# Context description

Attached csv file contains the actual sample data for a given site for 30 days. To provide a context, these are the measurements describing the energetic state:
**Consumption** - total power that is being consumed on site by all devices including battery
**Grid consumption** - power taken from the grid
**Grid backflow** - excess energy per second produced by site that is pushed back to the grid
**PV generation** - photovoltaic solar power production on site
**Battery charging** - amount of energy saved into the battery (per unit of time)
**Battery discharging** - amount of energy pulled from the battery (per unit of time).
The quantities are expressed as power in W.

# Task description:

- The main goal is to create a suitable mathematical model which would be either self-defined or taken from a third party python library for regression analysis.
- Create a python 3 module that would process the input data and fit it with a model.
- Model is expecting that the daily pattern is repeating and identical.
- The module will take a CSV file as an input with the file format same as the sample file (with the same columns).
- The model would be general for all quantities and will take the quantity name as an input.

  Possible call example:

  ```
  $ python3 script.py --input SG.csv --quantity Consumption
  ```
- The module will return a plot displaying the data for chosen quantity together with a fitted model.
- The module will return a value that describes the model fit precision, eg. “The model is 93 % accurate.” You are free to choose the metric for precision evaluation.
- At least one class, one method and one unit test should be used.
- Please provide us with README with basic instructions and requirements file.
- Share code in your git repository (github, gitlab).
- Please include time series cross-validation