Phase III Generation Deliverability Study
Study Plan

Background and Purpose of Study

Phases I & II Generation and Import Deliverability Studies were completed that established the deliverability of all existing and part of generation projects in the CAISO interconnection queue. The Phase I study included generation projects expected to be commercially operating during summer 2006 while Phase II focused primarily on new generation projects to be commercially operating after 2006 (up to queue number 92 in CAISO interconnection queue). However, as the new interconnection requests are gradually added to the queue, there are a number of new interconnection requests for which the Deliverability Assessments were not covered in the Phase II study.

Starting from Phases I & II results, CAISO continue to perform Deliverability Assessment as required by LGIP tariff language. In this Phase III study, generation interconnection requests from queue number 93-130 are the main focus of Deliverability Assessment.

As a reminder, the Deliverability Study Methodology focuses on the Summer Peak load period, when the need for generation capacity is the greatest. The following excerpt from the Deliverability Study Methodology further characterizes the focus of the deliverability study methodology and its limitations.

“[A] generating facility’s interconnection should be studied with the ISO Controlled Grid at peak load, under a variety of severely stressed conditions to determine whether, with the generating facility at full output, the aggregate of generation in the local area can be delivered to the aggregate of load on the ISO Controlled Grid, consistent with the ISO’s reliability criteria and procedures. (This definition for deliverability comes from the FERC interconnection order, and this methodology for assessing deliverability has been developed from consultation with PJM officials about their already-established practices.)”

In addition, the ISO recommends, based on guidance in FERC Order 2003, that the deliverability of a new resource should be assessed on the same basis as all other existing resources interconnected to the ISO Controlled Grid.

Because a deliverability assessment will focus on the deliverability of generation capacity when the need for capacity is the greatest (i.e. peak load conditions), it will not ensure that a particular generation facility will not experience congestion during other operating periods. Therefore, other information (i.e. congestion cost analysis for all hours of the year) would be required in addition to the deliverability assessment to evaluate the congestion cost risk of energy purchase agreements, such as a take-or-pay contract with a particular generation facility.
Base Case

Study Year
This Generation Deliverability Assessment will be performed on a power flow base case modeling the year 2010. Currently, all generation projects in the study have operating dates on or before the year 2011, and the ISO Transmission Planning process develops a detailed transmission plan for a minimum of five years. Therefore, the year 2010 is a good study year choice for the Annual Generation Deliverability Baseline analysis. As such, these Deliverability results will ensure the deliverability of generation for only the year 2010 modeling assumptions described in this study plan. For example, there may be a planned transmission project with initial operation in 2009, and without this project in-service, a particular generation project may not be deliverable. However, for generators in this study that go into service between 2007 and 2009, System Impact Studies (SIS) have been performed that should adequately assess their deliverability in earlier years.

New Generation Projects to be included
All new generation projects, with a queue number between 93-130 should be modeled in the study. New generation projects connected to the distribution system, but large enough to impact the transmission system should also be explicitly modeled on the electrically closest transmission bus.

New Transmission Projects to be included
All ISO approved transmission projects expected to be operational by 2010 should be modeled in the base case. Transmission mitigation plans to mitigate deliverability problems identified in the Phase I and Phase II deliverability studies should also be modeled in the base case. In addition, all reliability and delivery transmission projects identified in generation interconnection studies for generation projects modeled should be included in the base case if they are needed to mitigate impacts identified under summer peak load conditions. If several alternative projects were identified in the SIS that solve the same summer peak problem, and the generation developer has not yet selected a preferred option, then the project with the lowest expected cost that resolves the overload should be modeled, and noted in the case documentation. All transmission projects to mitigate non-summer peak congestion problems, already committed to by generation developers should also be modeled. Each of the PTOs will ensure that these projects are accurately modeled in the base case that they return to the ISO. A list of new transmission projects included in the base case along with their approval history should be provided to the ISO.

Transmission Facility Ratings
The PTOs will ensure that transmission facility ratings are identical to ratings in the ISO transmission register. ISO approved Planned Transmission facilities upgrades that will increase the existing facility rating should be modeled in the base case. A list of new projects, including reconductorings and reratings, included in the base case, should be provided to the ISO.
Load Modeling
A coincident 1-in-5-year heat wave, ISO Control Area load will be modeled in the base case. Each of the PTOs will modify the load in their area of the starting base case to be 96% of their areas coincident 1 in 5 year heat wave load level. The 96% represents a diversity factor to convert the three area peak load levels to a coincident ISO peak load level.

Generation Capacity (Pmax) and behind the meter load in the base case
The generation capacity values used in the Phase II baseline study will also be used for this study unless more accurate data is available. Wind generation Pmax data will be updated using available data for the maximum production during summer peak load hours used to calculate the average production for Qualified Capacity valuation. The generation capacity values used in the Phase II study should be modeled in the base case.

Generation Dispatch in the base cases
Existing generation previously determined to be deliverable should be dispatched similar to the Phase II deliverability base case. New generation in the interconnection queue should be dispatched to balance load and resources. During the study, new generation will be grouped geographically and dispatched together in geographic groups, at a level similar to the existing generation, to balance loads and resources in the base case. Several base cases may be needed to assess the deliverability of each of the generation groups. In all cases, all new generation modeled should be available to be dispatched to full output, based on the study methodology, during the study.

Import Levels
The import level should be based on the historical level of imports determined to be deliverable in the Phase II baseline study.

The Study

Contingencies to be analyzed
The PTOs will provide contingency files with all NERC Category B, C.5 contingencies, and WECC-S2 contingencies on the 500 kV system (common corridor 500 kV lines) in a computer readable format along with a description of the format. The contingency files should include accurate modeling of all existing and ISO approved RAS/SPS assuming generation is at full output. The contingency files should be tested by the PTOs on the base case that they provide to the ISO for this study, to ensure that they are consistent. Updated detailed descriptions of the RAS/SPS included in the contingency files should also be provided by the PTOs.

Study Methodology
The study methodology is described in Generation and Import Deliverability to the Aggregate of Load (Baseline) Study Methodology on the ISO Website http://www.caiso.com/docs/2005/05/03/200505031708566410.pdf.
Study Results
Generating units that do not pass the deliverability test will be identified. For each overloaded facility identified, the Deliverability Study methodology and tools will provide a list of all new generation units responsible for that overload. This list can then be ranked by queue position and units can be removed sequentially (last on, first off) until the overload is eliminated. The units removed would not pass the deliverability test.

The ISO will also include in the study results, for PTO and stakeholder review, new conceptual transmission project alternatives that would allow the new generation projects to pass the deliverability test, or to correct deliverability problems that remain after all new generation projects are removed. The ISO will rely on available transmission studies, as much as possible, in the development of conceptual transmission project alternatives.

Study Schedule
CAISO anticipates completing this study by the first week of July 2007.