1. **Form and Function:** What are its main parts and what do the parts do? How does it use or generate electricity? How do electrons move through it?

The rotor is the component which, with the help of the rotor blades, converts the energy in the wind into rotary mechanical movement. A wind turbine captures the wind to produce energy. The wind makes the rotor spin; as the rotor spins, the movement of the blades spinning gives power to a generator which makes energy. The motion of the wind turbine turning is called kinetic energy, this power is converted into electricity.

Tower - Supports the structure of the turbine.

Generator - Produces 60 cycle AC electricity.

High speed shaft - Drives the generator.

Anemometer – Measures the wind speed and transmits the data to the controller.

Controller – Starts up the wind turbine if the wind speed reaches 8-16 mph.

Gearbox – Connects the low-speed shaft to the high-speed shaft and increases the rotational speeds.

Blades – Lifts and spins when the wind is blown, causing the rotor to spin.

Rotor - Blades and hub together form the rotor.

Pitch - Turns (or pitches) blades out of the wind to control the rotor speed, and to keep the rotor from turning in winds that are too high or too low to produce electricity.

1. What are the **social implication**s? (How might people be affected?) Consider less developed countries and locations with different climates or geography.

People might be affected because how much space the wind turbine takes. People who are buying the land would like to use the space for farming animals and crops. Also is a concern for Aircraft safety because it is difficult for planes to land when they see turbines when landing. Also can interfere

1. with radar and telecommunication, the wind turbine has a powerful noise when turned on. The closest that a wind turbine is typically placed to a home is 300 meters or more. At that distance, a turbine will have a sound pressure level of 43 decibels.
2. What are the **ethical implications**? (What is morally right or wrong?)
3. The wind turbine does not pollute air which makes the environment a better place. Wind is a renewable resource and we will never run out. The newest wind turbine models don’t look like the clunky, rustic windmills of old. Instead, they are white, slick, and modern looking. wind turbines can be installed on existing farms or agricultural land in rural areas.
4. What are the **environmental implications**? (How does it affects the natural world?)
5. The wind turbine is unsafe to natural life, especially birds and other flying creatures that may be in the area. Also the turbine has a powerful sound to it when turned on. Also the turbine is expensive to setup, Wind turbines under 100 kilowatts cost roughly $3,000 to $8,000 per kilowatt of capacity. Wind doesn’t generally blow reliably, and turbines usually function at about 30% capacity or so. In the event that the weather is not going to support you, you may wind up without power.