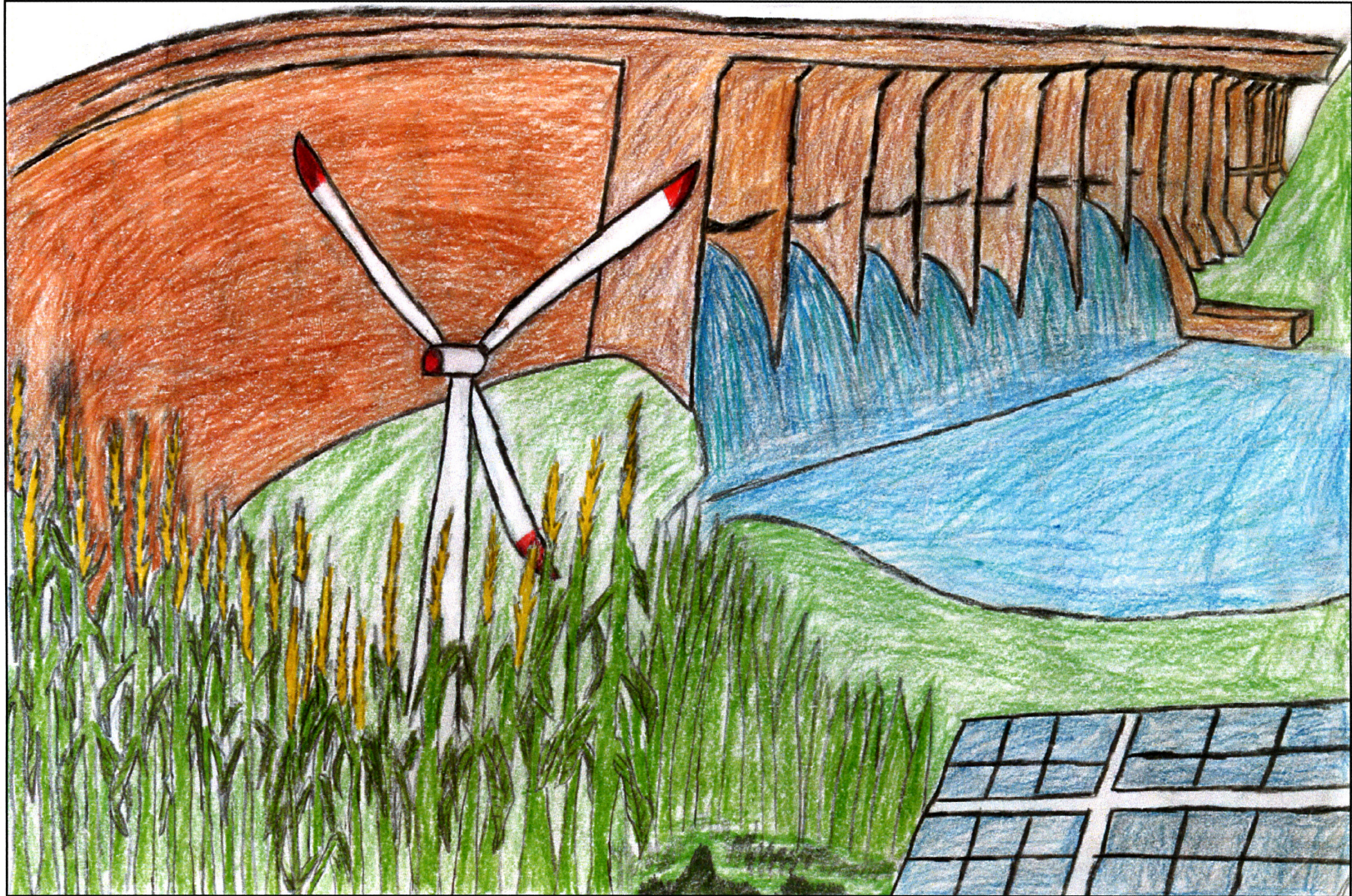


Renewing Our Future



July 2011 - December 2012

An 18 month calendar celebrating renewable energy sources

Created by the 2010-2011 Seventh Grade Class

Maplewood Richmond Heights Middle School

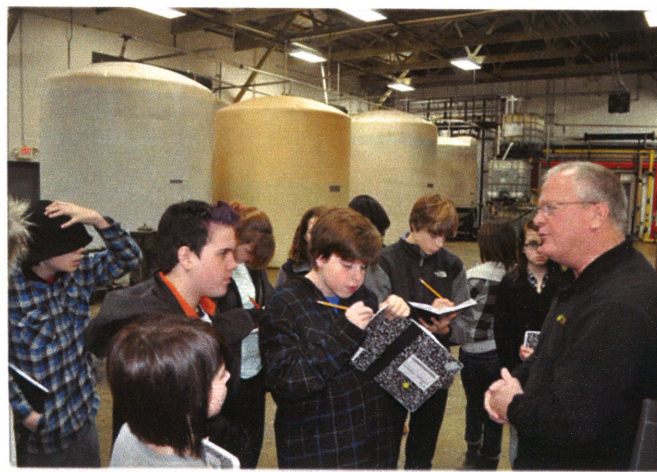
Project Overview

We are the 7th graders at Maplewood Richmond Heights Middle School, and in this calendar, we will tell you about our project on renewable energy. We made this calendar for a couple of reasons. One reason is that the world relies too much on non-renewable energy sources, such as oil and coal. Therefore, we are slowly polluting and killing our world with the energy resources we have chosen to use. We, as the 7th grade, made this calendar to spread awareness of renewable energy sources so that people know there are other options such as solar power, wind power, biomass technologies, and hydropower.

Our P1 science class is at The College School in Webster Groves learning about their WindSpire.



Our P4 science class at Midwest Biodiesel Products on a tour with President Terry Zintel.



The P5 science class is at Washington University's Tyson Research Center with Dane Glueck looking at a solar panel that tracks the sun's placement in the sky.

Our P7 science class visited the Bagnell Dam at the Lake of the Ozarks.



July 2011

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
<p>“We’ve embarked on the beginning of the last days of the age of oil. Embrace the future and recognize the growing demand for a wide range of fuels or ignore reality and slowly - but surely - be left behind.” Mike Bowlin</p> <p>“Energy conservation is the foundation of energy independence.” Thomas H Allen.</p>					1 Canada Day	2
3	4 Independence Day	5	6	7 In 1981, Solar Challenger, a solar-powered aircraft, flew 163 miles.	8	9
10	11	12	13	14	15	16
17	18 In 2005, the vertical-axis was invented.	19	20	21	22	23
24	25	26	27	28	29	30
31						



Solar

"I'd put my money on the sun and solar energy. What a source of power! I hope we don't have to wait until oil and coal run out before we tackle that."

