



VOLKSWIND

AN OVERVIEW OF WIND PROJECT SITING
& WINDFARM CHARACTERISTICS

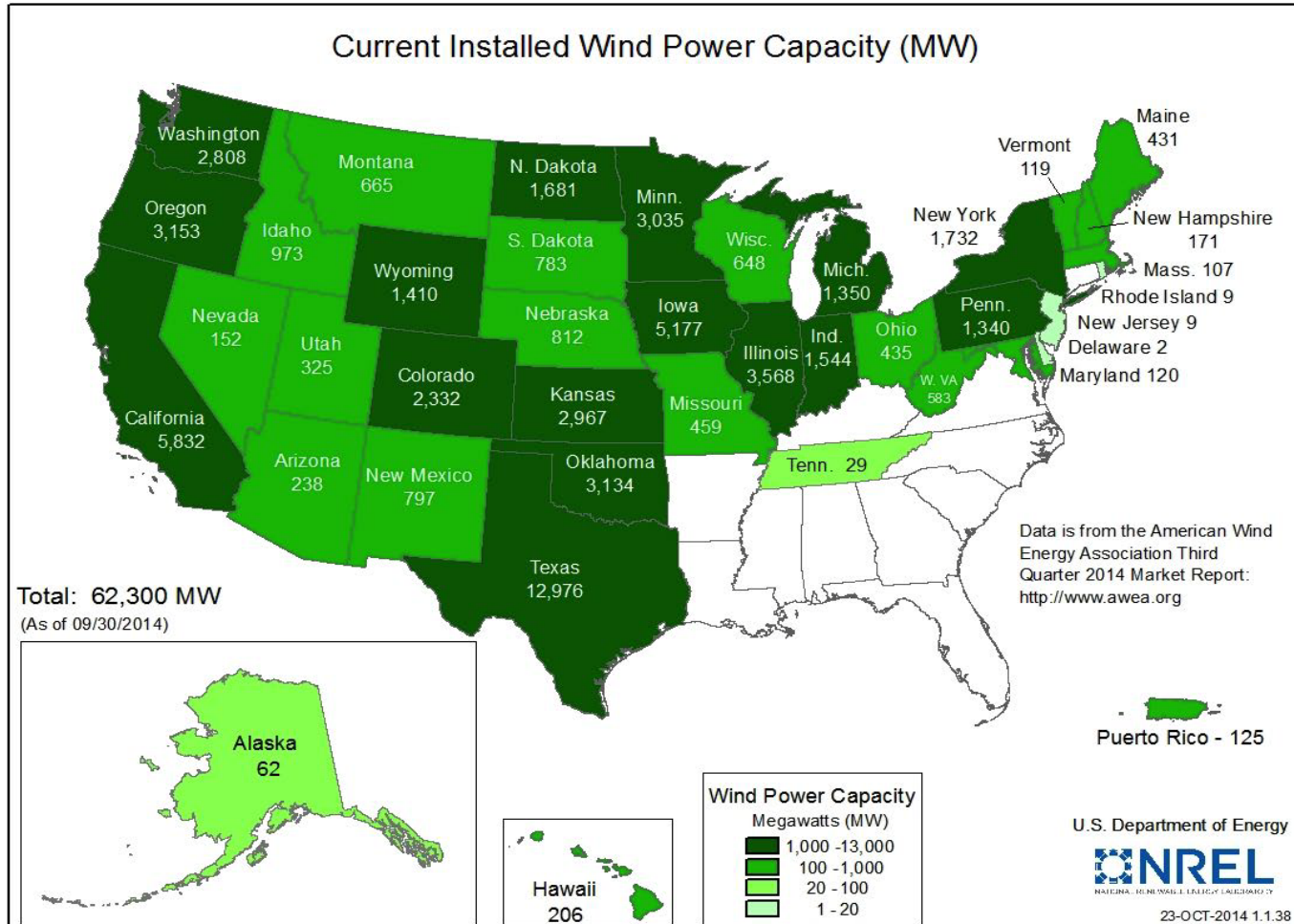


OUTLINE

- I. INTRODUCTION TO US WIND MARKET AND NEBRASKA
- II. WIND POWER FACTS
- III. SITE SELECTION
- IV. SETBACKS
- V. ELEMENTS OF A WINDFARM
 - I. TURBINES
 - II. ACCESS ROADS
 - III. COLLECTION LINES
 - IV. SUBSTATION
- VI. LANDOWNER ROYALTY POOL
- VII. QUESTIONS?

