



# Eastern Wisconsin Initiative *Update*

ATC Customer Meeting  
November 19, 2009





# Discussion Objectives

- Inform stakeholders of the analytical efforts underway to identify beneficial transmission upgrades in the Eastern Wisconsin area
- Discuss and obtain feedback regarding:
  - Issues in Eastern Wisconsin and prioritization
  - The assumptions for ATC's analysis of future transmission infrastructure needs in the Eastern Wisconsin
- ATC recognizes the need to perform more detailed analyses in its footprint to understand the impacts on its transmission system and identify potential transmission solutions for system performance violations

# Eastern Wisconsin Study Area





# Eastern Wisconsin Transmission Challenges

- Generator Interconnection Requests
- Integration of local and regional Renewable Resources
- System stability improvement need
- Lake Michigan area market congestion
- Operational and maintenance hardships
- Other system challenges identified by stakeholders



# Studies in Progress Impacting Eastern Wisconsin

- Point Beach Generator Interconnection (GIC) request
- Regional network overlay studies
  - MISO RGOS analysis
  - SMART transmission study
- MISO study of Lake Michigan area congestion

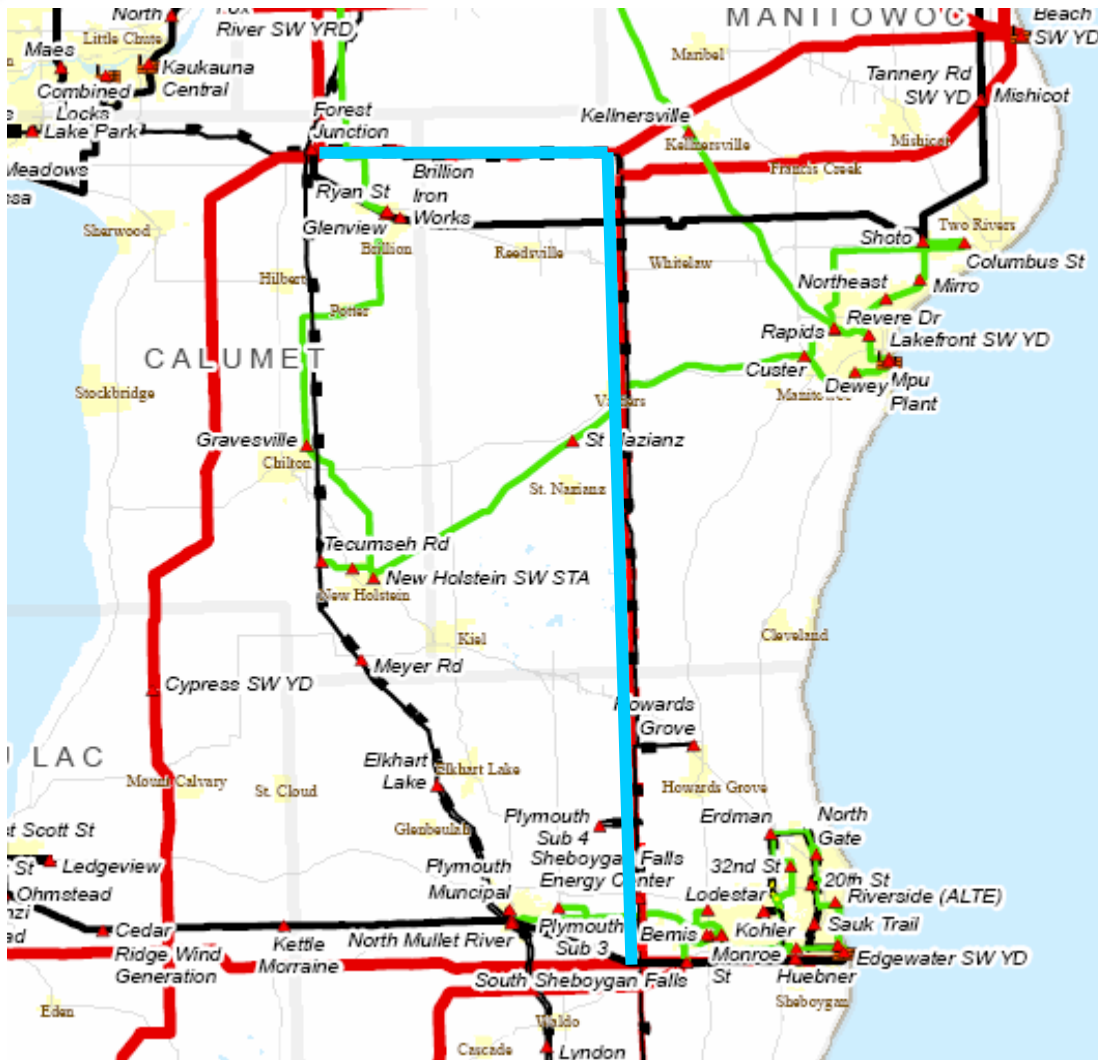
# Point Beach GIC Request

## *G833/G834 Transmission Improvements*

- ~118 MW total (U1 and U2) thermal uprate
- Transmission infrastructure improvements have been identified as follows:
  - Conversion of 138 kV lines 971K51 and HOLG21 (Forest Junction to Holland) to 345 kV
    - Additionally construct a new 138 kV line to reconnect 138 kV substation loads
  - Add two new 345 Switching stations
    - “North” SS, interconnecting new 345 kV line, line L111 (PB to SEC) and line L121 (PB to FOJ)
    - “East” SS, interconnecting new 345 kV line, line W-1 (EDG to SFL) and line 796L41 (EDG to Cedarsauk)



