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| **SP-02 Wind Turbine Computer Models:** Computer models used in operations and planning have not always been able to represent all wind-turbine technologies accurately. There are several factors affecting the accuracy of the modeling effort. One is the limitations of software geared to modeling conventional generation technologies. Another is the mutual lack of familiarity and understanding between modelers and WGRs leading to misunderstanding. Yet another factor is the rapid growth in the WGR capacity making an orderly response to the new technologies’ characteristic difficult. Lastly, there is the constant changing of the WGR technology itself making even recent WGR modeling efforts outdated. | |
| **Priority** | High |
| **Considerations** | Policy: None |
| Reliability: This is a key reliability issue. Proper models are needed to accurately perform planning, design, and operational studies. While a variety of approximations are used for all technologies, the degree of approximation for WGRs has seemed excessive. |
| Technical: The modeling issue is partly the result of technical deficiencies in the computer software used to perform the needed studies. In addition, those designing the software and running the studies have limited experience with WGRs and require additional education and training. One major technical issue for the whole industry is the need to create non proprietary standard models for the many different WGR turbine types. |
| Market: Indirectly, lack of confidence in the models used for studies can result in unneeded conservatism which increases the cost of designs and operations. |
| Performance/Compliance: It is incumbent upon the WGRs to provide accurate technical data to Transmission Service Providers and to ERCOT in a timely way. There are existing NERC standards AND ERCOT Protocols that define that responsibility and required time frames. |
| Cost Allocation: No |
| **Strategy** | The focus needs to be on identifying disconnects between equipment on the ground and the representation in studies. There are two main aspects to be addressed; lack of understanding leading to miscommunication, and the technical capability of the software.  Recommendation. Increase education of all parties about the technology and the modeling issues. Add resources to ERCOT planning staff to address all study related issues. Lead and participate in industry wide WGR model improvement efforts. |
| **Activities** | ERCOT (E X): Hold workshops for Market Participants and ERCOT staff to allow WGRs, equipment vendors, Transmission Service Providers, and ERCOT to present their information and issues to each other. Take advantage of study efforts to verify WGR data, to develop more appropriate models, and to initiate software changes. ERCOT and the Transmission Service Providers need to rework all forms and modeling processes to be appropriate for WGRs and use a common database for all studies. |
| Market Participants (MP X):  WGRs need to work with equipment suppliers to insure that the vendors provide complete, detailed, and accurate technical data for their equipment as needed to support all required studies. WGRs must update those that need their technical data promptly and completely as their plans and actual facilities change. |
| **Follow-Up** | Insure that the Voltage Ride Through findings relative to WGR modeling needs as well as the modeling data itself is captured and documented. Initiate revisions to procedures and Protocols to establish a common data collection system and data base for all generators with appropriate modifications to insure there is clear documentation of the actual characteristics of each technology’s facilities. |
| **Schedule** | Wind Workshop One; Title; Date  Wind Workshop Two; Title; Date  Wind Workshop Three; Title; Date  Wind Workshop Four; ERCOT requirements and Vendor solutions; July 2010  Voltage Ride Through Study phase 2; WGR data and model verification; June 2010  Data Repository; modify data collection and establish data base; after nodal go live |