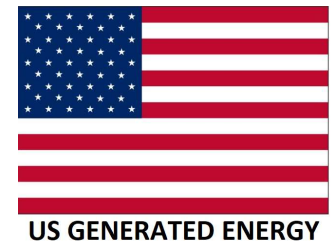




Panther Grove 2 Wind Energy Facility

Livingston County Zoning Board of Appeals SUP Hearing

January 15, 2025



Chris Green, PE

Panther Grove 2 – Project Development Manager (Enbridge –Tri Global Energy)

Education:

- Bachelor of Science Civil Engineering Louisiana State University
- Masters of Business Administration Louisiana State University

Experience:

- 14 years wind operations and development experience (majority in Illinois)
 - **Vice President of Development** with Tri Global Energy since 2018
 - **Development Manager & Operations Manager** with Leeward Energy 2012 – 2018
 - **Energy Development Engineer** with Burns and McDonnell 2011 - 2012
 - **USACE Contractor Civil Engineer** in New Orleans 2008 – 2011

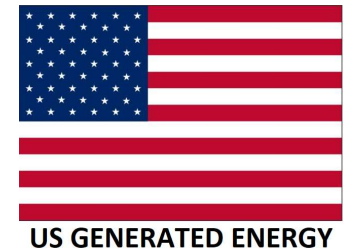


Personal

- 3 children, wife, and I live in Lafayette, La

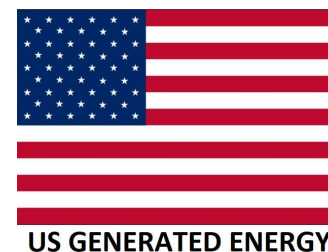


Project Purpose and Benefits



- Provide domestic and clean energy to the United States and State of Illinois
 - The Project will provide electricity to power more than 157,000 homes
 - Reduce reliance on foreign energy sources
 - Preserve domestic energy supply
 - More competition equals less pricing volatility
- Carbon Dioxide Reduction – approximately 800 thousand metric tons of carbon dioxide to be eliminated versus traditional coal fired generation
- Reduce Water Consumption – approximately 900 million gallons of water per year as compared to a typical thermal generator
- Sulfur Dioxide (SO₂) and Nitrogen Oxides (NO_x) Reduction – air pollutants known for causing health impacts
- Provide an economic stimulus to the local community and the State of Illinois by providing tax revenue, general economic output, jobs, and landowner payments

US Power Generation Mix – Domestic Energy Diversification

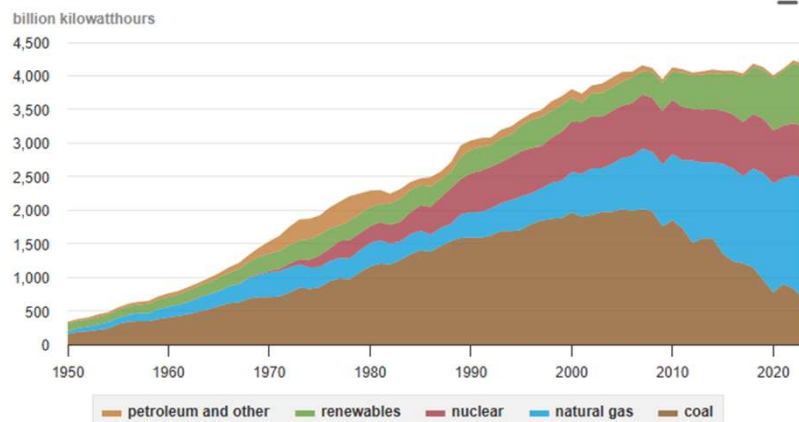


- Natural Gas + Renewables, which are replacing Coal, combine to provide a much cleaner, lower water consuming, and on demand domestic energy source
- Renewables accounted for 21.4% of the US electricity generation in 2023 (Wind 10.2% in 2023 – over 75,000 wind turbines installed)
- Adds more competition and energy supply diversity to the power grid