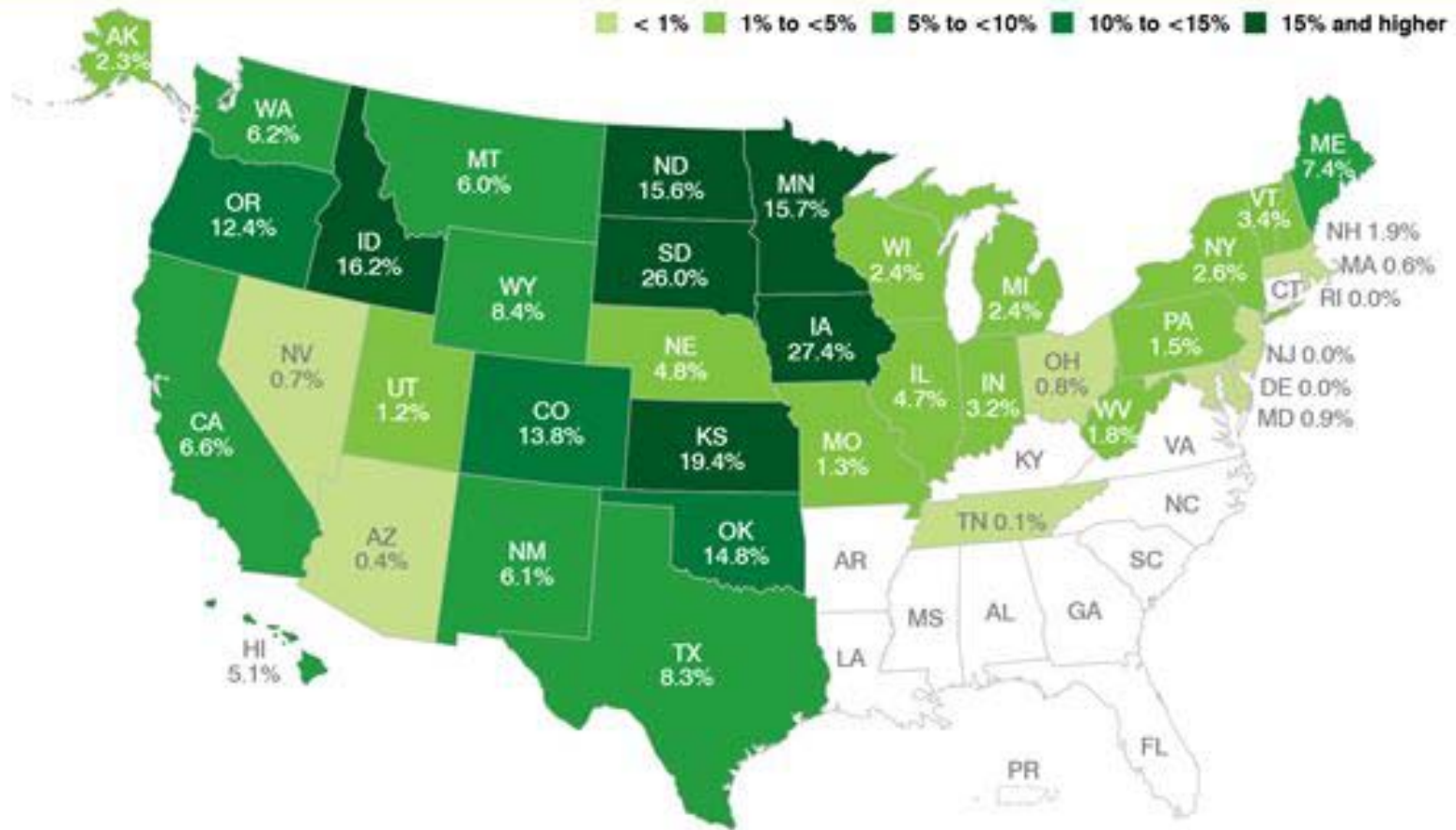


WIND ENERGY IN THE US



WIND ENERGY IN THE US

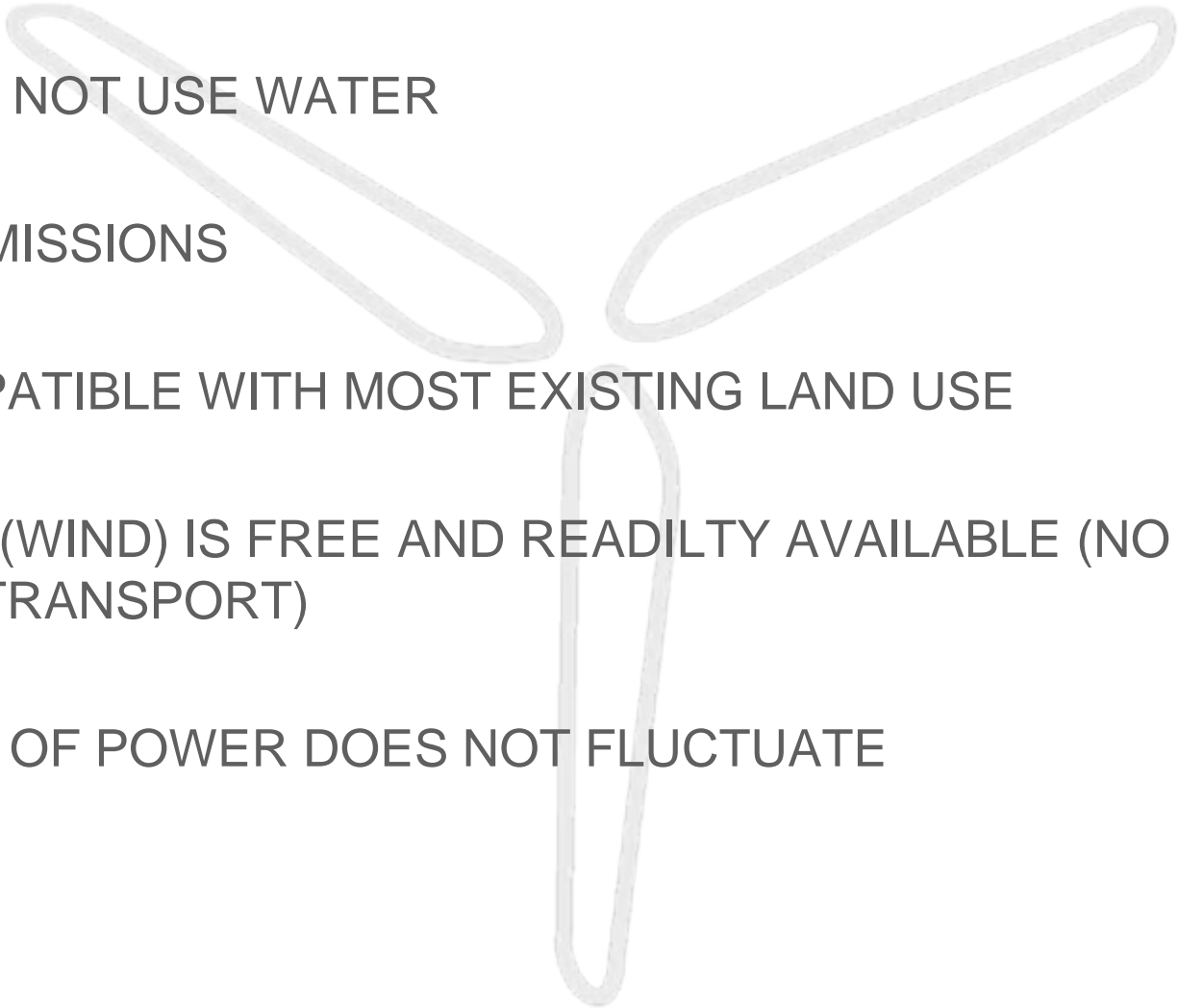
U.S. Wind Energy Share of Electricity Generation during 2013, by State



WIND ENERGY FACTS

- Equivalent number of average American homes powered in a year by current installed wind capacity:
18 million
- Wind energy's percent of new generating capacity installed over last 5 years (2009-2013):
31%
- Total number of operating utility-scale wind turbines:
> 48,000
- Number of U.S. states with operating utility-scale wind energy projects:
39 plus Puerto Rico

WIND ENERGY FACTS

- 
- A large, faint, light gray outline of a three-bladed wind turbine is centered in the background of the slide.
- DOES NOT USE WATER
 - NO EMISSIONS
 - COMPATIBLE WITH MOST EXISTING LAND USE
 - FUEL (WIND) IS FREE AND READILTY AVAILABLE (NO NEED FOR TRANSPORT)
 - COST OF POWER DOES NOT FLUCTUATE

PROVIDES ECONOMIC BOOST TO LOCAL ECONOMIES

- COUNTY TAX BASE
 - Nameplate Capacity Tax
 - Property Tax

- LANDOWNERS
 - Fixed Rent / Royalties
 - Construction / Installation Fees
 - Neighbor Agreement Compensation

- JOBS & CONTRACTING
 - Construction & Development
 - Ongoing Operations & Maintenance



BROKEN BOW EXAMPLE

- Custer County, NE
- 50 turbines on 11,000 leased acres
- \$145m cost
- 100 construction jobs / 7 permanent jobs
- \$280k annual nameplate capacity tax
- \$900k annual property tax and state income tax
- \$540k annual landowner royalties



