

Generation Interconnection Reform Initiative

Issues Identification Paper

January 18, 2008



California ISO
Your Link to Power

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This Issues Identification Paper proposal provides initial guidance and structure for the upcoming collaborative CAISO and stakeholder effort to reform the current CAISO generation interconnection process and, in particular, the management of the generation interconnection queue.

1.0 Introduction

The foundation for the current generation interconnection process was established by FERC in Order No. 2003 and its progeny. The Large Generator Interconnection Procedures (LGIP) tariff has successfully assured the open transmission access requirement for new generation Interconnection Customers (ICs). However, over the past few years, several factors, largely unanticipated at the time of Order No. 2003's adoption, including the very large number of interconnection requests for renewable generation, have imposed significant challenges to the efficiency of the present "serial" generation interconnection study approach. The CAISO currently has 173 active interconnection requests totaling 57,686 MW for a system with a historic peak of 50,270 MW. The large number of requests and high level of MW capacity in the CAISO Controlled Grid Generation Interconnection Queue (CAISO Queue) have overwhelmed available resources, led to delays and frustration with the study process, and exposed, or reinforced, fundamental deficiencies in the current LGIP.

FERC has also acknowledged the existence of challenges to the LGIP and held a technical conference on December 11, 2007 in Docket No. AD08-02-000. The CAISO participated at the technical conference and submitted prepared comments, which may be found at <http://www.aiso.com/1cb3/1cb3cf4dc520.pdf>. In these comments, the CAISO identified low barriers to entering the queue and inadequate progress milestones as material, underlying causes to the high level of commercially questionable projects that populate the current queue. It further noted that when a queue is subject to such a large number of projects that may lack commercial viability and will not ultimately come on-line, the process is infused with significant delays and uncertainty. In response to the concerns raised by the CAISO and others at the technical conference, FERC encouraged the CAISO to engage in an expedited stakeholder process to evaluate possible LGIP reforms for a potential spring filing with FERC.

In accordance with the Notice Inviting Comments issued by the Commission on December 17, 2007, the CAISO filed Post-Technical Conference Comments on January 10, 2008. In its comments, which may be found at <http://www.aiso.com/1f4a/1f4acaa38410.pdf>, the CAISO recommended possible actions the Commission could take to assist in the interconnection streamlining reform process and informed the Commission of the upcoming stakeholder process. The schedule for this stakeholder process is described in the following section.

1.1. Schedule for Stakeholder Process

January 18, 2008	CAISO posts Issues Identification Paper
January 25, 2008	Stakeholder Meeting – CAISO offices in Folsom – 9am - 5pm
January 31, 2008	Stakeholder comments due by Close of Business (COB)
February 5, 2008	CAISO posts Draft Proposal
February 12, 2008	Stakeholder Meeting (Lake Natoma Inn, Folsom, CA – 9am - 5pm)
February 19, 2008	Stakeholder comments due by COB
March 2008	CAISO Board of Governors presentation
Early April, 2008	CAISO posts draft Tariff language
Late April 2008	Stakeholder Meeting – CAISO offices in Folsom – 9am – 5pm

2.0 General Description of Reform Goals

The CAISO collaborated with the California Public Utilities Commission (CPUC), Participating Transmission Owners (PTOs), and members of the generation community in preparation for the FERC technical conference, and via the Generation Interconnection Process Reform Initiative, will continue this collaborative effort by soliciting input through a series of stakeholder meetings and conference calls to develop a final proposal for presentation to the CAISO Board of Governors and filing with FERC. Through the initial discussions, several common, but not exhaustive, objectives for the stakeholder process have been identified. These include:

- Clear the existing backlog of interconnection requests
- Develop procedures and requirements that lead to more accurate study outcomes that ensure a more efficient interconnection of resources which closely match system needs
- Provide Interconnection Customers with reasonable cost and timing certainty
- Reduce or eliminate the need for restudies
- Create greater certainty in the timing of study outcomes
- Better integrate transmission planning with the generation interconnection process
- Allow for the integration of state efforts to identify transmission needs for Energy Resource Areas (ERAs)
- Ensure that only viable projects enter the annual CAISO Transmission Planning Process (TPP)

Throughout the stakeholder process, the CAISO encourages parties to measure any proposal against these and other objectives that may be identified.

