

**UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION**

Review of Generator Interconnection
Agreements and Procedures

Docket No. RM16-12-000

American Wind Energy Association

Docket No. RM15-21-000

OPENING REMARKS

Thank you for the opportunity to provide comment. I'm Daniel Barr. I work as Principal Engineer in System Planning for ITC. For the last 12 years I have been responsible for generator interconnections under the MISO Tariff while under employment of Alliant Energy and ITC. During that time, I have been directly involved in approximately 34 individual generator interconnection projects representing approximately 3,500 MW of new generating capacity.

As an independent transmission company, ITC has been successful in working with developers of renewable energy resources to enable the unprecedented growth of wind-powered generation in MISO. Wind generation connected to ITC now represents about 1/3rd of the total wind generation connected to the MISO footprint, with approximately 2,650 MW of wind energy on the ITC Midwest system in Iowa and southern Minnesota, and another 1,160 MW of wind generation connected to the ITC Companies in Michigan. ITC appreciates the opportunity to provide comments, and we will continue to work with RTOs, ISOs and generation owners to develop best practices for the interconnection of new generation resources. In an effort to reduce uncertainties, ITC offers the following comments in response to panel discussion topics.

OTHER INTERCONNECTION QUEUE COORDINATION AND MANAGEMENT ISSUES

I. Coordinating Interconnection Requests with the Affected Systems and the challenges associated with Affected System coordination and areas of improvement.

Coordination of Interconnection Requests among entities with differing Tariff requirements and Study timelines presents significant challenges for both the interconnecting system and those Affected Systems owners. Development of and adherence to "turn-around time" requirements for Affected System Owners to return Study results will allow both the interconnecting RTO and the Affected Systems' owners to better process their respective queues.

II. The types of changes to a project that should be allowed without changing the project's position in the queue, i.e., determining an appropriate threshold for modifications to a project before it should lose its place in the queue.

An *increase* in projects' MW size should not be allowed after an Interconnection Request has been submitted. A *reduction* in a project's MW size or change in a project's fuel-type should not be allowed after the Interconnection Customer has provided the necessary commitment to enter into the final System Impact Study where Network Upgrades are identified and assigned to projects. Changes to the amount or type of generation after start of the final System Impact Study would increase the likelihood of Restudies. Other material changes should be allowed at the discretion of the RTO/ISO and impacted area Transmission Owners, provided those changes would not adversely impact other Interconnection Requests or increase the likelihood of Restudy.

III. How to manage the effects of project withdrawals from the interconnection queue and possible best practices to keep the queue moving despite project withdrawal. The appropriate balance between attempts to prevent speculative projects from entering the queue and the recognition that the study process is designed to iteratively provide information that project developers will use to decide whether to proceed or withdraw (possibly causing restudies).

Project withdrawals should be minimized to the extent possible. Several steps can be taken to encourage only viable projects to remain in the queue:

- Providing Interconnection Customers with access to transmission system models earlier in the process will enable Interconnection Customers to evaluate expected impacts of their projects' generation and allow them to make better choices for Points of Interconnection.
- Providing Interconnection Customers with timely and reasonably accurate information regarding expected costs of Network Upgrades (see item V)
- Implementing off-ramps in the Study process prior to the final System Impact Study. A cash-at-risk Milestone should accompany entry into the final Study to reduce the likelihood of Restudies.
- Requiring a cash-at-risk Milestone payment based on Network Upgrade cost is needed prior to negotiation of the GIA

IV. How transmission providers, transmission owners, and interconnection customers coordinate during the interconnection process, and possible areas for improvement.

ITC has been successful in working with Interconnection Customers, but delays in Facilities Studies have occurred when large group studies have overwhelmed available Study resources. Under mutual agreement, the Interconnection Customer and Transmission Owner should be allowed to forgo a Facilities Study and proceed through a GIA under "Planning-level" cost estimates. This could reduce queue processing time significantly.

V. Technologies, tools, or administrative processes, that could improve the accuracy of cost and time estimates, reduce the processing time, or increase the efficiency of the interconnection queue process.

RTOs/ISOs have cost information available from several years of Facilities Studies and actual installed costs of facilities. A database of “per mile” line costs, by voltage class, and greenfield site substation costs, by voltage class, could be culled from those Facilities Studies or actual costs of completed facilities. These historical costs for Network Upgrades would provide the basis for reasonably good standard cost estimates. A great deal of time can be saved in the Interconnection Study process if Transmission Owner and Interconnection Customer mutually agree to proceed with a GIA based on database-provided estimates (see Item 4).

Administrative time can be reduced through RTO/ISO use of “standard” study services agreements for studies typically performed by Transmission Owners, like Facilities Studies.

Comments on GIP Reforms

System Reliability cannot be compromised to expedite incorporation of new generation resources into the transmission system. Good utility practice along with mandatory Reliability Standards warrant detailed evaluation of the steady state and dynamic impacts of a new generation resource, or more often, combinations of several generation resources within an individual study cluster or group, to determine if modification of the system is necessary to ensure safe and reliable operation. That process takes time, and reducing the amount of time can only be achieved by reducing uncertainties in the process.