WHAT WE LOOK FOR

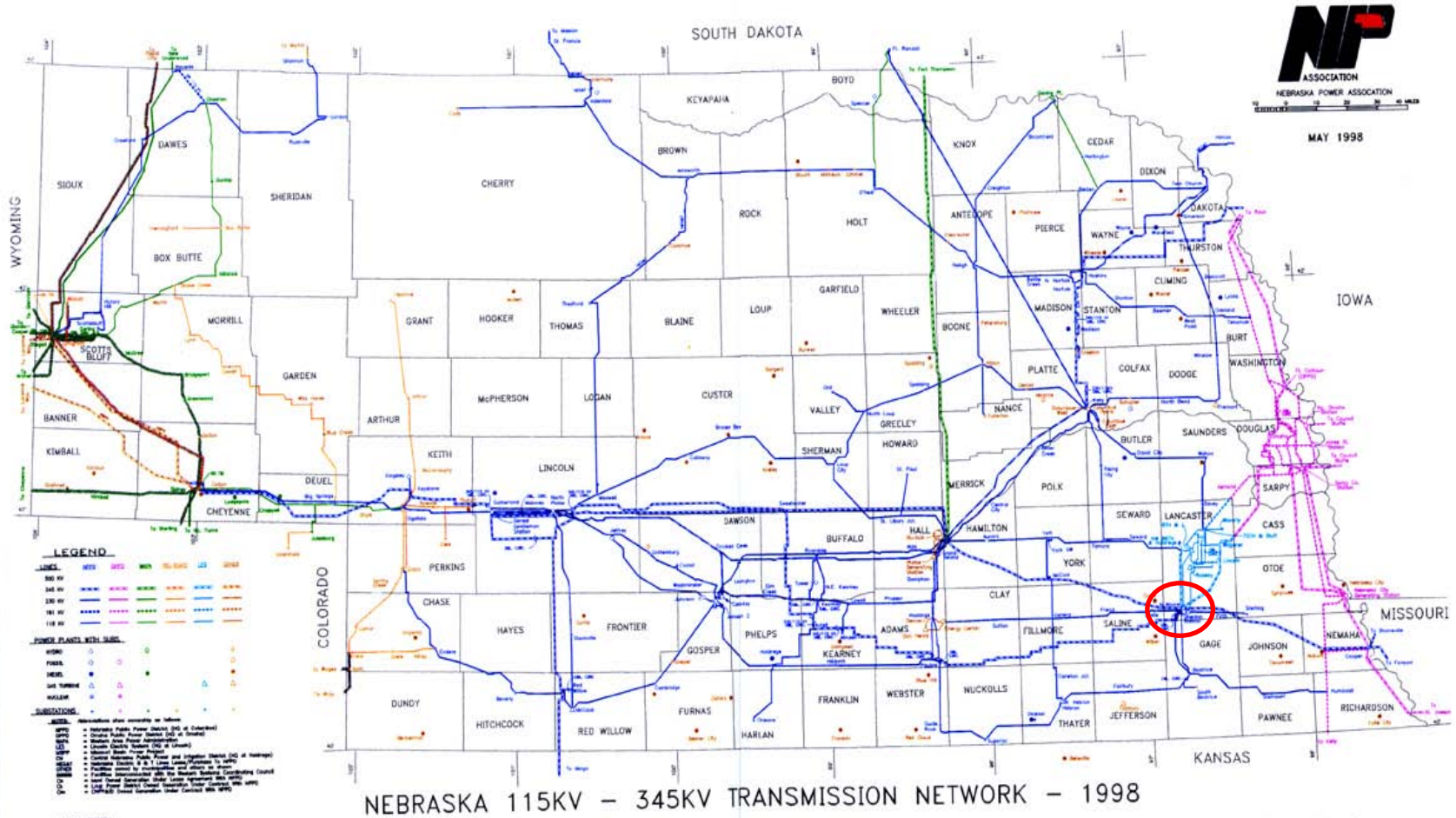
1. VIABLE WIND RESOURCE
2. TRANSMISSION (AVAILABLE CAPACITY ON EXISTING LINES)
3. LOW WILDLIFE SENSITIVITY
4. WILLING LANDOWNERS

SITING: WIND RESOURCE

- Majority of Nebraska has “above average” and “excellent” wind resource
- Meteorological Tower installed April 2013 shows “excellent” wind resource in Hallam area

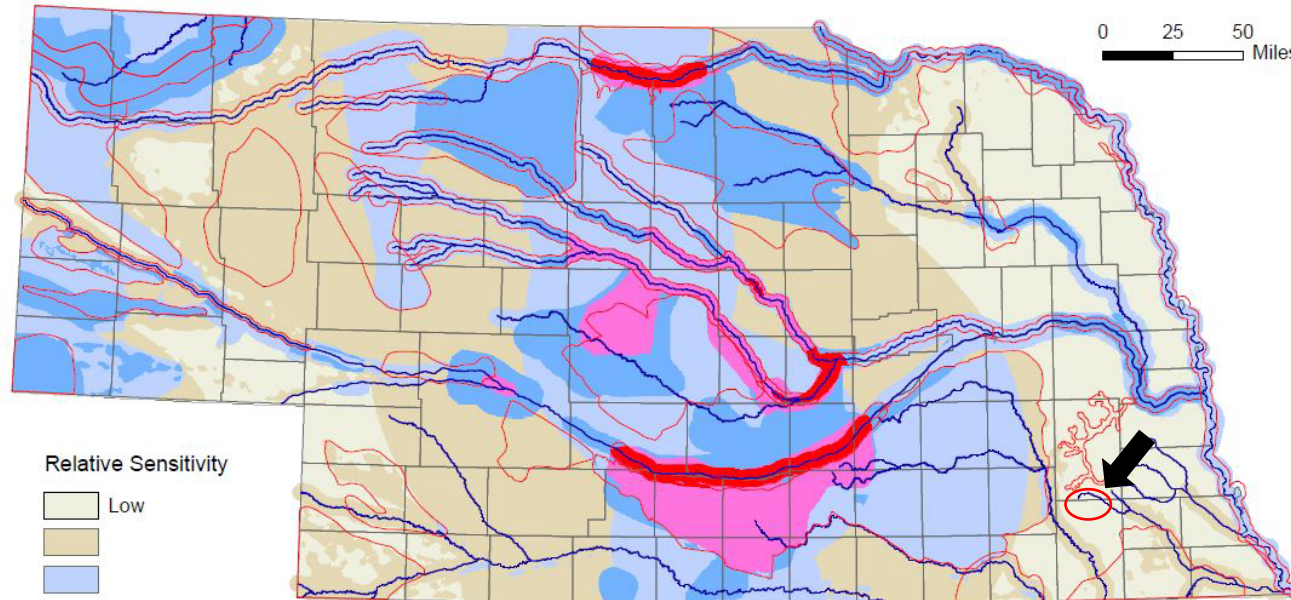


SITING: NEBRASKA TRANSMISSION NETWORK

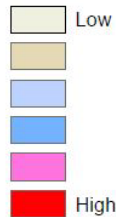


SITING: NEBRASKA WILDLIFE SENSITIVITY

Wind Energy and Nebraska's Wildlife: An index of the sensitivity of wildlife habitats to wind energy development, based on selected at-risk species