# Proposed Solution Voltage Conversion 138 kV lines 971K51 and HOLG21





# ATC Targeted Study *Green Bay to Edgewater area*

- Study Objective - To determine the robustness of the Point Beach GIC infrastructure solution under wind related scenario conditions
  - (The MISO interconnection study tariff process studies wind only at a nominal 20% capacity factor)
- Peak and Off-peak scenarios will give an additional insight into the incremental performance of the low cost preferred solution in comparison to an alternative of adding a new 345 kV line and ROW
- Study results expected in first quarter of next year

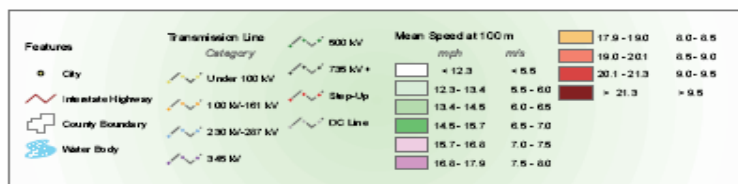


# Wisconsin Wind Speed Contour Map (at 100M)

- Wisconsin's wind resource potential overview
- Lower quality sites colored in green

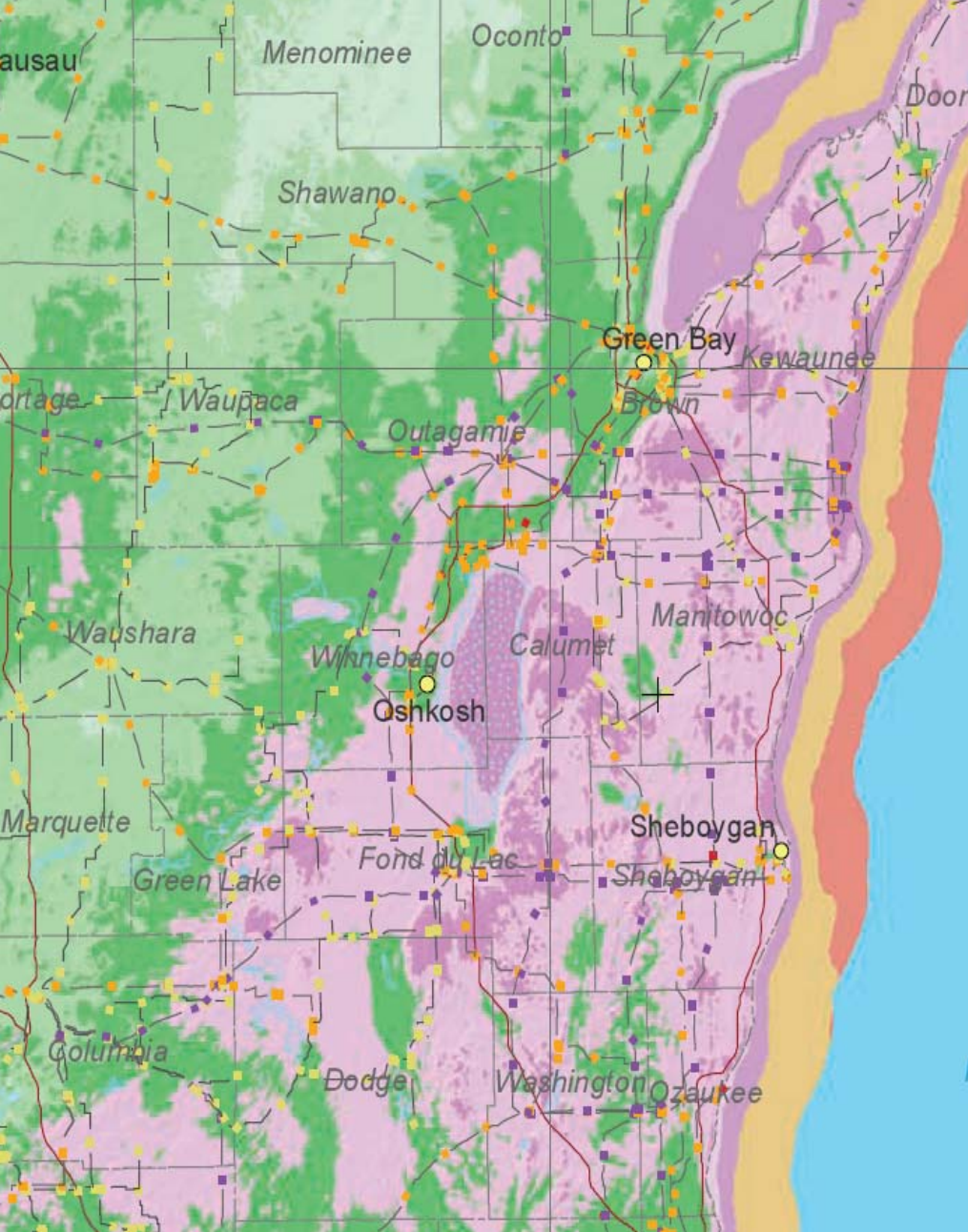


Wind Resource of Wisconsin Mean Annual Wind Speed at 100 Meters



**AWS Truewind**  
 Projection: NAD 1983 NAD83 Transverse Mercator  
 Spatial Resolution of Wind Resource Data: 200m  
