

Lab 03: Building a Generator

Physics and Mathematics of Sustainable Energy

Thursday, September 29, 2021

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. (This might be more for next week.)

Guidelines

- Please work in pairs if at all possible. 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. Optional: watch this video: <https://www.youtube.com/watch?v=WhATjUHgzxQ>. (Don't worry about the three-phase stuff at the end, though.) (I think it would be helpful to watch this video at some point, especially if you want to get a better picture of the basic physics of electricity.)
 2. Build the generator using the instructions on the back of this page.
 3. Test the generator by seeing if you can use it to light up an LED.
 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.)
 5. When you are done, write your names on your turbine. You'll be using your turbine next week in lab.