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 …

Okay, Electrical Planning Engineer. Your mission is to decode the parts of the electric transmission system that will deliver electricity to your community. Unlike others on your team, you understand that transmission systems are expensive … and take up space, which can have lasting impacts on the public and the environment. So your team must choose a transmission path with care …

To design an electric transmission system that balances the monetary costs with the needs of the public and environment, consider researching the following:

- Begin your research by checking out the info and video at: http://intotheoutdoors.org/topics/decoding-the-electrical-transmission-system/
- What are the main parts of an electrical transmission system?
- What equipment will you need to connect electric power from your generation sources to your community?
- What technical components must you include on your equipment to make sure your electricity is not lost to the ground?
- What is electric voltage?
- How will you make your electric transmission system safe?
- View an aerial map of your community and ask the Power Engineer where the generation source will go. Now plan a path for your electrical transmission system to travel and connect with your community.
• What environments and public spaces do your paths travel through? _______________________________________
______________________________________________________________________________________________
______________________________________________________________________________________________

• Which path is the least expensive and requires the least amount of equipment? ____________________________
______________________________________________________________________________________________
______________________________________________________________________________________________

• What impacts would it have to the public? __________________________________________________________________
______________________________________________________________________________________________
______________________________________________________________________________________________
______________________________________________________________________________________________

• Which other paths will minimize impacts to people?  _____________________________________________________
______________________________________________________________________________________________
______________________________________________________________________________________________

• Which paths will minimize impacts to the environment? Collaborate with your environmental manager. ____________________________
______________________________________________________________________________________________
______________________________________________________________________________________________
______________________________________________________________________________________________

• Which electronic equipment may be vulnerable to attacks? Collaborate with your security manager. _________________
______________________________________________________________________________________________
______________________________________________________________________________________________

• What personnel and technology will you need on stand-by to repair and monitor the equipment? 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!