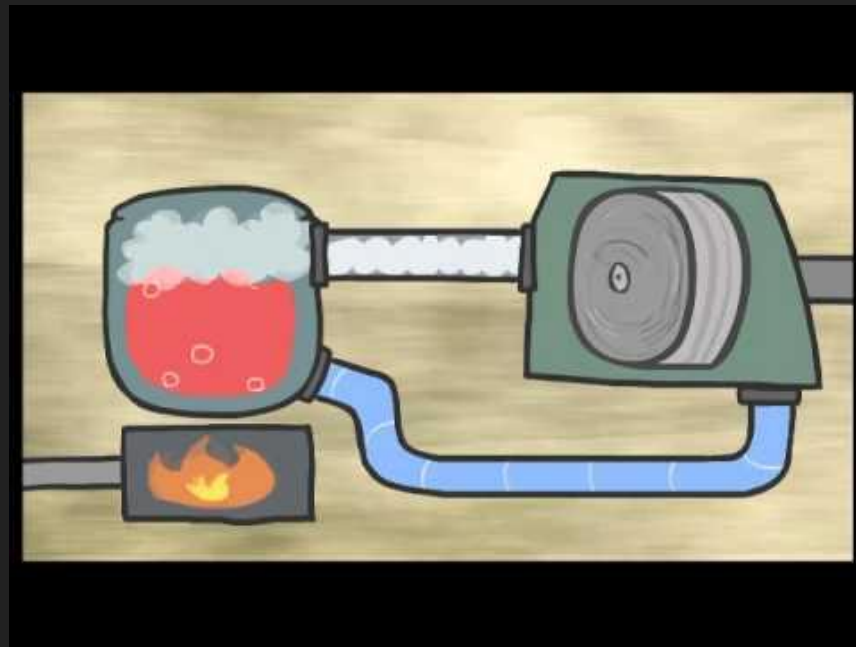
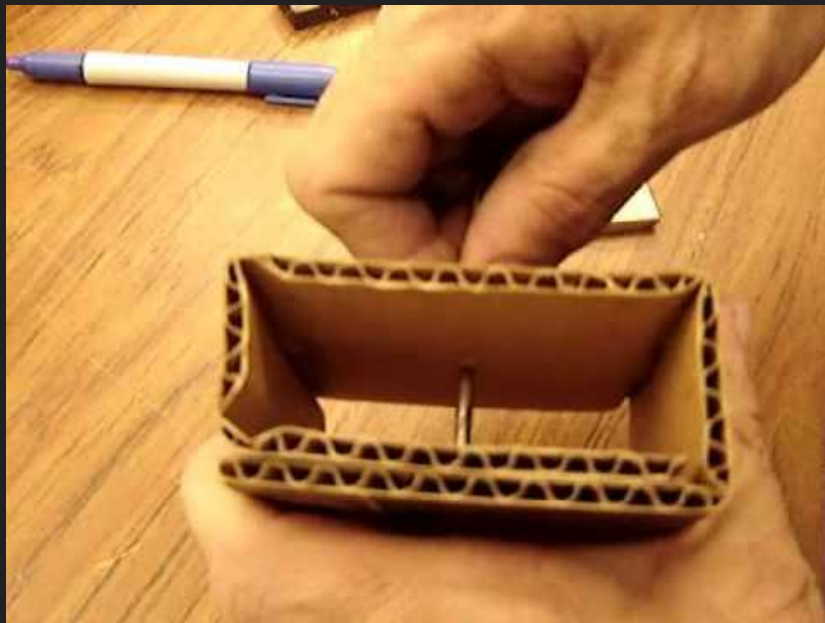


