Issue Paper

Generator Interconnection Procedures Phase 2

February 24, 2011
Market and Infrastructure Development

Issue Paper
Generator Interconnection Procedures Phase 2

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1. Introduction

With this issue paper, the ISO initiates its Generator Interconnection Procedures Phase 2 ("GIP-2") stakeholder process to develop needed enhancements to its interconnection procedures. The specific topics the ISO is considering for inclusion in the GIP-2 scope come from several sources.

- First, In the course of last year's GIP stakeholder process, which harmonized and improved the small and large generator interconnection procedures into a single process and received the Federal Energy Regulatory Commission's ("FERC") conditional approval on December 16, 2010,[1] stakeholders and the ISO identified additional issues that warrant further consideration but could not be addressed at that time. The ISO listed these issues in Section 8 of its draft final proposal for the 2010 GIP initiative.[2]
- Second, the ISO's revised transmission planning process ("RTPP") (filed with FERC in June 2010 and conditionally accepted on December 16, 2010)[3] included significant steps toward greater integration between the generator interconnection and transmission planning processes, and also identified and deferred some interconnection policy issues for resolution in the 2011 GIP 2 initiative.
- Third, as the ISO has been negotiating large generator interconnection agreements ("LGIAs")[4] over the past few months with interconnection customers ("ICs) and participating transmission owners ("PTOs"), the parties to these LGIAs have identified needs for new LGIA provisions which the ISO viewed as appropriate but could be adopted only as non-conforming provisions absent a stakeholder process to amend the pro forma LGIA.
- Finally, individual stakeholders have identified other desirable GIP changes outside of the three processes mentioned above.

The ISO believes that the entire set of topics derived from the sources mentioned above will be too large to complete in the GIP-2 time frame. Specifically, the ISO wants to complete the development of high priority GIP-2 changes in time for an August 24-25, 2011 decision by its Board of Governors, followed by a tariff filing in time to obtain a FERC order in early December 2011. This timetable is important for a number of reasons. First, it will enable parties that will be negotiating LGIAs in the latter part of 2011 to utilize the new provisions, which will be much more efficient and consistent than incorporating similar non-conforming LGIA provisions in multiple LGIAs. Second, it will provide much greater certainty regarding FERC's acceptance of these new provisions if they become part of the tariff and pro forma LGIA. Third, it will allow for more timely LGIA execution for ICs that intend to qualify for federal American Recovery and Reinvestment Act grants by completing required milestones by the end of 2011. Accordingly, the ISO is proposing a GIP-2 scope that includes topics that were identified in the 2010 GIP initiative as highest priority, committed to in the context of the RTPP, or will be needed for LGIAs negotiated later this year. Section 3 of this issue paper presents a list of the topics potentially to be included in the scope of the GIP-2 initiative. Section 4 provides detailed descriptions of the topics that the ISO proposes be considered for the scope of GIP 2. Within

[1] *Order Conditionally Accepting Tariff Revisions* 133FERC¶61,223 (December 16, 2010) (large and small generator interconnection projects to be studied together using cluster approach)

[2] The GIP draft final proposal is posted on the ISO website at http://www.caiso.com/27d9/27d91299c74670.pdf.

[3] 133FERC¶61,224 FERC Order on RTPP

[4] The GIP 2 changes that would result from this stakeholder initiative would be incorporated into LGIAs or Small Generator Interconnection Agreements ("SGIAs"), or both, as appropriate.

section 4 the ISO has flagged certain topics as considered high priority by the ISO. These topics have the text "(Considered High Priority by ISO)" in the title description to inform stakeholders of the relative importance the ISO assigns at this point in time to these topics. Section 5 describes two topics that the ISO proposes be deferred to a future GIP stakeholder initiative.

The ISO notes that a scope of topics for discussion during GIP 2 will be identified after receipt of stakeholder comments on March 10. The ISO will work with stakeholders on these topics and try to bring as many of these topics as possible to the Board meeting on August 24-25. However, it may come to be that some of the topics will not be ready to go to the Board on August 24-25. If this turns out to be the case for some topics, then those topics will be deferred to a subsequent GIP stakeholder initiative.

