Resource Transitions

Resource Adequacy Deliverability Assessment for Resources Transitioning from Outside to Inside the ISO Balancing Authority Area

STRAW PROPOSAL

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Table of Contents

Resource Adequacy Deliverability Assessment for Resources Transitioning from Outside to Inside the ISO Balancing Authority Area

1. Executive Summary

The California Independent System Operator Corporation ("ISO") publishes this Straw Proposal regarding the determination of the Resource Adequacy ("RA") deliverability of a resource when the resource transitions from outside to inside the ISO balancing authority area ("BAA") due to a change to the ISO BAA boundary. This proposal contains a revised scope from what was originally posted in the issue paper. The original issue paper scope included consideration of a change to the resource's interconnection point. However, this proposal is limited to BAA boundary changes under an Option 3 approach, as described herein, where a transitioning resource would be granted permanent deliverability status for capacity associated with historically demonstrated imports during the RA import deliverability assessment hours. We further propose that large BAA boundary changes involving additions to the ISO controlled grid, multiple resources, and intermediary retail load be managed on a case-by-case basis.

The existing ISO tariff and business practice manuals ("BPM") describe the process for establishing the RA deliverability of internal resources as reflected in their annual net qualifying capacity ("NQC"), and for allocating RA deliverability on the interties to load-serving entities. In the resource transition scenario discussed here, a resource that previously contributed to the import schedules used to establish RA deliverability on a particular intertie establishes a direct connection to the ISO grid and thereby becomes an internal resource. This effort is intended to develop a process whereby the ISO can establish the deliverability status of such a resource.

Five sets of comments were respectively submitted on the Issue Paper: California Public Utilities Commission ("CPUC") staff, Pacific Gas & Electric Company ("PG&E"), Ormat Technologies, Inc., Southern California Edison ("SCE"), and San Diego Gas & Electric Company ("SDG&E").

In the following sections, this paper provides a description of the anticipated stakeholder process, a brief summary of the options presented in the issue paper, an overview of comments received on the issue paper, a straw proposal for stakeholder review and comment, and an outline of next steps. Relevant background information is contained in the issue paper. Stakeholders are welcome to offer variations on the straw proposal for consideration in this process.

2. Stakeholder Process

This Straw Proposal will be discussed during a stakeholder conference call as shown in Table 1 below. An ISO objective in this effort is to develop an option that can be adopted under existing tariff authority, and therefore the proposed timetable below does not provide for Board of Governors approval or a FERC filing. The ISO will conduct the usual stakeholder process with a series of three papers prior to initiating the BPM change management process.

Table 1: Schedule

STAKEHOLDER PROCESS	
Feb 11	*Post Issue Paper*
Feb 18	*Stakeholder Conference Call*
Mar 2	*Comments on Issue Paper*
Mar 24	Post Straw Proposal
Apr 1	Stakeholder Conference Call, 1:00 PM to 3:00 PM
Apr 8	Comments on Straw Proposal
Apr 20	Post Draft Final Proposal (DFP)
Apr 27	Stakeholder Conference Call, 10:00 AM to 12:00 PM
May 4	Comments on DFP
BPM CHANGE MANAGEMENT PROCESS	
May 5	Submit BPM Proposed Revision Request (PRR)
May 6-19	Open Comment Period on PRR, 10-business days
May 24	BPM Monthly Management Meeting
Jun 1	Post PRR Recommendation
Jun 2-16	Open Comment Period on PRR, 10-business days
Jun 28	BPM Monthly Management Meeting
Jul 5	Post Final PRR Decision, effective immediately or on a date specified

A web page has been established for this initiative that provides access to meeting materials, proposals, and stakeholder written comments. This information can be found at http://www.caiso.com/2b22/2b229ae739c60.html

3. Options Presented in the Issue Paper

The Resource Transitions issue paper identified three potential options that would establish the RA deliverability of a resource when the resource transitions from outside to inside the ISO BAA due to a change to either the resource's interconnection point or the ISO BAA boundary. These options are described in more detail in the issue paper.

