

Tour of Atchison Wind Farm

April 11, 2022

10:30 – 2:30

On April 11, 2022, members of the Missouri Public Service Commission were given a tour of the Ameren Missouri Atchison Wind Farm. Office of Public Counsel was invited and planned to attend, but had to cancel.

Missouri Public Service Commission attendees:

Chairman Ryan Silvey
Commissioner Jason Holsman
Commissioner Glen Kolkmeier
Commissioner Kolkmeier's Advisor Mark Johnson

Ameren Missouri attendees:

Sr. Director Energy Management & Trading Andrew Meyer
Director CTG and Renewable Generation Operations Jeff Moore
Manager Renewable Generations Dave Meiners
Renewable Wind Generations Operations Supervisor Ethan Piveral
Manager Regulatory Affairs Gaye Suggett

Vestas

Johannas Westras

Jeff Moore gave a presentation regarding the wind turbines (which is attached) to attendees. A safety briefing was held. Attendees then went to the wind turbine D-06. Chairman Silvey, Commissioner Holsman and Mark Johnson were outfitted with climbing harnesses and personal protective equipment, and instructed on proper climbing procedures and safety requirements. This included proper use of safety features of the climbing harness, and how to use the climb-assist mechanism while ascending and descending. After site safety personnel were assured all participants were properly trained and understood the requirements for safely climbing a wind turbine, the Commission visitors climbed the internal ladder to the wind turbine nacelle, and were accompanied by two rescue-certified wind turbine personnel. The visitors were able to view the generation equipment inside the nacelle, as well as were able to look out the top hatches of the nacelle for a bird's eye view of the Atchison Energy Center.



Ameren Missouri Renewable Operations Wind Energy Center Overview



4.11.2022



Ameren Wind Generation

Benefits of Wind

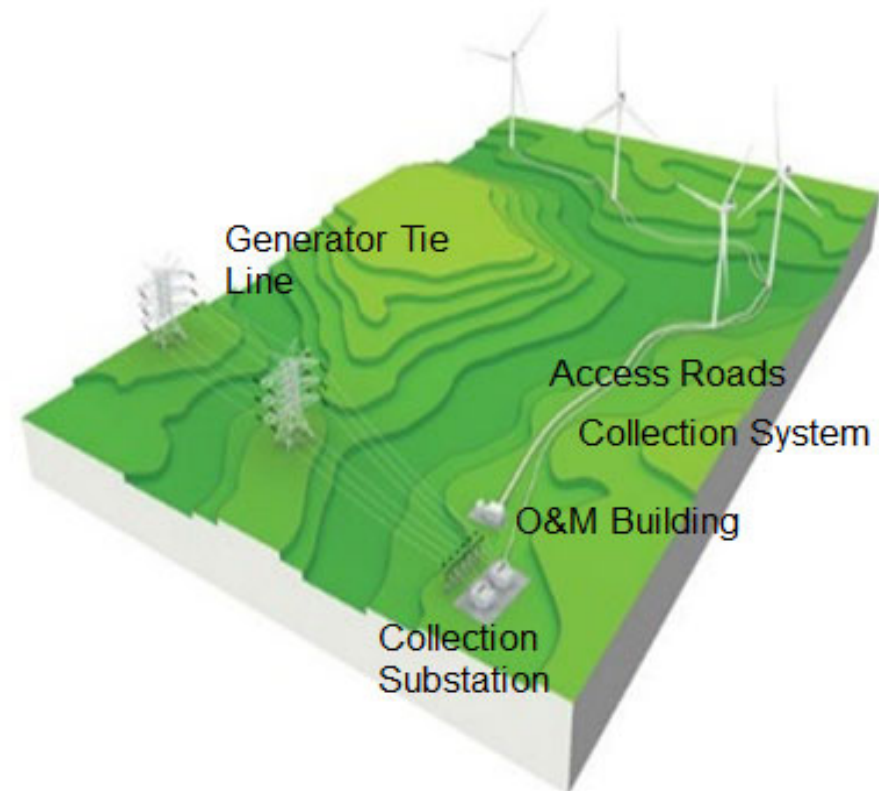
- First major step in implementing Ameren Missouri's Integrated Resource Plan, a 20-year outlook that supports **cleaner energy** in the state
- Consistent with **Missouri's Renewable Energy Standard** passed by voters in 2008, which requires investor-owned utilities such as Ameren Missouri to meet 15% of annual retail sales using renewable energy technologies by 2021
- Continued **investment and economic growth** in Missouri and the communities we serve



Ameren Wind Generation

Wind Energy Center Overview

	High Prairie	Atchison County
Installed Capacity	400 MW	300 MW
Total # of turbines	175	91
Approx. project area	45,000 acres	29,000 acres
Approx. # of land owner agreements	200	100
Counties	Adair/Schyuler, MO	Atchison, MO



Ameren Wind Generation

High Prairie Renewable Energy Center



Turbine Supplier: **Vestas Wind Systems**

Vestas Model	V112	V120
Output	3.45 MW	2.2 MW
Model Quantity	12	163
Hub Height	308.4 ft	301.8 ft
Rotor Diameter	367.5 ft	393.7 ft
Tip Height	492.2 ft	498.7 ft





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Atchison County Renewable Energy Center

Turbine Supplier: **Vestas Wind Systems**

Vestas Model	V110	V120	V150
Output	2.0 MW	2.2 MW	4.2 MW
Model Quantity	18	22	51
Hub Height	262.5 ft	262.5 ft	344.5 ft
Rotor Diameter	360.9 ft	393.7 ft	492.1 ft
Tip Height	443.0 ft	459.4 ft	590.6 ft





