

### Background information:

Project ABC is an off-grid project with diesel genset and solar PV system. The energy output by solar PV is directly proportional to irradiance, we can roughly consider energy output by solar system in kW to be 0.09 of irradiance in  $\text{W/m}^2$ . E.g when irradiance is  $700\text{W/m}^2$ , the solar system is producing at 63kW. The rest of the load is taken by the genset. Producing 1kWh by genset requires burning 0.3liter diesel. Production is always equal to consumption. When PV production is higher than the load, PV production is curtailed to be the same as the load, since genset power cannot be negative.

### Reference Datasheet:

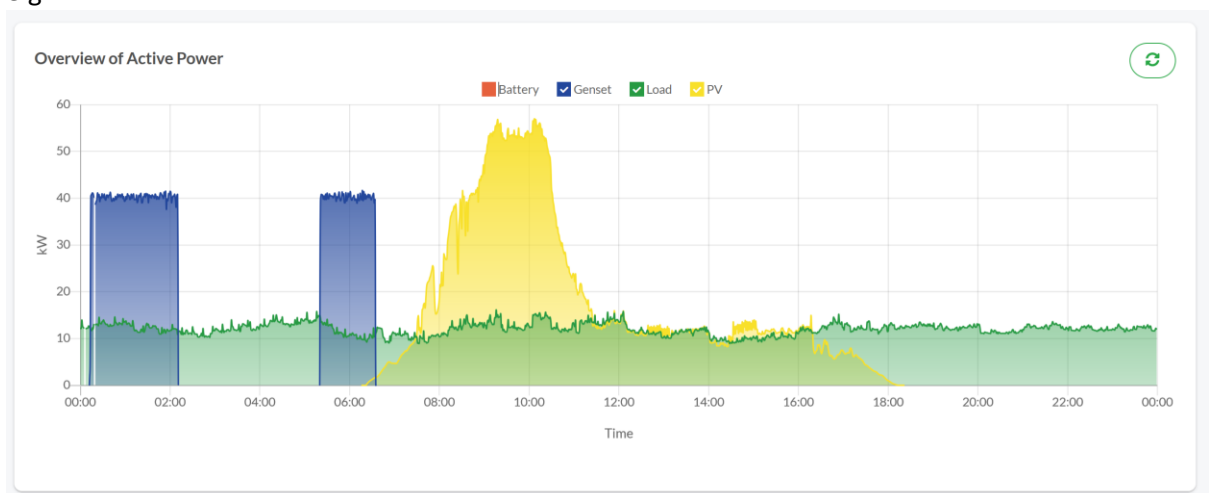
- 1 day data of both irradiance and load

### Task:

Please do the following:

1. Draw the 24 hours power distribution graph of genset, load and PV.

e.g



\* Just as an example, the actual graph will be very different from this graph

2. Calculate how many liters of diesel will be used this day

### Remark:

You might need to do some data cleaning or exception handling as there is a few null points in the data.

### Submission:

Please add the your code on private github repo. You should list down assumptions, data-cleaning method and the logic used in the README.md file. Please add the following usernames as collaborators:

1. cp-lixiang
2. cp-buwei

### What are we looking for?

1. Basic understanding of electrical system
2. A clean modular and easy to understand code