



# **Interconnection Queue Reform White Paper: Near-Term Solutions to Fixing the Queue in the Midwest ISO and Elsewhere December 2007**

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## **Background—Existing Interconnection Process for Wind Generation**

The current interconnection process is inhibiting the development of wind generation in many of the richest wind areas in the United States. Viable, commercial wind resources are abundant in many regions of the U.S. However, the interconnection process uncertainty faced by wind developers today threatens the ability of many states to procure and satisfy newly enacted renewable portfolio standards (RPS) and mandates.

Urgent and immediate fixes to the interconnection process (*i.e.*, queue reform) are necessary to break the existing logjam of applications to allow viable wind projects to interconnect to the transmission grid. Application of the existing Large Generator Interconnection Procedures (LGIP) has been ineffective in providing firm timelines and a clear pathway to secure a Large Generator Interconnection Agreement (LGIA) and physical interconnection facilities.

Across the United States, interconnection queues are clogged because Transmission Providers have no ability to distinguish speculative projects from real projects, and Transmission Providers have had no enforceable requirements to complete the interconnection processes on a timely basis. Wind energy developers, including FPL Energy, have a key distinguishing characteristic from other forms of electrical generation – the construction timeline for wind generation is much quicker than other generation sources. As a result, existing interconnection processes burden wind energy developers with indeterminable delays, high levels of interconnection completion uncertainty, increased project costs and future uncapped exposure to system upgrade costs.

The interconnection queues in the Midwest ISO, CAISO, ERCOT, PJM, NYISO and ISO-NE include more than 120,000 MW of new wind generation requests. The available annual world supply of wind turbines, however, is approximately 20,000 MW per year, of which only a portion is purchased for the U.S. Given that 2007 is projected to be the single largest annual increase in wind facilities in the U.S., with approximately 4,000 MW of new wind installations, it is clear many of the projects in the queue will not be viable and will not be completed.

## **FPL Energy's Call for FERC Action to Reform the Interconnection Process**

Existing interconnection policies and process bottlenecks hamstringing the ability of viable location-constrained wind energy facilities to interconnect to the transmission grid. Urgent regulatory changes are required in order to permit such facilities to move through the interconnection process with clear expectations and firm timelines. In order to remove these bottlenecks and preserve system reliability, FPL Energy recommends in this White Paper a number of near-term solutions that can be adopted expeditiously by the Federal Energy Regulatory Commission (FERC or Commission). These solutions should include consideration of a new class of interconnection service (Conditional Energy Resource Interconnection Service (Conditional ERIS))<sup>1</sup> that would be complementary to the two currently available interconnection products – Energy Resource Interconnection Service (ERIS) and Network Resource Interconnection Service (NRIS).

FPL Energy's recommendations herein are limited to the LGIA class of generators (> 20 MW). FERC queue reform and interconnection policies should recognize and allow for region-specific differences to accommodate market structure differences and other applicable needs, such as in regions with forward capacity markets. While one-size may not fit all, we believe that many of the elements in FPL Energy's proposals can be adopted by regions with clogged interconnection queues or where the LGIP has effectively failed.

### **Key Principles for Interconnection Reform**

FPL Energy suggests that the basis for improving the current interconnection process, which would allow for the development of new wind energy resources, are in the following three principles:

1. Allow Energy Resources to interconnect with clear guidance and limits on conditions under which operational restrictions may be placed on such resources to preserve system reliability (“Conditional ER” or “Conditional ERIS”).
2. Reform the LGIP to shorten and the procedural path and provide for an enforceable timeline to an LGIA.
3. Require compliance with queue reform from all generators, including those already in an interconnection queue.

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<sup>1</sup> The Midwest ISO's tariff currently uses the term “Conditional ERIS,” though this term is not used to the best of our knowledge in other regions. FPL Energy's proposal, as discussed herein, differs in both the quality of the interconnection service provided and the interconnection procedures associated with that service. We also believe that Conditional ERIS is an interconnection product that can be used in all regions.

