

1. Place a check under the appropriate angle for each flag in the model landscape.

*Student observation*

2. Were there some flags that never received any wind? If so, where were they located in the landscape?

*Student observation*

3. Were there some flags that always received a lot of wind? If so, where were they located in the landscape?

*Student observation*

4. Why do you think some flags received a lot of wind and others not as much?

*Landscape features can get in the way of the path of wind. In nature, wind speeds increase as elevation increases.*

## WIND IN THE UNITED STATES

### Where are the highest wind speeds in the United States?

Using the elevation map of the United States, shade the areas that you think might have the most wind.

### Were your predictions correct?

Compare your predictions to the U.S. Wind Resource Map.

1. Are your predictions similar to the actual wind speeds?

*Answers will vary depending on student's predictions.*

### What happens to the wind speed as you go higher in the atmosphere?

2. How do wind speeds change as elevation increases?

*The wind speed increases with elevation.*

3. Why do you think this happens?

*There are fewer obstructions as elevation increases.*

5. What role do you think elevation plays in the engineering design of turbines?

*Over time, engineers have increased the height of turbines to access the higher wind speeds. With this increase in elevation, engineers have had to consider other issues, such as transportation of the wind turbine parts and the potential impacts on wildlife.*

### Where are the wind farms in the United States?

Compare topography and wind speed maps with the map of Utility Scale Wind Turbines in United States.

1. What is the wind speed and topography of the wind farm locations in the U.S.?

*See the map.*

2. Why do you think these locations were selected as opposed to areas where wind speed is the highest.

*Sites are typically selected for a number of reasons: proximity to population centers (closer proximity means less energy loss due to transmission), land availability, and ability to get the project approved in a cost-effective way.*