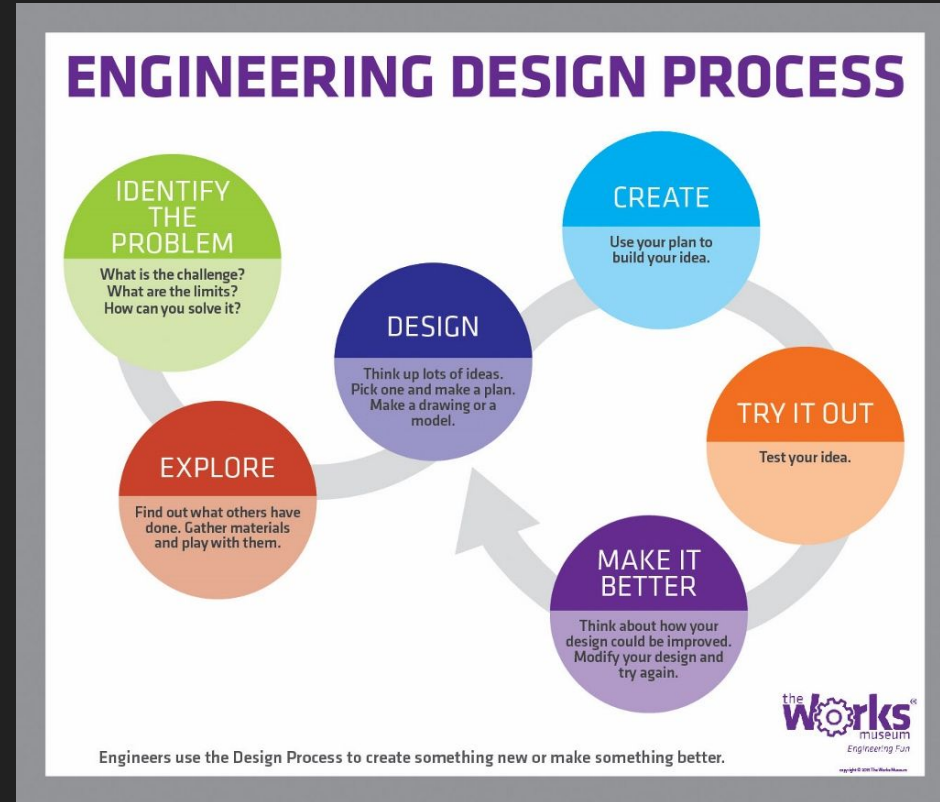
# Wind Turbine Project

# Energy Generation Preview



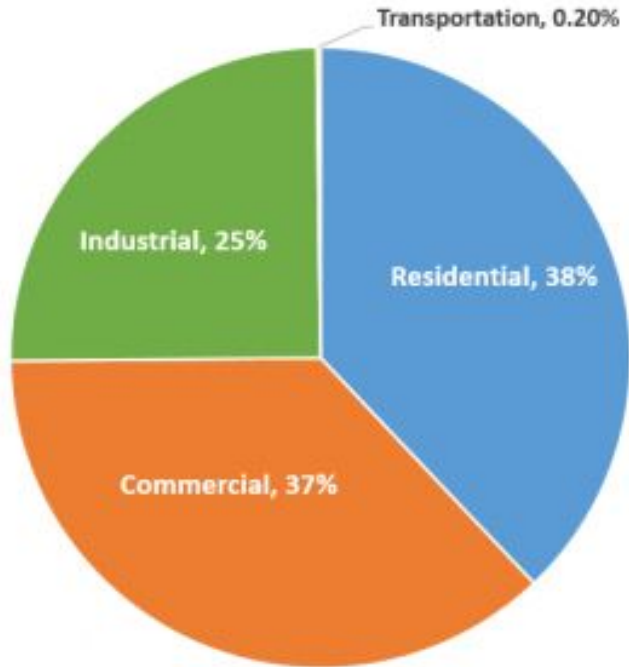
# Objective

- Design a wind turbine to maximize the current created
- Be able to use that turbine to charge a cell phone
- Engage the engineering process to design, build and improve a product