> **Option 1, New Resource**: Treat the resource as a new interconnection customer and address its deliverability status through the generation interconnection procedures ("GIP"), with no ex ante allowance for its previous contribution to the RA import deliverability on the associated intertie;
>
> **Option 2, Interim Basis**: Grant the resource, on an interim basis, a MW value of deliverability status that reflects its contribution to the RA deliverability on the associated intertie, and require the resource to utilize the GIP as a new interconnection customer to establish its deliverability status on a permanent basis;
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> **Option 3, Permanent Basis**: Grant the resource, on a permanent basis, a MW value of deliverability status that reflects its contribution to the RA deliverability on the associated intertie; if that MW value is less than the resource's full qualifying capacity (QC) value under the prevailing counting rules, however, and the resource wants to obtain full capacity deliverability status up to its QC value, it would have to utilize the GIP to obtain the additional MW.

4. Comments on the Issue Paper

Comments on the issue paper were due on March 2, 2011. The comment template posted by the ISO asked stakeholders to state their preferred option and provide feedback about the three suggested options. Five sets of comments were respectively submitted by the CPUC staff, PG&E, Ormat Technologies, Inc., SCE, and SDG&E. Of the three options presented in the issue paper, none of the stakeholders support Option 1. In fact, Ormat, PG&E, and SDG&E object to Option 1. CPUC staff prefers Option 2. Ormat and SDG&E prefer Option 3. PG&E supports Option 2 for interconnection point changes, but supports Option 3 for boundary changes. SCE views Option 1 as better than Options 2 or 3, but does not see a need to select a "one-size-fits-all" option and instead recommends that the ISO assess each request on a case-by-case basis. Other than this case-by-case approach, no stakeholders explicitly introduced any additional options.

4.1. Comments on Option 1 – New Resource

Ormat objects to Option 1 because it would (1) require GIP participation to maintain any deliverability, (2) discourage resources from transitioning into the ISO, (3) negate any historic capacity benefit that the resource had provided the ISO, and (4) maintain a level of import deliverability that may not reflect actual resource availability once the transitioning resource enters the ISO BAA.

PG&E states that Option 1 seems unreasonable because it would result in the resource losing RA payments for the resource for a minimum of 18 months.[1] Further, Load Serving Entities (LSEs) would potentially have to procure higher priced replacement capacity to meet RA requirements, leading to more costs for ratepayers.

SCE, the only stakeholder with any show of support for this option, stated in very brief form that Option 1 appears to be the most equitable alternative because it would avoid some complex implementation issues when compared to Options 2 and 3. SCE contends that Option 2, and especially Option 3, raise the potential need for grandfathering and would have an uncertain impact on RA import capability. SCE considers it unclear, for example, as to whether or not a specific resource was tagged as RA during its historical delivery period would impact its deliverability or if the amount of RA import rights would be impacted.

SDG&E contends that Option 1 does not produce a logical result. In SDG&E's view, Option 1 would treat the existing, transitioning resource as a new interconnection customer, therefore it would not be granted deliverability without a completed Deliverability Assessment via the GIP. SDG&E claims that Option 1 is not logical because it implies that a hypothetical resource that has yet to deliver any power to the grid could be assigned deliverability while a transitioning resource with proven, physical deliveries into the ISO system is not. Further, the transition resource would lose any possibility of providing RA capacity to the market until the resource's deliverability (if any) was determined. SDG&E believes the immediate temporary loss of RA capacity and the potential for permanent loss of RA capacity could deter generators from transitioning into the ISO BAA.

4.2. Comments on Option 2 – Interim Resource

Two stakeholders expressed support for Option 2, although PG&E support was limited to an interconnection change as opposed to a boundary change. As noted above, SCE stated that Option 2 and especially Option 3 present various issues, such as implementation complexities, potential need for grandfathering, and an uncertain impact on RA import capability. SCE noted that it is not clear, for example, whether or not a specific resource was tagged as RA during its historical delivery period would impact its deliverability or if the amount of RA import rights would be impacted.

CPUC staff stated that Option 2 appears to provide a good balance between the competing interests of maintaining RA capacity availability, but places the generator into the GIP process like any other resource desiring to establish RA deliverability within the ISO BAA. CPUC staff also stated that Option 2 provides the most flexibility for facilitating the transition of resources from neighboring BAAs into the ISO BAA and allows reasonable recognition of interim RA capacity deliverability.