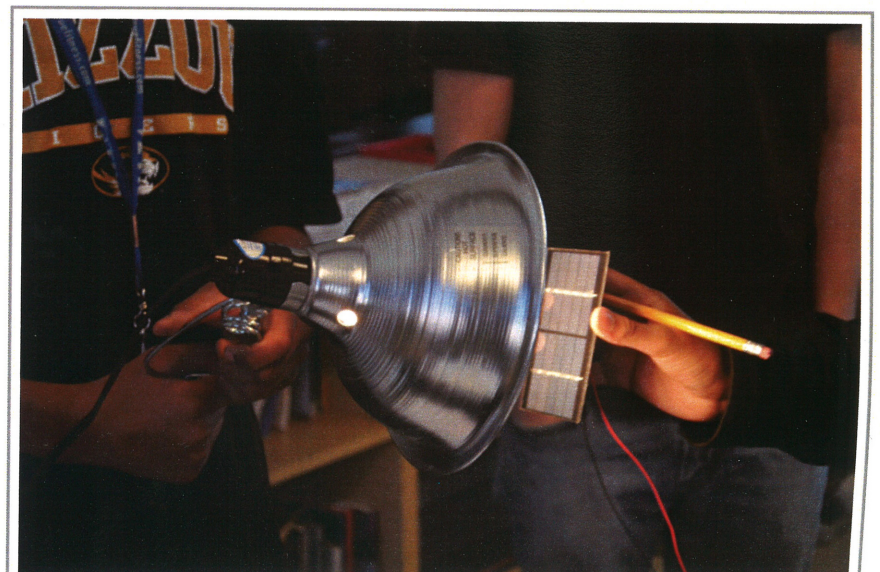
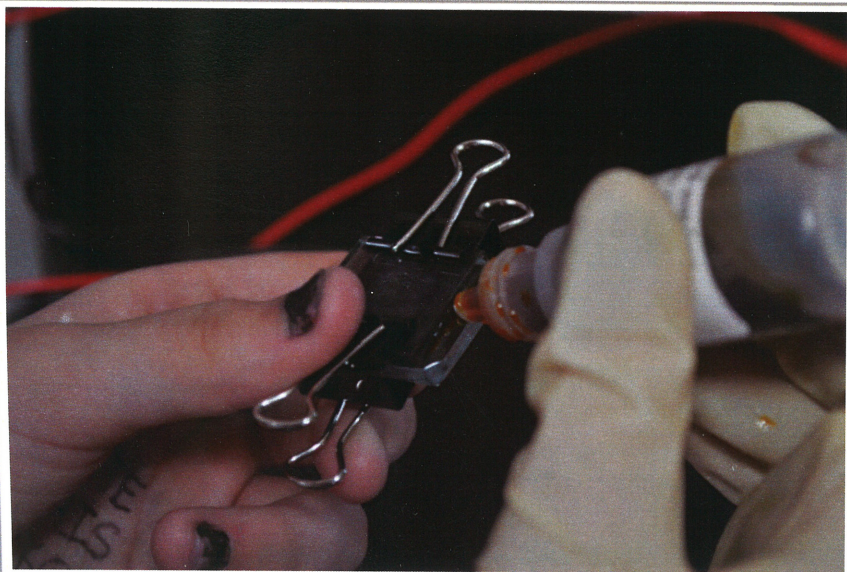
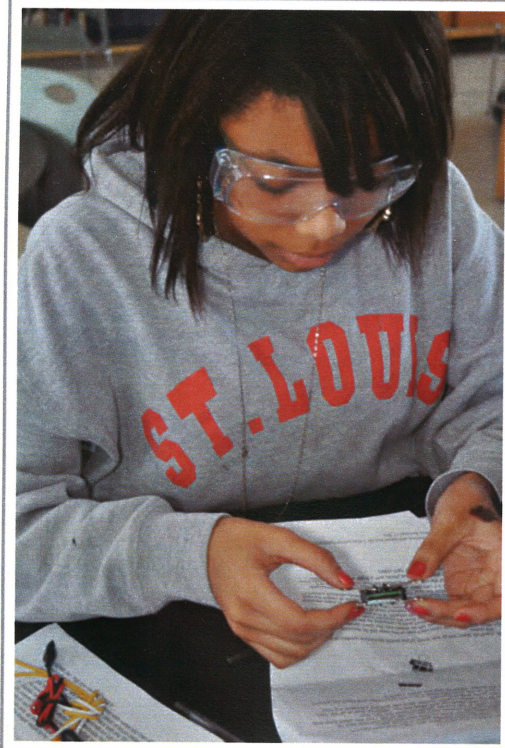
Thomas Edison, 1931



