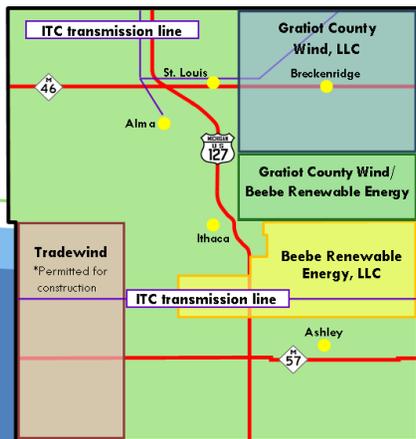


# Why Gratiot?

- Gratiot County is able to facilitate complex projects. The Gratiot County community organized Greater Gratiot Development, Inc. (GGDI) in 1978. GGDI works with business, industry, and government to coordinate projects of all types and sizes.
- This collaborative nature made the county a desirable location for businesses to locate, specifically for wind farms, due to its
  - ◇ Countywide Master Plan
    - ◆ Provided a path for achieving goals
  - ◇ Countywide Model Wind Energy Ordinance
    - ◆ Eliminated contradictive regulations
    - ◆ First in the state of Michigan
- Gratiot has many flat, open areas that are ideal for wind collection.
- Gratiot offered a strong ability to connect to the existing power grid, which is necessary for wind power generation.
  - ◇ This also strengthened Mid-Michigan's power supply reliability.
- Currently, Gratiot County has two wind farms:
  - ◇ Gratiot County Wind, LLC: Breckenridge area
  - ◇ Beebe Renewable Energy, LLC: Ithaca area
- There is a permit for a third wind farm.



# Gratiot Happens!



In total, the two farms provide:

- **188 turbines** that span approx. **50,000 acres** (almost 162,000 Olympic-size swimming pools!)
  - ◇ But only a small amount of land is occupied, and farming continues as usual!
- Approx. **300** temporary skilled construction jobs and **19** permanent full-time maintenance jobs
- Since 2012, wind development has provided Gratiot County with over **\$30.38 million** in additional tax revenue:
  - ◇ **\$11.75 million** to Gratiot County
  - ◇ **\$14.85 million** to local school districts and intermediate school districts
  - ◇ **\$3.78 million** to local townships and cities
- Land payments to benefit approximately **350 families** (payments equate to a new industrial payroll with approximately 25 jobs)

Indirect benefits to Gratiot County include:

- Wind investment was used to leverage a grant to complete infrastructure for the Breckenridge Industrial, Technology and Agribusiness Park, where there are now over **100** new FTE jobs.
- Road upgrades, power grid improvements, and new electrical substations make the area attractive for new businesses.

# The Gratiot County Wind Story



For more information, please contact:  
**Greater Gratiot Development, Inc.**  
136 S. Main St., Ithaca, MI 48847  
(989) 875-2083  
[www.gratiot.org](http://www.gratiot.org)



Home to Michigan's largest wind farm!

# Gratiot County Wind, LLC

# Wind Turbine Facts

# Wind Power!



- The first turbine blades flew on August 16, 2011 (left)
- Located in Bethany, Wheeler, Emerson, & Lafayette townships
- Project developer: Invenergy
- Owned by DTE & Invenergy
- Power purchaser: DTE
- **133** GE turbines (Michigan's largest wind farm!)
- Each turbine generates **1.6 megawatts (MW)**, or **212.8 MW** total from the wind farm

*The two wind farms have noticeably different turbines. GE turbines (GCW) have taller towers with smaller blades. Nordex turbines (Beebe) have shorter towers with larger blades. This is reflected in the information below.*

- The turbine starts with a foundation for support. Foundation bases vary with turbine size. The foundation is continuously poured from up to 50 cement trucks (depending on truck size) and can weigh over **2,000,000 lbs.** (the equivalent of 143 elephants!)



- To generate power, the wind spins the blades which spin the shaft. The tips of the blades on a Nordex turbine have a maximum speed of **202 mph** (more than three times as fast as a cheetah) and GE turbines have a maximum speed of **175 mph** (almost three times as fast as a cheetah)!



## Beebe Renewable Energy, LLC

- Began construction in Sept. 2012 (1A) and June 2014 (1B)
- Located in Emerson, North Star, & Hamilton townships
- Developed and owned by Exelon
- Power purchaser: Consumers Energy (1A) and Lansing Board of Water & Light and the Michigan Public Power Agency (1B)
- **55** Nordex turbines (Beebe 1A: 34, 1B: 21)
- Each turbine generates **2.4 MW**, or **132 MW** total from the wind farm



- Both turbine towers have 5 sections. GE turbines are taller at **328 ft.** A Nordex turbine tower is **300 ft.** The tower weight is **229 tons** (the size of 2 average blue whales)!
- A Nordex nacelle, which houses the gearbox and generator, weighs **182,000 lbs.** and is as big as a mobile home. It sits on top of the tower.



- Nordex turbines have the largest turbine blades with a diameter of almost **400 ft.**, (just longer than an entire football field)! GE turbine blades are slightly smaller with a diameter of **271 ft.**



As a result:

- Gratiot County Wind, LLC turbines will power **50,000 homes** (approx. the size of Lansing, MI).
- Beebe Community Wind turbines will power **33,000 homes** (two times the size of Gratiot County).
- Together, both farms could power almost **3.5 million** regular 100-watt light bulbs.

### Fun Fact:

The huge Times Square Ball has 32,256 LED lights at 12 watts each, for a total of 387,072 watts. Therefore, both wind farms could light **891 New Year's Eve balls.**

To learn more about wind development and view the Gratiot County Wind Story in video form, please visit:

[www.gratiot.org/utility\\_scale\\_wind\\_development.asp](http://www.gratiot.org/utility_scale_wind_development.asp)

Updated: 08/2016

\*CGDI countywide economic development services are supported by the Agriculture & Economic Development millage of Gratiot County.