin and NQC

If a dispatchable resource sells capacity up to its NQC, then it has also sold all of its EFC. However, as noted above, partial resource procurement raises unique EFC counting consideration. The Differentiated Capacity option requires LSEs and generators to be explicit about what capacity type, flexible or generic, is being bought, sold, or traded. While future transactions should be able to easily account for differentiated capacity, existing contracts pose unique challenges because the type of capacity sold is not explicitly stated. For existing RA contracts that are silent on the issue, it seems unreasonable that an LSE would have procured only the flexible capacity and not the Pmin of a resource. Therefore, if a resource with an existing RA contract is eligible to provide flexible capacity, an LSE may only count the flexible portion above Pmin towards its flexible capacity procurement obligation. In the event a resource has a contract with multiple LSEs then the generic and flexible capacity would be apportioned based on the respective contract amounts held by each party relative to the total

[14] It is not possible to procure more of a specialized capacity than the underlying generic product.

amount of RA capacity sold, unless explicit contract terms dictate otherwise. If existing contracts explicitly discuss this, or the parties are able to renegotiate to address this issue, the contract would be used as the basis for deciding which entities have which capacity. Because a resource's flexible capacity is a function of its NQC, updates to a resource's available flexible capacity would occur at the same time as adjustments to its NQC are made. Resource owners would have an opportunity to negotiate changes to EFC similar to process available for NQC.

5.3.3.2 Resource Eligibility and Counting Conventions for Multi-stage Generation Resources

Multi-stage Generation (MSG) resources can be highly flexible, but it difficult to calculate the flexibility that these resources provide due to their multiple configurations. As such, it is necessary to specify how MSG resources will count towards an LSE's flexible capacity procurement obligation. The Joint Parties recommend combined cycle units base their flexibility on the resource's 1 x 1 configuration. A combined cycle resource will have a Pmin defined for the 1 X 1 configuration (even if they are 2 X 1 or 3 X 1). This assumes that at times of maximum flexibility need, the resource will be at its 1 X 1 configuration at the start of the maximum ramp period. This counting convention is likely appropriate only for the interim period proposed here and will need to be reassessed as part of a longer term solution.

5.3.3.3 Resource Eligibility and Counting Conventions for Use-Limited Thermal Generation Resource

Use-limited thermal resources may have air permit restrictions that limit a resource's run-time. Many of these resources are peaking resources that are flexible. The Joint Parties do not recommend special consideration for use-limited thermal resources included in an LSE's RA showing. Use-limited thermal resources, like all resources providing flexible capacity will be subject to more stringent bidding requirements, as outlined in Section 4. However, specific market rules to deal with use-limited resources will be addressed in the ISO stakeholder process, such as substitution provisions for units that reach a limitation during an operating month. Further, as is the case today, use-limited resources will have the opportunity to place economic bids that reflect the cost (including opportunity cost) of each dispatch, in addition to listing a resource as flexible in any given month. If a use-limited resource reaches its run-time limits during a month and a substitute resource is not provided, it will be treated as a forced outage and, like generic capacity, will be subject to standard capacity product non-availability charges.

5.4 Procurement and Counting Hydro Resources

Unlike thermal resources, the effective flexible capacity of hydro resources can differ month-to-month. Further, the EFC may not have as clear connection with NQC as with a thermal resource. This is based, in part, on the methodology used to calculate the NQC of a

hydro resource. Hydro resources' NQC are set conservatively, using a 1-in-5 low hydro year. This means the NQC of a hydro resource is set at a low level relative to expected availability. However, a low hydro year may actually allow a hydro resource to be more flexible because of lower spill concerns.

In spite of these differences, it is still desirable to apply many of the same flexible capacity concepts and principles that apply for thermal resources. As such, the ISO and SDG&E recommend using a variation of the Differentiated Capacity option to determine a hydro resource's effective flexible capacity and potential contribution towards meeting and LSE's flexible capacity procurement obligation. Also, as noted in Section 1, SCE is not yet prepared to sign on to this one part of the proposal.