Relative Sensitivity



Biologically Unique Landscapes

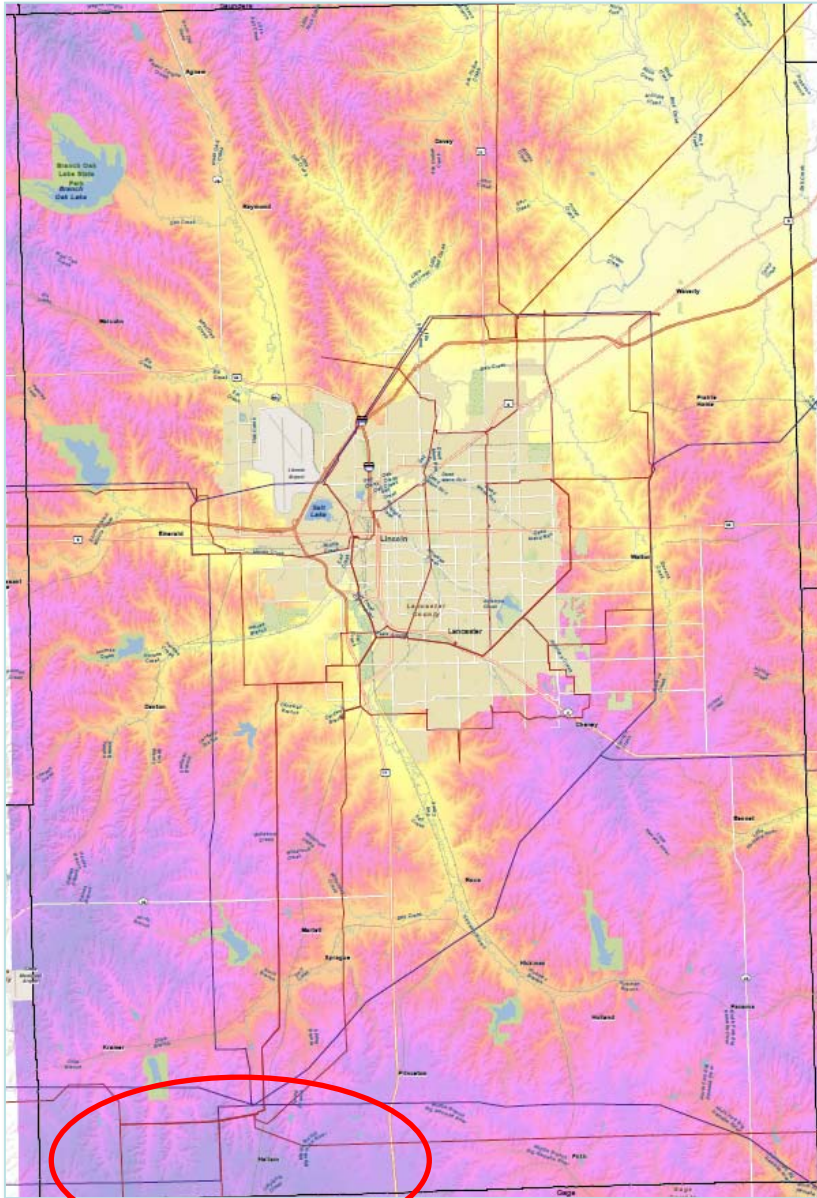


This map was designed to aid in planning for wind energy development by identifying areas that are considered relatively more sensitive or less sensitive to such development, with respect to species of concern. This map is not designed to evaluate wind farm siting at specific locations. Even in "low sensitivity" areas shown, there will be specific locations where siting of wind power infrastructure can negatively impact significant biological resources (e.g. remnant tallgrass prairie, listed plant species, etc.). Contact the Nebraska Game and Parks Commission and the U.S. Fish and Wildlife Service for potential site-specific impacts and potential conservation measures to avoid "take" under the state Nongame and Endangered Species Conservation Act and the federal Endangered Species Act.

See attached document for a description of the information used to develop this map.

Map version date: October 1, 2011

SITING: LANCASER COUNTY EXAMPLE



- There are only a few places in Lancaster County with viable wind resource
- Transmission studies show available capacity

Legend

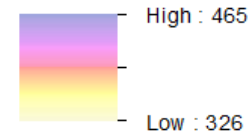
Transmission Lines Elevation (m)

Voltage Class (kV)

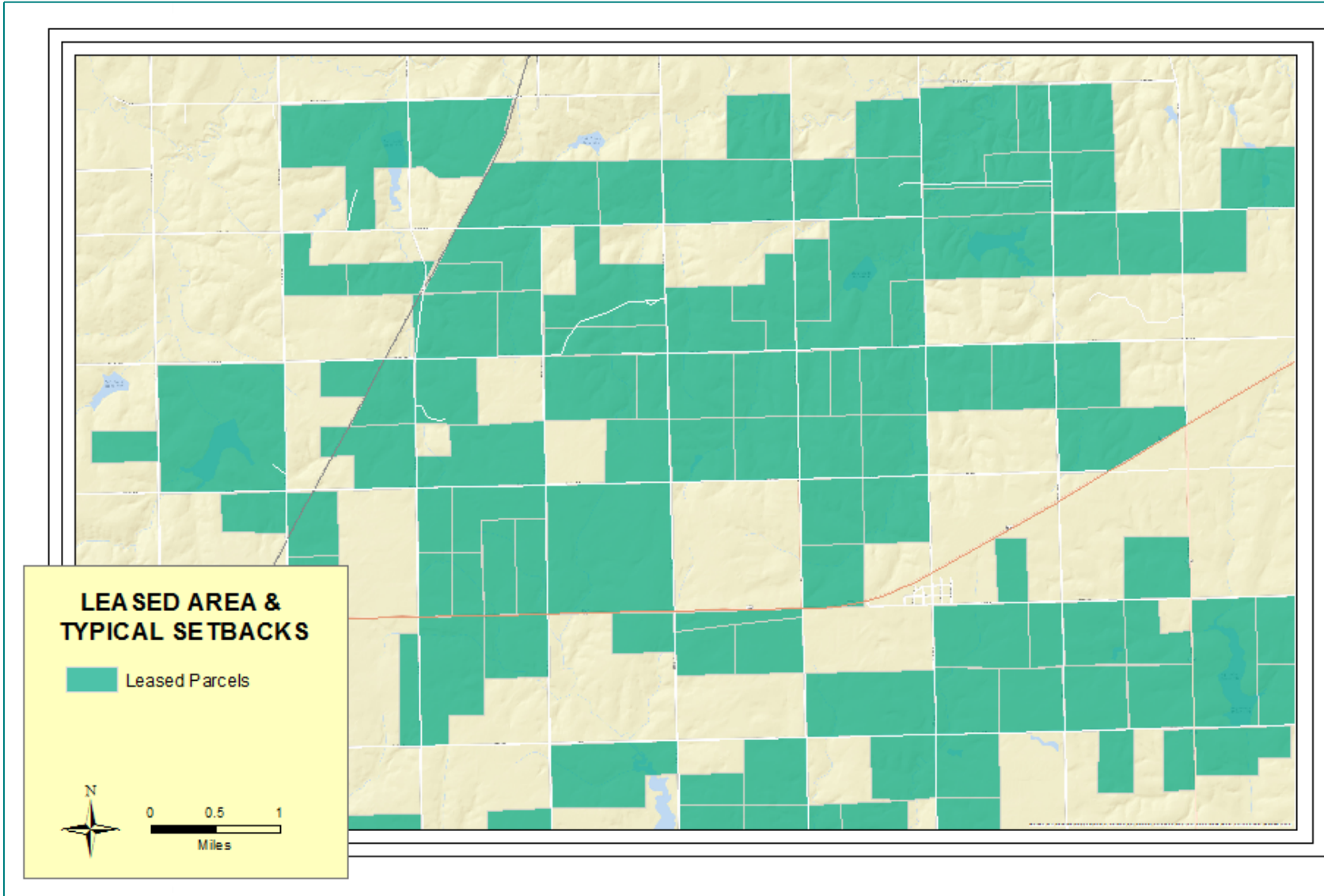
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230-287

