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# **Alternative Options for the Availability Standard and Replacement Rule components of the Standard Capacity Product II Initiative**

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# Standard Capacity Product II

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## 1. Introduction

On February 19, 2010 the ISO published the SCP II draft final proposal. Based on the verbal and written stakeholder comments that were received the ISO staff decided to extend the stakeholder process to explore further some of the proposals and alternatives in the hope of enhancing them and in doing so broadening stakeholder support and consensus around these issues.

This paper focuses on the two topics that garnered the most stakeholder concern – the availability calculation for resources whose QC is based on historical energy production data and the ISO's proposal for replacing RA capacity that goes on planned outage, in the event that the CPUC removes its current "replacement rule" for its jurisdictional load serving entities. The goal of this paper is to investigate the options available to implement these rules. We are looking for stakeholder input on the options we are proposing as well as other ideas they may have.

The February 19 draft final proposal provided additional insight into the proposed availability calculation for wind, solar and other intermittent resources that was lacking in the previous proposals. We received feedback from some stakeholders regarding this proposed calculation and Section 2 of this paper addresses the applicability of this formula and potential alternatives or adjustments that may be beneficial.

Section 3 of the paper is about the replacement rule. Stakeholder reaction to our most recent proposal on February 19<sup>th</sup> was less than enthusiastic and although this proposal seems to be the most straightforward way to ensure ISO reliability, we are looking at other options. In this section of the paper the team has taken another look at the previous straw proposal replacement rule that was posted on January 19, and tried to clarify some of the outstanding concerns with this approach. We are seeking stakeholder input into this proposal and are also open to other options, including maintaining the status quo and continuing to work with the PUC and stakeholders to find the right solution to ensure system reliability.

After posting this paper and working with stakeholders and our internal staff, we will publish a revised draft final proposal for comment on April 6<sup>th</sup>. This proposal will be submitted to the Board of Governors in May for decision. See Section 4 of this paper for further details of the upcoming stakeholder process.

We hope that by providing two more rounds of stakeholder input (this proposal and the revised draft final proposal) that SCP II can gain broader consensus from our stakeholders and accomplish SCP II's two main goals – comply with FERC's order to apply SCP to certain deferred RA resource types and provide a more fungible, tradable SCP.

## 2. SCP II availability calculation alternatives for resources whose Net Qualifying Capacity (NQC) is based on historical data.

### 2.1. Availability calculation for wind, solar and QFs

This option was presented in the SCP II draft final proposal posted on February 19<sup>th</sup>, 2010<sup>1</sup>. It is reiterated here to provide context for further discussion.

In its proposal on Phase 1 of the CPUC rulemaking proceeding on RA matters for 2011,<sup>2</sup> the ISO suggested changes to the CPUC RA counting rules that would resolve the potential double counting issue for resources whose Qualifying Capacity (QC) value is determined by historical output and clear a path for the ISO to implement the non-availability charges and payments to these types of resources. The ISO proposed that the CPUC modify its counting methodology for these resources by either (1) eliminating the forced outage and de-rate hours from its calculation of QC for RA resources, or (2) use proxy energy output values for these hours. The second approach conforms to the methodology that the CPUC previously approved to account for planned outages in the QC calculation for these types of resources.<sup>3</sup> In this methodology the CPUC would rely on historical outage data it has gathered to determine the hours in which a proxy value would be inserted to determine a QC value, so that there would be no adverse impact on a resource's QC due to forced outages or derates.

In compliance with the FERC Order, it is clear that implementing SCP for resources whose QC value is determined by historical output is not limited solely to CPUC jurisdictional entities. These types of RA resources that are subject to local regulatory authorities (LRAs) other than the CPUC will also be subject to the standard capacity product provisions with the implementation of SCP II. Currently LRAs use their own methodologies to establish their qualifying capacity values, and in the event that they don't the ISO will fall back on Section 40.8 of the Tariff, *CAISO Default Qualifying Capacity Criteria* to establish these values.