3.0 Summary of Reform Concepts

Through its preliminary discussions with interested parties and based on the presentations at the FERC technical conference, this Issues Identification Paper incorporates added or increased milestones and criteria as well as streamlining the generation process to feed directly into the annual CAISO TPP. To accomplish this, the whole paradigm of the existing LGIP, which relies on serial studies based on queue position, must be abandoned in favor of a more streamlined approach. A reformed LGIP should consider other criteria such as location, site control, availability

of material, proposed commercial operation dates (COD), Renewables Portfolio Standard (RPS) goals, ERAs, and others.

Due to the fact that the TPP is annual, and a major goal of the reformed Generation Interconnection Process is to feed viable generation interconnection projects directly into the TPP, the CAISO proposes that the Large Generation Interconnection process also be annual and that only one cluster window per year be opened for receiving Interconnection Requests (IRs). The proposed annual process would have to be completed by a certain date of each year to be considered an input into the TPP.

Alternate approach - While the CAISO believes there should only be one cluster window to enhance process efficiency, an alternative would be that more than one cluster window be opened each year. This may allow ICs to complete the LGIP process and execute an LGIA on a schedule closer to its original IR submission date. However, it is anticipated that the results of multiple cluster windows would still enter the TPP at the same time. Accordingly, multiple clusters are unlikely to accelerate the COD of any particular resource, but may possibly serve some value in the development process.

The following are considered necessary steps of a proposed reformed LGIP process. Timeframes are assumed to be Calendar Days unless otherwise noted.

3.1 Step 1 – Queue Cluster Window

Queue cluster window is opened for a period of 180 days. During this window, Interconnection Customers (IC's) would submit a completed Interconnection Request (IR) which would include all of the information currently required by the CAISO LGIP process with the following additions and clarifications:

Alternate approach would be a Queue Cluster Window less than 180 days.

- a) Identify proposed project's physical location by providing a detailed map or GPS coordinates and demonstrate proof of site control through the project's proposed COD plus three years. (The additional three years is to allow for unforeseen construction delays). Certainty of site control is necessary to assure that the project is real and not speculative.

Alternate approach would allow the IC to post a substantial deposit (i.e. \$250,000) in lieu of site control. This amount would be refundable upon proof of site control or if the IC withdraws prior to signing an Interconnection Agreement (IA). The deposit would be forfeited if the project withdraws subsequent to signing an IA. Forfeited funds would be used to reduce PTO transmission revenue requirements recovered through the Transmission Access Charge (or other use).

- b) The IC would make a \$100,000 deposit to cover costs of processing the IR and conducting phase I studies. For group studies, each project's study cost would be the total cost of the study divided by the number of projects in the group. The unused portions of the deposit will be refunded if IR is determined to be invalid or if IC withdraws project before Phase I studies are started.

Alternatives involve requiring a tiered deposit based upon size or a flat fee minimum up to a defined project size plus a \$ per MW charge above that minimum.

- c) The IC would specify their requested deliverability, either full capacity or energy only. The deliverability assessment would be performed at peak conditions in accordance with the CAISO deliverability analysis developed to implement the state's resource adequacy requirements. The CAISO believes that projects will either want to be studied at full capacity or energy only and that it is highly unlikely that a project would request partial deliverability. Full capacity in this instance refers to the maximum Qualifying Capacity of a particular resource technology type under counting protocols adopted by the CPUC or Local Regulatory Authorities. However, for wind resources, the entire range of historic output used in the counting protocols should be considered in the deliverability studies.

Alternative would be to allow a percentage of deliverability, however any justification for this is not apparent to the CAISO.

- d) Each IC would submit all required technical data with their IR. Lack of technical data has been a cause for delays in the serial study process and likewise will delay completion of individual and group studies under a clustered approach. Accordingly, wind developers would no longer be able to submit their detailed electrical design specifications and other technical data requirements six months after submission of the IR as is now permitted under Order No. 661.
- e) The IC would identify the project's preferred Point of Interconnection (POI) and preferred voltage level. IC would only identify one POI in the IR, however this POI may change during the Scoping Meeting .

3.2 Step 2 – IR Validation

IRs are processed and validated by the CAISO and the IC is notified of any deficiencies and given an opportunity to correct them. It is anticipated that this step will be completed within 30 days after receipt of an IR with time based milestones for both the CAISO and the ICs. All IRs must be validated within 30 days of the close of the cluster window. Validation will include all components of the IR, including technical data. Any IR not validated within the allowable timeframe will be deemed withdrawn.