The greatest challenge in successful queue processing is for the study assumptions utilized at the onset of any study to remain valid throughout the study and for the Network Upgrades identified in the study to remain unchanged. However, non-viable projects too often drop from the queue and cause Restudies, which disrupt queue processing. To reduce the likelihood of non-viable projects remaining in the queue longer than necessary, timely and reasonably accurate information regarding the scope and cost of Network Upgrades is needed to allow Interconnection Customers to make judicious choices in project development. Effective demonstrations of project readiness at specific points in the Study process should also be required of Interconnection Customers in order to incent non-viable projects to exit the queue. The following reforms would help minimize Interconnection Customers’ uncertainty in project development and help minimize the uncertainty created by speculative projects:

- FERC approval of MISO’s proposed “off-ramps” and milestone payments outlined in Docket ER16-675.
- Transmission Providers assemble a database of existing Facilities Studies’ estimates and/or actual costs of Network Upgrades and make those costs available to Interconnection Customers.
- Allow Interconnection Customers earlier access to study models to enable them to perform their own “feasibility” analysis for their projects.
- Allow Interconnection Customers to reduce projects’ MW output prior to entering into the final Study that identifies Network Upgrades

There are important differences across RTO/ISOs that should afford individual RTOs/ISOs discretion in adapting Generation Interconnection Procedures to best accommodate each RTO’s/ISO’s interconnection requests. It is difficult to justify a one-size-fits-all approach as there are significant

differences in load and generation profiles, available transmission capacity and cost recovery mechanisms for network upgrades both across and within RTOs/ISOs. For example, certain geographic regions of MISO have a unique mix of relatively low load density with high concentrations of wind energy resources while other geographic regions have high load density with low concentrations of generation resources. The western region of MISO has rich wind resources, but the region has low load density and transmission capacity that continues to dwindle, while Interconnection Requests have increased significantly.¹ These factors combined with little to no cost reimbursement to Interconnection Customers for Network Upgrades contribute to the likelihood that MISO studies in that region will continue to be plagued with the consequences of Restudies, unless there are changes in the queue process.

MISO's most recently accepted queue reform was approved by the Commission in March of 2012. The queue reform was much needed, and as part of that reform, MISO promoted a "first ready, first served" approach. Those changes were good and needed at the time, but those changes did not go far enough. Specifically, the queue reform did not go far enough to remove non-viable projects. To avoid the complications of Restudies, non-viable projects need to be removed from the queue prior to the final study that solidifies any Network Upgrades required for interconnection. Under the existing MISO process, the demonstration of "readiness" at that point in the study process has been insufficient and unsuccessful in its ability to encourage non-viable projects to drop out of the queue. This has led to uncertainty in the development of real, viable interconnection projects and increased the likelihood for the need of restudies.

ITC strongly supports a major component of the queue reforms proposed by MISO in Docket ER16-675². Namely, ITC supports the introduction of "off-ramps" into the Definitive Planning Phase as part of the GIP. MISO's proposed "off-ramps" break the DPP Study into 3 separate phases, with Interconnection Customers being required to make a *go-forward or drop* commitment at two pivotal decision points. At each of these decision points, best available information is provided to the Interconnection Customer, and an off-ramp is provided. Providing Interconnection Customers with these off-ramps would significantly reduce the need for time-consuming Restudies. These Restudies not only cause extra work for Transmission Providers and Transmission Owners, they can significantly impact the viability of Interconnection Customers' projects if new or revised Network Upgrades are identified.

Restudies are detrimental to queue processing, but they are too often necessary under the current process in MISO. Restudies are required to demonstrate continued system reliability in the event of a material change to the assumptions in an Interconnection Study. It cannot be assumed that by simply reducing the amount of generation in a particular Interconnection Study, the system can readily accept a new combination of generation resources. In a Group Study, which is the default study methodology, it is difficult to predict which combination of new and existing generation resources and contingent loss of transmission elements adversely impacts the system to the extent Network Upgrades are needed. A project dropping from the queue can invalidate the Study model, as the dropped project's generation and associated Network Upgrades must then be removed from the Study's model.

¹MISO's February 2016 DPP Study has approximately 6,000 MW of proposed interconnection request for the State of Iowa.

² MISO filing of Revisions to the Open Access Transmission, Energy and Operating Reserve Markets Tariff to Reform MISO's Generator Interconnection Procedures

Restudies have been particularly problematic in MISO, and they have caused otherwise unnecessary delays in queue processing. Projects dropping from the queue were the major cause of MISO's having to perform approximately 10 Restudies for projects in western MISO within the last, roughly 3 ½ years. One particular Study Group, DPP August 2012, was subjected to 5 Restudies³. That particular Study Group waited over 2 years to receive necessary Study results. The Restudies caused Facilities Studies, which have a 90 day turnaround time, to be performed for Network Upgrades that were not needed, which wasted the time of the Study resources of Transmission Owners and required Interconnection Customers to delay their projects further while paying for Study work that was ultimately unnecessary. Additionally, the Restudies had cascading effects causing delays for subsequent DPP Study Groups' projects and caused additional work to be performed in adjacent Affected Systems of SPP and PJM, which caused even greater uncertainty for otherwise viable projects in the MISO queue.

