WOLVERINE
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Powering Wolverine's Renewable Future

Presented to

Michigan Wind Working Group

Lansing, Michigan

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Presentation Overview

- The Coop Story
- Who is Wolverine?
- Wolverine's involvement in project
- Michigan's proposed RPS legislation
- Project/Business synergies
- Project challenges
- Lessons learned
- Project photos

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Co-op Story: The Early Years

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Rural Goes Electric

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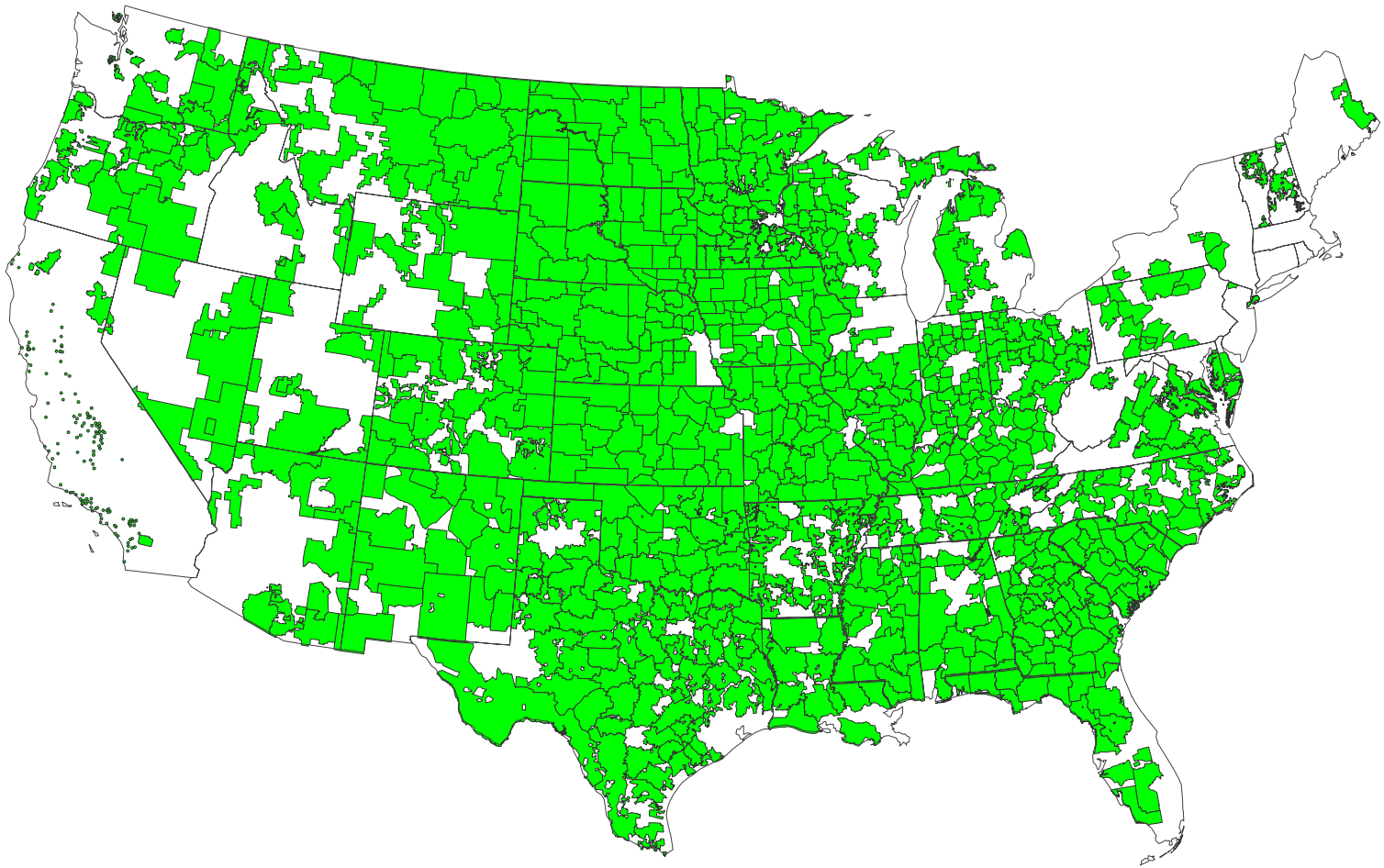
Cooperative Service Area Today



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Michigan Co-ops Get Started

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Distribution Cooperatives Create Wolverine – The "G&T"

Who is Wolverine?