3.3 Step 3 – Scoping Meetings

CAISO conducts a scoping meeting with each IC within 30 days after the IR is deemed valid. During the scoping meeting the following will be discussed:

- a) Feasibility of POI. IC will have a predetermined period of time after the scoping meeting to notify the CAISO of their decision on the POI.
- b) Feasibility of COD - Developer would provide a schedule outlining key milestones such as environmental survey start date, expected EIR submittal date, expected procurement date of project equipment, back-feed date for project construction, and expected project construction date. This will help in determining if CODs are realistic as any required direct interconnection facilities must be included in project EIR and will allow the CAISO to track progress moving forward. If major direct interconnection facilities are needed, such as telecomm to support possible SPS, distribution feeders to support back feed, new substation, and/or expanded substation work, permitting and material procurement lead times may result in not meeting proposed COD. If it is determined that the requested COD is not feasible, parties may agree to a new COD. The IC must notify the CAISO within a specified period of time following the scoping meeting if the new COD is acceptable.
- c) Possible study scenarios

3.4 Step 4 – Project Grouping / Base Case Development / Study Plans

CAISO/PTO groups projects and develops base cases for Phase I studies within 30 days of completion of scoping meetings. (Phase I scope and deliverables are discussed in Step 6).

- a) The CAISO/PTO would group projects based on their interconnection points and shared transmission needs using good engineering judgment. The rationale for the groups and associated draft study plans would be presented to ICs.

An alternative would be that in addition to the above rationale, COD would be considered. A group could be divided into two or more sub groups based on average queue date or weighted average queue date or average COD.

- b) One base case will be developed for each group or individual project study. In most instances this will likely be the peak or heavy load case selected by mutual agreement of the CAISO and the PTO.

3.5 Step 5 – Phase I Study Agreements

Phase I Study Agreement Execution (Total Time for this step is 30 days):

- a) CAISO provides final study plans and agreements to ICs for execution within a specified period of time.
- b) ICs must return signed agreements within a specified period of time or project is withdrawn from the queue and the deposit is returned minus any accrued administrative costs. It is an objective that this study agreement also cover Phase II if the IC elects to proceed with Phase II so as to avoid the administrative effort associated with multiple study agreements.

3.6 Step 6 – Phase I Studies

CAISO/PTO conducts Phase I Studies within 90 days consisting of the following analyses and deliverables:

- a) Phase I Study will be a screening study consisting of a Deliverability Assessment evaluating summer peak conditions and a short circuit study. The Deliverability Assessment will identify thermal overloads at summer peak conditions to be mitigated, and the deliverability level of each project within the cluster.

The CAISO will identify Delivery Network Upgrades in performing the Deliverability Assessment. The Deliverability Assessment study process will continue to involve a coordinated effort between the CAISO and PTOs to build the cluster base cases, with the CAISO directing the process.

The PTOs will identify Reliability Network Upgrades in performing the short circuit study.

No stability studies will be conducted in Phase I.

- b) PTO's will develop the Reliability and Delivery Network Upgrades cost responsibility for each IC at their selected deliverability level. The cost allocation would be based on a simple subscription pro rata MW capacity of all generators in a group who would benefit directly or indirectly from Network Upgrades made to the system. The reason for this is to permit this study phase to be completed in an expedited manner. Other approaches generally inject greater complexity, which may jeopardize the goal of streamlining the process. Another approach that could work for radial systems is to make the groups more granular (i.e. form smaller sub-clusters) whereby each sub-group is responsible only for upgrades in its own group and downstream groups.

Alternative would be that estimating cost responsibility could consider utilizing Generation Shift Factor concepts.

- c) Determine actual POI (may change from IC's selection). CAISO may determine that an Interconnection Grid Substation (IGS) is needed. The IGS cost responsibility would be as follows:
1. If connected to at least two separate transmission network substations, IGS will be considered a Network Upgrade
 2. If connected to only one substation, the IGS and all radial facilities interconnecting it to the CAISO Controlled Grid would be considered Interconnection Facilities
 3. If the IGS is used to connect multiple projects owned by multiple IC's to the CAISO Controlled Grid, then costs may be covered by the CAISO Location Constrained Resource Interconnection Facility (LCRIF) tariff

3.7 Step 7 – Phase I Results Meetings

Within 30 days following Phase I Studies, the following would be completed:

- a) CAISO meets with each IC and informs them of their cost responsibilities for Network Upgrades at their requested deliverability level. These costs would not be binding but provided as essential information for ICs to determine interest to proceed to Phase II Studies or withdraw.