Consistent with its proposal to the CPUC, the ISO in this initiative proposes to extend to the exempt intermittent resources the same availability incentives, unit substitution and grandfathering rules that are currently in effect and applicable to other RA resources.

Under the current ISO SCP tariff provisions for RA Resources, the ISO establishes a unique target availability value for each month of the compliance year, calculated using the historic actual availability of the RA resource fleet during the availability assessment hours during each respective month over each of the past three years.<sup>4</sup> This historical data is acquired from SLIC.

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<sup>1</sup> The SCP II draft final proposal is available at: <http://caiso.com/2479/2479e7362d1e0.html> on the CAISO website.

<sup>2</sup> *Order Instituting Rulemaking to Oversee the Resource Adequacy Program, Consider Program Refinements, and Establish Annual Local Procurement Obligations R.09-10-032*, California Independent System Operator Corporation Proposals on Phase 1 Issues. <http://www.caiso.com/271c/271c77ad5da50.pdf>

<sup>3</sup> *Order Instituting Rulemaking to Consider Annual Revisions to Local Procurement Obligations and Refinements to the Resource Adequacy Program*. Decision Adopting Local Procurement Obligations for 2010 and Further Refining the Resource Adequacy Program Decision 09-06-028 June 18, 2009 pg 29 [http://docs.cpuc.ca.gov/published/FINAL\\_DECISION/102755.htm](http://docs.cpuc.ca.gov/published/FINAL_DECISION/102755.htm)

<sup>4</sup> Per Tariff Section 40.9.4.1 there are a few types of RA resources that are currently excluded from this calculation. They are (1) resources exempted in Tariff Section 40.9.2 (2) Non-Resource Specific System Resources, (3) resources between 1 and 10 MW subject to Section 40.9.5 until such time

The ISO proposes to continue this methodology to the extent that the data is available for these types of resources. If SLIC does not contain the monthly data for the past three years, the ISO will treat these resources in a similar manner to new RA resources. This means that as the outage data is collected it will be included in future availability standard calculations.

The source of forced outage and temperature related ambient derate information for these resources will also conform to the current SCP rules. All resources over 10 MW are required to report this information in the ISO's SLIC system per Tariff Section 9.3.10. Resources that are 1 MW or more but below the 10 MW threshold are required to provide this outage and derate information as described in Tariff Section 40.9.5 and in the *BPM for Reliability Requirements* Section 8.4.1.1. RA resources between 1 and 10 MW are required to report their forced outage information in SLIC no later than 3 days after the end of the month. ISO Operating Procedure T-113 also provides additional detail regarding this process. As described in Tariff Section 40.9.2, devoted to the SCP availability calculations, non-availability will still be determined based on forced outages and temperature related ambient de-rates. In their verbal and written comments some stakeholders expressed concern regarding the applicability of these SLIC reporting types to their various forms of generation. In general, a forced outage is an unexpected occurrence (e.g., mechanical failure) that reduces the operable capacity of resource. Variations in fuel availability, such as weather variations that reduce the wind to drive wind turbines, or reductions in steam availability to drive electricity generation from a Qualifying Facility, are not considered forced outages.

For RA resources whose NQC is based on their historical energy production,<sup>5</sup> the ISO proposes the following methodology for calculating the actual monthly SCP availability. The proposed methodology is based on the principle that the observed historical production of such a resource, on which its NQC is based, occurred during hours when the nominal capacity of the resource (e.g., its Pmax) was fully available.<sup>6</sup> For such a resource, any forced outage or temperature related ambient derate that makes its nominal capacity less than fully available during an SCP assessment hour will proportionately reduce its ability to fully deliver its NQC in that hour.<sup>7</sup>

**Example of SCP availability calculation**

Resource information

Pmax	100 MW
Net Qualifying Capacity	15 MW
RA Sold	10 MW

Example 1 – 20 MW De-rate

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that the CAISO has received outage reports and can begin to utilize that data, and (4) use-limited resources for compliance years 2010 and 2011.

<sup>5</sup> These types of resources include wind, solar, non-dispatchable cogeneration, non-dispatchable biomass and non-dispatchable geothermal facilities.