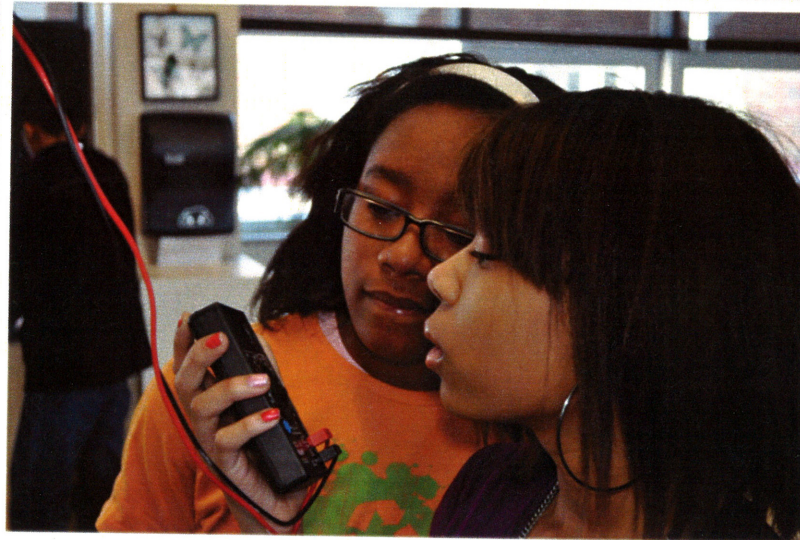
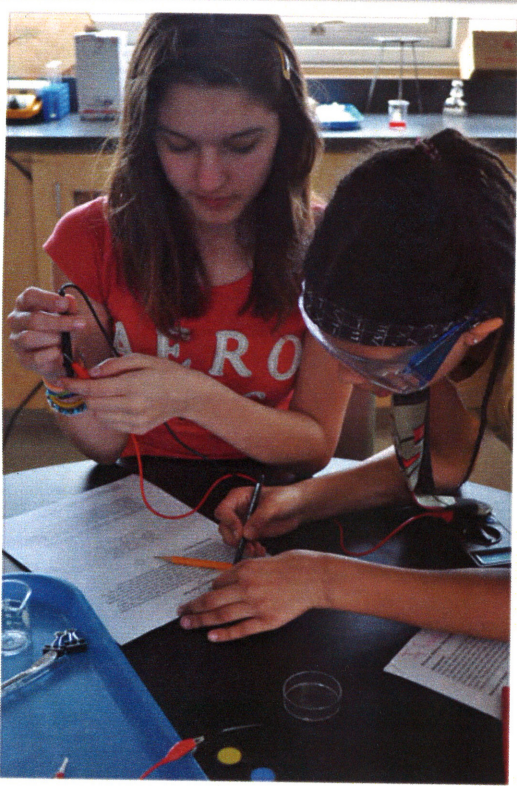
We use about 30 to 60 kilowatts of electricity a day.
1 kilowatt an hour =
1 pound of coal.

Solar

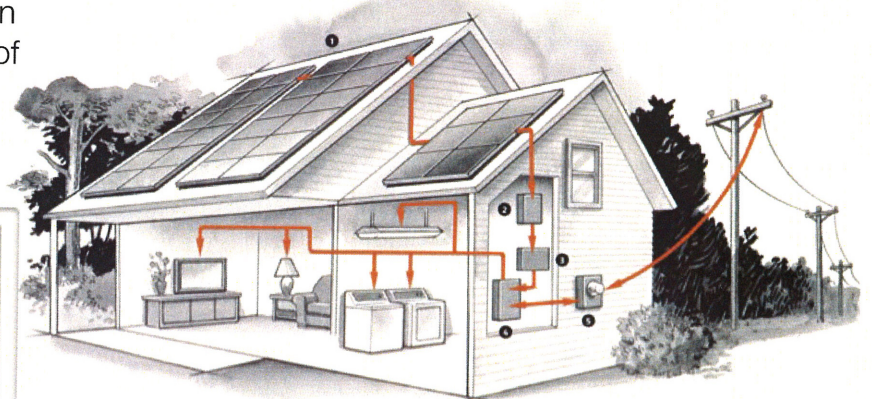
- If the sun were to disappear, we would have sunlight for eight more minutes.
- With solar power, our country can become energy independent.
- The choices we make now will determine what kind of world our children and grandchildren will inherit from us.
- In 5 billion years, the sun will run out of fuel.