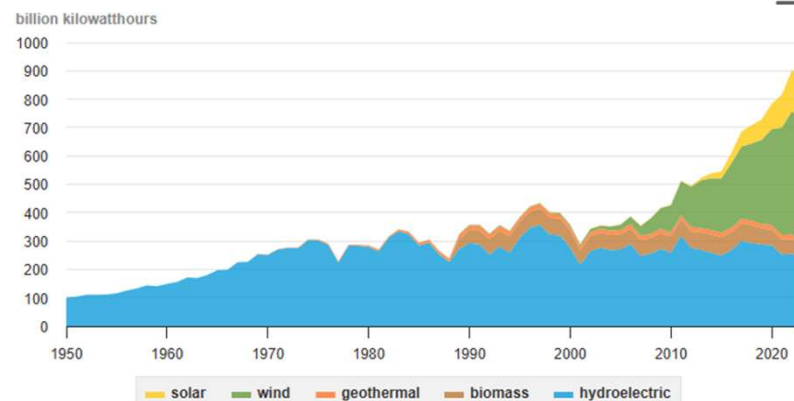
Generation Source	2000		2023	
	Billion Kilowatthours	% of Total Generation	Billion Kilowatthours	% of Total Generation
Coal	1966	52%	675	16%
Natural Gas	601	16%	1802	43%
Nuclear	754	20%	775	19%
Renewables	356	9%	894	21%
Petroleum/Other	124	3%	32	1%

Generation Source	2000		2023	
	Billion Kilowatthours	% of Total Generation	Billion Kilowatthours	% of Total Generation
Hydroelectric	276	77%	240	27%
Biomass	61	17%	47	5%
Geothermal	14	4%	16	2%
Wind	6	2%	425	48%
Solar	0	0%	165	18%

U.S. electricity generation by major energy source, 1950-2023



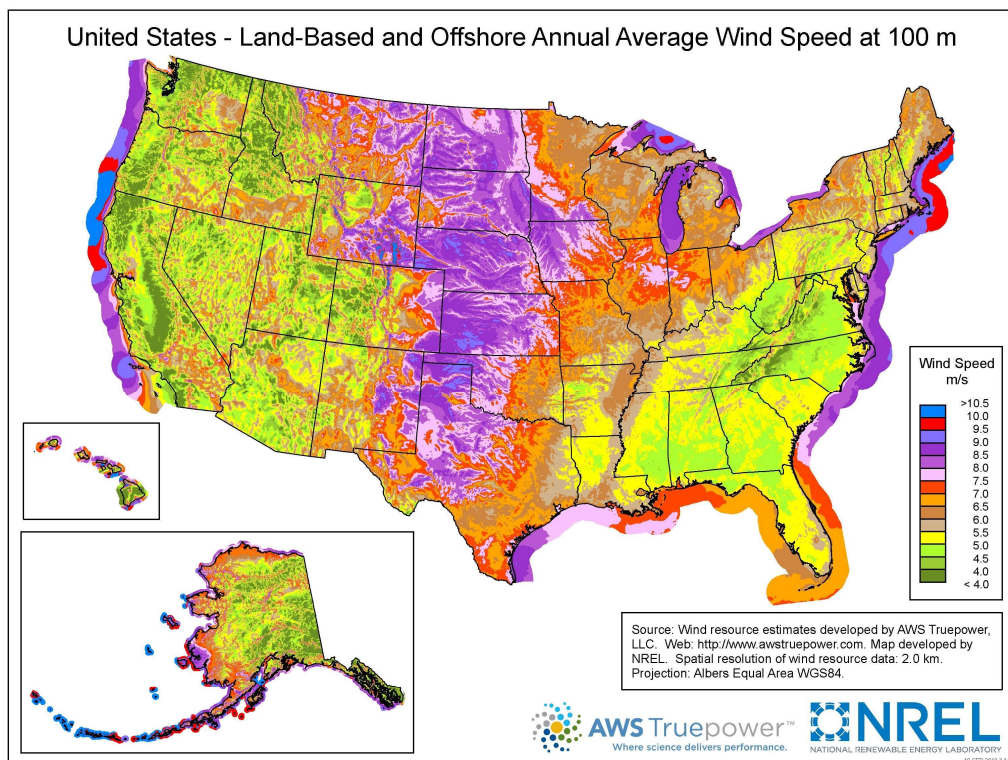
U.S. electricity generation from renewable energy sources, 1950-2023



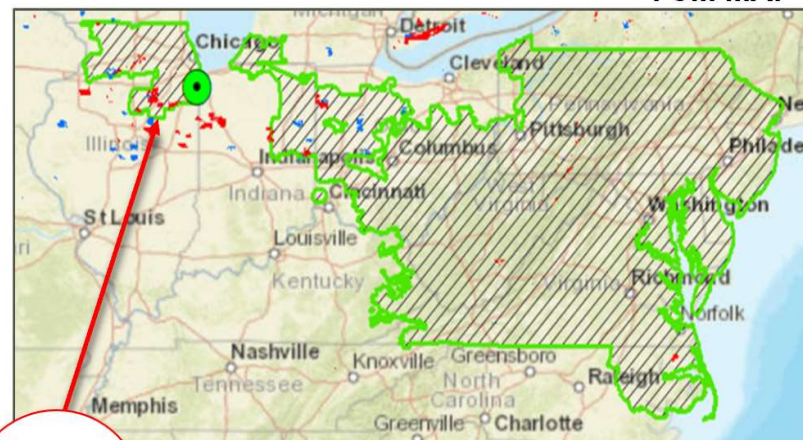
Source: US Energy Information Administration

Why Wind Energy in Illinois?