<sup>6</sup> Accordingly, as noted above, in parallel to the ISO's SCP II initiative the ISO has proposed revisions to the CPUC's qualifying capacity methodology for such resources to ensure that those hours in which a resource's nominal capacity was not fully available will not adversely affect the resource's qualifying capacity value.

<sup>7</sup> Stakeholders have identified a mismatch between the hours used to determine NQC (CPUC Decision) and the hours used to assess availability (approved by FERC). ISO staff is reviewing options for coordinating these timeframes.

In this example assume that the resource's Pmax is derated from 100 MW to 80 MW due to a forced outage or temperature-related ambient derate. Because the NQC of 15 MW was calculated based on the resource's production when the 100 MW of capacity was fully available, having the resource only 80 percent available (i.e., 80 MW capacity instead of 100 MW) will limit its availability to meet its RA obligation to 12 MW, or 80 percent of its 15 MW NQC. If the resource had sold 15 MW of RA capacity, this derate would have caused it to be 3 MW short for purposes of its SCP availability metric. This example assumed, however, the resource sold only 10 MW of RA capacity, which is less than the 12 MW it is available to provide, and therefore the resource is considered to be 100 percent available and its SCP metric is not affected by the 20 percent derate to its Pmax.

#### Example 2 – 50 MW De-rate

In this example assume that the resource is derated from 100 MW to 50 MW. Because its NQC of 15 MW was based on the resource's production when the 100 MW of capacity was fully available, having the resource only 50 percent available will limit its availability to meet its RA obligation to 7.5 MW, or 50 percent of its 15 MW NQC. Since the resource sold 10 MW of RA capacity and is now capable of providing only 7.5 MW of RA, the resource is considered to be only 75 percent available for purposes of the SCP availability metric in this hour.

## **2.2. Stakeholder comments**

Of those who commented, the availability calculation described above received words of support from SDG&E, Dynegy and NextEra.

SCE, PG&E, PUC & CAC suggested that the proposed availability calculation was not proper for QFs. They felt that the ISO's proportional methodology could satisfy the measurement of wind and solar facilities but that QFs work more like conventional generation and should be treated in the same way for this purposes of this calculation.

CalWEA/LSA did not support the availability calculation proposed by the ISO for intermittent resources. They believe that either the ISO should (1) use the same methodology that is in place for other resources or (2) not apply the availability charges and payments to these resources (effectively a permanent exemption from SCP).

## **2.3. Alternative options**

### **2.3.1. Availability calculation with actual energy delivery considered**

Based on the comments that we received, an alternative is presented here for discussion.

This alternative would consider the actual energy delivery in determining availability of wind, solar, and QF RA resources. Suppose a 100 MW wind generator (consisting of 100 one-MW wind turbines) has its NQC = 15 MW based on the proposed revised CPUC methodology for QC which excludes any hours of forced outage or derate. Based on this NQC the resource sells 10 MW of RA capacity. Then in one of the SCP availability hours 50 of the turbines are taken off line on forced outage. The previously proposed metric would determine that it is only capable of delivering 50% of its NQC or 7.5 MW of RA capacity. Since it sold 10 MW of RA, it would be counted as 75% available for that hour (7.5 MW / 10 MW). Thus far this is the same as the proportional derate proposal (see Example 2 in Section 3.1 above).

The modified calculation would compare the resource's actual energy delivery to the ISO grid during the same hour, and assess the SCP metric for the hour based on the formula:

$$\text{Min}(100\%, \text{Max}(\text{energy delivery}; \text{proportional derate metric})).$$

Example 1. Actual energy delivery for the hour = 12 MWh. Resource is 100% available.

Example 2. Actual energy delivery for the hour = 9 MWh. Resource is 90% available.

Example 3. Actual energy delivery for the hour = 7.5 MWh or less. Resource is 75% available.

### **2.3.2. Applicability to QFs**

Some stakeholders commented that the availability calculation that the ISO proposed in its draft final proposal applies to wind and solar, but does not necessarily hold for QF resources.