It is important to realize that deferral of a topic at this time does not mean indefinite deferral. The ISO is committed to steadily improving its GIP to reflect changes in the industry and in the needs of its ICs. The ISO therefore intends to conduct subsequent GIP enhancement initiatives, even annually if needed to keep pace with an electricity sector that is evolving more rapidly than ever before. These industry changes are being triggered by several factors, most notably California's aggressive renewable portfolio standards, greater performance capabilities and commercial viability of emerging technologies, and the incentives and stimuli offered by the federal American Recovery and Reinvestment Act.[5] In 2008, the ISO implemented fundamental generator interconnection reforms that, among other things, abandoned the prior serial study approach in favor of a new cluster approach and introduced new financial security provisions intended to reduce the then-existing project backlog and provide developers with greater cost and schedule certainty.[6] The ISO followed up these reforms in September 2009 with additional modifications that recalibrated the financial security posting provisions to align better with existing economic conditions. In August2010, the ISO obtained authority to waive financial security postings for network upgrades funded by PTOs.[7]

Most recently, in October 2010, in response to a proliferation of small generation interconnection requests, the ISO filed a proposal to combine its small and large generation interconnection study process into a single cluster study approach, which FERC approved in a December 16, 2010 order. This reform will significantly streamline the overall interconnection study process and provide greater cost and schedule certainty to small generators, which now account for over 3,000 MW of renewable resources in the ISO's current interconnection queue.

Thus, given the large list of potential topics for consideration with stakeholders, many if not all of which could lead to GIP enhancements, the present GIP-2 initiative should not be viewed as the final opportunity to obtain beneficial improvements to the GIP, but only as a significant effort to address the most urgent needs. As described in the next section, the ISO is seeking comments from stakeholders on how it proposes to scope GIP-2.

[5] http://www.energy.gov/recovery/
[6] *Order Conditionally Approving Tariff Amendment* 124FERC¶61,292 (September 26, 2008) (generator interconnection reform tariff amendment to study projects in clusters)
[7] 132FERC¶61,132 FERC Order on waiver of tariff provisions

2. Proposed Stakeholder Process and Next Steps

The ISO proposes the following timeline of activities to complete the GIP-2 issues and receive a FERC ruling before the end of 2011.

Feb 24, 2011	Post Issue paper
Mar 1	Post agenda and presentation for March 3 meeting
Mar 3	**Hold stakeholder meeting**
Mar 10	Receive stakeholder written comments on issue paper
Mar 14-18	Work group meetings
Apr 14	Post straw proposal
Apr 26	Post agenda and presentation for April 28 meeting
Apr 28	**Hold stakeholder meeting**
May 5	Receive stakeholder comments on straw proposal
May 9-13	Work group meetings
May 27	Post final draft proposal
Jun 1	Post agenda and presentation for June 3 meeting
Jun 3	**Hold stakeholder meeting**
Jun 6-10	Work group meetings
Jun 10	Receive stakeholder written comments on final draft proposal
Jun 30	Post revised draft final proposal
Jul 5	Post agenda and presentation for July 7 meeting
Jul 7	**Hold stakeholder meeting**
Jul 11-15	Work group meetings
Jul 14	Receive stakeholder written comments on revised draft final proposal
Aug 24-25	Present proposal to ISO Board of Governors
Aug & Sep	Work with stakeholders on tariff language
Oct 1	File tariff language at FERC
Dec 1	Order issued by FERC (60 days after Oct 1 filing)

A new web page has been created for this initiative and can found with the following link: http://www.caiso.com/2b21/2b21a4fe115e0.html.

As noted in the introduction, this issue paper offers the ISO's proposed scope of the GIP-2 initiative. The immediate next steps, then, are for stakeholders to consider this proposed scope as well as the detailed descriptions of the proposed GIP-2 topics, and to offer comments both in the discussion at the March 3 meeting and in written form by March 10. The ISO requests that stakeholders comment on whether any important topics have been omitted from the proposed scope and should be included, or whether any topics the ISO proposes to include should be deferred, or whether any of the detailed topic descriptions need to be revised. In all cases the comments will be most useful if parties clearly explain the business rationale for their recommendations. The ISO will consider these comments in preparing its straw proposal for release on April 14, and at that time will provide stakeholders with both its final selection of topics for the GIP-2 scope and its initial straw proposals for addressing each of the topics.