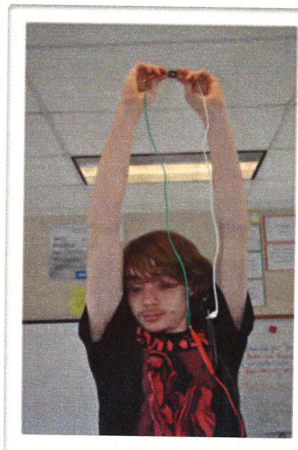
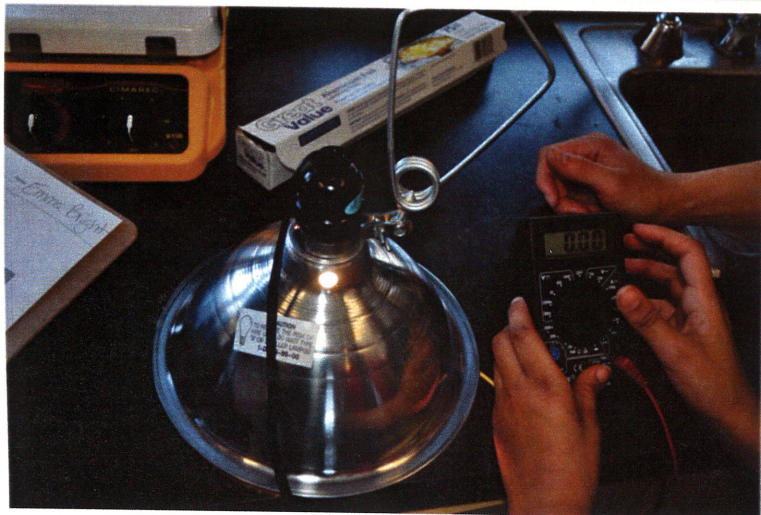
Solar



In 1839, French scientist Edmund Becquerel discovered that certain materials would give off a spark of electricity when struck with sunlight.



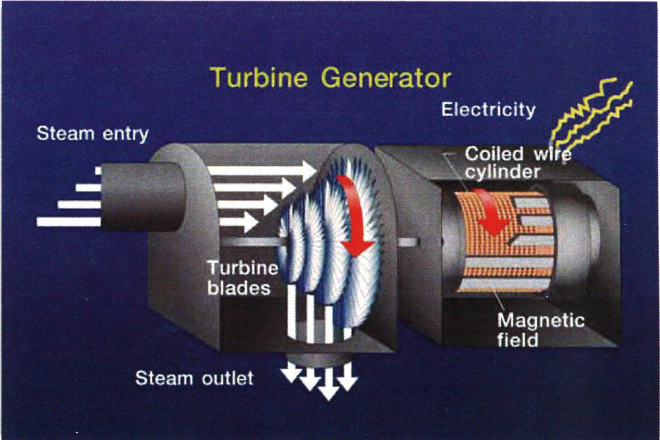
If you had a solar panel on your house, this is how it would work: the energy from the sun would go into the solar panels and then it would be converted into electrical energy. This energy would be converted to AC and then go into household appliances and lights. Any extra electricity produced could be sent to the grid for others to use.



Geothermal



Geothermal power plants tap into the naturally occurring heat trapped inside the Earth.



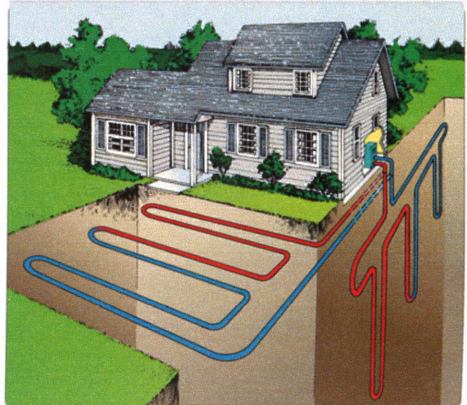
How it works: Water is sent underground where it is naturally heated and converted into steam. The steam turns a turbine which spins an electromagnet that generates electricity.



