

TOPICS



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Advanced Micrositing Technology Expedites Wind Farm Design

The process of micrositing wind turbines is a balancing act. Striking the right compromise between wind resource, engineering, and environmental factors involves important decisions that have long-term implications. The majority of this critical decision-making is done in the field, often under poor weather conditions and tight schedules. Utilizing the fastest and most accurate methods for collecting, sharing, and analyzing data is key to a successful micrositing process.

Once the preliminary turbine layout is completed in the office, the design must be evaluated on the ground. What appeared optimal on paper may not be feasible in the field. A previously unidentified wetland, subtle topographic variation, or landowner preferences can all force adjustments to the turbine layout. These adjustments need to be prioritized, assessed, and negotiated by the micrositing team in the field.

What is our spacing in the primary wind direction? Can we move the turbine 300 feet east to take advantage of a higher elevation? Where are the setback lines? Can we get an access road to this site? Answering these questions for the micrositing team requires the collection of accurate data, and typically, a trip back to the office for thorough analysis. In contrast, the use of advanced micrositing technology enables accurate data to be collected and processed on-site.



The micrositing process can be optimized by using high-caliber survey data on a field laptop to integrate digital information about project sensitivities, such as environmental and cultural resource features, with the turbine layout. Combining the laptop with real-time survey-grade GPS equipment enables live interaction between design data and personnel in the field. Knowledge of proximity to site constraints such as setbacks, wetlands, non-participating properties, and cultural resource sites minimizes guesswork under what are usually time-sensitive conditions. Putting the technology together allows all experts on-site to make the right decisions the first time, making design more efficient.

Using survey-grade data to make on-the-fly changes during micrositing increases accuracy and minimizes errors over more conventional methods. Ultimately, time and money are saved by reducing the need for re-assessment and re-design. With advanced technology and the right team, you can walk away from micrositing ready to finalize road and collection line designs, proceed with geotechnical drilling, and complete the overall permitting process. By reducing project duration to net more megawatts faster, you can maximize project success.



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