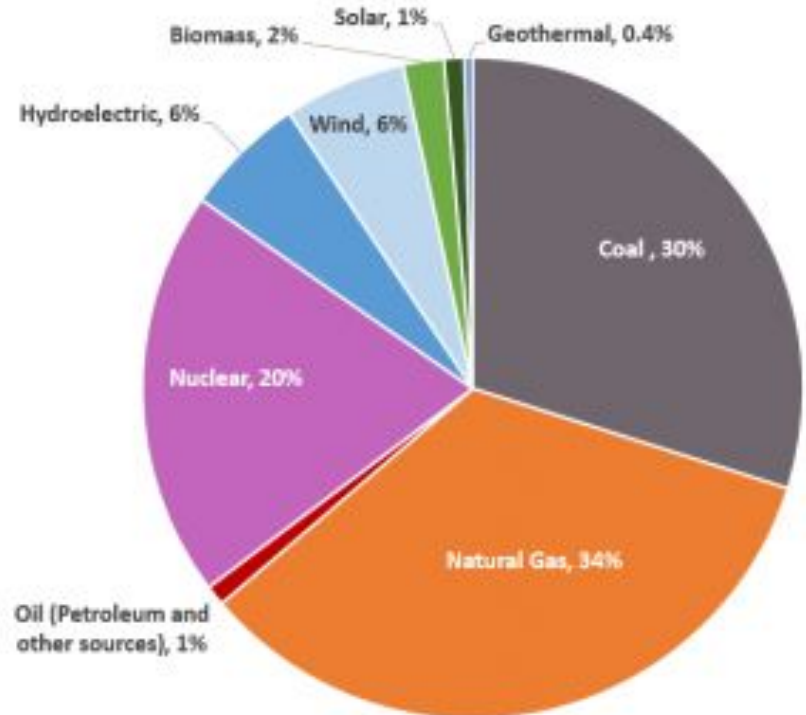


# How do we get our electricity

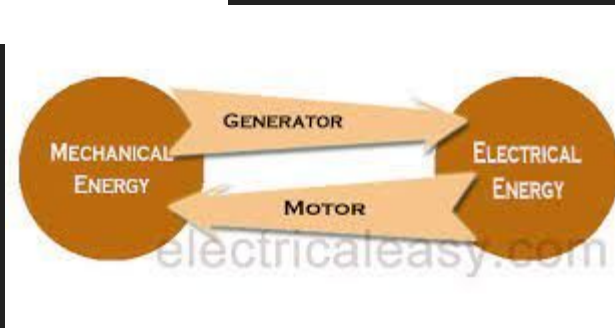
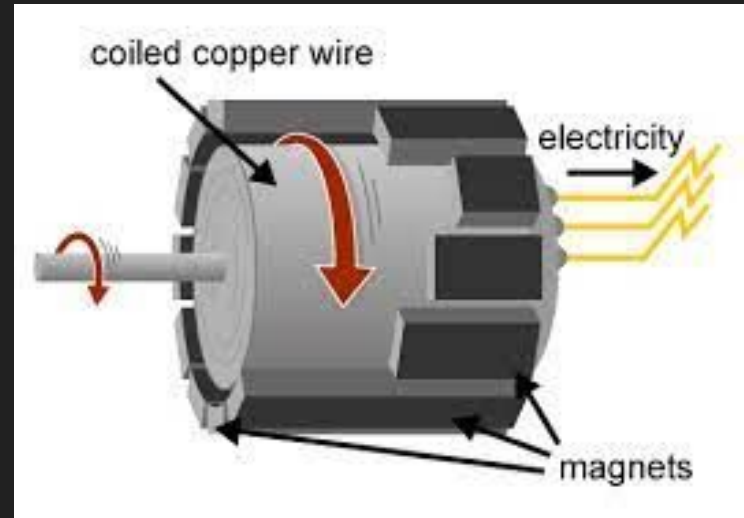
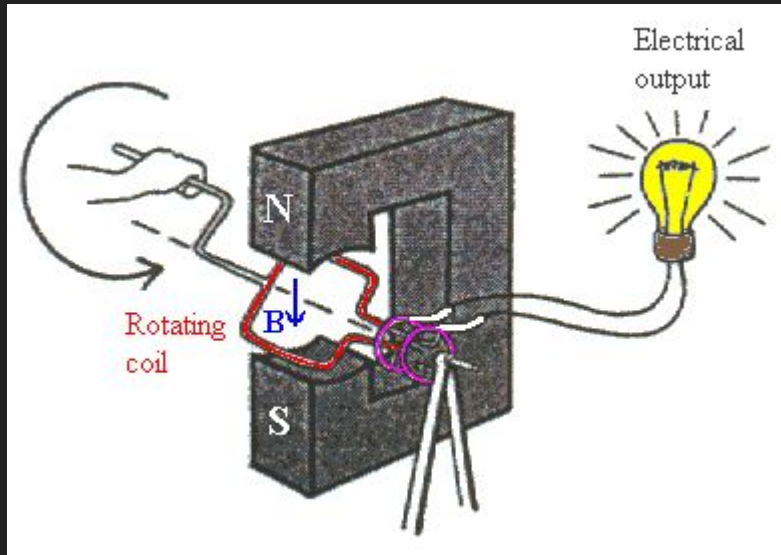
Electricity Consumption in the United States by Sector (2016)



Net Electricity Generation in the United States By Source (2016)



# Generating Electricity



What does the generator look like inside?



