Trees or Solar Panels

Objectives

Evaluate renewable energy options available in your area.
Use Geographic Information Systems (GIS) technology to make energy decisions.

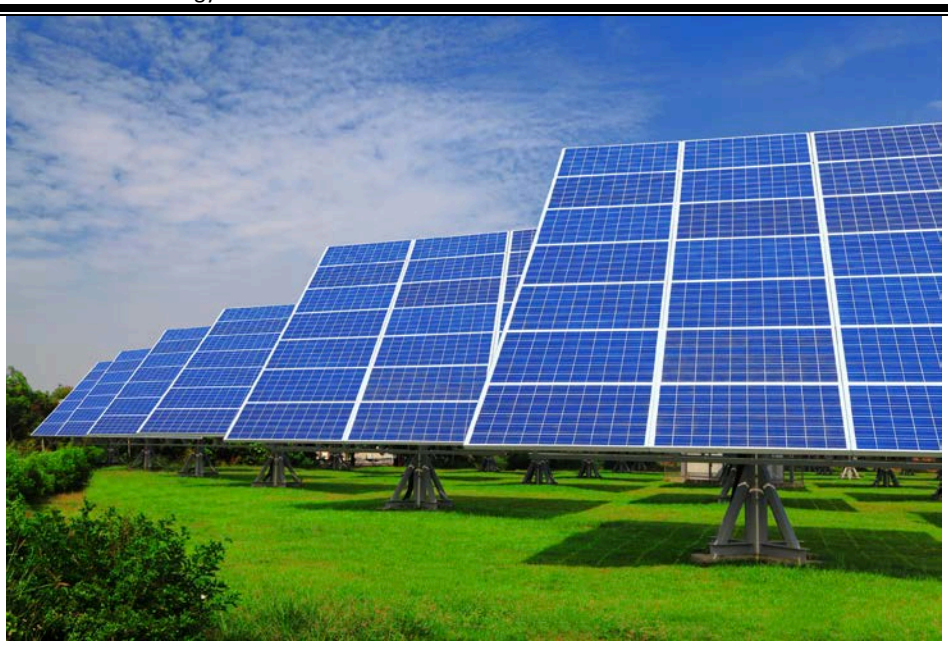
Skill Level: Middle school or high school.	**Prep time:** Minimal **Class time:** Two class periods

Materials

Access to a computer lab.

Background Information

Bioenergy as a renewable energy is highly productive in some areas and much more difficult in others. This activity guides the students through the process of deciding what types of alternative energy might work in their community or in a specific place in the country. Student use a GIS-based map to identify the types of renewable energy that are best for the region they have been assigned.



Source: Wiseenergy.org

A color heat map shows them the relative productivity of each alternative energy source. Bright green indicates high bioenergy productivity, while bright orange represents high solar productivity.

Engage

Ask the students if they have ever seen a house that was off the "grid". Ask them to list the various ways that ways that people might be able to power their house without an electric utility. Have students complete the Off the Grid activity. This activity can provide an introduction to the challenge of deciding which renewable energy source would be best for their assigned area.

Explore

Experiment Questions:

What is the best renewable energy source for a specific area?

Procedure:

Have students complete one of the activities below:

Renewable Priorities Activity (Intermediate)
Exploring Regional and Local Resources Activity and The Bright Idea Activity (Advanced)

Explain
Understanding whether bioenergy or solar energy is best for a region is important. Some students may think that a specific alternate energy (bioenergy, solar, or hydro) will work in all locations. Using this activity, they can come to understand that place matters.

Elaborate
Students can explore the best alternative energy choice for multiple areas. They could also choose a place they would like to live off the grid and plan the energy source they would use.

Resources

Resources Used:

Teach Engineering. One of the best K12 engineering education web sites with lots of unit and lesson plans.