## **Near-Term Focus Areas for Interconnection Reform**

Efforts to reform the interconnection process in the near-term should focus on addressing five critical areas: (1) reforming the existing study procedures in the LGIP; (2) establishing milestones for wind projects to remain in the queue; (3) creating a new interconnection product, Conditional ERIS; (4) establishing enforceable interconnection timetables; and (5) changing the way wind generation is modeled for transmission planning purposes. This White Paper focuses almost exclusively on near-term solutions that we believe taken together will successfully clear the interconnection queue, though we also highlight in the final section a number of long-term issues that will also need to be tackled by stakeholders and the Commission in the future.

### **(1) Reforming the Existing Study Procedures Is a Critical First Step**

The interconnection queue is clogged with projects that will not be built. The Midwest ISO, for example, estimates that 60 percent of all projects in the interconnection queue drop out prior to interconnection.<sup>2</sup> This is inevitable because there currently are nearly 70,000 MW of proposed wind energy projects in the Midwest ISO interconnection queue, while only 13,000 MW of new wind energy projects are needed to meet current RPS targets in the Midwest ISO footprint. The use of cluster or group studies to manage the clogged queue is of no benefit, as the Midwest ISO has estimated that it will take 50 years to clear the queue under its existing group study approach. The timelines and requirements in the LGIP should be reformed, though such reforms described in this subsection by themselves will be insufficient in clearing the queue.

The Midwest ISO's group studies have all taken longer to produce than would be expected by the plain terms of the Midwest ISO's Tariff.<sup>3</sup> This will continue to occur unless interconnection queue reforms are adopted expeditiously. For example, the Midwest ISO has performed and posted results on its web-site of seven group Interconnection System Impact Studies. Not a single one was completed in accordance with the nominal schedule put forth in the LGIP, as shown in Exhibit FPLE-1. On average, the Midwest ISO's group Interconnection System Impact Studies, including two restudies, took nearly twice as long to complete as the LGIP nominally provides. Exhibit FPLE-2, attached hereto, summarizes the nominal time allotted to each phase of the interconnection process as per Attachment X to the Midwest ISO LGIP. These data underscore the barriers resources like wind generation face, as such resources can be interconnected to the grid in as little as 12 months.

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<sup>2</sup> Midwest ISO Sept. 17, 2007 Presentation, "Generator Interconnection Planning, Indiana Wind Working Group," at 5.

<sup>3</sup> *Midwest Independent System Operator Inc.*, 109 FERC ¶ 61,085 at P 26 (2004) ("The Commission is concerned that Midwest ISO's [group study proposal] may be interpreted to provide Midwest ISO with extended timeframes that go beyond those granted in Order Nos. 2003 and 2003-A. As a result, while granting rehearing and approving this proposal, the Commission will condition approval on Midwest ISO meeting required milestones in Order Nos. 2003 and 2003-A").

The Commission should adopt procedures that focus on alleviating this critical bottleneck. First, the Commission should make clear that the Interconnection Feasibility Study process is optional. The Interconnection Feasibility Study consists primarily of preliminary power flow and short circuit analyses, but may include some stability analyses if the proposed interconnection is in an area of known stability problems. The study is to be completed within 115 days of the date of the interconnection request unless the Interconnecting Customer is notified of circumstances that may delay the completion and a new completion date is established. *See* Exhibit FPLE-1. In other words, the Interconnection Customer must wait for almost four months – and potentially longer – before the Interconnection System Impact Study process can even begin.

Such a procedural hurdle is unnecessary, particularly if the Commission required that Transmission Providers make sufficient information available to permit developers to more readily perform feasibility studies themselves. This would require the queue to be made more transparent. In addition to making the base case study available, Interconnection Customers would need to know: (i) the identity (corporate) of each generator in the queue that is not otherwise modeled in the base case; (ii) such generator's size; (iii) the type of technology proposed; (iv) the node at which the generator proposes to interconnect; and (v) the proposed commercial operations date. This information is not currently made available by Midwest ISO. There is no reason why developers should be required to rely on Transmission Providers to perform this initial study.

