

Energy Enhancement Activity –ENR03- Pumping plant powered by renewable energy



Enhancement Description

This enhancement requires the use of renewable energy—solar or wind – to power pumping plants for irrigation, drainage, livestock watering, or wildlife.

Land Use Applicability

Cropland, pastureland and rangeland

Benefits

The advantages of using solar or wind resources to power water pumps include conservation of fossil fuels, the reduction of the use of chemical

fluids such as oils and coolants, and the reduction of air pollutants such as greenhouse gases caused by the combustion of fossil fuels commonly used to power most pumping systems.

Criteria

This enhancement requires the use of a renewable energy source to power pumping plants for water to be used for irrigation, drainage, livestock or wildlife. Choose one of the following power sources:

1. Onsite solar or wind to either generating electricity or pump water directly.
2. “Green power” purchased from a utility. “Green power” in this instance is defined as electricity derived either from solar or wind but not bio-fuels and not hydroelectric power.

Note: This enhancement does not apply to purchase of equipment or “green energy” that is used to supply the energy needs of a personal residence.

Documentation Requirements

1. Documentation related to the installation of an electricity generating wind turbine pumping plant system, a solar panel pumping plant system and/or a wind powered pumping system
2. Photograph’s of system after installation
3. Documentation of the purchase of “green power” (see definition above) from a third party that is used solely for irrigation purposes.

Michigan Supplement

Energy Enhancement Activity- ENR03- Pumping Plant Powered By Renewable Energy

Planning Considerations:

Wind powered generators can be used to power low volume pumps. Wind is needed and correctly citing the system is essential.

- Locate at the highest location
- Storage tanks to hold water for several days may be needed.
- Consider prevailing winds
- Plan system upwind of buildings and trees
- The wind powered system should be at least 30ft above anything within 300ft
- Assess the distance between the wind powered system and the water pumping system

Solar powered systems can have a higher initial expense and may need a battery backup for cloudy days. Solar systems should consider:

- Seasonal Use
- Southern exposure that is unobstructed
- Daily water requirements
- Type of water source
- Total vertical distance that water is to be pumped, as measured from the lowest level from the water source to the highest level of the watering tank, including the pipe outlet
- Distance solar site may need to be from the water source
- Storage tanks to hold water for several days may be needed