

Off The Grid Project Rubric (Total Points Possible 30)

"Your parents are fed up with paying their electric bills. They've decided to go completely off the grid. They are going to build a house on a plot of land they've already purchased. There are no electrical lines nearby and your parents have no intention of hooking up to any external electrical source. You are horrified at the thought of having no phone, no game

devices, no TV/DVDs, no light, no refrigeration and no hot water.

Your parents have given you a map of the land, and you're pretty sure you could design an electricity generation plan that uses wind energy and/or water energy to generate electricity for the devices you want to use on the property. Your parents have agreed to let

you try to create this electricity generation plan, but they have a limited budget and they have concerns about environmental impacts. They also don't really know how electricity is generated and have never heard of kinetic, potential, or electromagnetic energy.

You will have to teach them about these forms of energy and convince them your plan will work. Your challenge is to design a plan for electricity generation that stays within budget, has limited environmental impacts, and generates enough electricity for your household, AND to convince your parents it will work. Otherwise, you and your family will be le IN THE DARK!"

I. Household Energy Needs (Attach your Worksheet; 6 points possible)

Energy Needs	Energy In	Energy Out	Total

II. Property Map (6 points possible)

a. Clearly Labeled and Drawn to Scale

1. House
2. Energy Generation Systems
- 3.

b. Neat and Legible

c. Paragraph Explaining Location of Home and Generation Systems

III. Renewable Energy Resources (6 points possible)

- a. Why were these systems chosen?
- b. Advantages of these Systems.
- c. Disadvantages of these Systems.

IV. Non- Renewable Energy Resources (6 points possible)

- a. Why were these systems chosen?
- b. Advantages of these Systems.
- c. Disadvantages of these Systems.

V. Cost of the Project (6 points possible)

- a. Use your chart for household costs and your Power resource systems chart for your calculations.
- b. Is your plan affordable / possible? Explain your reasoning.
- c. How long will it take to pay off your systems (show your calculations!)?

QTY	System	Cost	Kwh per Day	Total
	Wind Generator	\$4000	10	
	Solar Array	\$3000	15 (when sunny)	
	Small Hydro Power	\$5000	20	
	Large Hydro Power	\$10,000	50	
	Bio Mass Generator (Grass + Waste) *Only enough for 1	\$1500	8	