

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 ...

Do you copy, **Security Manager**? Your duty is to protect the electrical transmission system from attacks. Thanks to your knowledge in surveillance and defense mechanisms, the electrical grid and transmission systems remain operational and safe.

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/maintaining-the-flow-of-electrons/>
- What kinds of cyber threats are there to the electrical transmission system? _____

- What kinds of physical threats are there to the electrical transmission system? _____

- How will you prevent or deter attackers from entering facilities or damaging equipment? _____

- How will you monitor or detect attackers? _____

- How is your equipment vulnerable to attackers on the landscape? Consider geographical location, ease of access, and how important the equipment is to the system. _____

- View an aerial map of your community and surrounding landscape. Work with your Power Engineer and Electrical Planning Engineer to plan a path for your electrical transmission system.

- Are there natural barriers for your equipment already on the landscape? _____

- What is the Federal Energy Regulatory Commission? _____

- Why must electric utilities follow regulations? _____

- What personnel or technology do you recommend to monitor and prevent attackers? Include these 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!