Second, the clustering of projects has not resulted in a successful queue management solution, as it has led to overly complicated and drawn-out impact studies. The size of the study groups in the Midwest are on the order of 2,000-3,000 MW. Modeling and simulating these new generation clusters in the Interconnection System Impact Study applies an extremely severe and difficult-to-simulate representation of the future system. This complexity and dimensionality of the study condition lead to delays in the study process.

One partial solution is to shorten the cluster or group study open window. Under the *pro forma* LGIP, after an Interconnection Customer executes a System Impact Study Agreement, a Transmission Provider nominally has 90 days to complete the study. However, if a cluster or group study is employed, Commission policy provides for a 180 day open window. As a result, the time allotted for completing a group Interconnection System Impact Study is a window that extends from 90 days after the date the last project assigned to a group signs the Interconnection System Impact Study Agreement to 270 days after the date that the first Interconnection System Impact Study Agreement is signed by a project in the group. As highlighted in Exhibit FPLE-1, this means that the completion date of the Interconnection System Impact Study is 235-385 days after the date of the interconnection request, assuming restudies are not required. Given the development timeframe for wind energy, should a generator choose to be in a cluster or group study, shortening the window from 180 days to 90 days, as has been proposed by PJM,<sup>4</sup> would at least be of some help going forward.

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<sup>4</sup> PJM Interconnection, L.L.C., Docket No. ER08-280-000 (filed Nov. 8, 2007).

Third, and most importantly, the *pro forma* LGIP should be modified to permit third parties to perform “out of sequence” Interconnection System Impact Studies for generators that seek Conditional ER status. Allowing such generators to remove themselves from cluster or group studies would significantly reduce the time between their interconnection request and an executed LGIA, and would not result in a delay for generators who choose to remain in a cluster or group study. Our experience in the Midwest ISO has shown that significant delays for wind project interconnection most often arise in the System Impact Study process, while the Interconnection Facilities Studies generally have been conducted in a timely manner. While the Midwest ISO’s Tariff currently includes the concept of a Conditional ER, it has been seldom used. The proposal in this White Paper expands on that concept and develops a product that can be used more readily by wind energy generators and other resources that do not seek network resource status.

The authority to conduct third party interconnection studies already exists in the LGIP. Section 13.4 of the LGIP provides for third party consultants, who are “reasonably acceptable” to the Transmission Provider and the Interconnection Customer, to conduct interconnection studies under certain circumstances (*e.g.*, when the Interconnection Customer receives notice that the Transmission Provider will not complete the interconnection study in the applicable time period). Such third party studies, using the RTO’s base case study, would likewise be permitted and accepted in Conditional ERIS Interconnection System Impact Studies, albeit with some changes.

The LGIP should be modified to allow the following procedures for third-party out-of-sequence studies, which in this example would be with the Midwest ISO:

- The Interconnection Customer and the Midwest ISO agree to a scope of study that defines the data, assumptions, analyses and performance criteria to be applied in the out-of-sequence System Impact Study (OSIS). The scope of study may also include a list of prior-queued projects that may be considered in the OSIS.
- The Interconnection Customer has the option to commission the Midwest ISO or a third party consultant to conduct the OSIS. Data to conduct the OSIS, including power flow, short circuit, and stability models would be provided by the Midwest ISO within 15 days of a request for the study data by the Interconnection Customer.
- The consultant may specify reasonable assumptions on whether or not to include specific higher queued generation projects in the OSIS. Until the bottleneck in the queue is cleared of projects that will never be built, the consultant would be granted significant discretion. After the bottleneck is cleared, when presumably almost all of the generators in the queue are real, such discretion would be limited.
- Following submission of the OSIS report to the Midwest ISO, the Midwest ISO and Transmission Owners would have 15 days to review and comment on the

report, methodology, assumptions and conclusions. The connecting Transmission Owner would also provide a good faith cost estimate and construction schedule of Attachment Facilities or System Upgrade Facilities indicated by the OSIS. The Interconnection Customer would then have 10 days to revise the OSIS as needed based on comments from the Midwest ISO and Transmission Owners.