Alternative would be that the cost responsibility for Network Upgrades would be binding and would not be adjusted after the Phase II Studies

- b) IC must make an additional \$250,000 deposit and sign an agreement to continue on to Phase II studies or project would be withdrawn. Deposit to be used for the second phase studies and any excess will be refunded if project withdrawn or at the execution of the IA.

Alternatives involve requiring a tiered deposit based upon size or to charge a flat fee minimum up to a defined project size plus a \$ per MW charge above that minimum.

Also, to be consistent with the earlier alternative of allowing an IC to post a substantial deposit (i.e. \$250,000) in lieu of site control, it may be prudent to require an additional substantial deposit (i.e., \$250,000) at the Phase II stage if site control still has not been established. Similar to the prior deposit, this amount would be refundable upon proof of site control or if the IC withdraws prior to signing an Interconnection Agreement (IA). The deposit would be forfeited if the project withdraws subsequent to signing an IA. Forfeited funds would be used to reduce PTO transmission revenue requirements recovered through the Transmission Access Charge (or other use).

3.8 Step 8 – Phase II Studies

CAISO/PTO will update base cases (assuming some projects may have withdrawn after Phase I Studies are completed) and complete Phase II studies within 120 days for those ICs who continue. Phase II Studies will include the following analyses and deliverables:

- a) The Phase II Study would be a more detailed study, including a stability study and post-transient study (as needed), and would include both an on-peak and an off-peak case (severe or extreme case) to evaluate the conditions when congestion may be most severe.

The CAISO will identify Delivery Network Upgrades in performing the power flow study and Deliverability Assessment. The Deliverability Assessment study process will continue to involve a coordinated effort between the CAISO and PTOs to build the cluster base cases, with the CAISO directing the process.

The PTOs/ISO will identify Reliability Network Upgrades in performing short circuit (PTO) and stability studies (ISO).

- b) PTO's will develop the Reliability and Delivery Network Upgrades cost responsibility for each IC at their selected deliverability level. The cost allocation would be based on a simple subscription pro rata MW capacity of all generators in a group who would benefit directly or indirectly from Network Upgrades made to the system. The reason for this is to permit this study phase to be completed in an expedited manner. Other approaches generally inject greater complexity, which may jeopardize the goal of streamlining the process. Another approach that could work for radial systems is to make the groups more granular (i.e. form smaller sub-clusters) whereby each sub-group is responsible only for upgrades in its own group and downstream groups.

Alternative would be that estimating cost responsibility could consider utilizing Generation Shift Factor concepts.

3.9 Step 9 – Phase II Results Meetings / IA Execution

Within 60 days following Phase II Studies, the following would be completed:

- a) CAISO meets with each IC and informs them of their total cost responsibilities for Network Upgrades at their requested deliverability level and an estimate of Interconnection Facilities costs. These costs would be binding as essential information for ICs to determine interest to proceed to the Interconnection Agreement phase or withdraw.
- b) IC enters into Interconnection Agreement (IA) knowing its total cost responsibility for Network Upgrades and its estimated costs for Interconnection Facilities or drops out
- c) IC works with CAISO and PTO to select a reasonable COD

- d) CAISO, PTO, and IC execute the IA
- e) Upon execution of the IA, the IC posts two Letters of Credit (LOC) for:
 - 1. Total cost responsibility of Network Upgrades
 - 2. Estimated cost of Interconnection Facilities to be converted to cash as required to fund construction of Interconnection Facilities.
- f) Financing of Network Upgrades
 - Option A: PTO funds Network Upgrades identified through the TPP
 - Option B: The IC may be required to replace all or a portion of the LOC with cash when construction starts so that the IC funds the Network Upgrades identified through the TPP up to the limit of its LOC.
 - Option C: If the IC's project is located in an ERA for that resource type, Option A applies. If not, Option B applies.
- g) If IC withdraws project at anytime between IA execution and COD, all amounts posted toward Network Upgrades would be forfeited and used to offset the transmission revenue requirements of PTOs to reduce the Transmission Access Charge (TAC)
- h) That portion of the IC's LOC or funds that covers Network Upgrades would be released or refunded to the IC when its project declares COD