# The Plan

## Step 1: Make a plan

- Make a plan for your wind turbine and charging apparatus
  - Materials
  - Size and Shape
  - Method of attaching blades to turbine

## Step 2: Construction

- Execute plan to build your wind turbine using tools at home and/or the IDEA Lab

## Step 3: Test

- Refine or test your turbine

## Step 4: Test and Improve

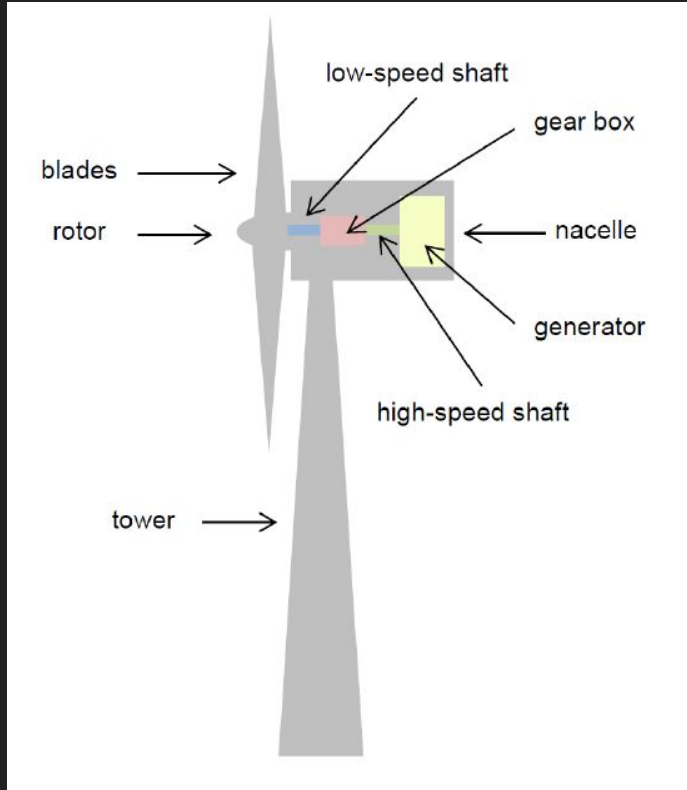
- Make an adjustment to your design in the hopes of improving it







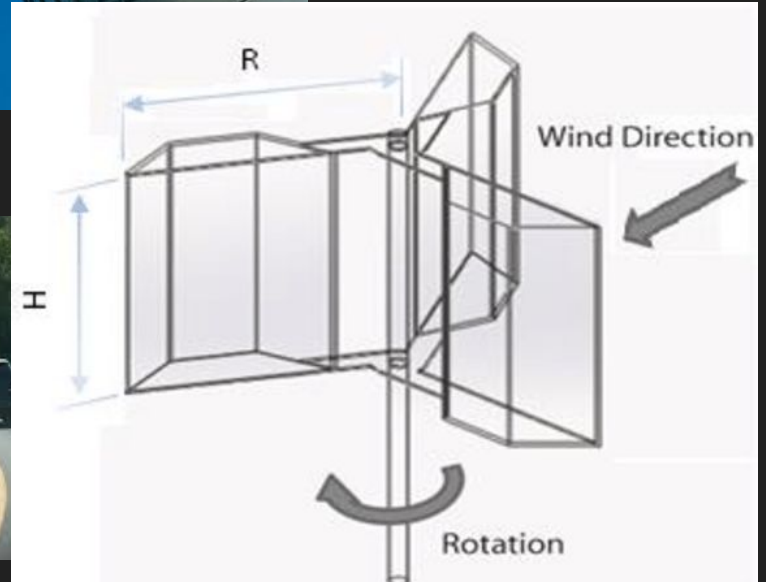
# Energy Transformations and Types



# Design variations

What are some considerations that would affect how well the design works?

How might you design your blades?



# What materials/tools are available?

- Laser Cutter
- Cardboard
- Hot glue gun
- Wire
- Popsicle sticks
- Whatever else you may need (within reason)

## Constraints

- 0.5m cubed limit
- No soldering, welding etc.
- Not sure if it's legal - ASK!

# Timeline

- April 18 - Plan Due
- April 29 - rough design due (at least turbine) - test in class
- May 13 - “Almost” final product due (testing in class)
- May 20 - Final Project Due