

Wind Energy and the Interconnection Process



Nebraska Wind Conference
November 14, 2013

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Company Background

- Utility-scale renewable energy developer headquartered in Edina, Minnesota
- Geronimo has successfully developed and built three projects in Minnesota totaling 239MW
- 2012 COD on a 200MW wind farm in southwestern Minnesota with a Power Purchase Agreement (PPA) with Xcel Energy (NYSE:XEL), the largest buyer of wind energy in the US
- 578MW of PPAs executed in 2013
- Over 500 additional MW under negotiation
- Development portfolio of over 3,000MW

Key Challenges

1. Interconnection Availability
2. Timing of the Study Process Relative to Project Development
3. Managing Cost
4. Significant Differences in Interconnection Process Amongst RTO's

Interconnection Availability

- Interconnection capacity is typically a limiting factor in wind energy development
- Capacity is typically limited areas with strong wind resources and relatively sparse population such as Nebraska
- Numerous developers competing for limited interconnection capacity results in a race to secure capacity
- RTO's tariffs attempt to discourage speculation – some more effective than others
- Costs for significant transmission improvements are typically more costly than one project can absorb
- RTO's and utilities can fund transmission improvements and recover costs
 - Process is slow
 - Must prove that improvements serve the public need

Interconnection Timing

- Developers must consider many factors when making the decision of when to submit an interconnection request
 - Competition for interconnection capacity
 - Maturity of the development asset
 - Barriers to construction – (i.e. does the project have a PPA, can it be built merchant, are there significant unmitigated development risks)
 - RTO rules and regulations – does the RTO allow for suspension of the Interconnection Agreement if development is not complete
- Often times ability to secure a PPA is contingent on having secured interconnection capacity
- Timeline to market and construct the project is limited by the interconnection process

Managing Cost

- The interconnection study process is costly – typically several hundred thousand dollars to complete
- Interconnection studies typically are done in groups – resulting in uncertainty in study results if other projects do not move forward
- Developers typically retain transmission/interconnection consultants to provide more clarity
- Significant financial security is required to execute ISA
 - Some at risk if project does not move forward

Differences in Interconnection Process Amongst RTO's

- The interconnection process differs from one RTO to the next
- Key differences influencing a developer's approach to interconnection include:
 - Timing and amount of study deposits
 - Ability to slow down the study process to match development - MISO allows developers to "park" projects if they are not ready to move to the next phase in the study process
 - Land control requirements
 - ISA security requirements
 - Cluster study vs. individual queue position (MISO and SPP vs. PJM)
 - Ability to suspend ISA
- RTO's have made significant revisions in their tariffs to address issues that are unique to wind energy

Questions