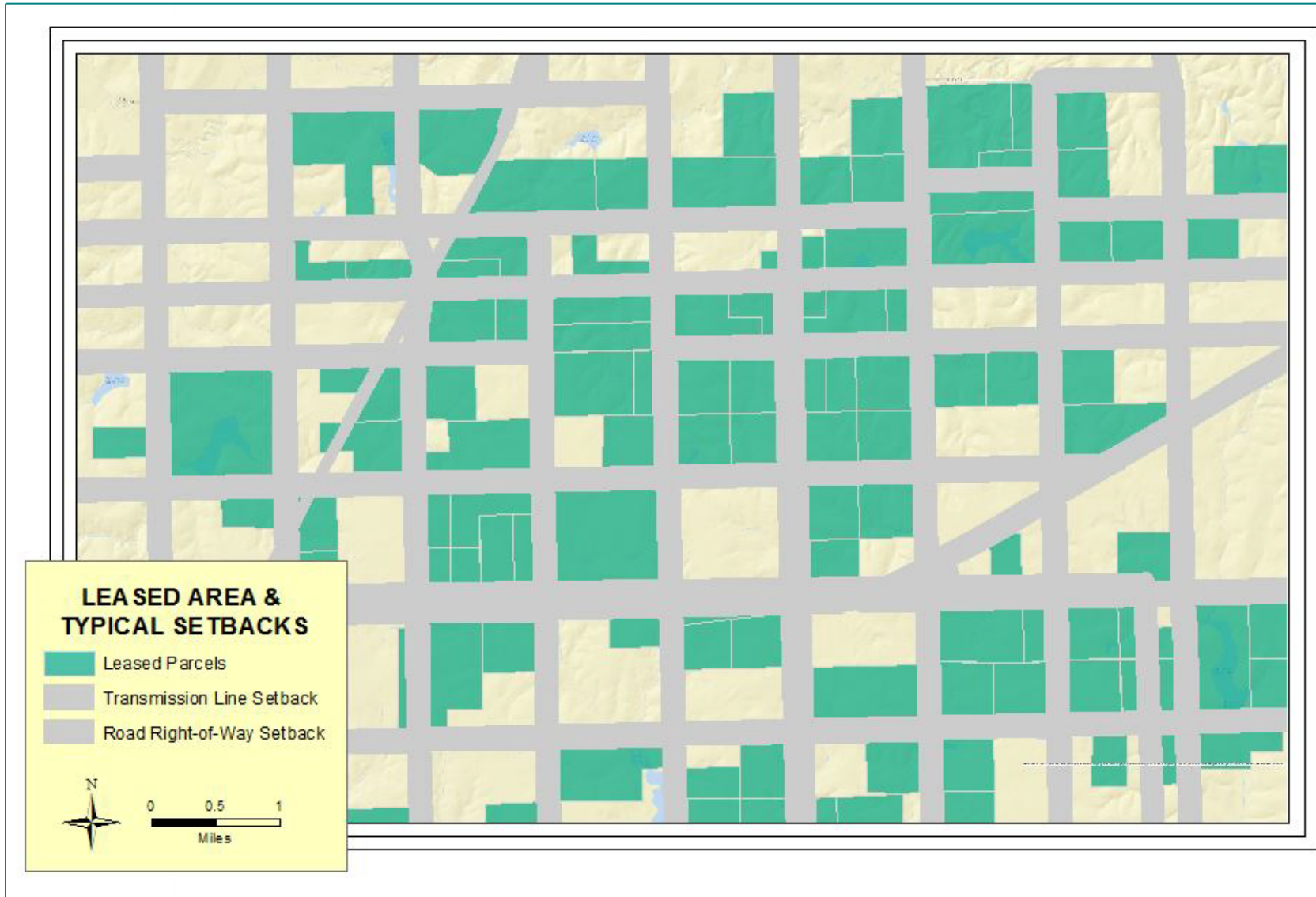
345



SETBACKS: LEASED AREA (EXAMPLE PROJECT)

