



California ISO
Shaping a Renewed Future

ISSUE PAPER

Deliverability of Resource Adequacy Capacity on Inertias

March 15, 2011

Issue Paper

Deliverability of Resource Adequacy Capacity on Interties

1. Introduction

With this issue paper the California Independent System Operator (“ISO”) initiates a stakeholder process to explore changes to the methodology for calculating the Maximum Import Capability (“MIC”) for Resource Adequacy (“RA”) purposes. The MIC, which the ISO calculates annually, is the maximum MW amount of import capacity that will be available to ISO load-serving entities (“LSEs”) for procuring resources outside the ISO balancing authority area (“BAA”) to meet their RA requirements for the coming year. Several stakeholders have raised concerns that the current MIC methodology, because it determines the MIC based on the amount of energy the ISO BAA has imported historically during peak system load hours, results in excessively low MIC values for a few selected ties. As a result, these stakeholders assert, the use of external resources to meet RA requirements is unnecessarily limited at these selected ties, resulting in increased costs of procuring RA capacity and barriers to the timely development of external renewable resources due to the inability of these resources to provide RA capacity.

In response to these concerns, the ISO is initiating this stakeholder process to explore the development of a revised MIC calculation methodology that would yield larger MIC values than the current historical-based approach allows, without compromising the fundamental requirement that all RA capacity be simultaneously deliverable to the ISO BAA to meet peak load conditions. It is important to note that this initiative is limited in scope to the MIC calculation itself; at this time the ISO does not intend to consider any changes to the current procedures for allocating shares of the annual MIC to LSEs for their use in meeting their RA requirements.

The revised MIC methodology which is the subject of this issue paper is one part of a two-part approach the ISO is developing to expand the amount of import capacity available to LSEs for obtaining RA capacity from external resources. The second part will focus on the transmission in the ISO BAA required to support the expanded RA import capacity. Utilizing new provisions in the ISO’s transmission planning process (“TPP”) that were approved by the Federal Energy Regulatory Commission (“FERC”) in December 2010 – particularly the new public policy-driven category of transmission elements – the ISO proposes to identify any transmission additions or upgrades that will be needed to maintain the additional RA import capacity in support of the state’s renewable energy requirements.

Annually, in the first phase of the TPP cycle in which the ISO develops the unified planning assumptions and study plan and specifies the public policy directives that the TPP will address, the ISO will identify as a public policy planning objective the need to maintain sufficient RA import capacity to enable the external generation needed to meet the 33 percent renewable portfolio standard (“RPS”) to provide RA capacity to ISO LSEs. In the course of the TPP the ISO will determine the specific external generation locations to be included in this planning objective based on the generation scenarios used in the TPP to achieve the 33 percent RPS. Stakeholders will find additional discussion of this aspect of the new approach in the draft planning assumptions document for the 2011/2012 TPP cycle, to be posted within the next several weeks. This aspect of the new approach is not discussed further in the present paper.

In the following sections, this issue paper provides a proposed timeline for the stakeholder process, background information, a discussion of the issue that need to be addressed, and next steps.

2. Stakeholder Process

This issue paper will be discussed during a stakeholder conference call on March 22. The ISO believes that an improved MIC methodology can be adopted under existing tariff authority, and therefore the proposal would not require Board of Governors approval or a FERC filing. The ISO will conduct its usual stakeholder process with a series of papers and stakeholder discussions to develop the revised MIC methodology. It will then incorporate the new MIC methodology into the Reliability Requirements Business Practices Manual (“BPM”) through the established BPM change management process. The schedule for the stakeholder process and the BPM change management process is shown in Table 1.

