



Renewable Integration

Greening the Grid: Innovation for our Electricity Infrastructure

November 4, 2011

Wisconsin Institutes for Discovery

Madison, WI

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Manager Major Projects

Helping to **keep the lights on,**
businesses running and communities strong®





Introducing ATC

- Began operations in 2001 as first multi-state, transmission-only utility in U.S.
- Headquartered in Pewaukee, Wis.
 - Offices in Madison, DePere and Kingsford
- Grew from \$550 million in assets to **\$2.75 billion** in 10 eight years
- Operating 9,400 miles of lines and 510 substations in Wisconsin, Michigan, Minnesota, Illinois



Diverse ownership

- Privately held company with 29 owners
 - Investor Owned Utilities
 - Municipalities
 - Coops
- Customer-owners share goals for projects solving multiple system issues, cost-efficiency
- Ownership eases burden of compliance for small transmission owners

Strong and growing

- Largest transmission owner in MISO (net plant)
- Built first access project in MISO; 35-mile line between Wisconsin and Illinois
- Projecting another \$3.4 billion in investment over next 10 years
- Projects being driven by reliability, economics and public policy



Bringing people into the process

- Business practice – engaging stakeholders in transmission discussions
- 10-Year Assessment issued to interested stakeholders (www.atc10yearplan.com)
- Public outreach to identify local concerns, invite stakeholder input
- Project collaboratives with various stakeholders to find best solutions
- Regional planning studies to achieve mutual goals
- Involved in industry groups & benchmarking to improve operations, maintenance, safety

Making the grid even smarter

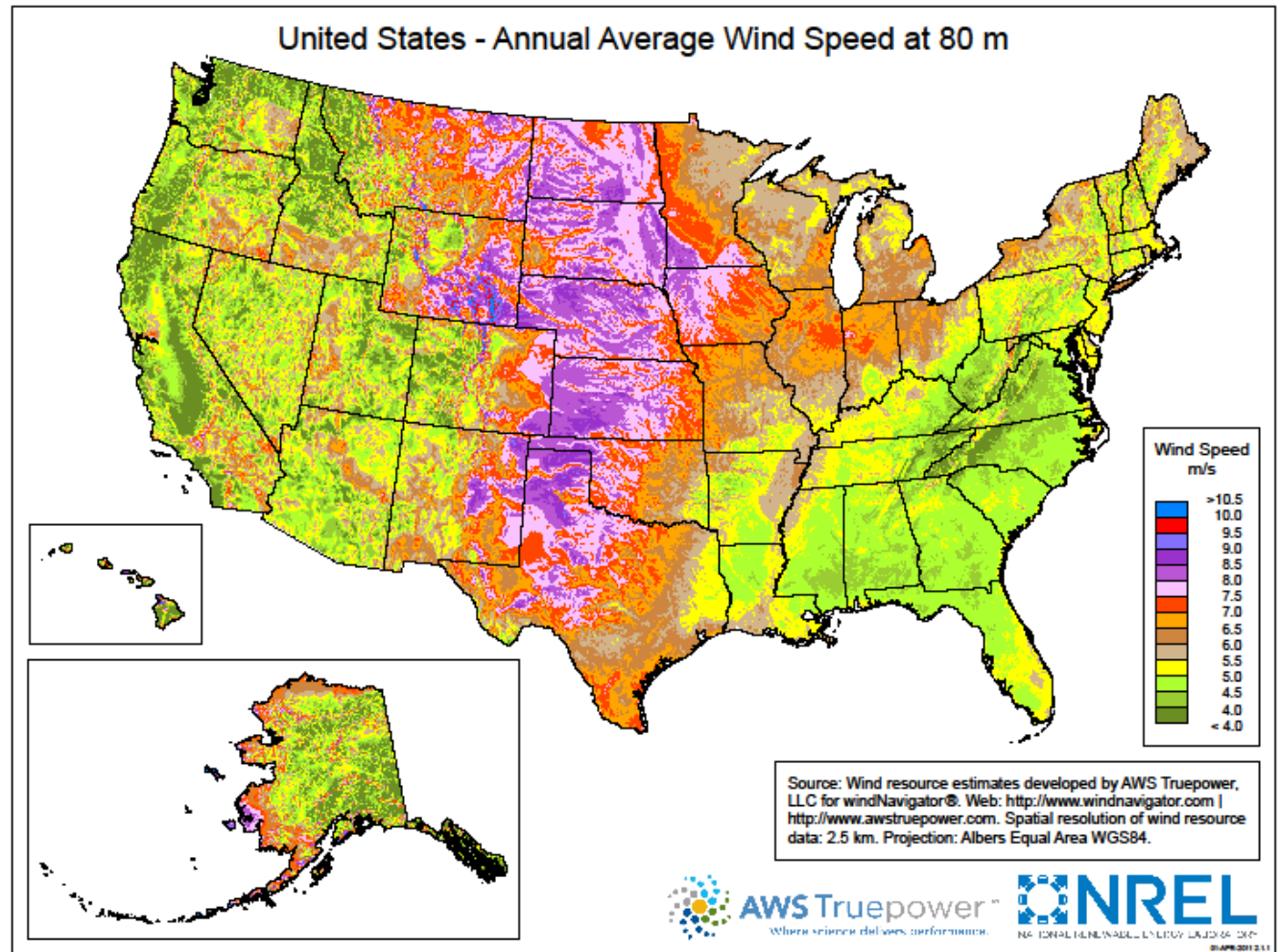
- Received \$12.7 million from U.S. DOE Smart Grid grants
 - PMUs for real-time monitoring
 - OPGW to improve communications between ops and subs
- Installing advanced technologies
 - Distributed superconducting magnetic energy storage devices
 - Digital sensing devices
 - Microprocessor relays
 - Phase shifting transformers
- Installing fiber optic infrastructure with all new transmission construction to accommodate mature Smart Grid