Alternative would be that release of Network Upgrades LOC or funds would be over a negotiated period of time
- i) Amounts posted for Interconnection Facilities will be used to the extent necessary in building the Interconnection Facilities. True-up will be performed after the Interconnection Facilities are completed.
- j) An IC may be required to post additional financial commitments for Interconnection Facilities or may receive a refund depending upon actual Interconnection Facilities costs. The IC remains responsible for the full cost of Interconnection Facilities.
- k) If an IC withdraws project at anytime between IA execution and COD, the IC is responsible for any costs incurred by the PTO to construct Interconnection Facilities, any excess will be refunded to the IC.

3.10 Step 10 – Transmission Planning Process

CAISO conducts Transmission Planning Process (TPP)

- a) Final plan of service is determined
- b) All Network Upgrades would be approved by the CAISO to be rate-based into TAC

Under the CAISO's recently filed tariff revisions to the TPP, transmission projects may be deemed needed and therefore approved for inclusion in TAC where the projects are necessary to resolve a reliability criteria violation, promote economic efficiency, preserve the feasibility of allocated Long-term Congestion Revenue Rights or constitute a Location Constrained Resource Interconnection Facility (LCRIF).

1. Transmission upgrades identified in the TPP that function equivalent to Reliability Network Upgrades under the current LGIP reasonably fall within the existing reliability category for need determination.
 2. Delivery Network Upgrades may or may not promote economic efficiency as currently characterized in the CAISO Tariff. It may be necessary to develop an additional need justification based on satisfying deliverability requests included in executed LGIAs. Questions regarding this possible category include whether to include some type of "economic test" so that ratepayers are not bearing the burden of transmission costs that are disproportionate to the benefits derived from the deliverable capacity of a particular IC.
- c) After final plan of service is determined, LGIAs will be amended to reflect actual facilities and any additional technical requirements for generators to actually go on-line.
 - d) Adjust LOC for Interconnection Facilities if necessary

3.11 Proposal Timeline

180 days	Step 1	Queue Window Open
1-30 (30 days)	Step 2	IR Validation
31-60 (30 days)	Step 3	Scoping Meetings
61-90 (30 days)	Step 4	Project grouping / Base Case Development / Study Plans
91-120 (30 days)	Step 5	Phase I Study Agreements
121-210 (90 days)	Step 6	Phase I Studies
211-240 (30 days)	Step 7	Phase I Results Meetings / Phase II Study Agreements
241-360 (120 days)	Step 8	Phase II Studies
60 days	Step 9	Phase II Results Meetings / IA Execution
	Step 10	Transmission Planning Process

4.0 Proposal for Clearing the Existing Queue Backlog

- 1) Suspend all work on projects that have not completed an Interconnection System Impact Study (ISIS)
- 2) Seek approval to apply methodology proposed in Section 3.0 to these projects as part of a retroactive cluster.
- 3) IC's that have completed an ISIS have the option to continue under the current LGIP Tariff or be included in the retroactive cluster.

5.0 Topic Breakdown for the Stakeholder Process

- 1) General Proposal Overview
- 2) Clustering
 - a. Number per year
 - b. Length of Queue Cluster Window(s)
- 3) Interconnection Request Requirements & Validation
 - a. Deposit
 - b. Technical Data
 - c. Deliverability choices
 - d. Site Control
 - e. COD feasibility (Identification of key milestones in 3.3 b))
- 4) Project grouping methodology
 - a. Location/Interconnection points
 - b. Interconnection voltages
 - c. Option to be studied individually

- d. Base Case Development
- 5) Studies
 - a. Roles and Responsibilities for performing studies (Phase I / Phase II)
 - b. Study scope and deliverables
 - c. Methodology for determining Network Upgrades
 - d. Timelines
 - e. Phase II Deposit
 - f. Project changes/modifications (e.g., capacity, machine data, configurations, etc.)
- 6) Integration into Regional Planning Process
 - a. IA execution
 - b. LOCs
 - c. Funding of Network Upgrades
- 7) Retroactive application of methodology
- 8) Other Issues