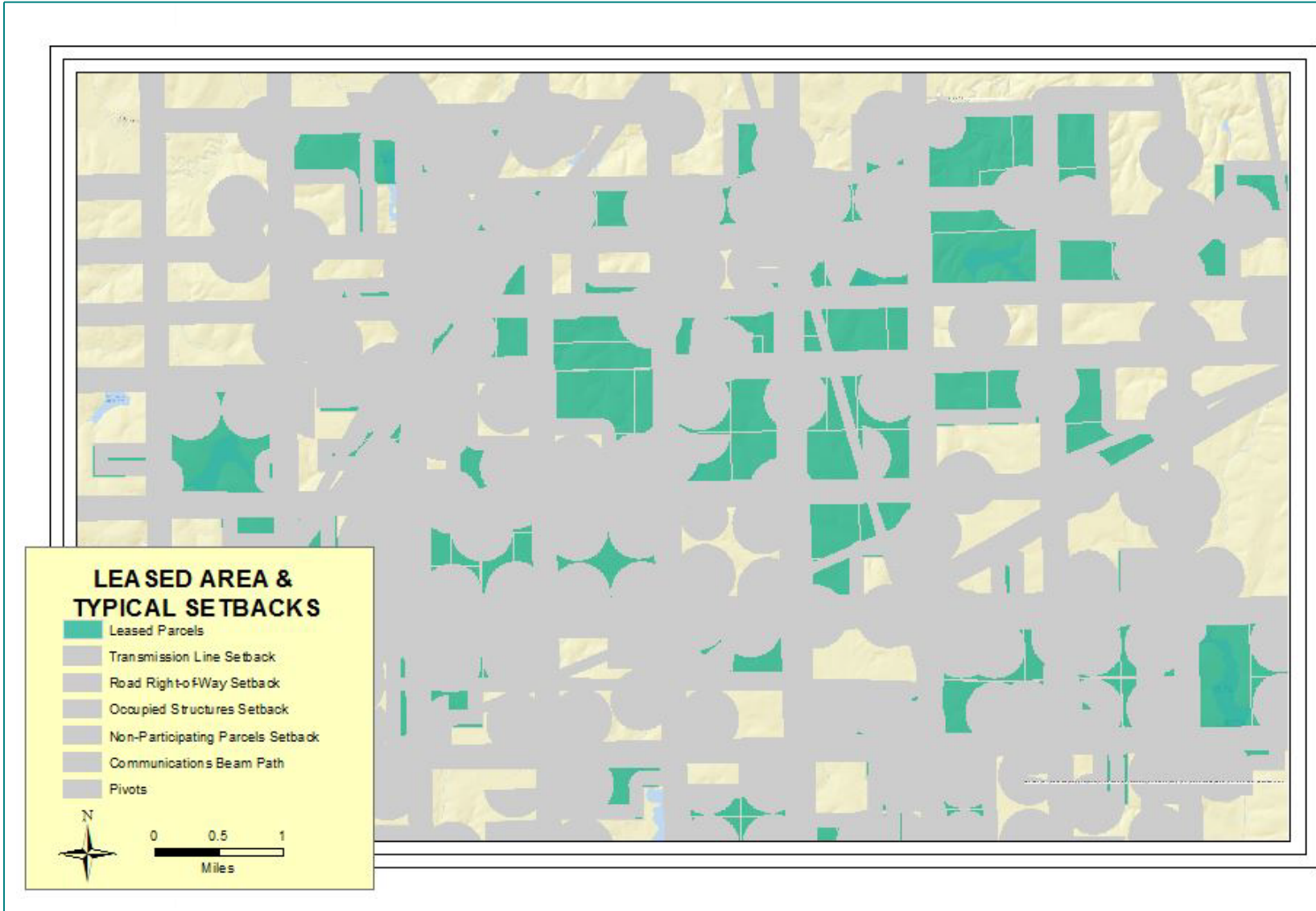


SETBACKS: ROADS & TRANSMISSION SETBACK



SETBACKS: ROADS, TRANSMISSION, OCCUPIED RESIDENCE, & PARCEL LINE SETBACK




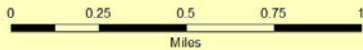


Carroll Area Windfarm, Iowa



CARROLL AREA WINDFARM, CARROLL COUNTY., IA

 1000ft buffer from turbine location



WHAT DOES A WIND FARM LOOK LIKE?



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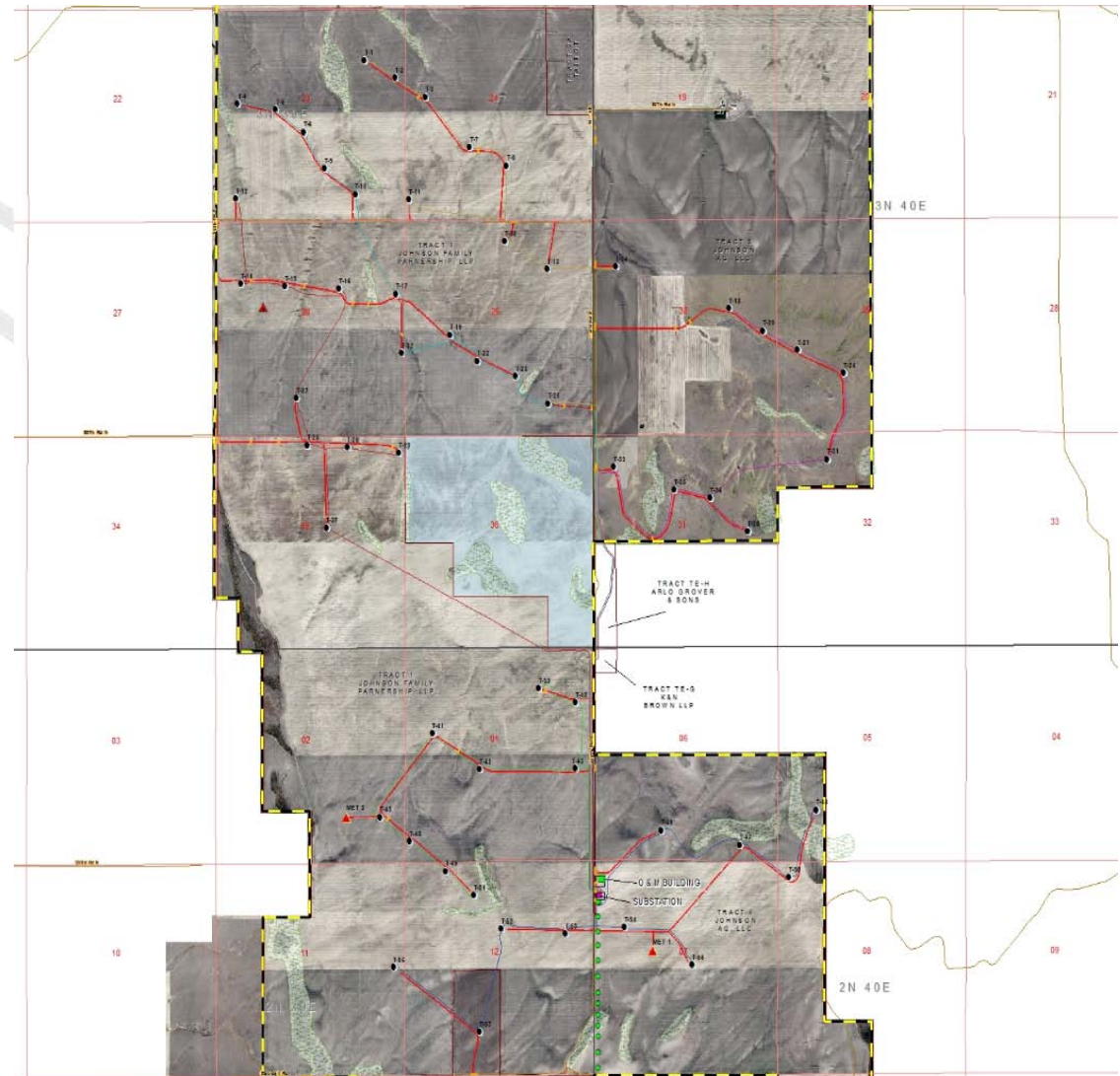