- Upon completion of the OSIS, the Interconnection Customer would request an Interconnection Facility Study from the connecting Transmission Owner. Alternatively, even before the OSIS is completed, the Interconnection Customer under the existing Tariff may request that Midwest ISO conduct an Out-of-Sequence Facility Study. The Interconnection Customer would be responsible for its own Interconnection Facilities and any related Network Upgrades identified through this process that are associated with the interconnection of the Conditional ER facility.
- Upon completion of the Interconnection Facilities Study or Out-of-Sequence Facilities Study, and subject to completion of an OSIS, the Interconnection Customer may negotiate a LGIA with the Midwest ISO and the connecting Transmission Owner.
- With the LGIA in place, the Interconnection Customer is granted Conditional ER service to the extent that there is capacity available on the transmission system to accommodate this service.

Below we discuss in more detail the characteristics and potential operational limitations of the Conditional ER interconnection product.

## **(2) Establishing Milestones for Wind Projects to Remain in the Queue.**

Under today's Midwest ISO "logjammed" interconnection queue process, to get in – and remain in – the interconnection queue requires a \$10,000 deposit. Current Midwest ISO interconnection processes have no mechanism for distinguishing projects that are not viable and are unlikely to be built. Further harm to viable wind development projects occurs because interconnection study assumptions treat non-viable projects the same as fully viable projects. These tainted study assumptions, in turn, skew the analysis and go-no-go economic decisions of viable wind development projects by adding uncertain future economic conditions and system upgrade cost liability.

Contrary to the Commission's premise in Order No. 2003 that the interconnection study deposit amounts are high enough to ensure that customers are "serious" about their requests (a premise that was based on a consensus proposal at the time),<sup>5</sup> \$10,000 is an

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<sup>5</sup> *Standardization of Generator Interconnection Agreements and Procedures*, Order No. 2003, 68 Fed. Reg. 49845 (Aug. 19, 2003), FERC Stats. & Regs. ¶ 31,146 at PP 218-19 (2003), *order on reh'g*, Order No. 2003-A, 69 Fed. Reg. 15932 (Mar. 26, 2004), FERC Stats. & Regs. ¶ 31,160 (2004), *order on reh'g*, Order No. 2003-B, 70 Fed. Reg. 265 (Jan. 4, 2005), FERC Stats. & Regs. ¶ 31,171 (2004), *order on reh'g*, Order No. 2003-C, 70 Fed. Reg. 37,661 (Jun. 30, 2005), FERC Stats. & Regs. ¶ 31,190 (2005), *aff'd*

insignificant cost to remain in the interconnection queue today.<sup>6</sup> Site Control, as currently defined in the LGIP, is necessary in demonstrating the viability of future wind projects, but can be manipulated. Most wind projects require numerous easements.<sup>7</sup> Site Control should require a generator to demonstrate that it has (i) all land necessary to accommodate the size of its facility, and (ii) a path to the point of interconnection. This is a hole that must be plugged.<sup>8</sup>

FPL Energy recommends that the following milestones be incorporated expeditiously into the *pro forma* LGIP and LGIA, as well as the Midwest ISO's Attachment X, as such milestones would both help to unclog the current interconnection queue logjam and rationalize the future queue, thus enabling viable wind development projects to be built:<sup>9</sup>

- Upon execution of a System Impact Study Agreement, if full Site Control cannot be demonstrated, the Interconnection Customer should be required to post additional security (*e.g.* \$5/kW), refundable upon a demonstration of full Site Control or dropping out of the queue.
- Upon execution of the Interconnection Facilities Study Agreement, if full Site Control cannot be demonstrated, the Interconnection Customer should be required to post additional security (*e.g.*, \$10/kW), refundable upon a demonstration of full Site Control or dropping out of the queue.
- Upon execution of an LGIA, if full Site Control has not been demonstrated, the security requirement should become non-refundable if the Interconnection Customer does not construct its project, and the total security should be increased to the greater of \$1,000,000 or an increased per kW total security requirement (*e.g.*, \$20/kW).

