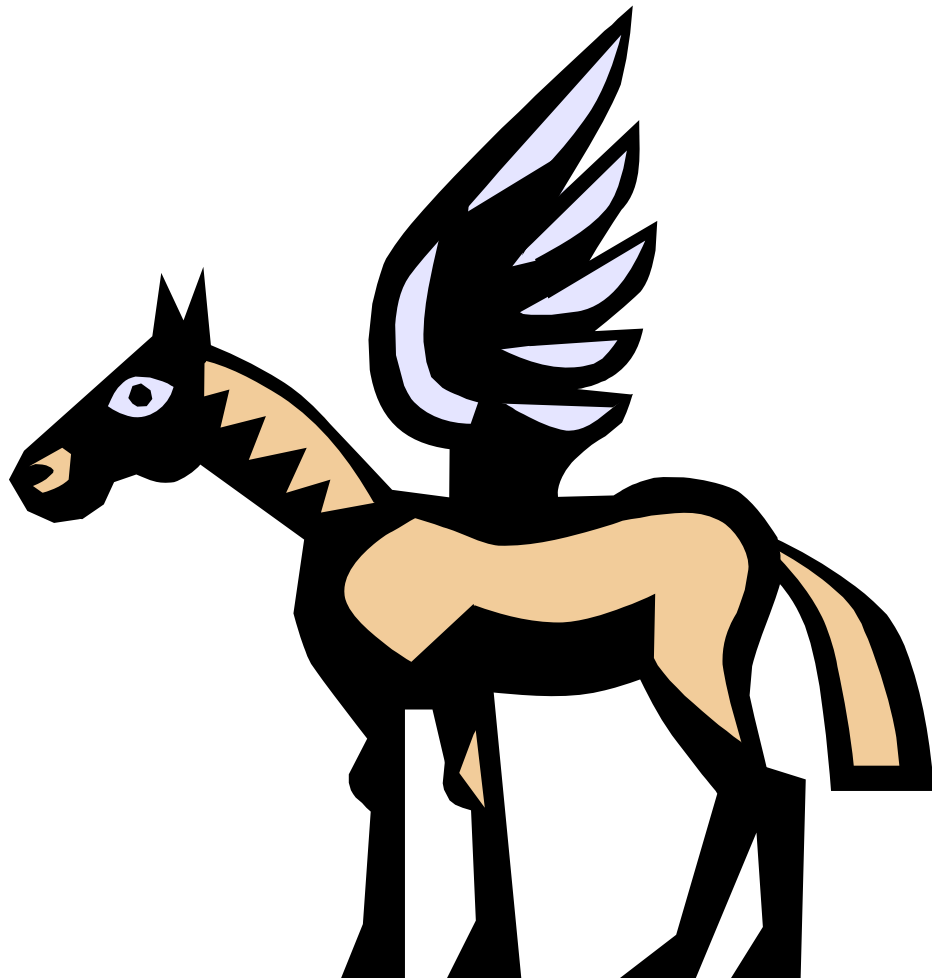


# Topic 6

## Wind Power Myths

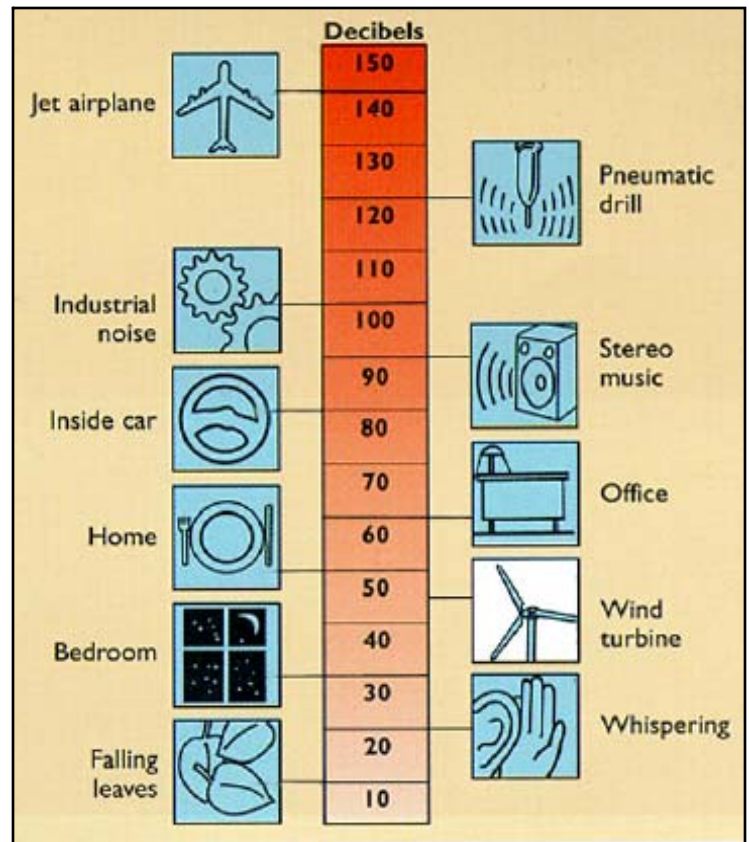


# Topic 6: Wind Power Myths

Wind power gets a bad reputation for being too noisy, a hazard to birds, and ugly. The purpose of this section is to bring light to these accusations and give perspective on the impact of wind power.

