

# UC Agriculture & Natural Resources

## 4-H, Youth and Family (includes home livestock)

### Title

4-H Energy Project

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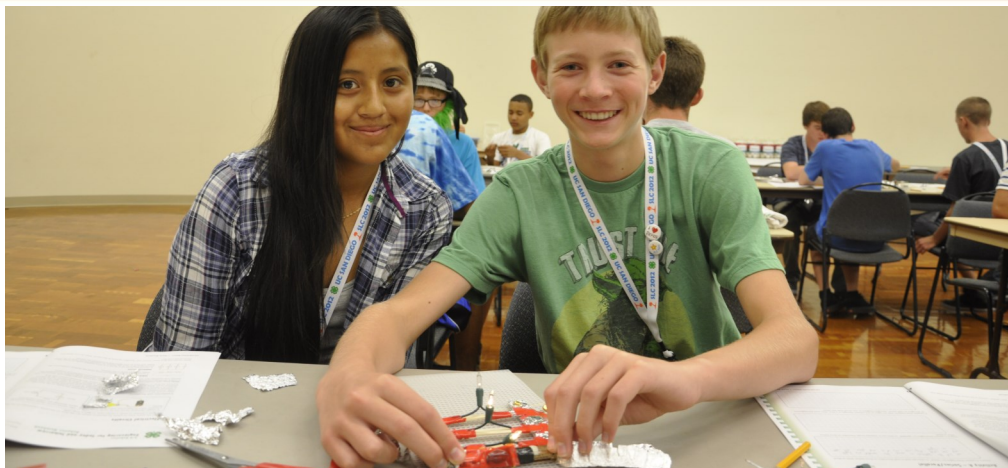
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# 4-H ENERGY PROJECT



## 4-H THRIVE

**Help Youth:**

### Light Their Spark

A spark is something youth are passionate about; it really fires them up and gives them joy and energy. Help youth find how this project excites them.

### Flex Their Brain

The brain grows stronger when we try new things and master new skills. Encourage youth effort and persistence to help them reach higher levels of success.

### Reach Their Goals

Help youth use the GPS system to achieve their goals.

**Goal Selection:** Choose one meaningful, realistic and demanding goal.

**Pursue Strategies:** Create a step-by-step plan to make daily choices that support your goal.

**Shift Gears:** Change strategies if you're having difficulties reaching your goal. Seek help from others. What are youth going to do when things get in their way?

### Reflect

Ask project members how they can use their passion for this project to be more confident, competent and caring. Discuss ways they can use their skills to make a contribution in the community, improve their character or establish connections.

Energy is a fundamental crosscutting concept in science and is a social and environmental concern as demand for energy increases globally. In the 4-H Energy Management project, members may work on a variety of topics, including:

- Explore types of energy, including thermal (heat), chemical, magnetic, elastic, electrical, sound, radiant, mechanical, nuclear, and luminous, and how they may be transformed.
- Practice and promote wise use of energy, taking into consideration social, economic, environmental, and political considerations.
- Develop an understanding of energy production and the social, political, and economic costs between petroleum (oil), natural gas, coal, nuclear, and renewable sources.

### Starting Out *Beginner*

- Learn about forms of energy and transformation from one form to another.
- Explore how much energy is needed to perform certain tasks (i.e., energy usage).
- Start to experience the flow of energy into and out of a system.
- Understand the production, selection, use, conservation and safe handling of energy.

### Learning More *Intermediate*

- Explore the ways humans use and generate energy and how that has changed over time.
- Learn about renewable energy sources (sunlight, wind, rain, tides, water, and geothermal heat).
- Develop an appreciation and respect for the environment, rights and property of people and human responsibility in the production and use of energy.

### Exploring Depth *Advanced*

- Explore energy generation and the cost/benefits of various sources of energy.
- Learn about the impact of energy production on climate change.
- Learn about sustainable energy and energy efficiency.
- Conduct a community energy assessment and develop a service learning plan to save energy.

The activities above are ideas to inspire further project development. This is not a complete list.