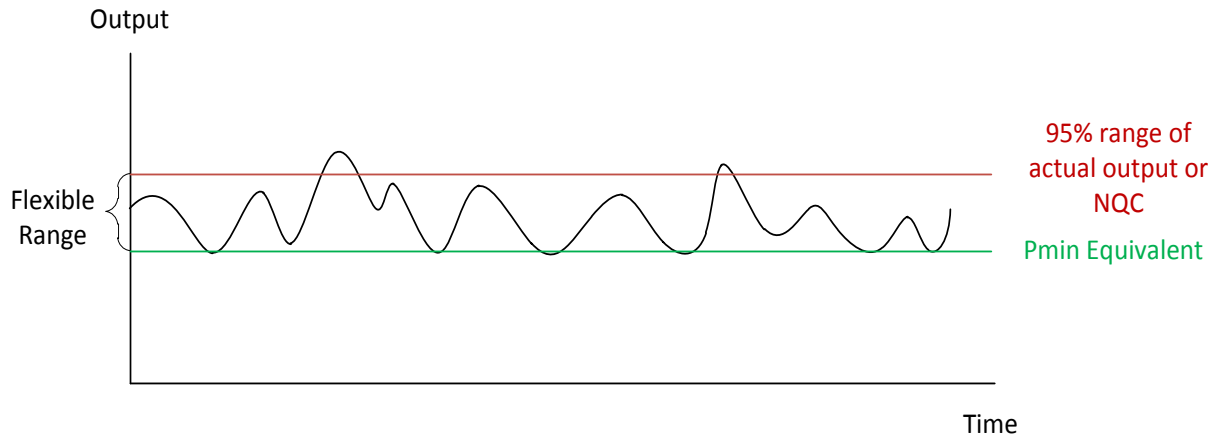
When applying any type of must-offer obligation on a hydro resource, a less strict offer obligation should be used. Additionally, because hydro resource's flexibility may differ month to month, the ISO and SDG&E recommend the effective flexible capacity of a hydro resource be calculated monthly. In other words, a hydro resource would have a different effective flexible capacity each month. The ISO and SDG&E recommend an effective flexible capacity counting convention and must-offer obligation that would apply only to hydro resources to account for non-electricity generating obligations, such as run-of-the-river constraints and environmental water release. The ISO and SDG&E recommend that the ISO establish a baseline output for hydro resources using the average hydro output over the previous five years.[15] As noted above, a hydro resource may actually be much more flexible in low hydro years than in high hydro years. Using the average of the previous five years allows a hydro resource to provide more effective flexible capacity and potentially contribute more towards meeting flexible capacity procurement obligation than using a conservative approach like a 1-in-5 high hydro year. It is the responsibility of the LSE to manage its potential exposure to penalties associated with non-performance of a flexible capacity resource. Therefore, an LSE must consider how much of the flexible capacity it designates in its flexible capacity procurement obligation showing.

To establish the effective flexible capacity of hydro resources, the ISO would use energy bids and available capacity from the reference period (i.e. 5 years) to establish a Pmin equivalent for each hydro resource. The Pmin equivalent is based on the lowest output from a resource in a given month from the reference year. The upper end of a hydro resources flexible range would be the higher of the resource's 95th percent of the actual output or NQC. Figure 3 depicts a hypothetical hydro resource during the evaluation month. If this hydro resource is submitted by an LSE to provide flexibility, it would be required to submit economic bids for the

[15] Special consideration may be required for hydro resources that are subject to modified operations due to the Bay Delta Water Quality Control Plan currently being considered by the State Water Resources Control Board.

flexibility range specified in the LSE's flexible capacity procurement obligation showing. The resource may self-schedule for as much output as it wishes, so long as it provides economic bids for a quantity greater than or equal to its flexible capacity contribution.

Figure 3: Hypothetical example of evaluation of a hydro resource



As with thermal resources, an LSE is not required to include the hydro resource's entire range of flexible capacity in its flexible capacity showing. Additionally, in the monthly showings, an LSE may substitute another resource for a hydro resource used in the annual showings if hydro conditions necessitate. Both of these options allow the LSE to manage the level of risk it may face of having to either provide replacement capacity or be subject to availability charges. However, even using an average calculation for flexible capacity estimate and the risk management tools outlined, it is important to provide provisions for hydro resource that are forced to run at levels that prohibit it from providing economic bids for its flexible range on a day to day basis. The specific provisions will be determined as part of an ISO stakeholder initiative. However, The ISO is currently examining the possibility of allowing a certain amount of ambient derates without substitution or availability charges for hydro resources to account for day to day changes in water conditions as one such provision. A hydro resource would be granted a hydro derate of some percent of its flexible capacity must offer obligation (e.g. 10 percent) if water requirements prohibit the resource from submitting economic bids for the full amount of their flexible range. However, the LSE utilizing a hydro resource as part of their flexible capacity showing that exceeds this derate range would have to offer substitute capacity or be subject to availability charges.

5.5 Procurement and Counting of Intertie Resources

The Joint Parties acknowledge that intertie resources add flexibility and ramping benefits. Flexible pseudo-tie and dynamically scheduled capacity resources can count toward meeting an LSE's flexible capacity procurement obligations in the same way as internal resources.