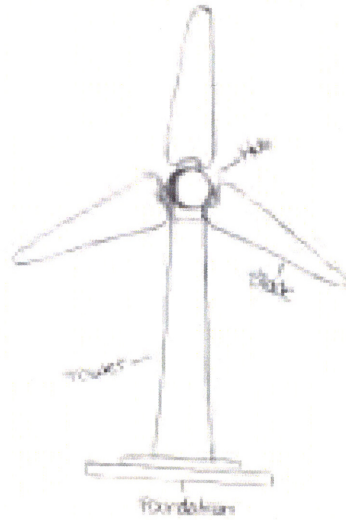
Morning Glory Pool, a geothermal spring at Yellowstone National Park.



This diagram shows how geothermal energy can be used in homes.



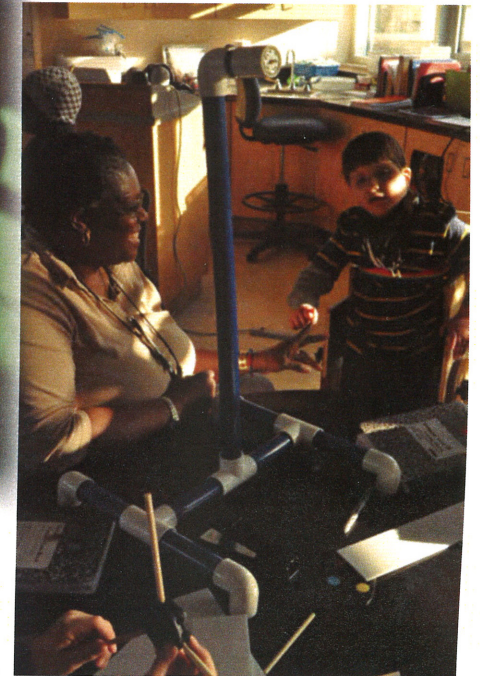
Wind



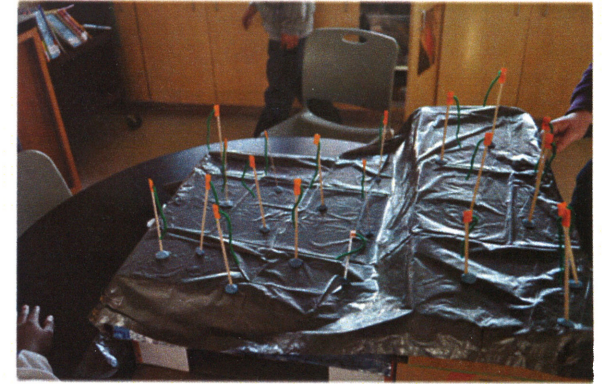
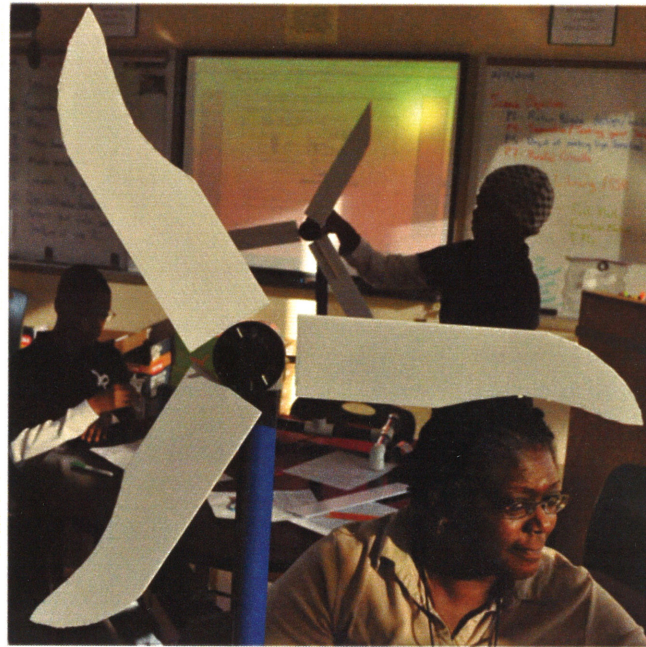
Wind is caused by uneven heating from the sun that causes different densities and pressure which results in the movement of air.