In addition to the four stakeholder meetings scheduled, the ISO intends to form work groups to assist with GIP development. Work groups will be led by ISO staff and will be tentatively set up in the following manner – subject to stakeholder input on the issue paper and March 3 meeting:

Work Group 1 - LGIP/LGIA Cost Assessment Provisions Lorenzo Kristov lead

Work Group 2 - LGIP Queue and Study Process - Bob Emmert lead

Work Group 3 - LGIP Non-Conforming Provisions, Grandfathered Resources and Site Exclusivity - Bruce McAllister lead

Work Group 4 - LGIP/LGIA Interconnection Cost and Security Requirements - Bill Dicapo lead

Work Group 5 - LGIP Technical Assessments - Songzhe Zhu lead

The ISO requests that stakeholders provide input on whether these work groups are a logical breakout of the topics, and whether the GIP topics that have been placed under each work group in this issue paper are appropriate for that work group.

Due to the compressed nature of the initiative schedule, these work groups will have a limited opportunity to schedule meetings and stakeholders may not be able to attend all meetings. If someone elects to participate in a work group, the ISO expects that person to attend the meetings and participate in development efforts to include:

- Writing assignments
- Research and development of solution options
- Presentation at stakeholder meetings.

Stakeholders are asked to send an e-mail to the ISO following to the March 3 stakeholder meeting stating the work group or work groups that they would like to participate in.

Prior to the March 3 stakeholder meeting, the ISO will post a template for stakeholders to use to submit their written comments by March 10. The template will provide criteria for stakeholders to rank each of the topic discussed in this issue paper. The ISO requests that stakeholders use the following criteria to rank topics: a score of 3 would be used for topics that are high priority and urgent; a score of 2 would be used for topics that are high priority but not urgent (i.e., topic could wait until next GIP stakeholder initiative after GIP 2); a score of 1 would be used for topics that have low priority; and a score of 0 would be used for topics that are considered to be "don't bother with this topic."

3. Topics Potentially to be included in GIP-2 Scope

This section lists the topics that will be considered in this initiative in determining the scope of the GIP 2 initiative. The list is divided into 19 topics that the ISO proposes be considered as potential topics to be included in GIP 2, as well as two topics that the ISO proposes be deferred for now and considered as items that may be addressed in a future GIP stakeholder process. The ISO requests that stakeholders provide input to the ISO, using the posted stakeholder comments template, on their views regarding which topics should be considered in GIP 2, including their thoughts on potentially deferring the last two topics.

The ISO proposes the following topics for the scope of this GIP-2 initiative. More detailed descriptions of these topics are provided in section 4 below, including the ISO's view of which of these topics are considered to be high priority topics that should be addressed now in GIP 2 and taken to the Board if possible on August 24-25. .

1. Develop procedures and tariff provisions for cost-benefit assessment of network upgrades to enable the ISO to avoid imposing high GIP-related upgrade costs on

ratepayers when the benefits do not justify the costs, and to provide incentives to ICs to choose efficient interconnection locations;

