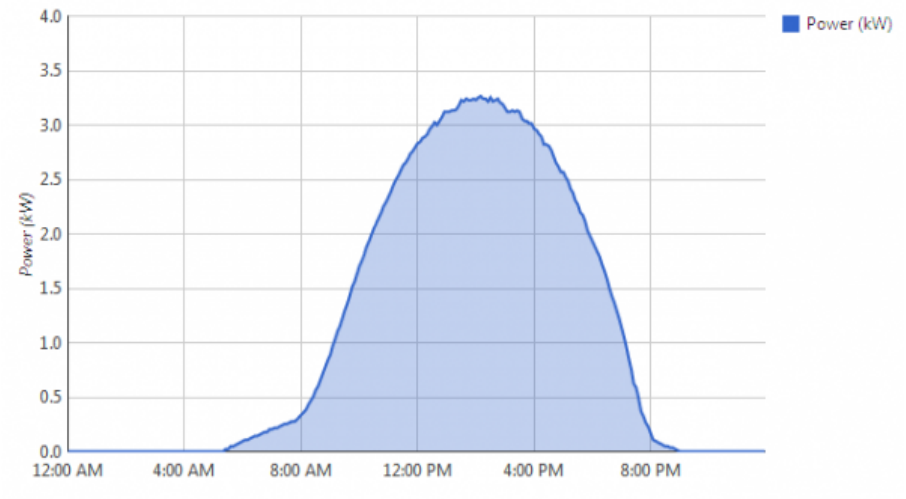
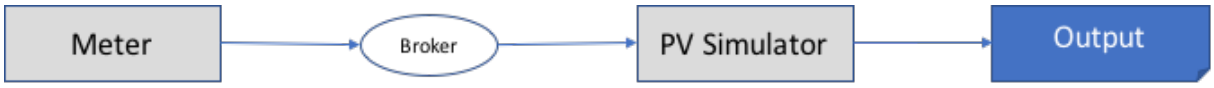
PV Simulator Challenge

In this little challenge, we will request you to build an application which, among other tasks, generates simulated PV (photovoltaic) power values (in kW). In the following picture of a real PV power output curve during a normal day, where you can see an example of a power profile that we want to replicate:



You can also check a diagram exemplifying the interactions between the PV simulator service and other blocks:



•Meter: This should produce messages to the broker with random but continuous values from 0 to 9000 Watts. This is to mock a regular home power consumption.

•PV simulator: It must listen to the broker for the meter values, generate a simulated PV power value and the last step is to add this value to the meter value and output the result.

•Writing to a file: We want the result to be saved in a file with at least a timestamp, meter power value, PV power value and the sum of the powers (meter + PV). The period of a day with samples every couple of seconds would be enough.

A few more requirements

- Write the solution in Python (you can choose the version)
- Fell free to use any library and/or framework.
- We would like to have RabbitMQ as a broker.
- A Readme with all the steps to run it.
- We need to test your solution in Debian or Ubuntu.
- Good practices for software development and testing are always appreciated.
- Delivery Date: None.
- If anything is not defined or clear in this document, then feel free to be creative and define it yourself!