PG&E stated that it supports Option 2 in the case that the resource changes the location of its interconnection point. Option 2 would allow the resource to continue to provide RA capacity while the ISO performs the GIP study. Granting interim RA capacity based on the resource's contribution to RA deliverability on the intertie seems reasonable given that the new interconnection point will not dramatically change the flows in the ISO's grid, assuming the new

[1] PG&E contends, given that the resource will have to wait until the next cluster to begin the GIP study, it is likely that Option 1 could result in the resource losing its RA capacity for a period longer than 18-months.

interconnection point will still connected to the same line but will now be on the ISO side of the intertie. PG&E notes that this stakeholder process does not contemplate a scenario in which an external resource connects to a new transmission line inside the ISO's grid.

PG&E also posed several additional questions, some of which address Option 2. Regarding Option 2, the ISO states that the resource's interim RA capacity may be *"adjusted if necessary through the annual NQC process."* What are the specific factors in the annual NQC process that might contribute to any potential adjustment? Does Option 2 allow the resource to initiate the GIP study before it physically changes the location of its interconnection point?

SDG&E states that Option 2 (in a manner similar to Option 1) places a large and potentially unacceptable risk onto transitioning resources. SDG&E is concerned that, on an interim basis, Option 2 grants the transitioning resource deliverability status for the MW capacity value supported by its historically demonstrated contribution to the RA import capacity on the intertie. To attain permanent deliverability, a transitioning resource must enter the GIP queue and its deliverability would then be subject to the result of the Deliverability Assessment, just like a hypothetical resource. Because the transitioning unit would be "last in line" in the GIP queue, a newly proposed project already in the queue could potentially be allocated deliverability that bumps the deliverability of the existing transitioning resource. SDG&E believes that such a possible outcome could deter generators from transitioning into the ISO BAA.

SDG&E contends, in summary, that Options 1 and 2 penalize transitioning resources by removing or placing at risk their ability to provide RA capacity. To the extent these resources provide a higher assurance of RA capacity as a ISO resource than as an import, the ISO should adopt rules that recognize the historical value of these resources in supplying RA capacity to ISO load serving entities. For these reasons, SDG&E supports Option 3 and opposes Options 1 and 2.

4.3. Comments on Option 3 – Permanent Resource

Ormat and SDG&E prefer Option 3. PG&E supports Option 2 for interconnection point changes, but supports Option 3 for boundary changes. PG&E states that Option 3 should be available to a resource when there is a change to the ISO boundary. In that instance, the location of the resource's interconnection point will not change and there would be no need to impose the requirement that the resource perform a GIP study to justify its RA deliverability. Using historical data to determine the resource's contribution to RA deliverability on the intertie should provide a reasonable estimate of its new RA capacity value. However, if the resource wants to obtain full capacity deliverability status up to its QC value (assuming the QC value is greater than its past RA deliverability), it would have to utilize the GIP to obtain the additional RA value.

Ormat strongly supports Option 3 for several reasons. First, Option 3 recognizes the contribution that a transitioning resource has historically made to ISO capacity and does not penalize the resource for joining the ISO. This would likely encourage expansion of the ISO footprint and an increase in dynamic scheduling rather than discourage it. Second, Option 3 is consistent with the process used in another form of resource transition – repowering or replacing an existing resource at the same location. Just like a retiring resource gets to maintain deliverability for use by its replacement, a resource that transitions from outside to inside the ISO should be able to maintain the same level of deliverability without having to reenter the GIP. Third, Option 3 is the most equitable solution – the transitioning resource retains its deliverability, no incremental deliverability capability is "used up" because import

deliverability is reduced by the same amount as the transition, and import deliverability can "recover" over time based on the ISO grid's ability to reliably accept increased capacity.

SDG&E states that Option 3 most closely supports the rationale that physical deliverability should drive QC deliverability and SDG&E strongly encourages its adoption. Under Option 3, the transitioning resource is granted permanent QC deliverability based on demonstrated deliveries. To the extent the QC is less than the resource's PMax, the resource could enter the GIP queue to obtain incremental deliverability above the allocation provided by this option.