- Illinois ranks 5th in the US in terms of installed wind energy capacity by state
- 12.4% of Illinois's electricity generation
- Economical wind speeds
- Robust/liquid power markets (MISO/PJM) with many buyers of power
- PJM is the largest power market in the United States
- Illinois has the highest wind speeds in the PJM market therefore cheaper energy in the PJM market

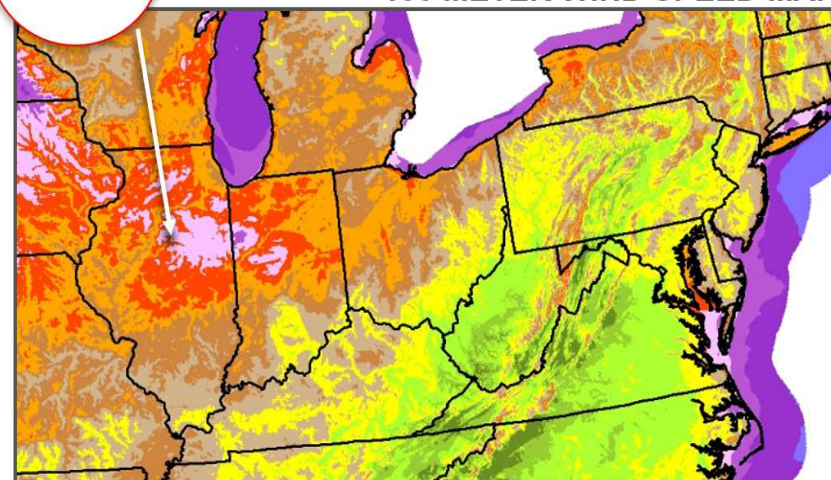


PJM MAP



PROJECT
AREA

100 METER WIND SPEED MAP



 **PANTHER GROVE 2**
WIND ENERGY FACILITY

Project Companies

Panther Grove 2 LLC as the SUP Applicant is developing the Panther Grove 2 Wind Project under a partnership agreement between Copenhagen Infrastructure Partners (“CIP”) and Enbridge (acquired Tri Global Energy)

Copenhagen Infrastructure Partners:

- United States Headquarters located in New York, NY
- One of the largest energy infrastructure owners in the world with over \$30 billion invested
- 16,000 MWs of clean energy projects in North America, Europe, and Asia Pacific
- 160,000 MWs of clean energy projects in development globally



Enbridge (acquired Tri Global Energy):

- United States Renewables Headquarters located in Dallas, TX
- 12,000 employees
- \$91 billion-dollar market cap company traded on the New York Stock Exchange (Nasdaq)*
- Diversified energy producer and supplier in North America
 - Largest natural gas utility by volume in North America
 - Moves 30% of crude oil and 20% of natural gas produced in North America
 - Owner in 5,261 megawatts (“MW”) of clean energy projects
 - 23 wind farms (4,870 MW)
 - 14 solar projects (369 MW)
 - 1 geothermal project (22 MW)
 - 1 power transmission project (500 MW)



Source:
Dec 27, 2024 Nasdaq data

Development Process and Schedule – Ready to Go

- Desktop feasibility analysis of interconnection, land, and permitting viability (started in September 2018)
- Project Development:
 - Land Acquisition – complete (started early 2019)
 - Interconnection Process – complete (Interconnection Agreement Executed)
 - Site Due Diligence (environmental, meteorological, geotechnical, communications etc.) – complete
 - Permitting – nearing completion
- Construction Schedule: Start in 2025 pending permitting timing
- Commercial Operations Date: December 2026