2. Clarify IC cost and credit requirements when associated GIP network upgrades are reassessed and modified in the transmission planning process (per the new RTPP provisions);
3. Provide additional transparency regarding PTO transmission cost estimation procedures and per-unit upgrade cost estimates;
4. Clarify applicability of GIP for a generator connecting to a non-PTO that is inside the ISO Balancing Area Authority (BAA) and wants to have full capacity deliverability status;
5. Explore potential modifications to the triggers that establish the deadlines for IC financial security postings;
6. Clarify definitions of start of construction and other transmission construction phases, and specify posting requirements at each milestone;
7. Clarify ISO information provision to assist ICs;
8. Consider partial capacity as an interconnection deliverability status option;
9. Develop pro forma partial termination provisions to allow an IC to structure its generation project in a sequence of phases specified in the LGIA and to subsequently terminate one or more subsequent phases of its project after the first without terminating the entire LGIA. Partial termination provisions are currently being included in several non-conforming LGIAs;
10. Provide for partial repayment of IC funding of network upgrades upon completion and commercial operation of each phase of a phased project (companion to previous item);
11. Eliminate the uncertainty and administrative burden associated with applying Section 25 of the tariff to conversions of grandfathered generating units to compliance with ISO tariff;
12. Clarify site exclusivity requirements for projects located on federal lands;
13. Specify appropriate security posting requirements where the PTO elects to upfront fund network upgrades;
14. Revise ISO insurance requirements (downward) in the pro forma LGIA to better reflect ISO's role in and potential impacts on the three-party LGIA;
15. Clarify posting requirements for an IC that is already in operation and is applying only to increase its MW capacity;
16. Standardize the use of adjusted versus non-adjusted dollar amounts in LGIAs – currently different conventions are used by the different PTOs;
17. Clarify how GIP applies to storage facilities and behind-the-meter expansion of existing facilities;
18. Conform technical requirements for small and large generators to a single standard, and develop study methodology to determine voltage impacts pursuant to FERC's 2010 order on ISO's proposed new interconnection standards; and
19. Revisit tariff requirement for off-peak deliverability assessment.

The ISO proposes that the following two topics not be included in the scope of this GIP-2 initiative as they are potentially of a lower priority than other topics.

1. Include operation impacts in assessing generator interconnection impacts; and
2. *Revise provisions for transferring queue position to a new IC.*

More detailed descriptions of these two topics are provided in section 4 below. The ISO requests that stakeholders provide input to the ISO, using the posted comments template, on their views regarding these two topics and whether these topics should be included in the scope of GIP 2.

4. Topics proposed be considered for the Scope of GIP 2

This section provides more detailed discussion of the 19 GIP-2 topics listed above, grouped into categories related to work group classification.

4.1. Work Group 1 - LGIP/LGIA Cost Assessment Provisions

4.1.1. Economic cost-benefit evaluation for network upgrades-(Considered High Priority by ISO)

In its compliance with FERC Order 2003, the ISO proposed an economic test for LGIP network upgrades to enable the ISO to determine whether or not to approve and how to allocate the costs of high-cost upgrades where the benefits to ratepayers are relatively small. In its order on the ISO's filing FERC rejected the proposed economic test on the grounds that the ISO did not provide sufficient details for the Commission to evaluate it. FERC's rejection was "without prejudice," meaning that the ISO could resubmit, and FERC would consider, an economic test as an amendment to the LGIP at a later time based on additional details and specificity. Importantly, FERC's order did not indicate any fundamental disagreement with the need for or appropriateness of an economic test.[8] In the GIP-2 initiative the ISO intends to reconsider the question of economic assessment of LGIP network upgrades and develop a new proposal that would remedy the shortcomings FERC identified with regard to the ISO's earlier filing.

4.1.2. Clarify IC cost credit requirements when LGIP network upgrades are modified in the transmission planning process--(Considered High Priority by ISO)

Under the ISO's transmission planning process (TPP), LGIP network upgrades may be re-evaluated for beneficial expansion of capacity or other enhancements beyond what is required by the LGIP studies. The question was raised in the context of the ISO's 2010 proposal to revise the TPP and deferred to GIP-2 as to how any such modification of LGIP network upgrades would affect the funding and credit requirements for the IC.

Tariff section 24.4.6.5 sets forth a process by which network upgrades that are identified in the LGIP Phase II studies may be assessed in the transmission planning process. The tariff describes the possible outcomes of the ISO's assessment: (1) the network upgrades that are not modified or expanded will proceed through the LGIP process to

[8] See Order Accepting in Part and Rejecting in Part Order Nos. 2003,2003-A, and 2003-B Compliance Filings, California Independent System Operator Corporation 112 FERC ¶ 61,009 at P 102-115 (July 1, 2005).

inclusion in an LGIA; (2) network upgrades that are modified or expanded in the transmission planning process and included in the comprehensive transmission plan will be constructed and owned by the participating TO if the original network upgrades "would have been included in an LGIA"; and (3) if network upgrade expansions result in the need for other upgrades and additions, the responsibility to construct and own the upgrades or additions will depend on the category of the needed elements.