In addition, SDG&E notes that Option 3 acknowledges, on a permanent basis, the transitioning resource's demonstrated ability to generate and deliver a quantifiable amount of power to the ISO during peak load periods. In short, Option 3 simply affirms the transitioning resource's proven deliverability that the ISO historically relied on to ensure that enough generating capacity is available to reliably operate the system. This framework logically recognizes past physical deliveries as the basis for future QC deliverability and, according to SDG&E is in stark contrast to Options 1 and 2, does not punish the transitioning resource for directly interconnecting to the ISO grid. Option 3 may provide an incentive for resource transition – an outcome the ISO should want given that directly interconnected generators are subject to ISO tariff provisions that require, in specified circumstances, generators to provide exceptional dispatch services and also could lead to additional RA capacity.

Further, SDG&E states that for purposes of establishing the amount of imports to be modeled in GIP studies, under Option 3 the ISO would reduce historical imports at applicable interties megawatt-for-megawatt by the transitioning resource's previous import schedule contributions. This means that the historical imports into the ISO balancing authority area that are used in the power flow analysis to identify whether Delivery Network Upgrades are needed, would exclude the output of the transitioning generator. Instead, the transitioning resource would be modeled in the GIP studies as an internal ISO resource with simulated output equal to its permanent deliverability quantity. In light of these changes to the GIP study assumptions, there should be little impact from a deliverability or network upgrade perspective on new requests by prospective generators to interconnect within the ISO BAA. Permanently shifting a transition resource's deliverability status from an import to an internal ISO resource, should effectively amount to a wash, and currently proposed resources in the ISO queue should be largely indifferent to the transition. Thus, according to SDG&E, Option 3 is equitable.

4.4. New Option 4 - Case-by-Case Assessment

SCE essentially proposed a new approach that would involve a case-by-case assessment based on the unique characteristics of each resource. This Straw Proposal treats that suggestion as new Option 4. In its comments, SCE questions the need to establish a "one-size-fits-all" solution to pre-determine the outcome of these infrequent scenarios and advocates that the ISO continue to assess each on a case-by-case basis in order to properly consider the characteristics unique to each situation.

SCE was the only stakeholder to raise questions regarding the viability of any of the three options presented. SCE stated that none of the three Options take into account whether the change in the ISO BAA was the result of some physical change on the grid, a simple redrawing of the map, or both. SCE further stated that none of the three options take into account the qualifying capacity ("QC") value of the resource, which can be quite different from its Pmax or historical contribution to import RA. According to SCE, the former constitutes a "lack [of the] most basic information" that threatens to strand perfectly good RA generating capacity." Option

1 threatens to strand perfectly good RA generating capacity by becoming a barrier to the development/management of policies around Dynamic Scheduling for pseudo-ties or other virtual mechanisms. Options 2 & 3 threaten to strand perfectly good RA Import capability or grant interim RA capacity value that's not warranted.

SCE concludes that none of these potential outcomes seem reasonable, especially given that administrative simplicity appears to be the only apparent "benefit" of standardizing this process. SCE therefore recommends that the ISO continue to pursue its evaluation on a case-by-case basis.

4.5. Comments on Deliverability to Resource versus to LSE

Stakeholders were asked to comment on the issue of providing deliverability capability to a transitioning generating unit versus a load serving entity ("LSE"), recognizing that prior to the transition the maximum import capability to which the generating unit's historical schedules contributed was allocated to load serving entities. Four of the five stakeholders do not see this transfer of deliverability as a significant issue.

Ormat states that it does not appear that transferring deliverability from the LSE through import to the transitioning resource results in any meaningful loss of capacity. The primary reason LSEs are allocated import capacity is that deliverability is an internal ISO product that is only valuable for deliveries into the ISO. Making import capacity available to LSEs is the only mechanism that allows imports to count toward RA obligations. However, import RA capacity is not as valuable to the ISO for reliability purposes as is internal capacity. Imports have a less robust must-offer obligation and are generally less available to the ISO to dispatch. Reducing import capacity (perhaps temporarily) while gaining a comparable amount of internal ISO capacity does not reduce the total amount of potential RA capacity available for LSEs to acquire, it just makes it more useful to the ISO. Because import deliverability can possibly increase over time, the net result could be an increase in overall deliverability without the need to build new transmission or generation facilities.