Introduction of MISO's proposed "off-ramps" into the Interconnection Study process will help reduce uncertainty by reducing the likelihood of Interconnection Customers dropping from the queue once the final Study to identify Network Upgrades has commenced. To encourage projects to remain in the final Study after the last off-ramp, cash-at-risk Milestones are needed. The cash-at-risk obligations introduced after the last off-ramp should have a minimum readiness requirement and should be linked to the cost of any expected Network Upgrades. A cash-at-risk Milestone linked to the cost of Network Upgrades will incentivize judicious choices in project location. Linking the cash-at-risk Milestone to the cost of any Network Upgrades is also consistent with the requirements facing Interconnection Customers under Article 11.5 of MISO's pro forma GIA. The GIA requires Interconnection Customers to provide, within 30 days of the Effective Date, payment of 20% of estimated Network Upgrades' costs if the In Service Date is within 5 years, and 10 percent of the total cost of the Network Upgrades if the project's In Service Date is greater than 5 years. Basing the cash-at-risk Milestone on estimated Network Upgrade costs would not unduly burden Interconnection Customers connecting to unconstrained areas. Interconnection Customers proposing interconnection to constrained areas where Network Upgrades are required would likely only proceed if the Interconnection Customers' projects were truly viable. Removing those non-viable or speculative projects from the Study process at that final off-ramp would significantly reduce the likelihood of Restudies.

Another means of reducing uncertainty is to provide Interconnection Customer with indicative cost information. Providing Interconnection Customers with a reasonably accurate summary of costs early in the process would help expedite queue processing. RTOs/ISOs could make available a summary of cost information gleaned from previously developed Facilities Studies cost estimates or installed costs of Network Upgrades. RTOs/ISOs could cull estimates and cost information from Facilities Studies or actual costs to develop a database of "per mile" line costs by voltage class, and new, greenfield-site substation costs by voltage class. It is expected that assembling those estimates or costs would require only a modest amount of work.

Having historical cost information and/or historical estimates available for Interconnection Customers will expedite the Study process and reduce uncertainty. To allow Interconnection Customers a shorter path to a GIA, Transmission Owners and Interconnection Customers, upon mutual agreement, could elect to proceed to a GIA utilizing historical cost information or estimated costs culled from Facilities Studies. In cases where the Network Upgrades identified for projects are consistent with known, actual

³ Aliff Testimony at 11-13, MISO Queue Reform Proposal in Docket No ER16-675

costs of similar facilities, a ready project could save considerable time in navigating the Study process⁴. Having a readily available summary of prior cost estimates or historical cost data would significantly reduce Interconnection Customers' uncertainty regarding cost of Network Upgrades.

Reducing the commercial uncertainty faced by Interconnection Customers is also needed to help reduce the likelihood of Restudies. The Commission has recognized that a one-size-fits-all approach is not necessary regarding cost responsibility for Network Upgrades and has allowed variances among RTOs/ISOs. The Commission has also allowed variances in cost responsibility within RTOs/ISOs in recognition of the differences in load density and generation and transmission profiles within individual regions of an RTO/ISO. Western MISO has a high concentration of like-fueled generation and low load density spread over a large geographic region, and in that region, the assignment of costs for Network Upgrades can change projects' viability. The current cost responsibility for Network Upgrades in Western MISO introduces commercial uncertainty for Interconnection Customers, and consequently, the likelihood of Restudies increases.

In MISO specifically, movement to the current default tariff provisions that often assign the costs of Network Upgrades 100% to the Interconnection Customer has exacerbated the problems previously discussed. The amount of Network Upgrades required and the related cost can vary over a wide range, and thus potentially impact project viability. In addition, the current provisions for 100% funding by Interconnection Customers ignores the benefits these projects may provide to other Transmission Customers, and also requires Transmission Owners to often construct and operate these projects with no opportunity to earn a return on investment. We encourage FERC, FERC staff and other stakeholders to consider additional reforms in this area to better balance the cost responsibility for these projects across Interconnection Customers and other transmission customers, and recognize the need for the Transmission Owner to be fairly compensated to ensure the proper incentives exist to get these upgrades constructed and also to ensure the cost is shared fairly among all those who benefit from these projects.

Uncertainty in the queue can also be reduced by providing Interconnection Customers access to appropriate transmission models earlier in the process. If Interconnection Customers were provided with transmission models early in the process, they could perform their own feasibility analysis, and that feasibility analysis could be removed from queue analysis. Providing Interconnection Customers with appropriate models should enable more judicious choices for projects' points of interconnection and provide Interconnection Customers with means to better evaluate the impacts and extent of Network Upgrades required for the interconnection of their generation.

⁴ MISO Tariff identifies 90 days for completion of Facilities Studies. This amount of time does not account for time required for Transmission Owner to submit estimate of Study costs or to enter into a Study Services Agreement with Transmission Provider.