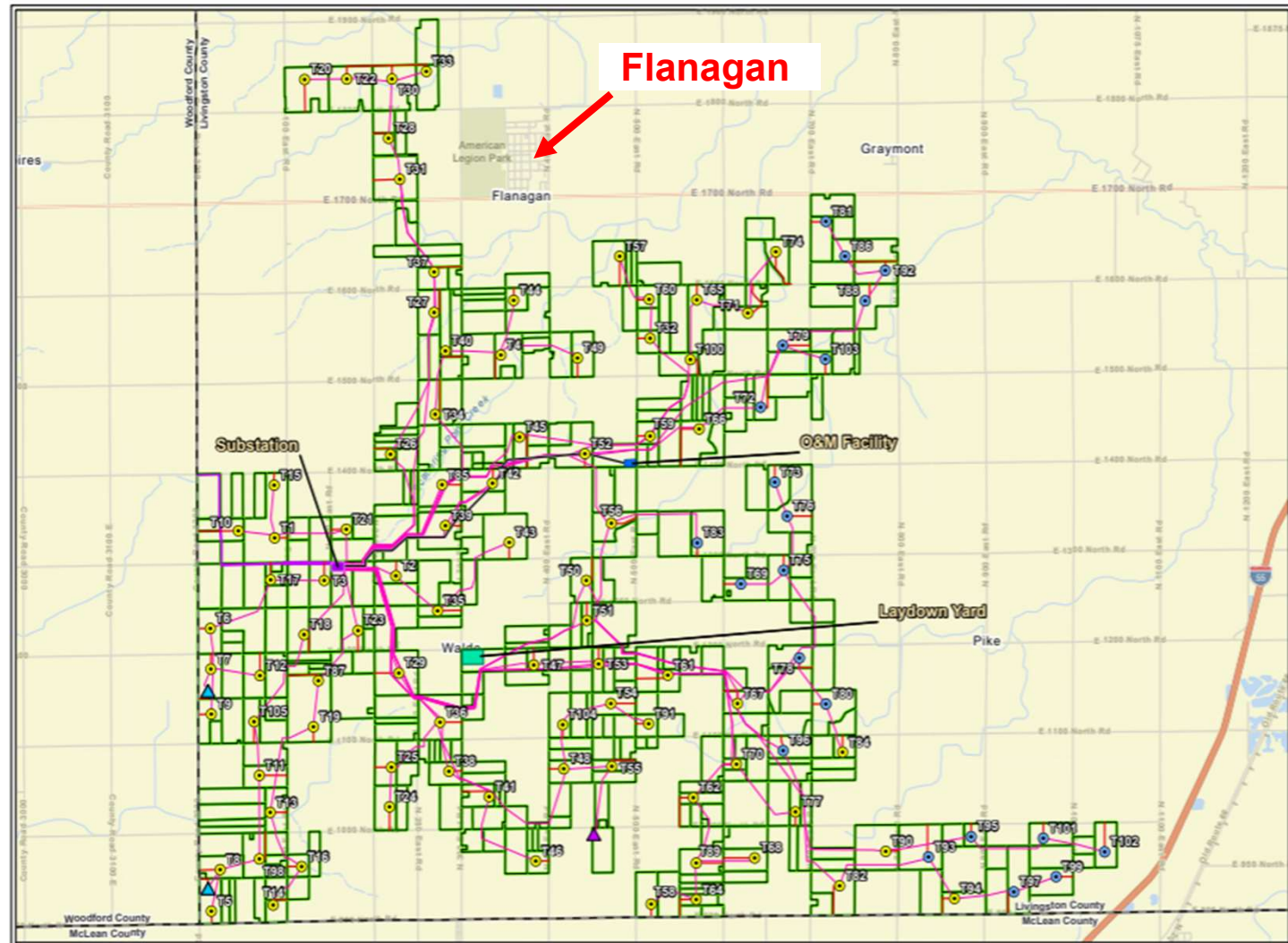
Project Overview

Land

- Total signed acreage ~33,000 acres (670 parcels)
- 149 residences/community buildings signed
- Setback participation agreements signed with Chenoa, Flanagan, and Gridley (1.5-to-1.0-mile setback)

Project Facilities

- Up to 104 wind turbines (468 megawatts)
- Gravel Access Roads
- 5-acre O&M building area
- 5-acre Project Substation
- 2.6 mile long Overhead Transmission Line
- 20-acre Temporary Construction Laydown Yard
- ADLS Radar Tower (80 feet tall)
- Two Met Towers (370 feet tall)



Project facilities are only expected to temporarily remove approximately **82** acres from agricultural production once operational



Local Economic Impact

- Total investment of over **\$1 billion** in Livingston County
- **Tax Benefits**
 - All Taxing Districts:
 - **\$160 million** over 30 years across all local districts (\$1.5 - \$1.9 million per turbine)
 - **\$8.0 million** in 2027 (\$77k - \$96k per turbine)
 - Schools:
 - **\$105 million** over 30 years to Flanagan-Cornell, El Paso – Gridley, and Prairie Central School Districts
 - **\$5.2 million** in 2027
- **Municipality Setback Agreement Income (Chenoa, Gridley, and Flanagan)**
 - **\$4.0 million** in total over 30 years for all three municipalities combined
 - **\$136k** long-term annual average for all three municipalities combined