# Expand Your Experiences!

## Science, Technology, Engineering, and Mathematics

- Build an object that converts one form of energy to another; assess its efficiency.
- Conduct an experiment with light bulbs to see how much energy each consumes.
- Learn the history of energy generation technologies.
- Go on a field trip of an electrical generation plant.

## Healthy Living

- Learn how your body uses and transforms energy—how many steps would it take to power a light bulb? How efficient is your body at transforming energy?
- Explore the *calorie* unit of energy, what it means, and its relation to your body and health.
- Conduct an assessment of the impact of energy production on the environment.

## Citizenship

- Conduct an energy assessment of your community and present your findings to the city council; encourage them to explore more renewable sources of energy production.
- Start a recycling campaign for old sources of energy, like batteries.
- Inform the public about ways to reduce energy consumption.

## Leadership

- Become a Junior or Teen Leader for the 4-H Energy Project.
- Be a role model in reducing your electricity usage at home, school, and 4-H meetings.
- Learn about the complex roles of social, economic, political, and environmental factors involved in energy generation.

## Resources

- Renewable Energy Scavenger Hunt  
[www.4-h.org/WorkArea/DownloadAsset.aspx?id=4242](http://www.4-h.org/WorkArea/DownloadAsset.aspx?id=4242)
- Energy Literacy: Essential Principles and Fundamental Concepts for Energy Education  
[energy.gov/eere/education/energy-literacy-essential-principles-and-fundamental-concepts-energy-education](http://energy.gov/eere/education/energy-literacy-essential-principles-and-fundamental-concepts-energy-education)
- U.S.D.E.—Energy Education  
<http://www1.eere.energy.gov/education/lessonplans/>
- National Academies—Energy  
[needtoknow.nas.edu/energy/](http://needtoknow.nas.edu/energy/)
- U.S. Energy Information  
<http://www.eia.gov/state/>

The UC 4-H Youth Development Program does not endorse, warrant, or otherwise take responsibility for the contents of unofficial sites.

### Connections & Events

**Presentation Days** – Share what you’ve learned with others through a presentation.

**Field Days** – At these events, 4-H members may participate in a variety of contests related to their project area.

Contact your UC Cooperative Extension Office to determine additional opportunities available, such as a field day.

### Curriculum

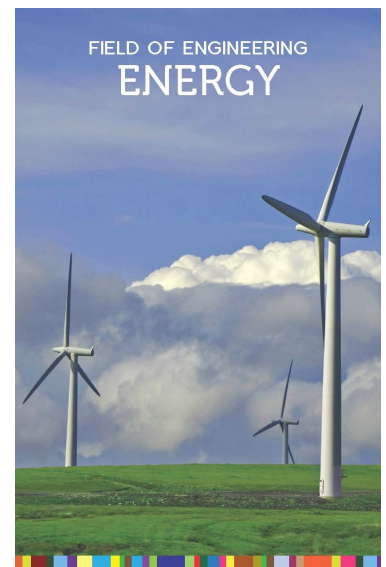
- **Power of the Wind**  
[www.4-h.org/resource-library/curriculum/4-h-the-power-of-the-wind/](http://www.4-h.org/resource-library/curriculum/4-h-the-power-of-the-wind/)
- **4-H National Youth Science Days**—Biofuel Blast (2009) and Wired for Wind (2011)  
[http://4h.ucanr.edu/Projects/SET/NYSD/2009\\_4-H\\_NYSD/](http://4h.ucanr.edu/Projects/SET/NYSD/2009_4-H_NYSD/)
- **4-H Biodiesel Curriculum**  
[web.cals.uidaho.edu/biodiesel/4-h-curriculum-for-ages-8-12/](http://web.cals.uidaho.edu/biodiesel/4-h-curriculum-for-ages-8-12/)

### 4-H Record Book

4-H Record Books give members an opportunity to record events and reflect on their experiences. For each project, members document their experiences, learning and development.

4-H Record Books also teach members record management skills and encourage them to set goals and develop a plan to meet those goals.

To access the 4-H Record Book online, visit  
<http://ucanr.edu/orb/>



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