The ISO disagrees with the assertion that QFs should be treated like conventional generation with regard to SCP availability calculation. The ISO understands that a QF typically has as its primary obligation to provide for the steam and/or electricity needs of its host operation, and as such the ISO will receive electricity from it only on an as-available basis. This means that if the QF generating facility experiences a partial derate of its generating capacity, it still has primary obligation to serve the needs of its host, and therefore the supply of electricity to the ISO will probably be reduced. For this reason the ISO believes it is appropriate to apply the same SCP availability calculation to QFs as to intermittent renewable resources, just as the CPUC applies the same QC counting methodology to all of these resources.

## **3. Options for replacing RA capacity on a significant planned outage**

### **3.1. Draft Final Proposal Replacement Rule**

This option was presented in the SCP II draft final proposal, posted on February 19<sup>th</sup>, 2010<sup>8</sup>. Many stakeholders raised concerns regarding this approach. It is reiterated here to provide context for further discussion.

Under this proposal, when an RA resource intends to take a planned outage that will last longer than a week in a particular month, the supplier will, in addition to applicable outage coordination requirements, be required to indicate the details of the intended outage in its supply plan submitted to the ISO and put a request into SLIC for a planned outage. The supplier will also be required to specify in the supply plan, the non-RA resource that will be available to replace the RA capacity. The designated non-RA resource would then be treated as an RA resource in the ISO markets for the period of the original resource's outage and will be subject to RA requirements including the must offer obligation and the SCP availability standards.

For a local RA resource requesting a planned outage, the supplier must make a best effort to replace the resource with a non-RA resource in the same local area. If the SC for the supplier is unable to obtain local capacity in the same local area, a resource elsewhere within the ISO area must be offered. If the ISO finds that it requires ICPM capacity in a local area during the time the RA resource is out of service, a local RA resource that provided replacement RA capacity in the same local area will not be responsible for any of the ICPM costs. In contrast, a local RA resource that provided replacement capacity outside that local area will be allocated a share of the ICPM cost in proportion to that RA resource's share of the total RA capacity in the local area that was out of service at the time of the ICPM designation.

In the event that an RA resource approved for a planned outage fails to provide any replacement capacity in its supply plan, then ICPM capacity will be procured to cover the deficiency and the costs will be allocated to the SC of the resource.

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<sup>8</sup> See footnote 1.

## 3.2. Alternative Options

### 3.2.1. Refinement of January 19 SCP II Straw Proposal

In the February 19 SCP II draft final proposal, the ISO proposed a mandatory replacement obligation on RA suppliers whose RA resources are scheduling a planned outage. Stakeholder response to this proposal was overwhelmingly negative, and in response the ISO is considering alternative approaches. The two main alternatives for consideration are: (1) a refined version of our previous proposal found in the SCP II Straw Proposal published on January 19, 2010<sup>9</sup>, and (2) recommending that the CPUC retain the current replacement rule for its jurisdictional load serving entities until a satisfactory alternative can be adopted. This section discusses the first option.

The January 19 straw proposal creates a replacement obligation on suppliers of RA capacity in the ISO tariff. Under this proposal, when an RA resource intends to take a planned outage longer than a week in a particular month, the supplier will indicate the details of the intended outage in its supply plan submitted to the ISO and put a request into SLIC for a planned outage. The supplier will have the opportunity to replace the RA resource during the planned outage period with a non-RA resource in accordance with the same substitution rules already approved for unit substitution under SCP. The ISO will determine whether the replacement capacity is acceptable based on various criteria, including whether (1) the resource is already a designated RA resource; (2) the resource has exceeded its NQC; (3) the resource is already on an outage; (4) the resource is already designated through ICPM. This is not an exhaustive list but it is representative of the types of criteria that will be developed. If the replacement capacity submitted by the supplier is acceptable to the ISO then the supplier will have met its replacement requirement for that particular planned outage. Although a local RA resource has the option of using system RA to replace its RA capacity in the event of a planned outage, it is more likely that using another local resource will provide more certainty that the ISO will not be deficient. If, however, the supplier does not offer acceptable replacement capacity to the ISO, the ISO may, based on anticipated system conditions or other operational considerations at the time the supplier's supply plan is submitted to the ISO, (1) deny or reschedule the requested planned outage, (2) approve the requested outage and procure additional replacement capacity through the ICPM or whatever mechanism may replace ICPM in the future, or (3) approve the requested outage and not procure additional replacement capacity. Suppliers will be provided the opportunity to cure any deficiencies prior to ICPM procurement. The timing of this process needs more attention. If the ISO operators determine that (2) is the appropriate action for the situation, either in advance of or during the operating month, the ISO will allocate the cost of the replacement capacity to the supplier of the RA capacity on the planned outage.

