ENVIRONMENTAL MANAGER

STUDENT NAME: **CLASS:** **DATE:**

NEWSFLASH! The governor has declared that all energy consumed in your state must be 100% clean and carbon-free by 2050. And the deadline is fast approaching. To jumpstart this, your community was selected to be the first one to transition to 100% renewable energy. But what kind of **electric energy system** would it take to do that? This is what your team will uncover …

Welcome to the team, **environmental manager**! You are a passionate wildlifer who understands the effects human development has on environmental ecosystems. Your expertise will ensure that your team designs an energy system that coexists with nature and reduces the community's environmental footprint. To secure your team's electrical energy system from attacks, consider researching the following:

- Begin your research by checking out the info and video at: http://intotheoutdoors.org/topics/**electricity-and-the-world**/
- How does renewable energy help the environment? _____
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- Why is it important for people and utilities to protect the environment? _____
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- What is an ecosystem? What biotic and abiotic factors make up an ecosystem? _____
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- Why are vegetation and electric transmission equipment not a good combination? _____
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- What are rights-of-way and how is vegetation maintained in them?_____
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- Constructing and maintaining generators and transmission equipment can damage and cause impacts on wildlife and the environment. What solutions or strategies can environmental managers use to minimize or avoid these impacts? • Consider plants, insects, birds, endangered species, and abiotic factors. _____
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- View an aerial map of the community and surrounding landscape. Work with the Electrical Planning Engineer and Security Manager to plan a path for the transmission equipment that minimally impacts the environment.

- What kinds of ecosystems or natural areas will your transmission equipment cut through with rights-of-way?

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- Are there any invasives in the area that your construction crews should avoid? _____

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- Do any endangered species dwell in your community? How will you reduce impacts to them? _____

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- How will you improve habitats for the wildlife? _____

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- Will your path encounter any fragile ecosystems, such as wetlands? How will you protect the soil and water during construction? _____

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- Include your management strategies in your energy system diorama.

Next, discuss your findings with your team members and plan out an electrical energy system that will generate and deliver renewable, safe, efficient, reliable power to your community. As a group, use all of your discoveries to design and craft a diorama of your energy system on top of a sheet of cardboard. First, paint an aerial view of your landscape on the cardboard. Then let your inner genius out and construct your electrical energy system on the landscape. You may mold clay or use construction paper to build houses and transmission equipment … or even glue in natural resources like sticks, pebbles, moss, grasses, or sand to recreate the landscape. Your team will pitch your renewable energy system diorama to the class with supporting research. The group who receives most of the community's support wins the challenge!