Local Economic Impact (Continued)

- **Economic Output (Similar to the US Gross Domestic Product calculation):**
 - \$81.4 million in new output during construction for Livingston County
 - \$370 million in new output during construction for the State of Illinois
 - \$10 million in new long-term output for Livingston County annually
 - \$20.4 million in new long-term output for the State of Illinois annually
- **Jobs:**
 - 369 new jobs during construction for Livingston County
 - 1,607 new jobs during construction for the State of Illinois
 - 27 new long-term jobs for Livingston County
 - 68 new long-term jobs for the State of Illinois



Local Economic Impact (Continued)

- **Landowner Payments:**

- Approximately \$170 million in participating landowner payments over 30 years
- \$6 million in long-term participating landowner payments annually (Only 82 acres removed)

- **Local Charity Donations:**

- Over \$100,000 pledged to United Way, Futures Unlimited, Flanagan American Legion, Blue Star Mothers, Sons of American Legion, Fairbury Fund, St. Mary's Church/School
- Minimum of \$20,000 pledged per year during operations to Futures Unlimited and Flanagan American Legion

- **Education:**

- Develop summer internship program and Project educational site visits with the 3 local school districts



Source: Panther Grove 2 Economic Impact Analysis Report prepared by Strategic Economic Research



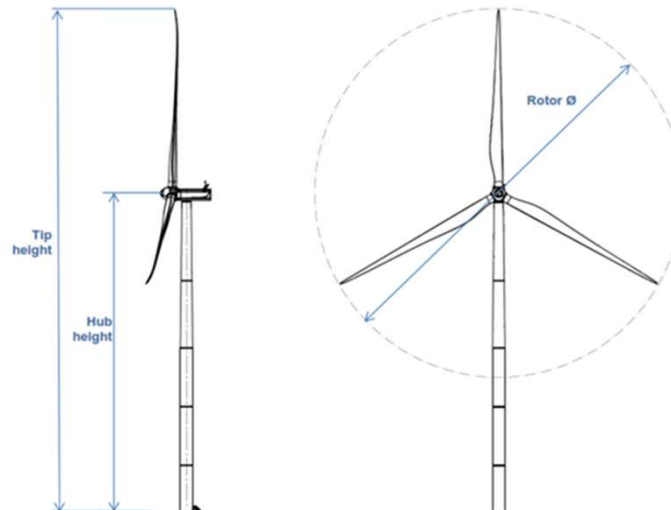
Project Facilities

Project Wind Turbines

- Two different top tier wind turbine options are being considered:
 - Vestas V163 – 4.5 MW
 - Nordex N163 – 5.7 MW
- Vestas is the largest wind turbine manufacturer in the world and 2nd largest in the United States
- Nordex is the 5th largest wind turbine manufacturer in the world and in the United States



Wind Turbine Model	Max Quantity Installed	Blade Tip Height		Hub Height		Rotor Diameter		Blade Length	
		Meters	Feet	Meters	Feet	Meters	Feet	Meters	Feet
Vestas V163 - 4.5MW	104	194.5	638.1	113.0	370.7	163.0	534.8	80.1	262.8
Nordex 163 - 5.7 MW	83	189.5	621.7	108.0	354.3	163.0	534.8	79.7	261.5



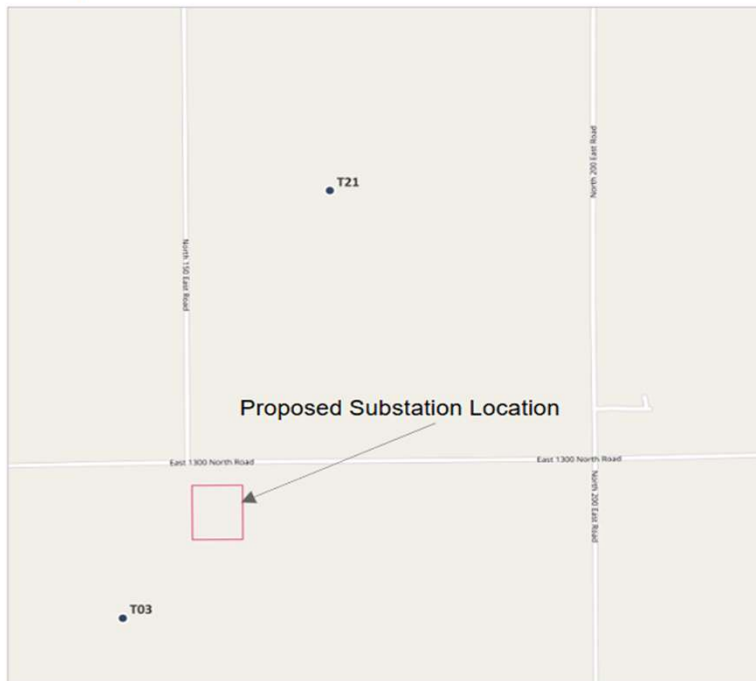
Source:

- (1) www.Globaldata.com
- (2) American Clean Power

Project Substation

- Approximately 5 acres and located south of the intersection of E 1300 N and N 150 E in Waldo Township
- Gathering point for all underground lower voltage (34.5kV) and communication cabling and step up voltage location (345kV)
- Control and electrical regulation equipment will be installed here
- Overhead transmission line after the Project Substation

Proposed Substation Location



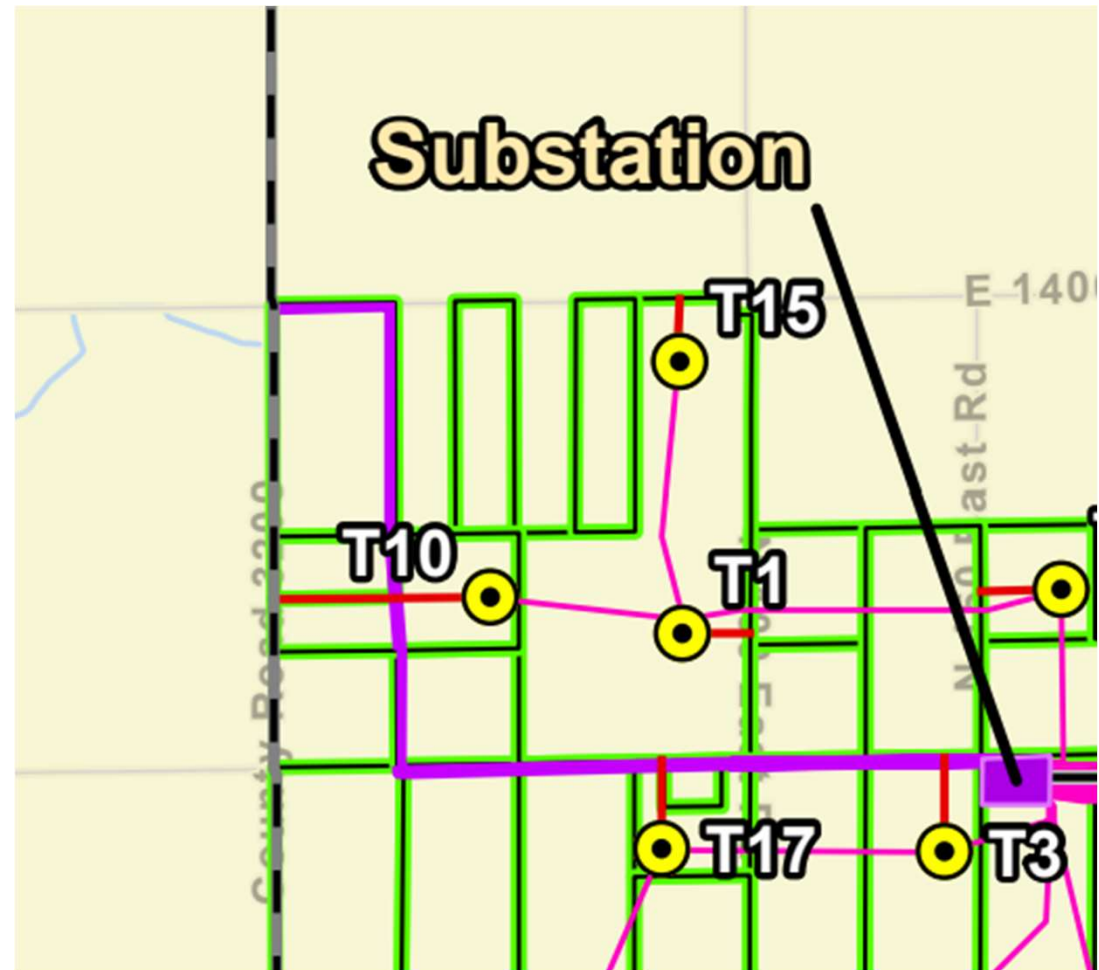
Typical operational Project Substation



Underground and Overhead (“Gen-Tie Line”) Electrical/Communication Cabling

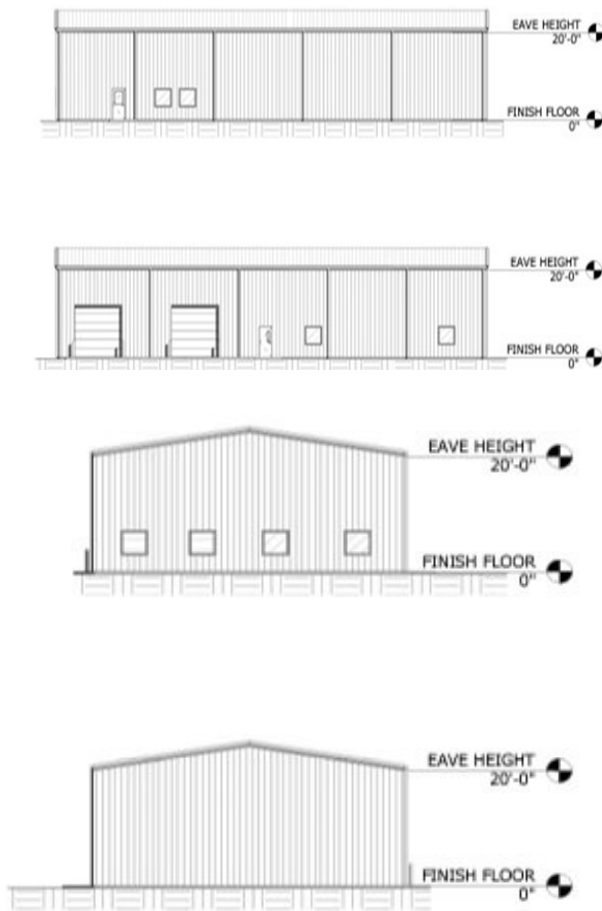
- Underground cabling up to the Project Substation to be a minimum of 5 feet below grade
- Cabling between the Project Substation and Interconnection Substation located in Woodford County will all be overhead affixed to a steel monopole structures (the “Gen-Tie Line”)