Under these possible scenarios the IC's security posting amounts could change. Section 24.4.6.5 states that any modifications to LGIP network upgrades resulting from the TPP would not increase an IC's cost responsibility, and that to the extent a Category 1 policy-driven transmission element eliminates or downsizes the need for a network upgrade the IC's cost responsibility will be eliminated or reduced, respectively. In the GIP-2 initiative the ISO proposes to consider additional scenarios for how the TPP could modify LGIP network upgrades and how the IC's cost responsibility should be affected in each scenario.

4.2. Work Group 2 - LGIP Queue and Study Process

4.2.1. PTO per-unit cost estimation and methodology for allocating costs

Some IC's have stated that the per-unit cost estimates and cost-estimation methodologies provided by PTOs under the cluster process results in overstatement of costs, and that there should be further exploration of and transparency into cost estimation methodology. These stakeholders have asked that the ISO conduct a stakeholder event to discuss cost estimation methodologies used by the PTOs.

4.2.2. Generators interconnecting to non-PTO facilities in the ISO BAA

This situation can occur where a generator connecting to the facilities of a non-PTO inside the ISO BAA wishes to obtain full capacity deliverability status for the purpose of providing RA capacity to an ISO LSE. Currently the GIP is structured for generators connecting directly to the ISO grid. In GIP-2 the ISO proposes to consider how the GIP could be applied or modified to apply to such cases.

4.2.3. Triggers for Financial Security Posting Deadlines (Considered High Priority by ISO)

The current GIP provides that the final Phase I study starts the 90-day clock for posting of the first financial posting, and the final Phase II report starts the 180-day clock for making the second posting. Because of issues recently raised regarding what constitutes a "final" study report, the ISO intends to explore with stakeholders whether refinements should be made to the GIP in order to further clarify or modify the triggers that establish the financial security posting deadlines.

4.2.4. Clarify definitions of start of construction and other transmission construction phases, and specify posting requirements at each milestone (Considered High Priority by ISO)

Some customers have indicated that "start of construction" be more precisely defined and that the 100% posting requirement for start of construction be spread out so that separate and discrete postings can be made for certain regularly-defined discrete components of the transmission upgrade construction process. In addition, because the PTO will sometimes commence work early under a letter agreement (or in the form of an engineering and procurement agreement), with a security posting attached to this early work, some customers have asked for the ISO to set out a particular procedure to describe the interrelation between the letter agreement posting and the start of construction posting, with a pre-defined procedure for reducing the start of construction posting to prevent redundant posting for work secured under the letter agreement. Issues to be resolved include:

- Defining "start of construction" and other standard transmission construction phases or milestones;
- Tying posting amounts to the start of construction and these other phases;
- Clarifying posting requirements when an IC posts security in connection with other forms of agreement such as a letter agreement that may predate the LGIA.

4.2.5. Information provided by the ISO

Some stakeholders have indicated that there should be more access to current and/or updated queue or base case information. These have included requests that ISO provide information such as additional data, meeting minutes, and study availability. Currently, much of this information is kept in a secure area on the caiso.com web portal and requires a 'need to know' before access is gained. Stakeholders have also asked for maps to be available which could provide locations favorable to development or substations where additional room exists to connect projects. Stakeholders will need to weigh the sensitive nature of this information with the need for greater access.

Another item in data availability is that under Tariff section 3.6 the ISO is required to post its interconnection study reports on the ISO website. The ISO would like to clarify the tariff language so that it clearly states that the ISO will post the information to a protected ISO web site. The ISO is considering adding one word to this tariff section as shown in the following: "The CAISO shall further post to the CAISO secured [add the previous word] Website non-confidential portions of the Phase I Interconnection Study following the final Results Meeting and non-confidential portions of the Phase II Interconnection Study no later than publication of the final Transmission Plan under CAISO Tariff Section 24.2.5.2."

4.2.6. Partial Deliverability as an interconnection option

Some stakeholders have indicated that full deliverability can be cost prohibitive and have asked for the ability to reduce or eliminate deliverability network upgrades in order to receive partial deliverability status, instead of being required to choose either Energy Only or Full Capacity Deliverability status.