Table 1: Schedule	
Stakeholder Process	
Mar-15	Post Issue Paper
Mar-22	Hold Stakeholder Conference Call, 3:00 p.m. to 4:30 p.m.
Mar-29	Receive Comments on Issue Paper
Apr-6	Post Straw Proposal
Apr-13	Hold Stakeholder Meeting 1:00 p.m. to 5:00 p.m.
Apr-20	Receive Comments on Straw Proposal
May-5	Post Draft Final Proposal (“DFP”)
May-12	Hold Stakeholder Conference Call
May-19	Receive Comments on DFP
BPM Change Management Process	
Jun-9	Submit BPM Proposed Revision Request (“PRR”)
Jun-10 - Jun-23	Open Comment Period on PRR, 10-business days
Jun-28	Hold BPM Monthly Management Meeting
Jul-5	Post PRR Recommendation
Jul-6 - Jul-19	Open Comment Period on PRR, 10-business days
Jul-26	Hold BPM Monthly Management Meeting
Aug-2	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/2b42/2b42b9378530.html>

3. Background

The current MIC methodology is part of the ISO deliverability assessment process. Simultaneous deliverability of energy from all RA capacity to meet peak load conditions is an essential element of the RA program. To meet their RA requirements, LSEs must procure capacity that has been demonstrated to be deliverable through the ISO's deliverability assessment process.

The ISO deliverability assessment process is set forth in *Tariff Sections 40.4.6.1, Deliverability Within the CAISO Balancing Authority Area, and 40.4.6.2, Deliverability of Imports, and Reliability Requirements BPM Sections 5.1.3.4, Deliverability to Aggregate of Load, and 5.1.3.6, Deliverability of Imports*. The foregoing provisions specify the process for establishing deliverability for internal supply resources and for imports on an annual basis. Once the deliverability of resources is established through the ISO's deliverability assessment, LSEs are able to count the deliverable capacity toward their respective annual and monthly RA requirements.

For RA capacity procurement purposes, the import capability of the ISO system is determined by the ISO and then allocated to LSEs in accordance with the detailed 13-step process set forth in *Tariff Section 40.4.6.2*. In Step 1 – which is the subject of this initiative – the MIC for each intertie is determined by the highest actual historical energy import quantities during peak system-load hours of the most recent two years. The current import capability values were posted to the ISO website in July 2010.¹

The methodology for determining the MIC at each intertie is described in the Reliability Requirements BPM with additional technical details set forth in two additional documents, which were developed in the 2005 RA Initiative on Deliverability.² Below are the key excerpts from those documents.

- *Preliminary Deliverability Baseline Analysis Study Report*³
 - Historical Import Scheduled Deliveries Methodology. The methodology to establish historical import scheduled deliveries is described in the Appendix 2 document. Specifically, the prior two years of historical import schedule data is examined during high load periods. The sample hours are selected by choosing hours with the highest total import level when peak load was at least 90% of the annual system peak load (Appendix 2, p.1).
 - Screening for Abnormally Low Historical Import Values. To prevent the use of abnormally low historical import schedule values for a particular Branch Group, the ISO has applied the following screening test to identify significantly abnormal data for a particular Branch Group. Two tests are performed on Branch Group data to screen for significantly abnormal data. The first test is applied to all Branch Groups and the second test is applied to Branch Groups identified in the

¹ *California ISO Maximum RA Import Capability for Year 2011*,
<http://www.caiso.com/27c6/27c675b81c230.pdf>

² Resource Adequacy Initiative on Deliverability, <http://www.caiso.com/181c/181c902120c80.html>

³ Appendix 2: Initial CAISO Import Level for the Deliverability of Imports Assessment, CAISO, 4/12/2005,
<http://www.caiso.com/docs/2005/05/03/200505031710356864.pdf>

first test. The first test is based on calculating the average and Standard Deviation for each set of Branch Group data. Then if the minimum Scheduled Net Interchange value for a Branch Group deviated significantly from the average value for that Branch Group then the second test was applied to that Branch Group. It is assumed that the data fit a normal distribution and that 95% of the samples should be within 2 Standard Deviations of the average. Therefore, a significant deviation from the average would be at least two Standard Deviations. However, because of the small number of samples a less restrictive test was applied, and a significant deviation from the average was assumed to be a deviation of more than 1.3 Standard Deviations from the average (80% of the samples should be within 1.3 Standard Deviations of the average). (Appendix 2, p.2)

- *Supplemental Deliverability Study*⁴
 - The *Supplemental Deliverability Study* describes three refinements to the initial import level (established in Appendix 2 above). The Supplemental Study addresses consideration of existing resource contracts, the effect of expiring Existing Transmission Contracts, and the effect of East of River short-term upgrades. These changes result in MIC increases at certain interties relative to the initial import levels determined in the prior steps.