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*sub nom. National Association of Regulatory Utility Commissioners v. FERC*, No. 04-1148, 2007 U.S. App. LEXIS 626 (D.C. Cir. Jan. 12, 2007).

<sup>6</sup> The LGIP defines "Site Control" as: "documentation reasonably demonstrating: (1) ownership of, a leasehold interest in, or a right to develop a site for the purpose of constructing the Generating Facility; (2) an option to purchase or acquire a leasehold site for such purpose; or (3) an exclusivity or other business relationship between Interconnection Customer and the entity having the right to sell, lease or grant Interconnection Customer the right to possess or occupy a site for such purpose."

<sup>7</sup> FPL Energy's experience as a leading U.S. wind developer suggests a single project can require over 100 land easements; however, demonstration of site control has been established with the filing of a single easement.

<sup>8</sup> Even after executing an LGIA, a generator that cannot demonstrate Site Control can retain its queue position after posting a \$250,000 non-refundable security, which can be applied toward future construction. Given the value of queue positions, the existing procedures can lead to inappropriate speculative positions.

<sup>9</sup> While it may be appropriate to reconsider the charge for Interconnection Feasibility Studies (currently \$10,000 plus an additional \$10,000 if full Site Control cannot be demonstrated), FPL Energy proposes above that such studies be eliminated or be voluntary.

- The permitted suspension period of an executed LGIA for wind generation should be shortened to 12 months.<sup>10</sup> Limiting suspension periods for wind generation to 12 months will help clear the existing queue of speculative projects that potentially cause unnecessary system upgrades to be built for viable wind projects.<sup>11</sup>
- Upon execution of an LGIA for wind generators (and 12 months prior to the expiration of the suspension period for other generation sources) procurement of wind turbine equipment for the project must be demonstrated. Failure to demonstrate the project has procured wind turbine equipment for the project (wind turbines and towers) should result in the loss of queue position.

### **(3) Operational Conditions for Conditional ER Service.**

The current *pro forma* LGIP and LGIA provide for interconnection service through two interconnection products – ERIS and NRIS (Energy Resource Interconnection Service and Network Resource Interconnection Service, respectively) – and each requires interconnection studies and network upgrades to assure that the project can operate at full output during all hours of the year.<sup>12</sup> Limiting initial interconnection service choices to these two products has created an unnecessary delay and added economic uncertainty to viable wind energy project development. Transmission Providers should be required to also offer an alternative product, Conditional ERIS (Conditional Energy Resource Interconnection Service). Under the procedures outlined above, such a product would permit safe and reliable interconnections for wind generators under an expedited study process and employ operating guides where required.

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<sup>10</sup> Because the time required for obtaining permits for a wind project is much shorter than for other sources of generation (*i.e.*, coal), it would not be unduly discriminatory to treat wind generation differently from other generation sources by limiting the suspension period. We recognize that offshore wind may need to be treated differently due to permitting issues. In any event, consistent with existing policies, developers that cannot meet these windows can petition the Commission to waive this requirement.

<sup>11</sup> Under the LGIA, an Interconnection Customer may suspend its project for up to 3 years. Further, the suspension period is cumulative so a project may exit the suspension and then suspend again thereby extending the 3 year calendar period. This adds further uncertainty and administrative burden to the Transmission Provider.