### 3.2.2. Additional stakeholder concerns regarding the ISO options

There were several stakeholder concerns regarding the ISO's proposals for replacing RA capacity on planned outage. The following is a list of questions that were submitted in written comments:

- **Some Non-CPUC jurisdictional entities believe that addressing the replacement of RA capacity on planned outage is out of scope for SCP II. They believe they will be negatively impacted by this proposal** – If the CPUC is considering elimination of their replacement rule, some rules must be established to ensure reliability for the ISO

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<sup>9</sup> The straw proposal is located at <http://caiso.com/2479/2479e7362d1e0.html> on the ISO website.

balancing authority area. The RA rules established in the tariff apply to all RA resources, not only those who serve CPUC jurisdictional load.

- **If an ISO proposal is implemented, will this change the LSE's responsibility regarding showings and compliance** - LSEs will still be required to submit RA plans as they do today, and the ISO will still cross-validate them with the supply plans. The difference is that the LSE will show the contracted RA resources on their RA plan, while the supplier will list the RA resource and the replacement capacity on the supply plan if they are scheduling a planned outage.
- **Can scheduled outages be requested before the RA supply plan is due for that period** - Yes, the rules for submitting planned outages should not change however there are details that will need to be worked out to coordinate this with the proposed RA replacement rules. Under the straw proposal option, in the instance when an RA resource requests and receives approval for an outage in advance of the RA supply plan, the ISO will not know whether replacement capacity will be procured. This could lead to a situation where the ISO may need to procure ICPM.
- **The possibility that a resource could be responsible for an entire month of ICPM charges if they do not procure replacement RA capacity is excessively punitive** - The ISO must ensure that it can maintain system reliability and that 115% reserves have been procured.
- **The ISO needs to clarify the timeline and mechanics for reviewing and approving monthly supply plan submissions, if the ISO proposals are implemented** - The ISO agrees that these details will need to be worked out depending on the solution that is determined. These details will be included in the BPM language.
- **If multiple scheduled outages collectively require replacement capacity, how will the costs be allocated among suppliers?** – The formula for allocating these costs pro rata will need to be determined.
- **Suppliers who already have replacement requirements in their contracts should be eligible for grandfathering of these provisions** – The ISO does not intend to consider grandfathering for these contract provisions.

### 3.2.3. Other Options

There appears to be consensus that some mechanism is needed to assure the adequacy of RA capacity during times of significant planned outages of RA resources. The ISO does not support eliminating the CPUC's current replacement rule until such a mechanism can be implemented. One possible alternative, then, if no acceptable alternative emerges through the current SCP II stakeholder process, would be for the CPUC to retain its replacement rule to allow further exploration of alternative approaches. Instead of driving to meet the CPUC's RA 2011 Phase 1 proceeding deadline, it might be possible to defer this topic to Phase 2 and evaluate additional options that could allow the elimination of the current replacement rule.

## 4. Schedule of Key Dates

March 24 – Conference call to discuss alternatives

April 1 – Stakeholder comments due on alternatives

April 6 – Post Revised Draft Final Proposal

April 13 – Stakeholder conference call to discuss Revised Draft Final Proposal

April 20 – Stakeholder comments due on Revised Draft Final Proposal

May 17, 18 – Board of Governors meeting