Hot air rises because it's less dense than cool air.

Elevation, topography, and land forms affect the speed of wind.



Wind

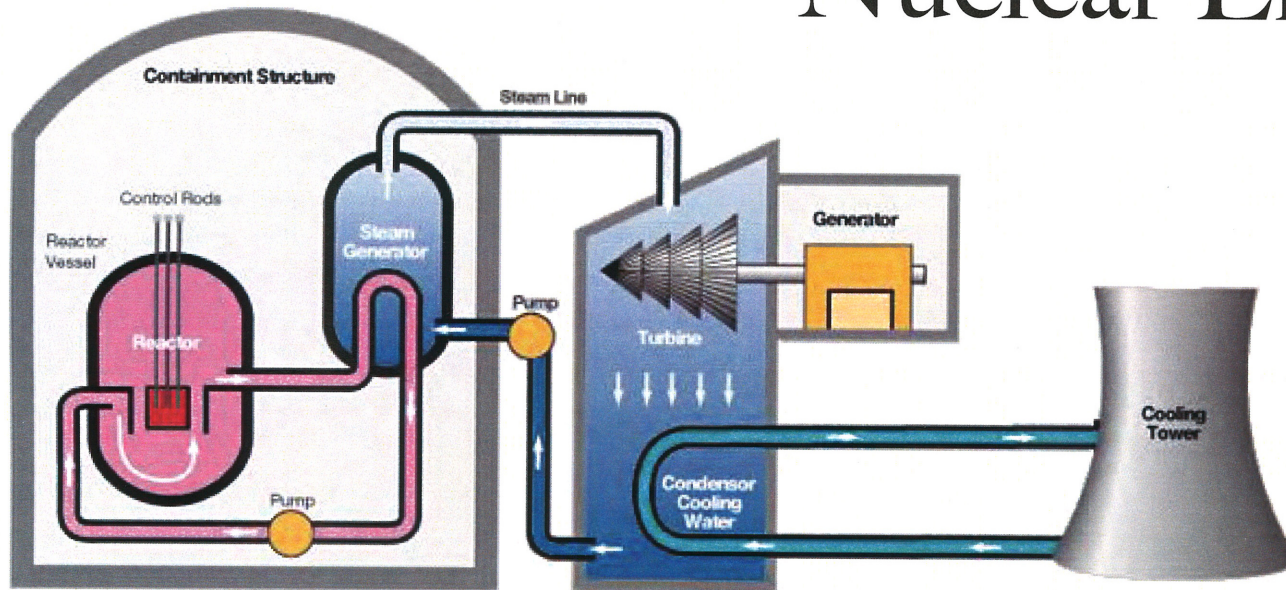


By using wind energy instead of fossil fuels, we can greatly reduce CO2 emissions from burning coal.