- The Gen-Tie Line will originate at the Project Substation located at E 1300 N and N 150 E in Waldo Township and run west along E 1300 N then it will turn due north ¼ mile from the Woodford County line until it meets E 1400 N where it will run west along E 1400 N into Woodford County

Gen-Tie Line Route



Operations and Maintenance (“O&M”) Building and Laydown Yard

- Approximately 5 acres and located at the northwest corner of E 1400 N and N 500 E in Waldo Township.
- Will house the onsite operations/maintenance staff, training area, parts warehouse/laydown area, and the on-site project controls centre

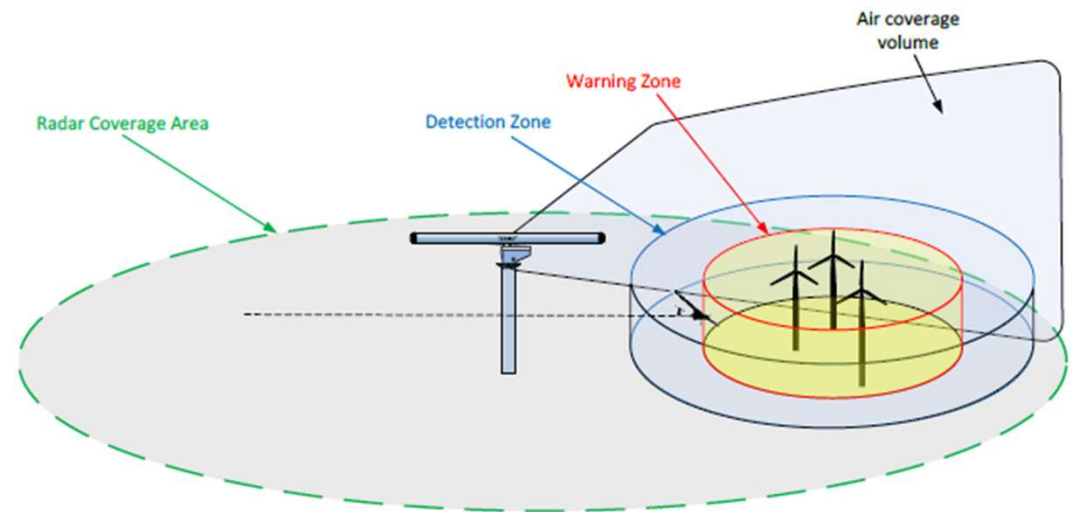


Images represent a typical O&M building similar to what will be used for Panther Grove 2



Aircraft Detection Lighting System (“ADLS”)

