

Title: Near-term Economics and Equity of Balancing Area Consolidation to Support Wind Integration

Duration: 2012 - 2014

Sponsor: RenewElec Project

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Description:

Wind generation in America has grown rapidly in recent years. Wind power's inherent variability occurs on all time scales and can have significant effects on the electricity grid's stability and reliability, as discussed in many integration studies, e.g., the Eastern Wind Integration and Transmission Study. Balancing areas (BAs) are geographic regions that need to maintain the balance between demand and supply of electricity; they are the ones responsible for balancing the additional variability that wind adds. There are approximately 100 BAs which vary in size between 70 MW and 153 GW. Previous research suggests that significant benefits to consolidating two or more of the smaller BAs into one consolidated BA (CBA), such as reducing the cost of balancing the electricity grid. Some have gone further to suggest that BA consolidation is more than beneficial, it is necessary in order to achieve aggressive penetrations of renewable generation. Given the potential benefits and the potential for further consolidation, there have been few examples of BA consolidation since the formation and continued expansion of the Midcontinent ISO. This project addresses this incongruity by analyzing the economic, environmental, and equity impacts of BA consolidation in the near-future.