

Blockchain Technology Applied to Energy Demand Response Service Tracking and Data Sharing

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With regards to Figure 2 - *Laboratory equipment set up for use case implementation* of the main article, the following shows what the application and the script refer to. This is meant for replicability purposes. Figure S1 of this supplementary sections shows the remote application where the demand response can be activated. It is a similar tool which can be found in an Aggregator. It depicts a schedule with start times and durations, which can be set on a daily or weekly basis. The calendar shows hourly slots which can be activated with a pre-set power. On the very first line one can choose for example the pre-set discharge event at 200 W from 14:00h to 15:00 on that day. That selection has to be confirmed with the Validate and Save button. On the selected day the Battery will discharge the for from 14 to 15h at a rate of 200 W.

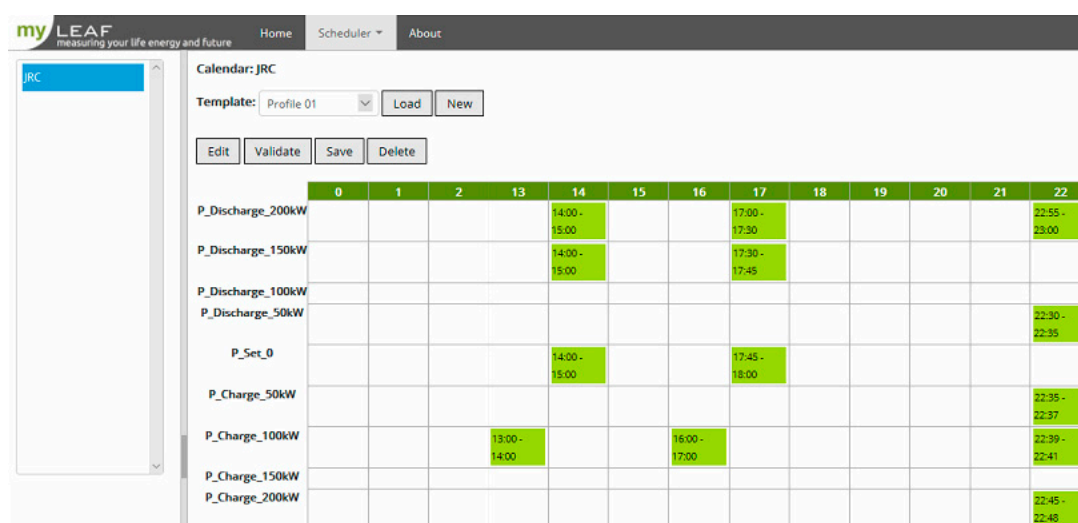


Figure S1. – Application used to activate the Battery Storage Unit (remote access to the local SCADA).

The following script referred to also in Figure 2 of the main article, was used in python 3 in order to retrieve the log files, generated after the DR event. This was obtained through an FTP connection between a local computer and the battery storage unit. The library ftplib needs to be installed.

```
import ftplib

path = 'pub/Health_Statistics/NCHS/nhanes/2001-2002/'
filename = 'L28POC_B.xpt'
ftp = ftplib.FTP("Server IP")
ftp.login("UserName", "Password")
ftp.cwd(path)
ftp.retrbinary("RETR " + filename, open(filename, 'wb').write)
ftp.quit()
```

The path variable refers to the location of the file in the ftp server. The filename is the name + extension of the file one wants to download from the server. The ftp.login is where we'll put our credentials(username, password) if they exist. The ftp.cwd will change the current working directory to where the file is located in order to download it. The retrbinary will get the file from the server and store in the local machine using the same name it had on the server. Lastly the Server IP argument has to be set to the specific server's ip. The script can be run manually or automatically with a "while TRUE" loop.