Corporate Structure

Wolverine Key Facts

- Not-for-profit 501(c)(12) corporation
- Mission:
  - To provide outstanding service to our members by delivering reliable, competitive power supply
- Core values:
  - Member service
  - Integrity
  - Environmental stewardship
  - Commitment to employees

2007 Statistics:

- Number of employees
  - 107
- Total revenue
  - $ 240 million

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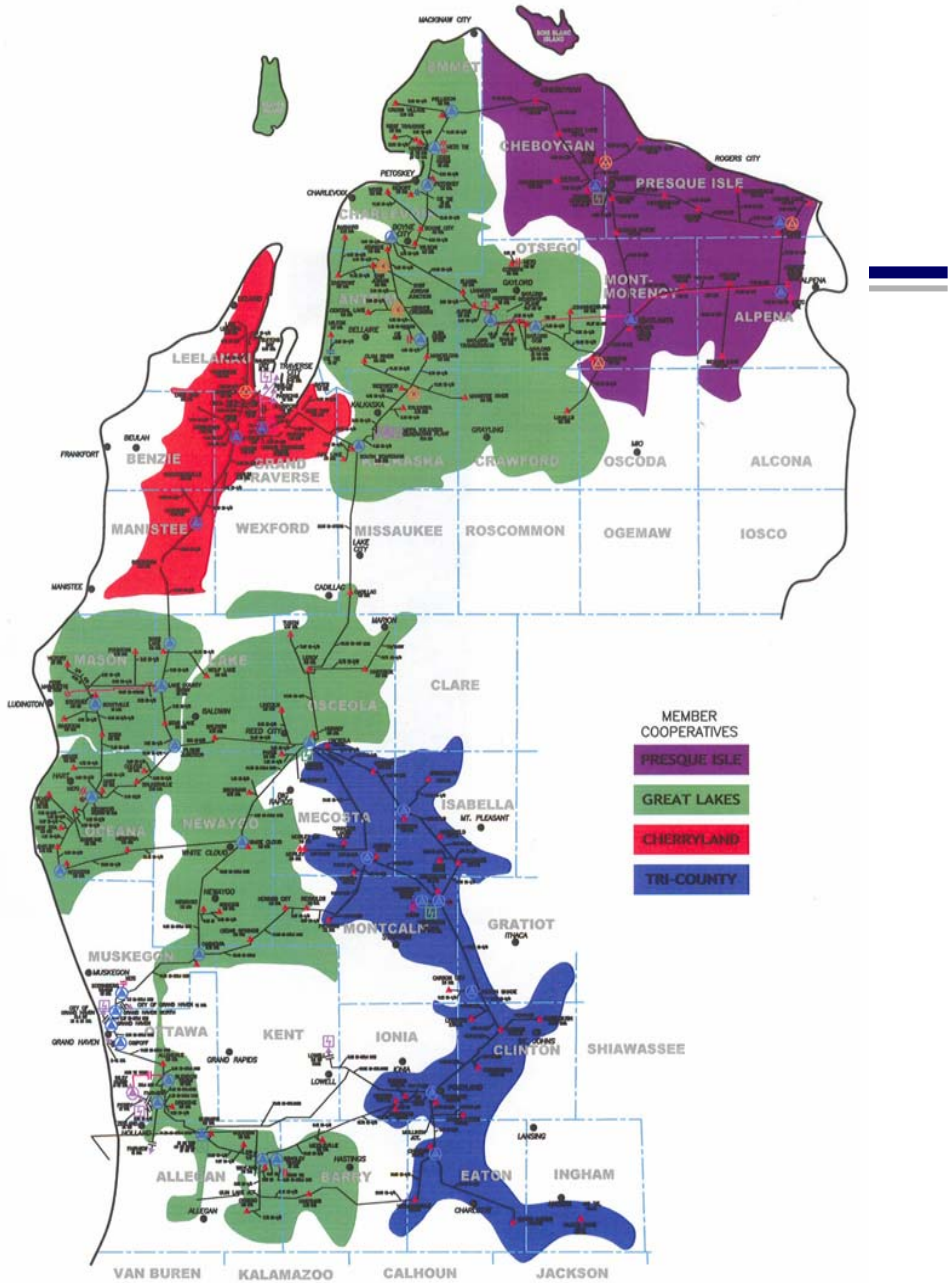
Service Area

- Generation:
  - 240 MW
  - Primarily peaking
- Transmission:
  - 1600 miles
  - High voltage
  - 35 counties
  - 36 stations
- Distribution:
  - 35 counties
  - 130 stations



Energy Control Center

Power Supply

- State of the art
- Operational “nerve center”
- Market participation 7x24
- Follows risk management policies and guidelines
- Maintains emergency electric resource plan
- Transacts with pre-approved energy partners (EEI master agreements)

Transmission

- Monitors Wolverine’s transmission system 7x24
- Coordinates routine outages for maintenance and construction
- Directs restoration of transmission service during unplanned outages

Why is Wolverine Involved in Harvest Project?