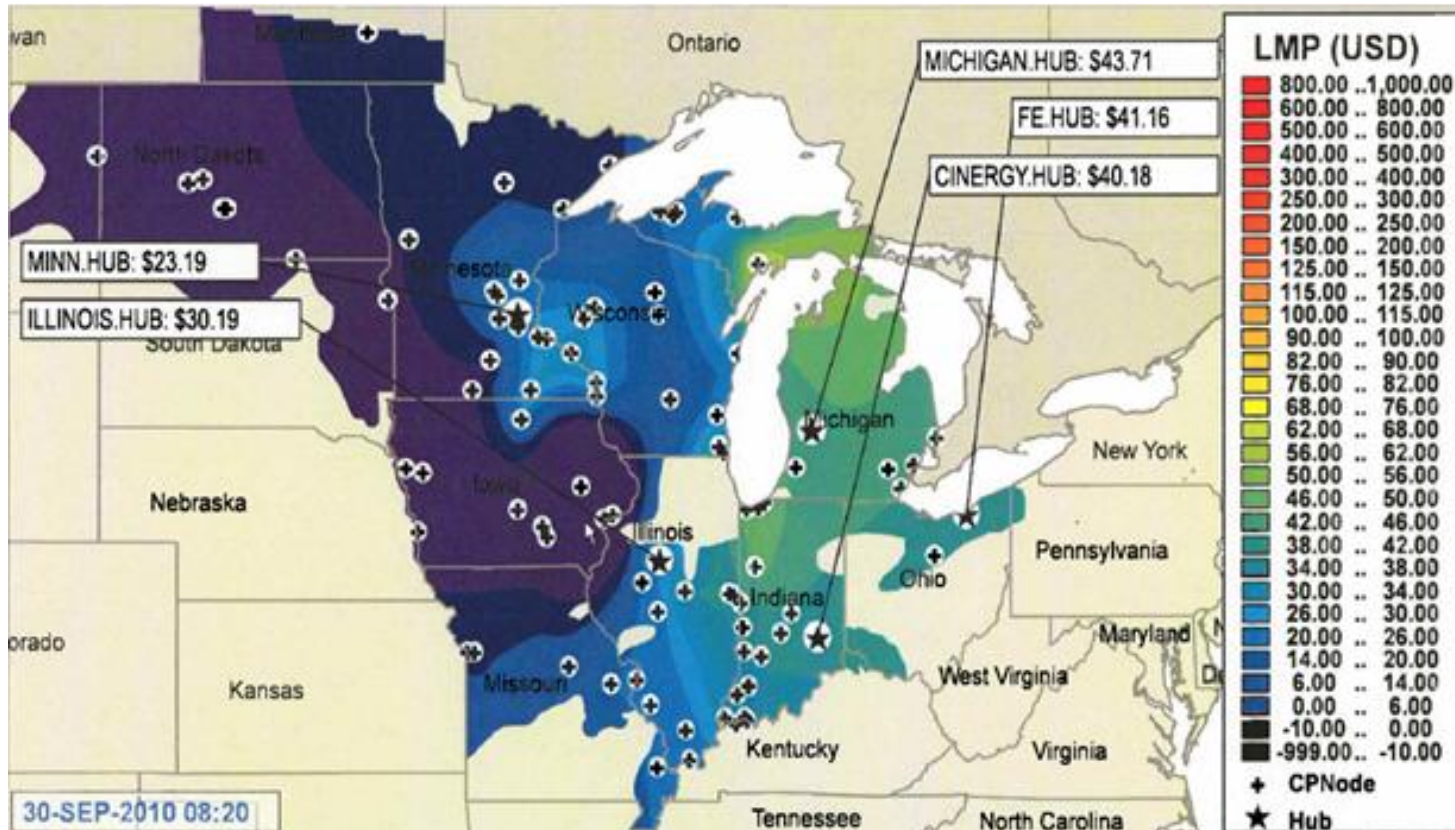
Putting the power of wind on the wires

- Connected 400 MW of wind; 6,000 in queue
- Building transmission backbone to connect in time to serve load and generation
- Helping states meet RPS through participation in several regional studies
- Well positioned to accommodate new sources of green energy generation

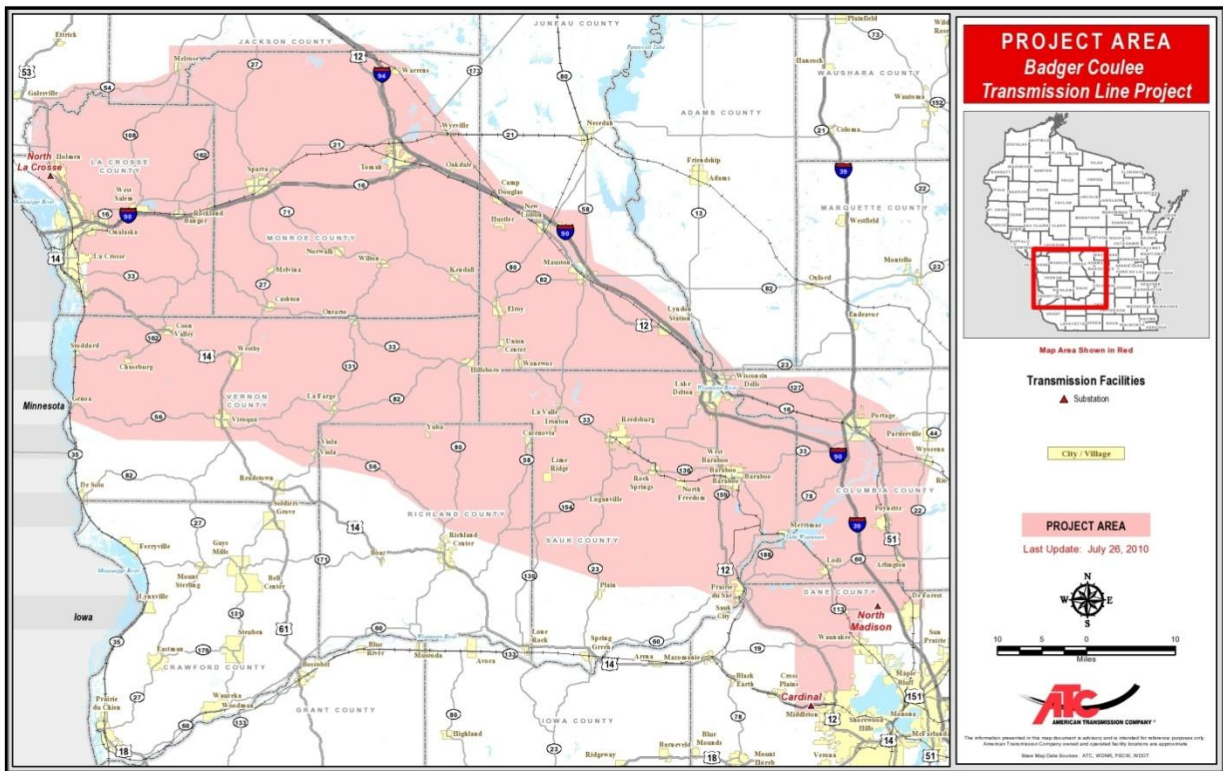
Case Study- Badger Coulee



MISO Congestion



Badger Coulee



- Preliminary Cost Estimate
 - \$425 million (Year of Occurrence)
 - \$360 million (\$2010)
- Estimated 150-mile 345 kV line
- In-Service Date - 2018



Badger Coulee Net savings

- Six futures – with and without cost sharing
 - NET savings between (\$153M) and \$962M
- Regional reliability
- Local reliability
- Economics
 - Energy savings
 - Loss savings
 - Renewable Investment Benefit
 - WI Renewable Portfolio Standard



Smart Grid

- Wind resources - far from population centers
- Too expensive to build “copper sheet”
- Additional utilization of wind via Smart Grid
 - SCED ... send signals directly to consumers
 - Recall MISO congestion (LMP map)



More information

- www.atcllc.com
- www.atc10yearplan.com
- www.atc-projects.com

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