## 1. Wind turbines are too noisy!

Wind farms are no noisier than a kitchen refrigerator when sited 750 to 1000 feet from residences. The sounds of modern wind turbines have been compared to a washer, they tend to make a whooshing sound. In rural areas where most wind farms are placed, the blowing of the wind is usually louder than the sound of the turbines. There are some turbines from the 1980s that weren't designed to reduce noise. In the case where some wind farms are placed near hilly terrain and residences down wind of these wind farms are located in a dip or hollow, the turbine noise is more audible in these types of environments.



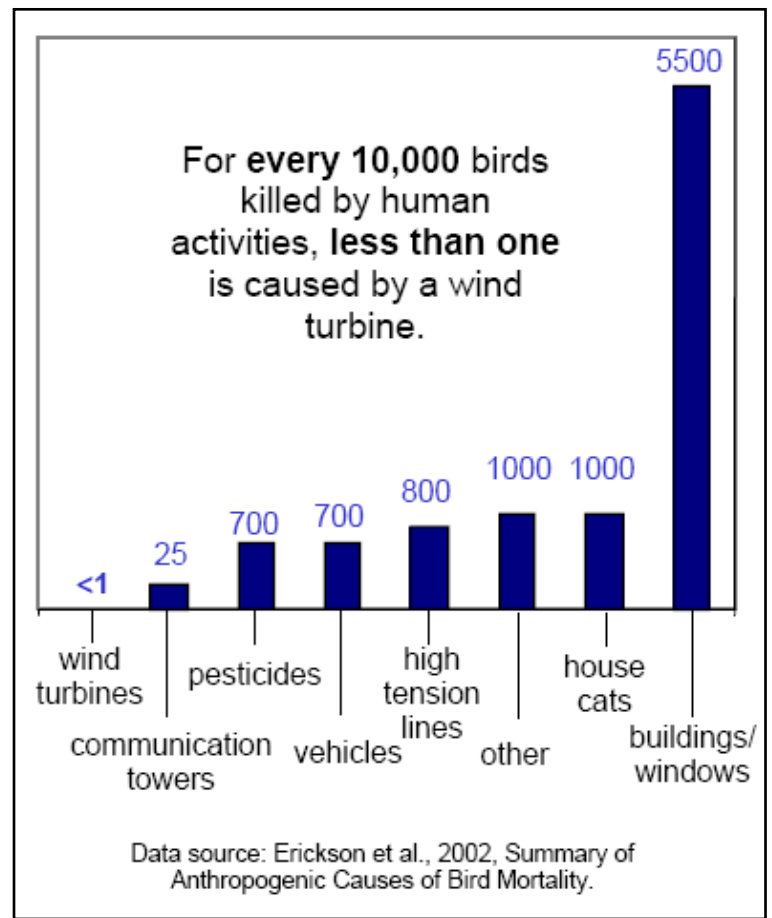
A wind turbine is actually ranked to produce noise at about 45 dB, which is lower than that of a home or office. A Bell, in honor of Alexander Graham Bell, is a unit *comparison* of two sounds, though the range of sounds the human can hear is so large that the decibel was introduced to produce a better scale of intensity to compare sounds. Usually the sounds are compared the threshold of hearing, which is 0 dB. A dB is one tenth of a Bel and is the smallest change in sound a human ear can hear. The decibel scale is based on powers of 10 and the intensity between two volumes can be measured by the following process:

If one wanted to know the difference in intensity between 20 dB and 50 dB, the difference between the two levels is 30 dB, the 30 dB is 3 Bel, so the intensity is  $10^3$ . So the 50dB level is 1000 times more intense than the 20 dB level.

## 2. Wind turbines kill birds!

In respect to other human-related activities that kill birds, wind turbines have very little impact on birds. The figure to the right show how other man-made objects and animals impact birds. There was a recordable event at Altamont Pass, California with a high frequency of collisions. After two decades of studies at the site, results showed that the situation was unique because there was a high population of raptors and bad siting of the wind farm in the ecosystem. Some of the things the wind industry is doing to combat the problem of accidental bird deaths include:

- Developers are working on turbine designs to reduce perching for the birds.
- New technology has reduced the noise turbines produce, which not only benefits residences, but also doesn't disturb the nesting of the birds.
- Wind developers can plan the wind farm siting around bird flight paths.
- New paint patterns are being tested on the turbine blades to distinguish them from the background.
- Electric Power Research Institute ran experiments to use certain radio frequencies to deter birds from flying near wind farms and airports.