4.3. Work Group 3 - LGIP Non-Conforming Provisions, Grandfathered Resources and Site Exclusivity

4.3.1. Provisions for partial termination of an LGIA (Considered High Priority by ISO)

Currently, the pro forma LGIA requires the IC to put into commercial operation the full MW capacity of its facility as specified at the time it entered the Phase 2 study process.[9] In the case of a facility being constructed in phases, such that each phase may achieve commercial operation at a different time, this LGIA provision means that failure of the IC to construct one or more later phases of the project will trigger full termination of the LGIA, including termination of the interconnection status of any earlier phases and potentially substantial (or at least uncertain) financial impacts to the IC. During 2010 the ISO worked with specific ICs and PTOs to develop non-conforming "partial termination" provisions to enable the IC to terminate later phases by paying a previously-specified and secured "partial termination charge" ("PTC") and without any adverse impacts on the provisions of the LGIA for facility phases that are not terminated. The scope of interconnection requests for which the partial termination was utilized for the transition cluster projects was limited to projects where the transmission upgrades were to be built over a period of approximately 84 months in multi-year phases, in situations where the PTO had agreed to up-front fund the network upgrades. In view of the fact that more and more generation facilities are likely to utilize a phased structure in the coming years, this initiative will consider incorporating partial termination provisions into the tariff and the pro forma LGIA. Specific issues to be addressed include:

- Eligibility requirements for an IC to include partial termination provisions in the LGIA (e.g., type of generation project, time required to construct network upgrades, PTO funding of network upgrades);
- Methodology for determining the amount of the PTC when partial termination is exercised and the amount and timing of the associated security posting;
- Specific triggers for when partial termination can be exercised by the PTO or ISO, and any limitations on when the IC can exercise partial termination;

4.3.2. Repayment of IC funding for network upgrades associated with a phased generation facility (Considered High Priority by ISO)

This item is a logical corollary to the previous one. Under the Cluster LGIP, Appendix Y, Section 12.3.2, repayment of the IC's funding of network upgrades does not commence until the entire large generating facility is completed and begins commercial operation. In the context of partial termination, however, the IC may terminate one or more later phases of a phased project and never complete the entire facility as originally specified, and therefore never be eligible for reimbursement of its network upgrade funding. The ISO believes that it is appropriate to consider revising the repayment provisions to be consistent with the intent of the partial termination provisions.

[9] http://www.caiso.com/2b18/2b1876f23dfe0.pdf section 2.4.3

4.3.3. Deliverability provisions for grandfathered resources transitioning to commercial status

Under Section 25, an existing resource that is currently exempt from the ISO tariff will be subject to the interconnection process at the termination contract. However, a grandfathered resource can avoid the queue if the ISO and PTO can confirm that the "total capability and electrical characteristics of the resource will be substantially unchanged." These provisions have proven problematic in application. The question presented is whether Section 25 should be modified to explicitly apply the GIP's new independent study process to repowering proposals that meet specified criteria and thereby exempt the grandfathered resources from the interconnection process only for modifications of the its commercial status. This change would result in greater certainty as to the study process, including determining deliverability, allow for greater flexibility in the scope of repowering projects, and permit the ISO and PTOs to recover the cost of performing the necessary reliability studies.

Further review with stakeholders is necessary to ensure terms in section 25 do not pose a barrier to the repowering of existing resources previously exempt from ISO tariff requirements.

4.3.4. Clarify site exclusivity requirements for projects on federal land (Considered High Priority by ISO)

During 2010, the Bureau of Land Management ("BLM") issued several updated 'Instruction Memoranda'[10] which have modified the rules under which solar energy project rights of way are processed. The ISO will need to revisit the BLM process and evaluate whether it is necessary to modify the criteria under which the ISO determines whether an interconnection customer establishes site exclusivity when the project is located on public land administered by the BLM. There has also been a concern raised whether or not section 25527 of the Warren-Alquist Act[11] requires federal approval for demonstration of site exclusivity before the state can approve a project. To the extent site exclusivity processes can enhance interconnecting renewable projects are there any other issues which can be raised that are within the scope of this section