The ISO deliverability assessment process is also described in the *ISO On-Peak Deliverability Assessment Methodology for Resource Adequacy Purposes*.⁵ In addition, the following report provides detailed information about this process: *Preliminary Deliverability Baseline Analysis Study Report, Appendix 1: Generation and Import Deliverability to the Aggregate of Load (Baseline) Study Methodology, Executive Summary, 4/8/2005*.⁶

Revising the RA import capability methodology was previously identified in the ISO's market initiatives roadmap process as a desirable market enhancement and is currently listed in the Revised Catalogue of Market Design Initiatives dated October 18, 2010. The excerpt from the catalog is shown below.

9.9 Allocation of RA Import Capacity (D)

The allocation of RA Import Capacity among market participants is currently prioritized by the allocation made in the prior year. This approach, similar to CRR allocations, is illogical because it locks in such allocations based on past data without requiring ongoing support to demonstrate the going-forward merit of these allocations. Over time, this process disadvantages market participants who wish to acquire out-of-state resources that could otherwise lower the cost of energy supply into the CAISO, since the RA capacity value may not be realized. SDG&E proposes that the CAISO implement a process whereby RA Import Capacity is allocated among market participants based on demonstrable need or benefit to the overall market.

⁴ September 23, 2005 -- *Import Levels for RA Planning Purposes, Explicit Consideration of Existing Resource Contracts, Expiring Transmission Contracts, and East of River Short-Term Upgrades*, <http://www.caiso.com/docs/2005/09/23/20050923165719616.pdf>.

⁵ *ISO On-Peak Deliverability Assessment Methodology for Resource Adequacy Purposes*, Updated 4-10-2009, <http://www.caiso.com/23d7/23d7e41c14580.pdf>.

⁶ <http://www.caiso.com/docs/2005/05/03/200505031708566410.pdf>.

4. Issue to be Addressed

Under the current MIC calculation methodology, some interties to the ISO control area currently have extremely low or even zero MIC values. Some stakeholders contend that an unnecessarily low MIC value can prevent LSEs and renewable developers from negotiating bilateral contracts for energy and capacity from projects outside the BAA. For example, a zero MIC value means that no LSE will be able to utilize the intertie for delivery of RA capacity, and therefore no RA revenue streams are available to projects that would schedule energy at those interties, even though the projects might otherwise be more desirable than some projects inside the ISO BAA that are able to offer RA capacity. Moreover, some of these external projects are located in areas rich in renewable energy potential, which could be used by LSEs to meet the requirements of the state RPS,⁷ including the 20% and 33% energy goals. The present effort is intended to develop an improved MIC methodology that would allow for increased import capability where warranted. With increasing renewable development expected outside the ISO BAA, the ISO expects increased interest in such expansion of RA import capability beyond the levels determined by the current historical-based MIC approach.

5. Next Steps

The ISO will host a stakeholder conference call on March 22 from 3:00 to 4:30 p.m. to discuss this issue paper and answer any questions that stakeholders may have. Stakeholders are encouraged to submit written comments on the issue paper to RAimport@caiso.com by close of business March 29, 2011. Prior to the stakeholder conference call, the ISO will post a template that stakeholders should use when submitting written comments. The ISO will post the written comments that it receives to the following web address by March 31 <http://www.caiso.com/2b42/2b42b9378530.html>. The ISO will consider stakeholder comments as it prepares a straw proposal, which is scheduled to be posted on April 6.

⁷ RPS Program, <http://www.cpuc.ca.gov/PUC/energy/Renewables/>.