PG&E is indifferent to this transfer of deliverability. LSEs will be able to procure a similar amount of RA capacity, irrespective of whether it is allocated to LSEs on an intertie or whether it assigned to a specific resource. Additionally, the reduction in the MIC will only occur in the first year of the resource transition. The ISO will re-evaluate the MIC in subsequent years through the normal annual deliverability process.

CPUC staff states that if the generating resource can substantiate their RA deliverability capacity provided over the intertie, then whether they are providing that deliverability through the LSE proxy or as a transitioning generation unit within the ISO, that RA capacity should be utilizable until such time as the GIP is completed.

SCE reiterates that this is one of those "difficult issues" under Options 2 and 3 (but not under Option 1). SCE states that it simply prefers to maintain the current allocation of RA import capability to LSEs.

SDG&E contends that deliverability should accrue or convey with the transitioning generator. Once transitioned, the resource will be directly connected to the ISO grid, and should be treated on par with other resources directly connected to the ISO grid. The concept of load-share allocation should continue to apply to remaining import capacity, but has no applicability in the context of resources located within the ISO control area.

4.6. Other Comments

Stakeholders were invited to submit any additional comments not covered by the previous questions. PG&E posed several questions for the ISO to answer regarding how the ISO will determine the resource's contribution to RA deliverability on the intertie and the timing and scope of the GIP study.

4.7. Summary of Comments

Stakeholders overwhelmingly rejected Option 1 as a viable resource transition approach because it would (1) require GIP participation to maintain any deliverability, (2) discourage resources from transitioning into the ISO, (3) negate any historic capacity benefit that the resource had provided to the ISO, (4) maintain a level of import deliverability that may not reflect actual resource availability once the transitioning resource enters the ISO BAA, and (5) result in increased RA costs to cover the transitioning resource. The only show of support for Option 1 was based on its relative simplicity relative to the other two options.

Two stakeholders supported Option 2 because it would (1) allow the resource to continue to provide a reasonable level of RA capacity while the ISO performs the GIP study, (2) provide a good balance between the competing interests of maintaining RA capacity availability, but place the generator into the GIP process like any other resource desiring to establish RA deliverability within the ISO BAA, and (3) provide the most flexibility for facilitating the transition of resources from neighboring BAAs into the ISO BAA. Some support for Option 2 assumed that the new interconnection point will not dramatically change the flows in the ISO grid, figuring that the new interconnection point will still connected to the same line but will now be on the ISO side of the intertie.

Several stakeholders supported Option 3 because it would (1) recognize historical contributions of RA capacity, (2) not penalize or punish a resource for joining the ISO, (3) remain consistent with the process used in another form of resource transition – repowering or replacing an existing resource at the same location, (4) not result in any incremental deliverability capability changes given that import deliverability would be reduced by the same amount as the transition, which would not impact resources in the ISO generation interconnection queue.

5. Straw Proposal

The ISO offers the following straw proposal for stakeholder review and comment. The ISO proposes a narrow scope for resource transitions that is limited to an existing resource that transitions from outside to inside the ISO BAA as a result of a BAA boundary change. The ISO proposes to grant permanent delivery status for capacity associated with historically demonstrated imports during the RA import delivery assessment hours. This option has been identified as Option 3. Under this approach, resource transitions would be limited to existing substation reconfigurations involving no retail load (other than generator auxiliary load) and small reconfigurations to existing transmission facilities (as may be required in order to physically change the exiting BAA boundary with the accord of all parties involved).

This resource transitions approach would not apply to large boundary changes or "large swaths" that would move load or significant amounts of transmission or generation infrastructure into the ISO BAA, because such changes present complex challenges, potentially including new scheduling points, a merger of an interconnection queue, and numerous resources. These larger changes will be evaluated on a case-by-case basis. New generator interconnections are

also outside the scope of this proposal and must proceed through the generator interconnection procedures (GIP).