4.4. Work Group 4 - LGIP/LGIA Interconnection Cost and Security Requirements

4.4.1. Financial security requirements for PTO funded network upgrades (Considered High Priority by ISO)

Many stakeholders have indicated that there should be a further process regarding the interplay of PTO funding of network upgrades and IC cost responsibility for financial security postings. Current GIP provisions do not alter an IC's posting requirements when a PTO agrees to fund the network upgrades. Moreover, a PTO commitment to fund upgrades has typically been dependant on FERC approval for abandoned plant

[10] http://www.blm.gov/wo/st/en/info/regulations/Instruction_Memos_and_Bulletins/national_instruction/2010/IM_2010-141.html

[11] http://www.energy.ca.gov/2009publications/CEC-140-2009-001/CEC-140-2009-001-REV1.PDF

cost recovery, which FERC decides on a case-by-case basis.[12] Currently the LGIA does not make any distinction in terms of financial security requirements between situations in which a PTO has committed to upfront fund network upgrades and those in which they have not. The ISO intends to explore with stakeholders whether a PTO's decision to upfront fund network upgrades should affect security posting amounts.

4.4.2. Revise ISO insurance requirements (Considered High Priority by ISO)

The current pro forma LGIA contains obligations for all three contract parties (the IC, the PTO and the ISO) to provide evidence of insurance. In this regard, the pro forma does not recognize that the ISO's role under the LGIA is different from the other two parties, who will undertake specific construction work as part of their performance under the contract. ISO staff has recommended changing the LGIA so that the ISO does not have to provide the same evidence of insurance coverage as the other parties who are undertaking construction obligations, to allow the ISO to make its insurance information available via web posting rather than by tendering declarations of coverage to each individual IC as each LGIA is completed, and to delete the pro forma requirement that ISO include ICs as "additional insured" on its policies. These provisions are listed in section 18.3.5 Appendix V which lists the ISO as an insurance provider and section 18.3 of Appendix CC where the obligation exists for the ISO to provide insurance. The ISO also proposes to post to the website insurance information regarding coverage amounts.

4.4.3 Refinements to posting requirements for grandfathered generating units

In Projects currently in the ISO interconnection queue which are additions to or repowering of on-line generators raises the question of how much security an existing facility should be required to post when the basis of its interconnection request is an increase in MW capacity. One issue is whether a project that is already on-line should be relieved of the requirement to make the second posting of financial security and instead simply have to make the first and third postings. Some stakeholders argue that the purpose of the financial security is to assure that projects reach commercial operation, and once operational, should be relieved of posting requirements. The counter argument is that a generator may not continue to be commercially viable and fall into bankruptcy or be sold off and therefore could not follow through with funding the upgrades at start of construction. Under what conditions should a project sponsor be relieved of posting security if the project is an addition to an existing facility?

4.4.4. Standardize use of adjusted vs. non-adjusted dollars in LGIAs (Considered High Priority by ISO)

Currently there is no standard practice for the use of adjusted (constant) or non-adjusted (nominal) dollar amounts to specify interconnection and network upgrade costs in LGIAs. The ISO believes that it is important to adopt a uniform approach for all LGIAs. For some projects, the interconnection facilities may take many years to build, and thus calculating security based on costs at the time of construction may provide a better indicator of security posting amounts. Currently, the cost method is stated in the interconnection study reports and interconnection agreements for (LGIAs and SGIAs) and is used as a basis for interconnection postings of financial security. The ISO is reviewing the methods

[12] Order No. 679, FERC Stats. & Regs. ¶ 31,222 at P 163

used by the PTOs, with the idea of developing a common practice to be used under the ISO GIP tariff.

