

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 ...

As a **Power Engineer**, you understand all the nuts and bolts to electricity generation. Your job will be to discover how to introduce renewable energy sources to generate electric power for your community ... and then build it! With your help, the team can plan an excellent renewable energy system.

To ensure your energy system serves the needs of the community while being 100% renewable, consider researching the following:

- Begin your research by checking out the info and video at:  
<http://intotheoutdoors.org/topics/generating-our-electricity/>

- What is renewable energy? \_\_\_\_\_  
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- What are the benefits to generating electric power with renewable resources rather than fossil fuels?  
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- What renewable resources can we use to generate electricity? Explain how. \_\_\_\_\_  
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- What renewable resources are available in your area? View an aerial map of your community online.  
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- Where would you recommend placing the generation equipment on the landscape?  
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- Are some of these methods more costly than others to construct or run? \_\_\_\_\_  
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- How much power can each method generate on average? \_\_\_\_\_  
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- How much equipment would you have to build to supply enough power for your community? Collaborate with your electrical planning engineer and system control operator on this. \_\_\_\_\_  
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- Can these generation methods reliably produce electric power 24/7? \_\_\_\_\_  
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- If not, what storage devices would you need for back-up? \_\_\_\_\_  
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- What combination of clean energy sources will you need to generate enough power for the community? \_\_\_\_\_  
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**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!