However, as part of the interim solution, the Joint Parties believe it is sufficient to account for the flexibility and ramping provided by non-resources specific intertie resources through the needs determination, and the Commission need not address counting conventions for these resources as part of the current proceeding. In fact, the methodology described in Section 2.1, above, is one example of how the interties are taken into account in the needs determination. The Joint Parties have proposed a low end measurement for flexible capacity needs. A long-term solution will have to determine the best manner to address non-unit specific intertie flexible capacity.

5.6 Procurement and Counting of Storage and Other Preferred Resources

As noted above, the Joint Parties believe that providing flexible capacity should be technology neutral. Therefore, flexible capacity capabilities of resources like distributed generation, demand response, and storage should ultimately count towards an LSE's flexible capacity procurement obligation. However, in order to expedite the implementation of flexible capacity procurement obligations, the Joint Parties believe more time and consideration are needed to design a flexible capacity counting convention applicable to preferred resources. As such, the Joint Parties recommend that preferred resources use the counting convention proposed in Sections 5.2, 5.3.3.1, and 5.3.3.3, above. If preferred resources can provide flexible capacity consistent with the counting conventions in this interim flexible capacity proposal, then they should be eligible to count toward an LSE's flexible capacity procurement obligation. To the extent necessary, the Joint Parties recommend the Commission explore this issue and develop a record on the flexible capacity counting conventions of preferred resources in a subsequent RA proceeding.

6 Standard Capacity Product, Replacement Capacity, and Non-Performance

The standard capacity product (SCP) serves two primary purposes: 1) to improve the fungibility of capacity and, 2) to establish a performance metric to assess whether capacity resources are providing the capacity to the ISO at the times when it is most needed. As part of this interim proposal, the Joint Parties recommend the Commission only address the need for fungibility and comparable treatment for like resource in the immediate proceeding. Specifically, it is important to distinguish what type capacity (generic or flexible) is being bought, sold, traded and used in RA showings. An LSE is not required to use the same resources in its month-ahead RA showings as it used in its year-ahead showings. The Joint Parties recommend continuing this practice. It is important that any substitution of resources in the RA showings not leave an LSE deficient in any of its capacity procurement obligations, including flexibility. Additionally, this requirement is broad enough that it could be used to apply to

longer solutions that may have more granular levels of flexibility. However, at the onset of this interim solution, SCP availability charges and payments, based on forced outages, would still apply.

Lastly, the Joint Parties recognize that not having SCP availability and performance metrics does not mean that there should not be penalties for resource performance that is inconsistent with the applicable must-offer obligation or ISO dispatch instructions. Therefore, the Joint Parties recommend the Commission rely on the ISO, as part of the ISO stakeholder process discussed in Section 4, to design tariff language to address non-performance in the ISO market.

7 Other Implementation Details

The Joint Parties are proposing a simplified solution for integrating a flexible capacity requirement into the RA process. However, as with any modification to the RA process, there are implementation details that must be worked out.

First, in order to facilitate the flexible capacity procurement showings, the Commission and ISO will amend RA showing and supply plan templates (respectively) to adequately reflect the addition of new flexible capacity procurement obligations and associated values. The addition of the flexible capacity procurement obligation will not change the current RA showing and supply plan timelines. Further, the flexibility requirements should be updated annually and should follow system RA timelines. For example:

- ISO produces study results and monthly system flexibility requirements in Q2
- CEC does LSE-to-system forecast load reconciliation on existing timeline as the basis for flexibility allocation (assuming Option 1)
- CPUC publishes preliminary flexibility allocations in early Q3
- Final flexibility allocations adopted mid-late Q3

Second, as noted above, the ISO will conduct a stakeholder process to determine the necessary modifications to its tariff necessary to implement new flexible capacity must-offer obligations and backstop procurement authority.[16] The ISO will also make the requisite changes to its market and operating systems necessary to flag the resources that are designated as dispatchable resources eligible to offer flexible capacity and fulfill any associated must-offer obligation.

[16] The ISO will need to extend backstop authority to include deficiencies in LSE's flexible capacity showings.

8 Outstanding Issues

It is not feasible for the Commission to determine rules for intra-year load migration as part of the present proceeding. The Joint Parties recommend this be considered as part of a subsequent RA proceeding.

9 Conclusion

The Joint Parties are proposing, as an interim solution, a simplified methodology to include flexible capacity procurement obligations as part of the Commission's annual RA program. The proposal outlines the determination of need, allocation of that need, the counting conventions to determine various resources' contribution towards meeting an LSE's flexible capacity procurement obligation, and outstanding issues to be resolved in future Commission proceedings. Determination of the final must-offer obligations and performance obligations will be determined through collaboration with the Commission and other parties as part of an ISO stakeholder initiative. The Joint Parties recommend the Commission adopt this proposal for flexible capacity procurement obligations for implementation and procurement for the 2014 RA compliance year.