- The Project will install an ADLS lighting system on the wind turbines
- The ADLS lighting system for the Project has been approved by the Federal Aviation Administration (“FAA”)
- ADLS allows the wind turbine “red blinking lights” to remain off until an aircraft located lower than 12,000 feet gets within 3 miles of the Project
- The ADLS Radar Tower that is used to detect the aircraft will be approximately 80 feet tall



Permitting

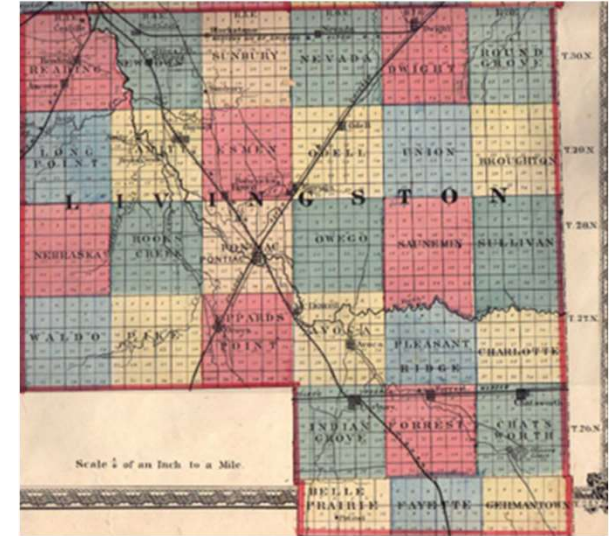
Permitting (County and State)

- **Livingston County:**

- In compliance with the County Ordinance and Comprehensive Plan
- Meets the Livingston County Special Use Permit –Standards for Special Use
- Road Use Agreement negotiations are in process
- Decommissioning Agreement to be negotiated
- Project Open House held April 23, 2024 in the Flanagan American Legion
- V-COM Emergency Response Plan coordination initiated

- **State of Illinois:**

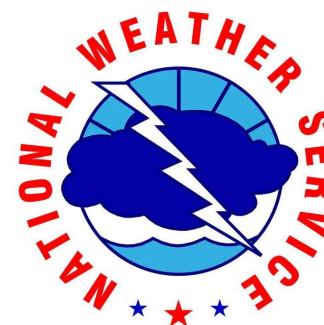
- The Project is in compliance with the State Statute (55 ILCS 5/5-12020) and will have all necessary permits from the respective State of Illinois agencies prior to construction
- Illinois Department of Agriculture's Impact Mitigation Agreement ("AIMA") approved
- Compliance with the Illinois Department of Natural Resource's recommendations (EcoCat Review #2500832 Letter)



Permitting (Federal)

- **Federal**

- The Project will have all necessary permits from the respective Federal Agencies prior to construction
- Federal Aviation Administration (“FAA”) Determinations of No Hazard (“DNHs”) for all turbines, met towers, and the ADLS system have been received
- Approval from the National Telecommunications Information Administration (“NTIA”) including the National Weather Service
- The Project filed the Information for Planning and Consultation (“IPAC”) with the United States Fish and Wildlife Service



Decommissioning

- Decommissioning Plan submitted as part of the Application (Appendix U) – just a starting point.
- Removal and land refurbishment standards are per State Statute and the Department of Illinois’s Agricultural Impact Mitigation Agreement (“AIMA”) standards
- Decommissioning Agreement including the Decommissioning Plan and associated financial assurance will be approved by the County prior to building permit issuance



COMPLAINT RESOLUTION

- **Local Contact Info:**
 - Panther Grove 2 Phone Line: 1-888-238-1494
 - Panther Grove 2 Email: info@panthergrove2.com
 - Local O&M Office Address to be provided
- **Communication Interference** is not expected due to the Project Facility locations, but the Project will promptly cure any communication issues caused by the Project.
- **Shadow Flicker**
 1. Turbine shadow flicker control will maintain less than 30 hours per year on all non-participating residences and community buildings
 2. Quarterly report can be provided to the County and nearby landowners upon request listing the shadow flicker hours for each non-participating residence and community building to illustrate compliance
 3. Should there be a valid shadow flicker complaint that 30 hours may be exceeded per year the Project team will perform an assessment within 5 days to determine if an exceedance has occurred. If so, the turbine will remain curtailed during the shadow flicker exposure periods to ensure compliance with the 30-hour annual requirement
- **Noise**
 1. Noise levels will comply with the Illinois Pollution Control Board (“IPCB”) limits
 2. Upon a complaint the Project team will work to identify the source of any noise complaints within 5 days, seek to cure noise complaint promptly, and if the issue persists will follow the County’s noise complaint resolution protocol listed in the County Ordinance.

Setback Maps



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