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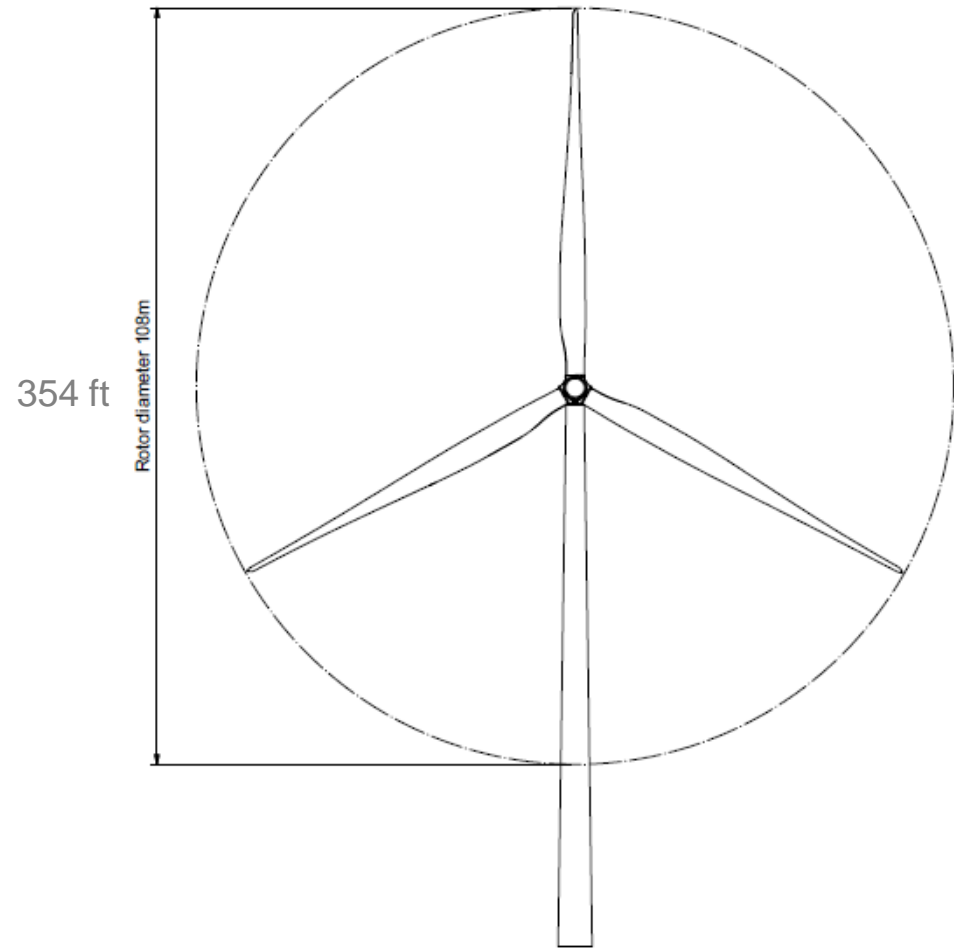
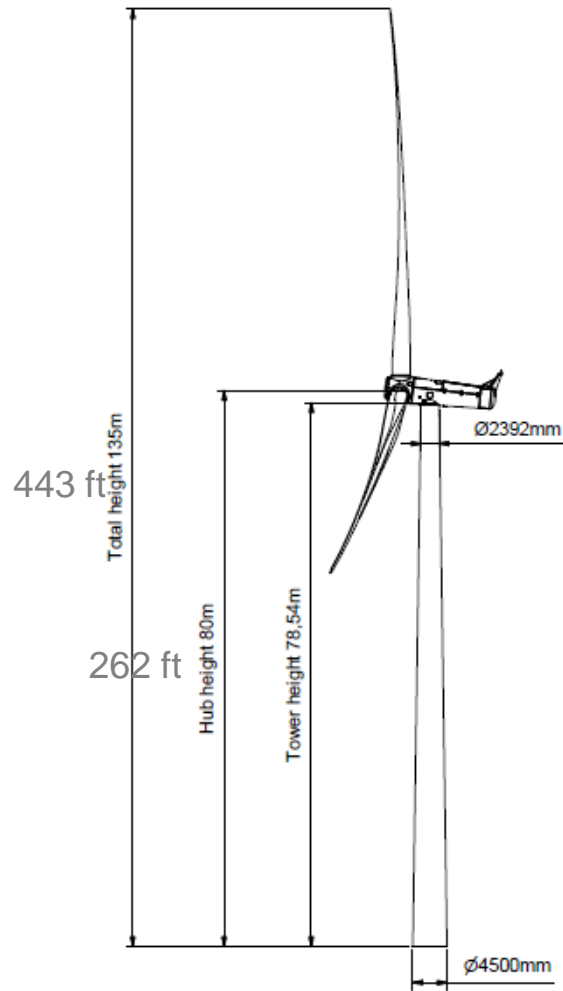


