

# Lab 02: Building a Generator

## Physics and Mathematics of Sustainable Energy

Friday, September 26, 2025

College of the Atlantic

The **goals** for today are for you to:

- Gain an understanding/appreciation for how electricity is generated. The type of generator you will build today is a simplified version of the way that almost all electricity is generated.
- Have fun and feel a sense of triumph when the bulb lights up.
- Optionally: learn how to use a multimeter and learn the difference between current and voltage.

### Guidelines

- Please work in pairs if at all possible, trios otherwise. When you are done, please take a photo of your generator and upload it to google classroom. Be sure your photo includes the names of everyone in your group.
1. Build the generator using the instructions on the back of this page.
  2. Test the generator by seeing if you can use it to light up an LED bulb .
  3. I'll set up an oscilloscope and you can watch how the voltage generated changes over time.
  4. If there is time: measure the voltage and current using a multimeter. (I'll need to show you how to use the meter. (Probably we'll end up doing this next week, but we can see how timing works out.))
  5. When you are done, write your names on your turbine. You'll be using your turbine next week in lab.