

# FACT SHEET: WIND ENERGY AND TELECOMMUNICATIONS



Every day, rural communities are harnessing the benefits of wind energy. Wind development provides new income for landowners, new tax revenue to fund schools and services, and creates local career and job opportunities. County officials are responsible for enacting siting or zoning standards that address the concerns of local residents while ensuring that wind development is still a feasible option for participating landowners. Wind energy standards may include provisions seeking to address the potential for **interference with telecommunications**.

## Potential impacts to telecommunications

- Wind energy systems often operate without interrupting telecommunications services, however in some cases the placement of a turbine could lead to the disruption of communications signals.
- Much of the impact to telecommunications signals that would derive from wind energy systems is a result of obstructing a signal which causes short- or long-term disruptions. These impacts can stem from stationary components, such as the tower or nacelle, or from the blades blocking a signal while spinning.<sup>1</sup>
- The likelihood of signal disruption also varies significantly based on several factors related to telecommunications systems or signal type. Transmitter and receiver locations, modulation, and frequency band are important factors on whether turbines could have an effect on telecommunications signals.<sup>2</sup>
- For example, the waveform and frequency of radio signals makes them less likely to be impacted by a wind turbine, while point-to-point communications that rely on microwaves such as from a cell tower are more easily obstructed.



## Recommendations for mitigation

- A combination of robust public outreach and comprehensive impact analysis modeling can assist in forming a clear picture of potential areas of impact in a proposed project location. Proper assessment and outreach prior to and during the planning process can often limit or eliminate impact to telecommunications.



Outreach efforts should focus on sharing steps to avoid any impact to telecommunications, and gathering information about receivers with project staff to ensure locations are noted in any assessment or modeling.



During the initial planning phase for a wind project, developers should survey existing telecommunications transmitters and employ software that can model possible site configurations and determine if these locations are likely to disrupt telecommunications signals in a project area.<sup>3</sup>

- Local officials may choose to require modeling for telecommunications impact in project applications, or require an independent assessment of impact to telecommunications in ordinances. Requiring such modeling in a project application may be the best method for reducing impact to a proposed project area.



In the rare instance an operational project disrupts nearby telecommunications signals, developers should work with stakeholders to remedy the issue. This may include replacing antennae or assisting in relocating receivers, for example. Officials may choose to include specific remediation for residents who may be impacted in these cases, such as compensation for replacing or relocating communications systems.



## Sources

- 1 Angulo, I., et al. "Impact Analysis of Wind Farms on Telecommunication Services." *Renewable and Sustainable Energy Reviews*, vol. 32, pp. 84-99, April 2014, doi.org/10.1016/j.rser.2013.12.055. Accessed October 2020.
- 2 Ibid.
- 3 Smalley, Joshua. "The Importance of Electromagnetic-Impact Analyses for Wind Permitting." *Windpower Engineering & Development*, July 10, 2015, windpowerengineering.com/what-an-electromagnetic-impact-analysis-should-reveal-before-wind-farm-construction-begins/. Accessed October 2020.