<sup>12</sup> ERIS allows the Interconnection Customer to deliver the output of its facility using existing firm or non-firm transmission capacity, which must be purchased separately, on an “as available” basis. In RTOs, ERIS allows the Interconnection Customer to bid its output in the market and to be dispatched if the bid is accepted. Interconnection studies must identify the Interconnection Facilities required as well as the Network Upgrades needed to allow a facility to operate at full output. Interconnection Studies also must identify the maximum allowed output without Network Upgrades. *See* Order No. 2003-A at P 499.

In contrast, NRIS requires the Transmission Provider to undertake Interconnection Studies and Network Upgrades needed to integrate a facility in a manner comparable to that in which the Transmission Provider integrates its own facilities to serve native load. In RTOs, NRIS integrates a facility as if it were a Network Resource, making it eligible to receive a capacity payment. The Transmission Provider must study the transmission system at peak load, under a variety of severely stressed conditions, to determine whether, with the facility at full output, all generation in the local area can physically be delivered to the aggregate of load. *See* Order No. 2003-A at P 500.

While ensuring the safe and reliable interconnection of a Conditional ERIS, operational concerns related to reliability under stressed conditions if all higher queued generators were to interconnect can be handled through operational restrictions. In RTOs, this could be in an operating guide that would specify specific operational risks that if they were to result would lead to the disconnection of the generator or reduction in outputs during unreliable system conditions. In non-RTOs, generators would have a lower priority than ERIS for curtailment purposes, and such curtailments would be on a non-discriminatory, comparable basis.

A generator seeking Conditional ERIS, at its choice, could either contemporaneously or subsequently have conditions for ERIS or NRIS studied in the normal queue process. Upon completion of any additional upgrades identified through the normal LGIP, Conditional ERIS would be converted to one of the existing interconnection products. Alternatively, a Conditional ERIS could submit a new interconnection request at a later time and re-enter the queue process to convert its service to another interconnection service.

#### **(4) Establishing Enforceable Interconnection Timetables.**

In Order No. 890, FERC made the provisions in a Transmission Provider's Tariff mandatory and enforceable – subject to civil penalties of up to \$1 million per day per violation – including transmission service study requests.<sup>13</sup> In addition, the Commission in Order No. 890 found that Transmission Providers (though not RTOs) should be subject to penalties for any transmission system impact study or transmission facilities study that is still pending at the end of the quarter and that has been in the study queue for more than the timeframe permitted in the tariff, equal to \$500 for each day the study has been in the study queue beyond the time limit.<sup>14</sup>

The Commission should clarify that the civil penalty enforcement provision in the Federal Power Act applies to the LGIP and LGIA, just as it does to other rules and orders of the Commission. With regard to the \$500/day penalty, we do not believe that it is appropriate to extend such penalties to RTOs today, given that many of the projects in the queue will not be viable and will not be completed. However, after the near-term solutions have been implemented and those non-viable projects are no longer in the queue, the application of such penalties would be reasonable. While such penalties are admittedly passed through to market participants, both RTOs and transmission owners play a key role in the review of both Interconnection System Impact Studies and Interconnection Facilities Studies. Given such joint responsibilities, mandatory interconnection timetables would likely improve the timeliness of completing studies for

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<sup>13</sup> *Preventing Undue Discrimination and Preference in Transmission Service*, Order No. 890, 72 Fed. Reg. 12,266 (March 15, 2007), FERC Stats. & Regs. ¶ 31,241 at PP 1730-734 (2007) (Order No. 890).

<sup>14</sup> *Id.* at P 384.

viable projects, even taking into account that a Transmission Provider may, after employing Reasonable Efforts, require additional time to complete a study.<sup>15</sup>

#### **(5) Base Case Modeling Should Appropriately Reflect Wind Energy Generation.**

To date, the Midwest ISO has not modified its base case model to reflect the resource-dependent and variable qualities of wind generation, although other RTOs have done so. Unlike thermal and other non-renewable power plants whose output is scheduled, wind output is subject to wind resource variations that are not controllable and have limited forecast accuracy. Wind generation capacity factors do not correlate well with daily load cycles, tending to be higher at night when load can be at the daily minimum, and lower in the daytime when demand can be at peak. On an annual basis, the wind capacity factors also do not track well with annual load curves. FPL Energy would expect that appropriate measurement and modeling by the Midwest ISO would result in the ability for additional wind generation to be sited. Moreover, the failure to do so both has and will result in wind generators having to pay for network upgrades that should not have been required. Given the numerous industry studies demonstrating why such modeling is appropriate, the Commission should require all Transmission Providers in states with wind energy generation to modify their modeling assumptions if they have not done so already.