4.5. Work Group 5 - LGIP Technical Assessment*s*

4.5.1. Interconnection of energy storage devices and behind the meter expansion

Some stakeholders have indicated that the GIP should be updated to address interconnection of non-traditional generation assets, such as battery storage, flywheel technology and similar devices. Stakeholders have also requested that in the next GIP initiative, the ISO should discuss options for allowing behind the breaker expansions that would be allowed without going through the interconnection process as long as the Pmax is not exceeded. Examples include adding wind or gas turbines to a solar farm or some other hybrid mix. Some of the other issues raised for this section include:

- Treatment of storage devices for interconnection classification, i.e. load or generation;
- Interconnection policy for storage devices connected to or affiliated with an existing generating facility;
- Providing for a separate interconnection process for storage facilities;
- Providing incentives for interconnecting storage devices. Providing incentives for interconnecting storage devices

4.5.2. Conform technical requirements under the LGIA (Considered High Priority by ISO)

In October 2010, the Commission accepted the ISO's request to expand the applicability of Appendix H of the LGIA to all Asynchronous Generating Facilities, not just wind generators. The revised Appendix H clarified that all Asynchronous Generating Facilities, including solar photovoltaic technologies, must (1) satisfy specific low voltage ride-through (LVRT) and frequency ride-through requirements, and (2) operate within a power factor range of 0.95 leading to 0.95 lagging, measured at the Point of Interconnection *if the system impact study shows that such a requirement is necessary to ensure safety or reliability*. Currently, Section 1.8 of Appendix T, the SGIA, requires small generators to operate within power factor range of 0.95 leading to 0.90 lagging, except for wind generators. Wind generators are governed by Attachment 7, which largely tracks the provisions of Appendix H of the LGIA. This leads to two suboptimal outcomes that must be remedied. First, large asynchronous solar photovoltaic resources have a less stringent reactive power requirement than small solar photo-voltaic resources. Second, "sympathetic tripping" by small solar photovoltaic facilities may exacerbate the impact of a disturbance because of the absence of any applicable ride-through standards.

The ISO needs to resolve differences between these provisions and review the ability of the ISO to implement standard voltage requirements including lead/lag and low voltage ride through for small generators.

4.5.3. Revisit tariff requirements for off-peak deliverability assessment (Considered High Priority by ISO)

Tariff Appendix Y section 6.5.2.2 requires the ISO to conduct an off-peak deliverability study for interconnecting generators where the fuel source substantially occurs during the off-peak hours (i.e., wind). This requirement could require these generators to fund full capacity deliverability upgrades based on an off-peak deliverability assessment. But since deliverability is a resource adequacy concept for the purpose of establishing NQC, which exists for the purpose of ensuring the deliverability of energy from RA resources to meet peak demand, this off-peak requirement does not align with the original concept and purpose of deliverability. The ISO would consider changes to the requirement so as to remove the off-peak study requirement from the GIP, so that deliverability remains an RA-based peak-hour concept, and to consider off-peak energy output of these resources in a more appropriate concept, e.g., in the TPP as a potential driver of public policy upgrades needed to meet 33% renewable energy.

5. Topics Proposed for Deferral to Future GIP Initiative

Some topics raised earlier were considered but found not appropriate at this time for GIP-2. Although the operational impacts issue and transfer of queue position are not being considered at this time, stakeholders will have the opportunity through the issue paper comment template to rank these two items.

5.1. Include operation impacts in assessing generator interconnection impacts

Currently the GIP assesses generator impacts on the transmission system (i.e., reliability, congestion, deliverability), but does not consider operational impacts of generator technology types, such as the real-time balancing requirements associated with VERs. The ISO initially thought to include in GIP-2 a consideration of whether to expand GIP assessment to include such impacts and, if so, also consider whether to create (a) more stringent technical requirements for interconnection, or (b) financial incentives through the GIP for the IC to mitigate these impacts, for example by installing on-site storage, advanced communications and dispatch capability, etc. At this time, however, the ISO does not propose to address this in GIP-2. The ISO's Renewable Integration Market and Product Review, Phase 2 (RIMPR-2) initiative will consider ways to address operational impacts of variable resources and potential allocation of costs to them. Further consideration of this within GIP could occur at a later date if necessary.

5.2. Revise provisions for transferring queue position to a new IC

Some stakeholders have requested that the ISO discuss the possibility of allowing an entity to assume the queue position of a withdrawn project. This opportunity would be available for projects that are willing to connect at the same location as the withdrawn project, at the same or similar capacity and where the replacement project would accept the current study results and financial security requirements. Currently, Appendix Y section 3.9 'Transferability of Interconnection Request' addresses transfer provisions but

does not specify the additional concerns raised by stakeholders. Further consideration of this within GIP could occur at a later date if necessary.