ELEMENTS OF A WINDFARM

- WIND TURBINES
- ACCESS ROADS
- COLLECTOR LINES
- SUBSTATION
- OPERATIONS & MAINTENANCE BUILDING



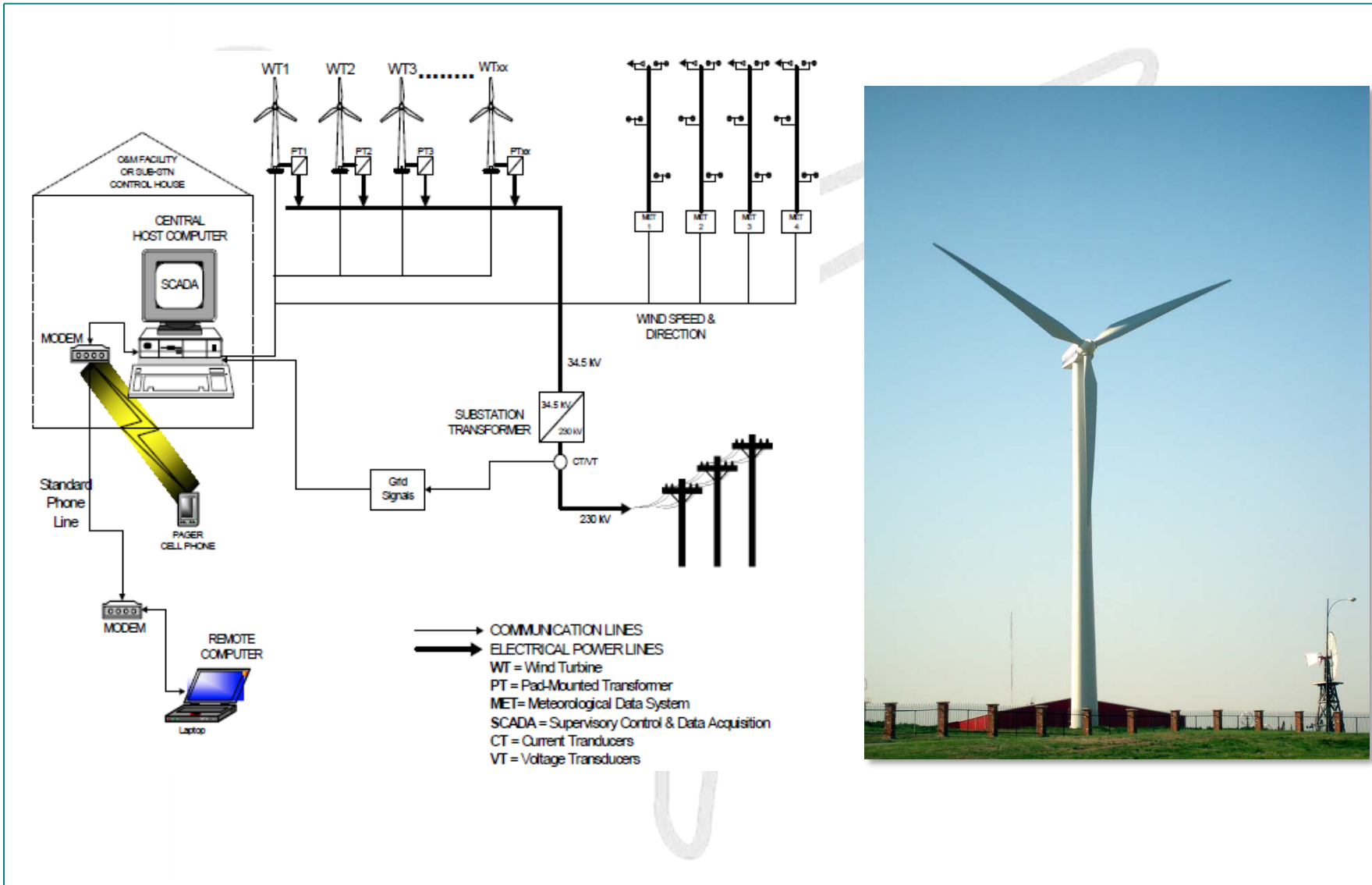
TURBINES: SIEMENS 2.3 108 (EXAMPLE)



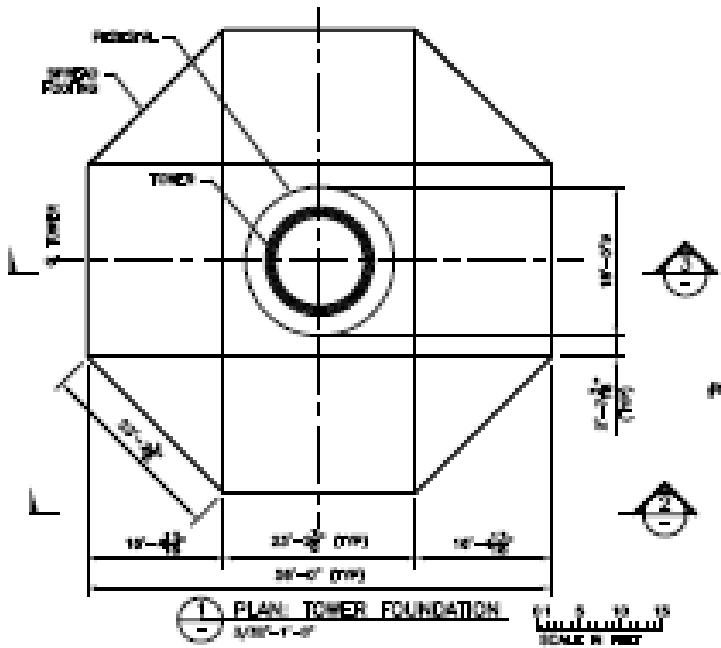
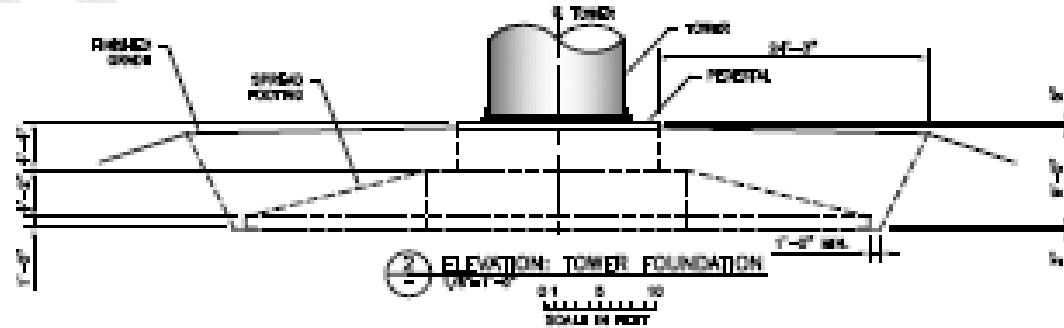
TURBINES



TURBINES: SCADA SYSTEM



TURBINES: FOUNDATIONS



TURBINES: FOUNDATIONS



TURBINES: FOUNDATIONS



TURBINES: TOWERS



TURBINES: TOWERS



ACCESS ROADS



ACCESS ROADS



ACCESS ROADS



COLLECTION LINES



COLLECTION LINES



SUBSTATION



SUBSTATION



OPERATIONS & MAINTENANCE BUILDING



LANDOWNER ROYALTIES

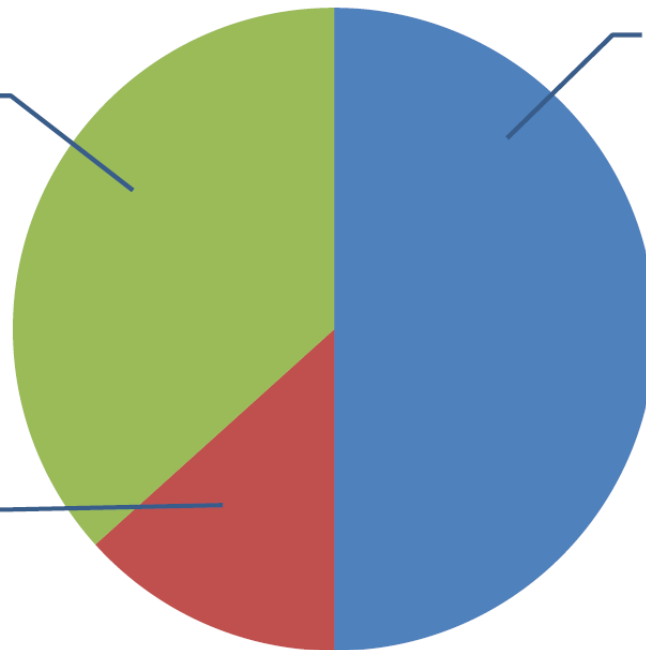
Landowner Pool

Production Bonus
distributed based on acres
in Project

Fixed Rent based on
turbine sites

Neighbor Payment
distributed based on nr. of
neighbors

Total Compensation to
Landowners in the Project



QUESTIONS?