 This map was created by AWS Truewind using the MeteoMap system and historical weather data. Although it is believed to represent an accurate overall picture of the wind energy resource, estimates at any location should be confirmed by measurement.  
 The transmission line information was obtained by AWS Truewind from the Global Energy Database Velocity Suite. AWS does not warrant the accuracy of the transmission line information.  
 Source date: December 2005  
 WL\_SPL\_POW1\_EF+DOT.mxd 08/19/2007

source: <http://www.focusonenergy.com/Information-Center/Renewables/Wind-Maps-Data/>



## Northeastern Wisconsin Wind Speed Contour Map (at 100M)

- There are 1711 MW of ATC wind related requests in the MISO generator interconnection queue
- 1093 MW of wind requests in the pictured area
- 396 MW of in-service wind units in pictured area
- It appears that the better capacity factor wind sites in Wisconsin are available in this area



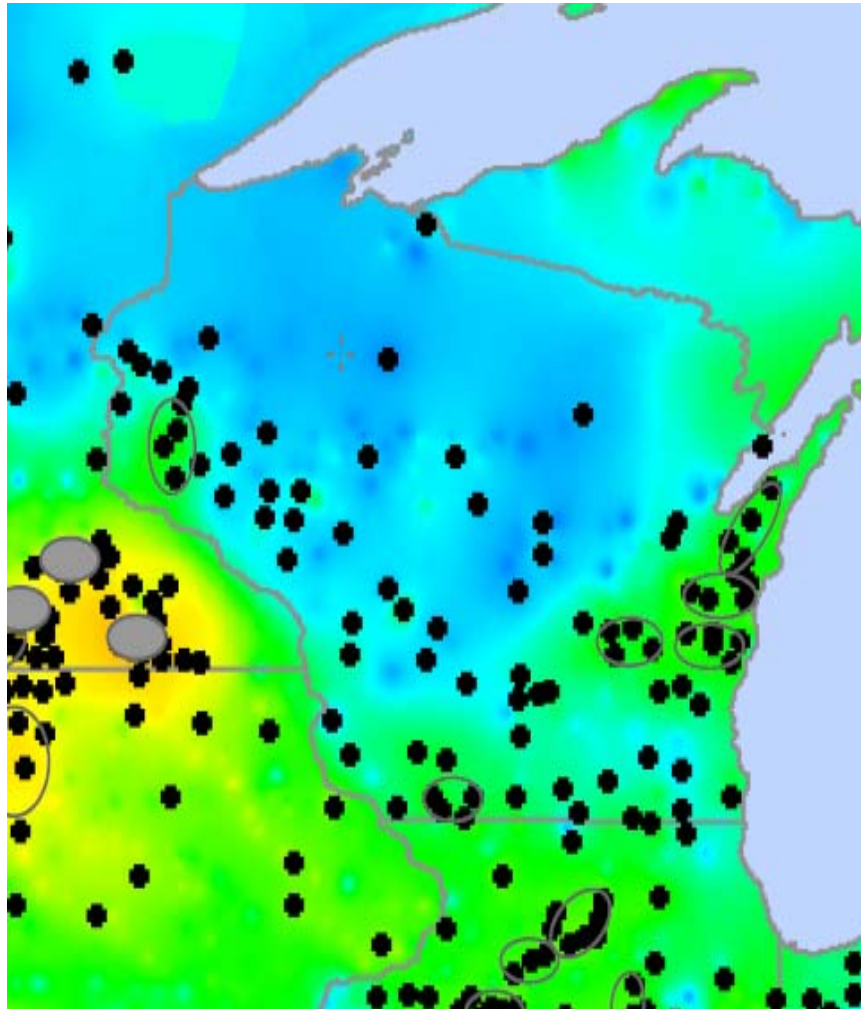
# Questions



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# UMTDI Wind Zone Development



# MISO RGOS NREL Input

## The Journey – NREL Data

