



Science Fair Project Ideas Related to Smart Grid and Smart Meters

ComEd's Student Power program is providing special awards in the form of *Best Buy* gift cards to award winning Science Fair projects focusing on the smart grid or smart meters.

Below are some ideas of projects related to the smart grid and smart meters. These are provided simply as ideas to stimulate the imagination of the students. All projects related to the topic are welcome.

Students can receive assistance from ComEd's Smart Grid Ambassadors. These are retired ComEd employees with more than 20 years experience in the the field. They can help your young scientists better understand the electric grid and smart meters. Contact us if your young scientists would like their help.

Circuits

Understanding circuits and how they work is integral to understanding the smart grid. Smart switching is like a circuit breaker. Smart switches automatically reroute power around problem areas so you experience fewer and shorter power outages.

Design a science fair project that shows how a smart circuit is beneficial to the consumer.

Here are links to science fair projects related to circuits:

<http://www.sciencefairadventure.com/ProjectDetail.aspx?ProjectID=219>

Build a circuit board to show how a smart grid works

<http://www.msichicago.org/online-science/activities/activity-detail/activities/make-a-circuit-board/browseactivities/8/>

Also: <http://www.energyquest.ca.gov/projects/open-short-circuit.html>

Generators

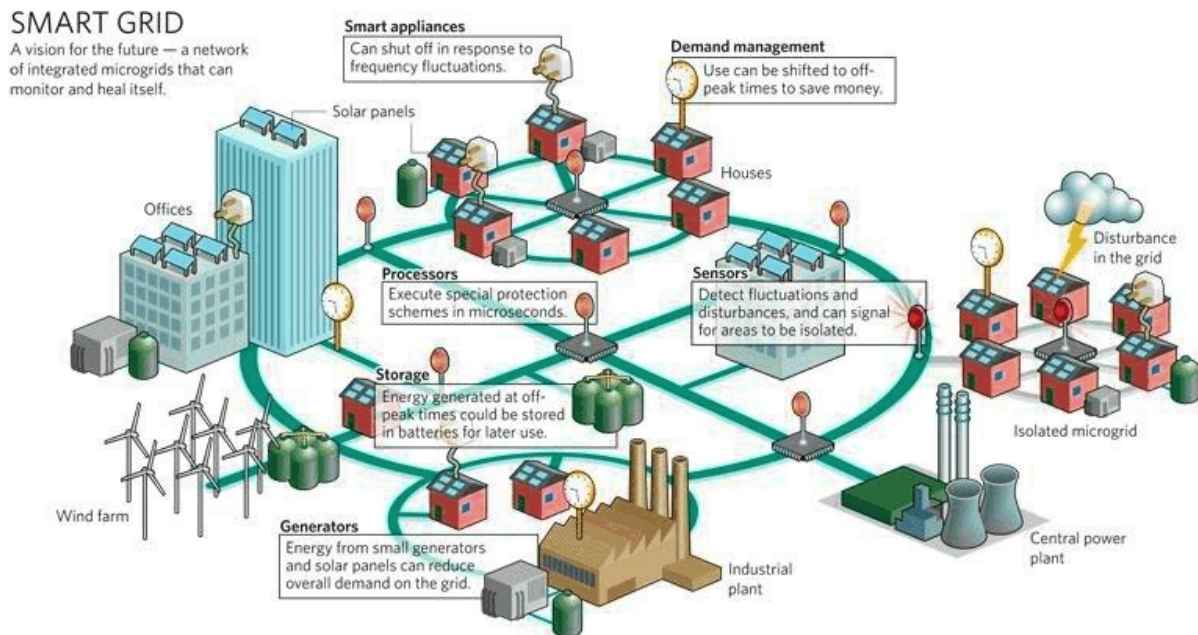
The smart grid can be illustrated by building a generator and showing what happens when power outages occur. The curriculum includes an experiment where students build a microgrid using fruit. Other ways of building a generator to show the benefits of a smart grid include these experiments:

<http://amasci.com/amateur/coilgen.html>

<http://scienceclub.org/kidproj1.html>

Smart Grid

Build a display showing a smart grid configuration with components that demonstrate the benefits including isolating disruptions from power outages, integration of renewable energy technologies, etc. Here is an image that may be useful.



Radiation and Smart Meters

There have been concerns that smart meters will produce unsafe levels of radiation. Design a science fair project that compares the radiation produced by a smart meter to that of a microwave and cell phone.

Here is a link to a science fair project that addresses this concern:

http://www.sciencebuddies.org/science-fair-projects/project_ideas/Elec_p068.shtml

Behavioral Science / What Energy Bills Tell Us About Energy Usage

Smart meters allow people to see their energy use in real time. Also, opportunities such as real time pricing allow people to adjust when they do certain tasks as a way of saving money. Design a science fair project that addresses the human aspect of seeing energy use in real time as a way of encouraging energy efficiency practices. Questions to ask might include: Is age a factor? Is income a factor? Is pricing a factor?

Here's a link to a science fair project related to this topic:

http://www.sciencebuddies.org/science-fair-projects/project_ideas/Energy_p017.shtml

Behavioral Science / The Best Way to Show Data Graphically

Smart meters allow people to see energy use in real time. The data is displayed graphically. Design a science fair project that determines the best way to graphically display data that causes people to take action to reduce their energy use.

Here's a link to a science fair project related to this topic:

http://www.sciencebuddies.org/science-fair-projects/project_ideas/HumBeh_p011.shtml