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Turbine Cutaway

Electrical:

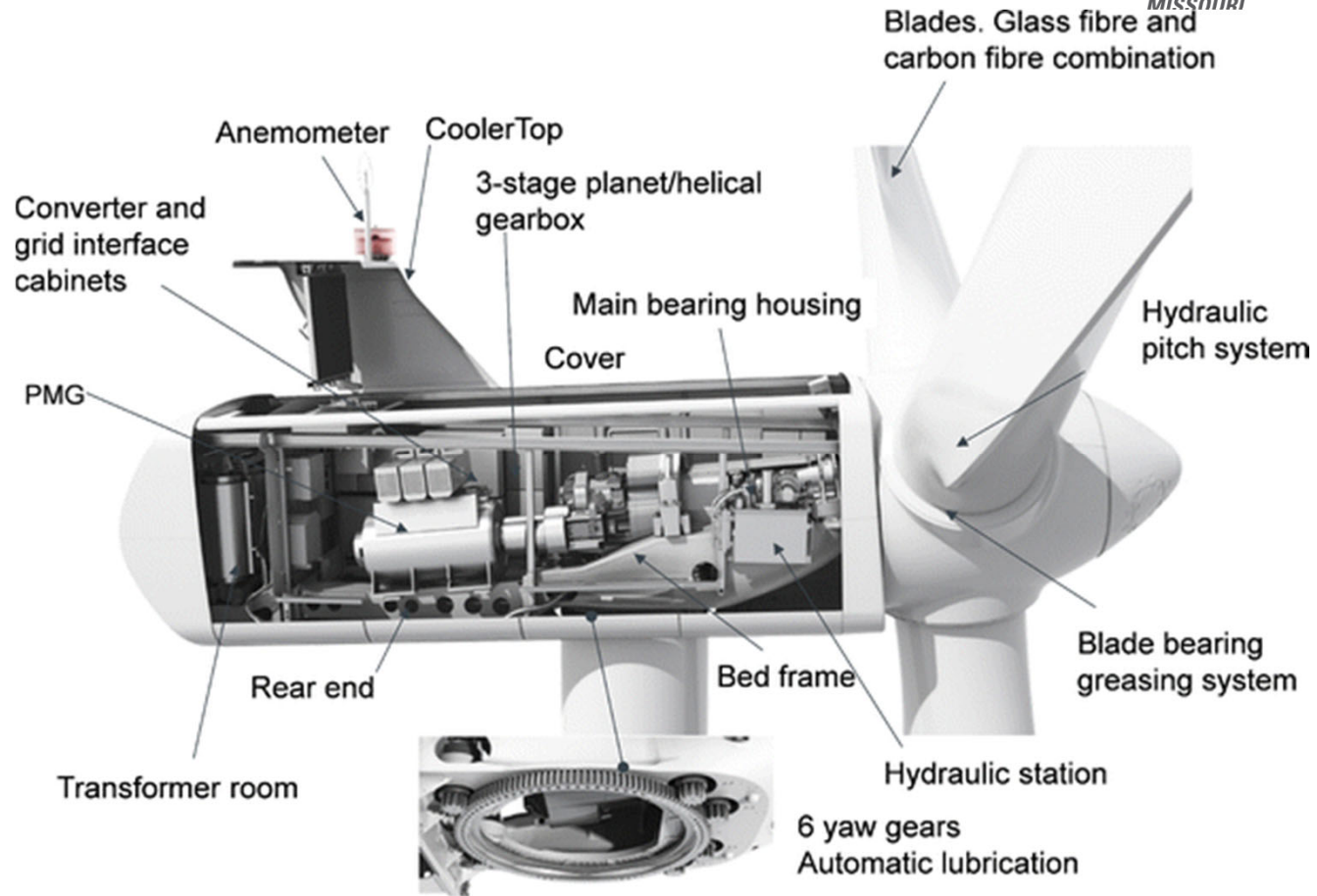
- Doubly fed induction generator
- Up-tower transformer
- Down-tower switchgear

Blades:

- Pre-bent structural shell

Hub:

- Individual hydraulic blade pitch
- Automatic pitch lock
- Aerodynamic Braking

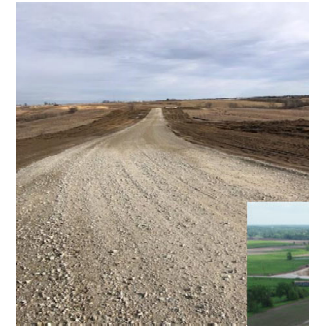




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Construction Statistics

High Prairie	Atchison County
78,000 cu yd of concrete	48,000 cu yd of concrete
67 miles of gravel access roads	33 miles of gravel access roads
2 – 345:34.5 kV substations	1 – 345:34.5 kV substations
150 miles of 3-phase 34.5 kV UG	103 miles of 3-phase 34.5 kV UG
16 miles of 345 kV overhead	13 miles of 345 kV overhead



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Construction Pictures



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Construction Pictures





Wind Farm O&M

Turbine Maintenance – Vestas (1 wind tech per 10 turbines)

- 10 year term – Scheduled & Unscheduled Maintenance
- “Bumper-to-Bumper” – All Capital Parts, Spares, & Labor

Site Supervision – 2 Ameren Site Supervisors

- Daily Oversight & Coordination
- First line Point of Contact – Land Owners, Environmental Monitoring, Emergency Response

Off-site Support

- Real time Operations Coordination
- Performance Analytics
- Ameren Substation Maintenance and Ameren Relay





Creating Cleaner Energy And A Brighter Future For Missouri