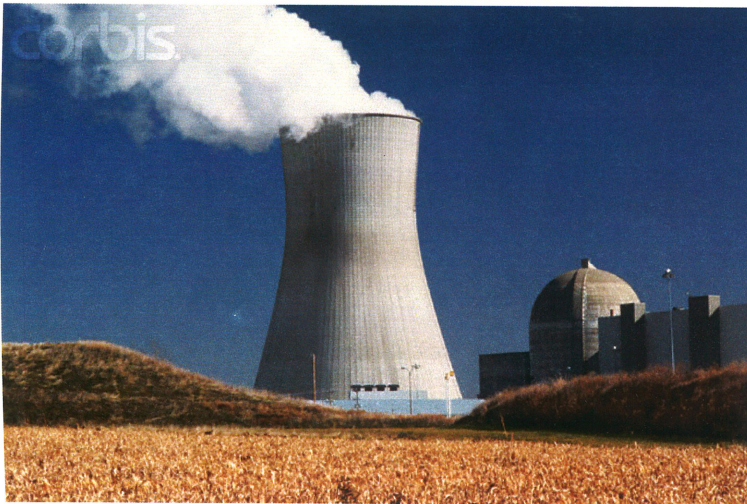
For thousands of years, wind has been harnessed in the sails of ships to make them move.



Nuclear Energy



All nuclear reactors now in operation use nuclear fission. Nuclear fission is the process where the nucleus of an atom is split. Enormous amounts of energy are released in this process. Just like coal-burning plants, both use the energy source to generate heat to drive turbines that generate electricity.



The Callaway nuclear plant near Fulton, Missouri. This cooling tower is 553 feet tall, 77 feet shorter than the Arch.

■
NUCLEAR



OIL



COAL

death rate per watts produced

Biomass

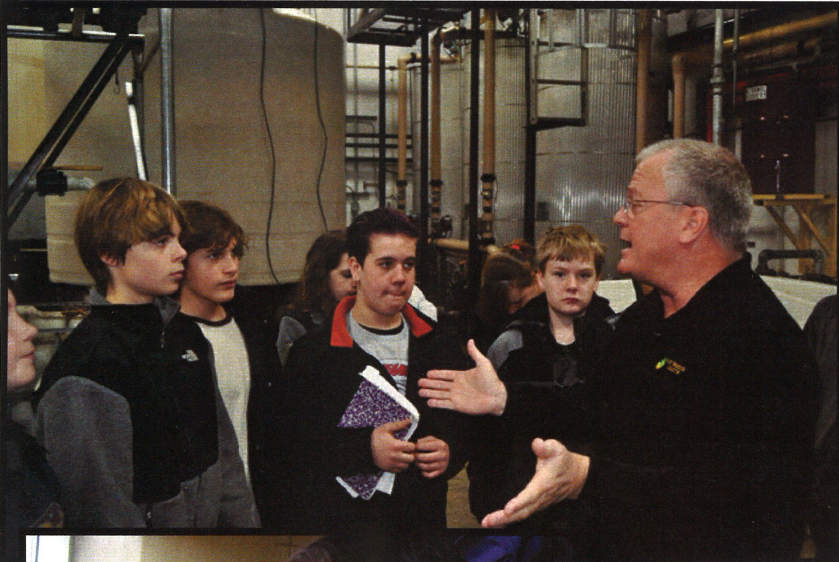


Biomass is a renewable energy source made from organic natural materials.

Biodiesel is not as harmful to the environment, causes fewer emissions, reduces the typical waste products, and reduces harmful environmental effects.

Biomass is made of organic, natural materials that can grow again after being harvested, unlike fossil fuels such as coal, oil, and natural gas.

Biomass is used to generate 11% of electricity today.



“Biomass is the promise and the hope that you don't have to use a food source, or anything near a food source, to create a greater good. You can use agricultural material that would be thrown away . . . it would be a great way to lower the cost, and that's really the bottom line.”

Anne Tucker



Biomass

The formula for biodiesel was created in 1904.

Methanol is highly explosive, however biodiesel is not.

Currently, soy is the #1 oil, cooking is the #2 oil, and animal fat is the #3 oil used to make biodiesel.

Only diesel engines can run on biodiesel fuel (cars- Audi, BMW, Mercedes-Benz, Volkswagen, trucks- Chevrolet/ GMC, Ford and Dodge).

Within one week of the oil coming to Midwest Biodiesel, the oil is turned into biodiesel, shipped out, and burned or used up.