#### **Longer Term Challenges to Improving the Interconnection Process**

FPL Energy seeks immediate FERC action to improve the interconnection process to enable more wind projects to come on line as soon as practicable. FPL Energy recognizes that there are a number of other longer term challenges that will require significantly more time to address, including:

- Developing transitional rules for successful, longer term queue reform measures;
- System upgrade facilities and transmission facilities cost allocation and recovery mechanisms;
- Transmission facility upgrades to economically deliver remote, location constrained wind resources to load centers;
- Integrating wind generators into system planning decisions and system operating guides; and
- Rationalizing curtailment priorities through a last-in, first off in-class decision regime.

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<sup>15</sup> Reasonable Efforts means “efforts that are timely and consistent with Good Utility Practice and are otherwise substantially equivalent to those a Party would use to protect its own interests.”

**Exhibit No. FPLE-1  
MISO Group Study Completion History**

Group Study	Study Report	No. of Gens. Included	MW of Gens. Included	Percent Wind	First Queued Project Date	Last Queued Project Date	Date Study Completed	First Queued Project	First Queued Nominal Days	Last Queued Project	Last Queued Nominal Days
								Actual Days to Complete	per Tariff	Actual Days to Complete	per Tariff
CGS 1- Buffalo Ridge	Draft System Impact	7	916.5	100.0%	8/7/2001	9/18/2002	4/5/2004	972	385	565	235
CGS 2- Buffalo Ridge	System Impact (Stability)	7	823.9	100.0%	12/5/2002	8/11/2003	2/2/2005	790	385	541	235
CGS 4- SE Minnesota NE Iowa	System Impact (Stability)	11	683.3	97.8%	2/11/2004	8/8/2005	6/23/2006	863	385	319	235
CGS 5- SE MN, NE IA, Eastern SD	System Impact (Not Final)	37	2857.9	73.8%	7/26/2004	5/8/2006	10/12/2007	1173	385	522	235
Thumb Area Group Study- TAGS	System Impact	7	579.5	100.0%	2/11/2005	5/13/2005	6/30/2006	504	385	413	235
TAGS Restudy	System Impact Restudy	3	244.0	100.0%	2/22/2005	5/12/2005	10/6/2006	591	465	512	315
TAGS Restudy Addendum	System Impact Restudy	2	194.0	100.0%	2/22/2005	3/14/2005	4/24/2007	791	385	771	395
Northwest Indiana Group Study- NWIGS	System Impact	3	250.0	100.0%	11/29/2005	4/4/2006	3/15/2007	471	385	345	235
Central Illinois Group Study- CIGS	System Impact (Power Flow)	11	935.7	66.2%	10/22/2003	7/15/2005	9/15/2006	1059	385	427	235
Central Illinois Group Study- CIGS	System Impact (Stability)	4	341.0	7.3%	3/3/2004	4/15/2005	8/29/2006	909	385	501	235
			<b>Average Wind</b>	<b>84.5%</b>			<b>System Impact Study Average</b>	<b>812</b>	<b>393</b>	<b>492</b>	<b>259</b>
							<b>Actual as % of Nominal</b>	<b>207%</b>		<b>190%</b>	
CGS 4- SE Minnesota NE Iowa	Facilities Study	11	683.3	97.8%	2/11/2004	8/8/2005	6/1/2007	1206	625	662	385
TAGS Restudy	Facilities Study	3	244.0	100.0%	2/22/2005	5/12/2005	3/7/2007	743	720	664	480
TAGS Restudy Addendum	Facilities Restudy	2	194.0	100.0%	2/22/2005	5/12/2005	7/18/2007	876	815	797	575
			<b>Average Wind</b>	<b>99.3%</b>			<b>Facilities Study Average</b>	<b>942</b>	<b>720</b>	<b>708</b>	<b>480</b>
							<b>Actual as % of Nominal</b>	<b>131%</b>		<b>147%</b>	