- Proactive renewable energy position :
  - Michigan RPS is likely
  - Commitment to thoughtful use of environmental resources
  - First mover advantage
  - Competitively-priced renewable resource for our members

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Project Location

Oliver and Chandler Townships
Huron County, Michigan
Nameplate Capacity 52.8 MW
32 Vestas V82 Turbines

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JOHN DEERE
WIND ENERGY

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Harvest Wind Farm Timeline

Date	Activity
October 2005	Renewables identified as strategic corporate objective
March 2006	Renewable RFP process initiated
November 2006	Deere and Wolverine negotiating team meet in Cadillac
February 2007	Purchase Power Agreement executed
June 2007	Initial construction began
September 2007	Last wind turbine erected
December 2007	Delivery of energy from facility began
April 2008	Commercial Operation

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Project Facts

Developer	John Deere Wind Energy
Facility Name	Harvest WindFarm L.L.C.
Location	Between Elkton and Pigeon in Huron County, Michigan
Size	Over 3,200 acres
Equipment	Thirty-two 1.65 MW Vestas V-82 (52.8 MW nameplate)
Turbine Specifics	80 meter hub height (262 feet) 40 meter blade length (131 feet) 120 meter overall height (393 feet) 283 tons total weight
Operational Data	Cut-in wind speed – 7.9 mph Cut-out wind speed (10 minutes) – 44.7 mph Cut-out wind speed (1 minute) – 53.7 mph Cut-out wind speed (1 second) – 71.6 mph

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Project/Business Synergies

- Wolverine and John Deere are similar:
  - Rural customer base
  - Strong community focus
  - Core values include quality, integrity, innovation and commitment
- John Deere had favorable wind turbine queue position with a narrow window of opportunity
- Wolverine desired to move quickly and had Board support

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Company Contributions

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1. Readiness to sign long-term PPA
2. Strong Board support
3. Understanding of interconnection issues
4. Knowledge of MISO Market
5. Relationships with Detroit Edison, ITC and METC

JOHN DEERE

1. Supply chain position with Vestas
2. Project rights
3. Land leases and strong community support
4. Capital for construction
5. Construction experience

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Project Challenges

- Justifying higher cost of wind energy to Wolverine members
- RFP and PPA process
- MISO queue process:
  - Generation Interconnection Agreement
- Transmission and distribution upgrade requirements
- Determining “right” size of wind farm

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Justifying Higher Cost of Wind Power

- Problem:
  - Purchasing renewable energy at a price higher than current market prices
- Answers:
  - Expectation that renewable energy will become a requirement
  - Develop a willingness to pay a little more now, to gain advantage in renewable energy
  - Provides for supply portfolio diversity
  - Provides price certainty
  - Will provide for competively priced power in the future
  - Learn by doing

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RFP and PPA Efforts

- RFP:
  - What questions should be asked?
  - What limitations or requirements should be attached?
  - How do we verify financial viability?
  - How do we verify experience and capabilities?
- PPA:
  - What time period should the PPA cover?
  - What terms and conditions should be included?
  - What guarantees could or should be attached?
  - How does Wolverine assure protection against project?

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Managing the MISO Queue Process

Queued Requests?

Study Assumptions & Interconnection MW needed ?

Transmission Upgrade Requirements & Timing?

Total Generation Project Scheduling & Economics?

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What is Appropriate Size for Wind Farm?

- Wolverine initially desired a minimum of 25 MW of wind energy to limit risk and cost
- John Deere desired a bigger farm (60 MW) to facilitate economies of scale
- Solution
  - John Deere scaled size back to 52.8 MW to minimize upgrade costs and keep project within budget
  - Wolverine agreed to purchase the full output

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Lessons Learned

- Goal of “learning by doing” paid off
- Gave us a real way to assess RPS direction
- Gained confidence to do the next project
- Created supply portfolio diversity
- Increased interest for renewable resources:
  - Transmission Members
  - Wolverine Power Marketing Cooperative
  - Spartan Renewable Energy

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Thank you.

Questions?