## 3. Wind turbines are ugly!

This statement isn't so much of a myth, but an opinion. You have heard of "Beauty is in the eye of the beholder", and there are some people out there who prefer to see wind turbines as opposed to smokestacks or smog. Yet, there are also organizations that oppose the siting of wind farms, most are groups from communities that don't want the turbines near their residence, they feel it will "disfigure" the landscape.

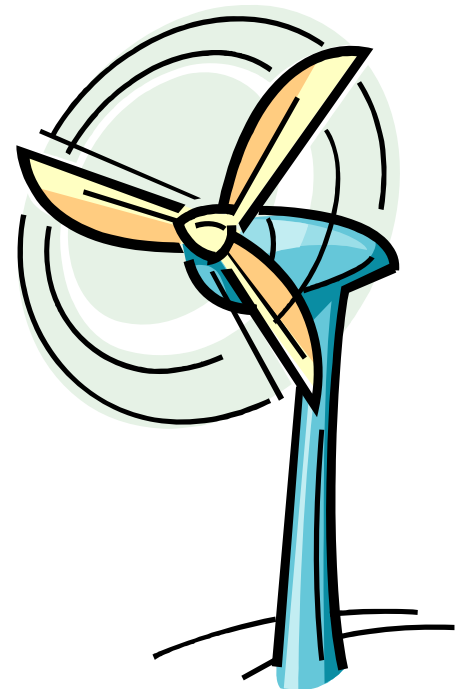


# Topic 6: Wind Power Myths

## Teacher Discussion Questions

### “Wind turbines are too noisy!”

- 1.) What objects have wind turbines been compared to that produce the same amount of noise?
  - a. *They have been compared to a washer or kitchen refrigerator.*
- 2.) What are other sources of noises that are louder than a turbine?
  - a. *There are many answers to this. Some examples could be: the blowing of the wind, the regular noises in a house, cars, or downtown city noise.*
- 3.) In what cases do turbines cause noise disturbance?
  - a. *There are several answers to this questions. One is when they are older turbine models, they tend to be louder than their modern counterparts. Also, residences, located in hollows or dips, that are down wind from wind farms can have the noise amplified.*
- 4.) What is a decibel?
  - a. *It measures the smallest change in volume a human ear can hear.*
  - b. *1B = 10 dB*
- 5.) How loud is a wind turbine?
  - d. *About 45 dB*
- 6.) What is a Bel (B)?
  - a. *It is a comparison of a sound to the threshold of hearing*
- 7.) What is the threshold of hearing?
  - a. *0 dB*
- 8.) What is the decibel scale based on and what does it do?
  - a. *The decibel scale is based on powers of 10. It is used to compare the intensity between two sounds, usually the other sound is the threshold of hearing.*



## “Wind turbines kill birds”

- 1.) What are some human related activities and/or structures that impact birds more than wind power?
  - a. *There are numerous answers to this question. Some possible answers could be buildings/windows, cars, house cats, high-tension lines*
- 2.) What was the bird kill problem in the case with the wind farm at Altamont Pass, California?
  - a. *The wind farm at Altamont Pass was built in a mountain pass where it was used as a migratory bird path. High populations of raptors used this pass and many were killed.*
- 3.) What is the wind industry doing to address the problem of bird kills?
  - a. *Developers are working on turbine designs to reduce perching for the birds.*
  - b. *New technology has reduced the noise turbines produce, which not only benefits residences, but also doesn't disturb the nesting of the birds.*
  - c. *Wind developers can plan wind projects around bird flight paths.*
  - d. *New paint patterns are being tested on the turbine blades to distinguish them from the background.*
  - e. *Electric Power Research Institute ran experiments to use certain radio frequencies to deter birds from flying near wind farms and airports.*



## “Wind turbines are ugly”

- 1.) Is the statement “Wind turbines are ugly” a fact?
  - a. *Discuss with students whether or not the statement is a fact or myth. It really is a matter of individual opinions.*
- 2.) Why do some people think wind turbines are okay to look at?
  - a. *They prefer it to the site of smoke stacks or air pollution.*
- 3.) Why do some people think wind turbines are an eyesore?
  - a. *They do not like their view of the landscape to be dotted with turbines. Many think turbines take away from the natural beauty of the land.*
- 4.) Do you think wind turbines are ugly?
  - a. *Discuss with students their opinions of wind turbines.*