**Exhibit No. FPLE-2**  
**Midwest ISO Interconnection Milestones**  
**(as per Attachment X- Large Generator Interconnection Procedures)**

<b>Milestone</b>	<b>Nominal No. of Days to Complete Individual Study</b>	<b>Cumulative No. of Days to Complete Individual Study</b>	<b>Nominal No. of Days to Complete Group Study</b>	<b>Cumulative No. of Days to Complete Group Study</b>	<b>Nominal No. of Days to Restudy</b>
Interconnection requested, queue position assigned					
Scoping meeting held	30	30	30	30	
<b>Subtotal</b>	<b>30</b>	<b>30</b>	<b>30</b>	<b>30</b>	
Interconnection Feasibility Study Agreement tendered	10	40	10	40	
Interconnection Feasibility Study Agreement signed	30	70	30	70	
Interconnection Feasibility Study completed <sup>a</sup>	45	115	45	115	
Interconnection Feasibility Study results meeting					10
Notification in writing if Feasibility Restudy required					0
Interconnection Customer approval					5
Interconnection Feasibility Restudy Agreement signed					5
Interconnection Feasibility Restudy Agreement completed					35
Interconnection Feasibility Restudy results meeting					10
<b>Subtotal</b>	<b>85</b>	<b>115</b>	<b>85</b>	<b>115</b>	<b>65</b>
Interconnection System Impact Study Agreement tendered	0	115	0	115	
Interconnection System Impact Study Agreement signed	30	145	30	145	
Interconnection System Impact Study Agreement completed <sup>a</sup>	90	235	240	385	
Interconnection System Impact Study results meeting					10
Notification in writing if System Impact Restudy required					0
Interconnection Customer approval					5
Interconnection System Impact Restudy Agreement signed					5
Interconnection System Impact Restudy Agreement completed					50
Interconnection System Impact Restudy results meeting					10
<b>Subtotal</b>	<b>120</b>	<b>235</b>	<b>270</b>	<b>385</b>	<b>80</b>
Interconnection Facilities Study Agreement tendered	0	235	0	385	
Interconnection Facilities Study Agreement signed	30	265	30	415	
Draft Interconnection Facilities Study Agreement completed <sup>a</sup>	90	355	180	595	
Interconnection provides written comments on Draft Study	30	385	30	625	
Final Interconnection Facilities Study Agreement completed					15
Interconnection Facilities Study results meeting					10
Notification in writing if Facilities Restudy required					0
Interconnection Customer approval					5
Interconnection Facilities Restudy Agreement signed					5
Interconnection Facilities Restudy Agreement completed					50
Interconnection Facilities Restudy results meeting					10
<b>Subtotal</b>	<b>150</b>	<b>385</b>	<b>240</b>	<b>625</b>	<b>95</b>
Draft LGIA submitted to parties	30	415	30	655	
Negotiation of provisions	60	475	60	715	
Final LGIA submitted to parties	15	490	15	730	
Interconnection Customer provides evidence of site control or security	15	505	15	745	
Interconnection Customer executes LGIA or requests filing unexecuted LGIA filed with FERC, executed or unexecuted	10	515	10	755	
<b>Subtotal</b>	<b>130</b>	<b>515</b>	<b>130</b>	<b>755</b>	
<b>Total<sup>b</sup></b>	<b>515</b>	<b>515</b>	<b>755</b>	<b>755</b>	

<sup>a</sup> Can be extended with proper notification of new completion date

<sup>b</sup> Excluding any required restudies