Under the resource transition process for resources within the scope of this proposal, the ISO would perform a one-time, permanent allocation of deliverability status to the transitioning resource. In order to qualify for consideration as a resource transition, the resource must conform to the following requirements:

1. **Triggered by existing substation reconfiguration at the BAA boundary**. Substation reconfigurations with a BAA boundary change can result from: (a) a change of ownership of buses or bays, (b) a change of BAA designations of buses or bays, or (c) the addition of buses or bays. Small reconfigurations to existing transmission lines are allowed since they may be required in order to physically change the existing BAA boundary, as long as they have an insignificant effect on the system impedance and they effectively do not change the flow patterns from the existing ISO boundary towards the main ISO system. Such changes can be accomplished with concurrence from all involved parties.

2. **Demonstrate clear historical deliveries as an import**. To determine the amount of the resource's capacity to which deliverability will be assigned, the ISO will conduct an assessment of historical deliveries based on (1) tags and metered output data, or (2) if tags are not available or clear, the power purchase agreement (PPA) contract and metered output data. The amount of energy delivered by the resource into the ISO grid during the deliverability hours used to establish RA deliverability will determine the amount of the resource's capacity that qualifies for deliverability status under this proposal.

3. **Load**. BAA boundary changes to the transmission configuration that add load (currently outside ISO control area) or removes load (currently inside ISO control area) are not eligible for a resource transition.

4. **New interconnections or new substations**. Projects involving building new infrastructure like new transmission lines or transformers in order to form new interconnections or building of new substations are not eligible for a resource transition.

5. **Deliverability beyond historical data**. If the existing resource transitioning into the ISO control area desires deliverability beyond the historical level established as described above, it needs to apply for such additional deliverability by entering the GIP queue as a new interconnection.

6. **Adjustment to historical RA import data**. For the first year after the resource transitions into the ISO BAA, the maximum RA import capacity on the associated intertie will be decreased by the same amount of deliverability given to the transitioned resource. In subsequent years the new (reconfigured) tie will get its own maximum RA import capacity based on the established MIC methodology.

Example of Option 3: Assignment of Permanent Deliverability Status to Transitioning Resource

Under Option 3, a transitioning resource would be granted permanent deliverability status for capacity associated with historically demonstrated imports during the RA import deliverability assessment hours. If this MW value is less than the resource's PMax, the resource could either accept this MW value on a permanent basis or enter the GIP interconnection queue to obtain full capacity deliverability status up to its PMax. Thus, the resource will not be required to enter the ISO GIP process for the proven historical contribution to the ISO Maximum RA Import Capability. However it will be required to enter the ISO GIP process for any incremental deliverability status request above its contribution to the Maximum RA Import Capability.

Consider the following illustration of Option 3:

i. Power Station 1 with a PMax of 1,000 MW transitions into the ISO BAA through an ISO-BAA boundary change.

ii. The resource can prove 750 MW of historical average import schedules during the exact peak hours used in establishing the maximum RA import capability for the pre-transition intertie.

iii. Annual RA import allocation process assumes this 750 MW former import is no longer available for next year's RA import allocation on the post-transition intertie. Thus, the RA import capability on the intertie will be reduced from its pre-transition value of 2000 MW to 1,250 MW for the first year of the transition. In subsequent years the ISO will use actual schedule data for the intertie to establish its RA import capability, in accordance with the existing methodology.

Power Station 1 would be granted permanent deliverability status for 750 MW associated with historically demonstrated imports. Power Station 1 can either accept the 750 MW value on a permanent basis or enter the GIP interconnection queue to obtain full capacity deliverability status up to its Pmax of 1000 MW. Power Station 1 will not be required to enter the ISO GIP process for 750 MW. However, it will be required to enter the ISO GIP process as a new interconnection for the additional 250 MW above its contribution to the historically demonstrated Maximum RA Import Capability.

6. Next Steps

The ISO will host a stakeholder conference call on April 1, 2011 from 1:00 p.m. - 3:00 p.m. to review and discuss this Straw Proposal. Stakeholders are encouraged to submit written comments on the Straw Proposal to ResTrans@caiso.com by close of business April 8, 2011. The ISO will develop a template that it asks stakeholders to use to submit their written comments. The ISO will post the written comments that it receives to that web address by April 5, 2011.