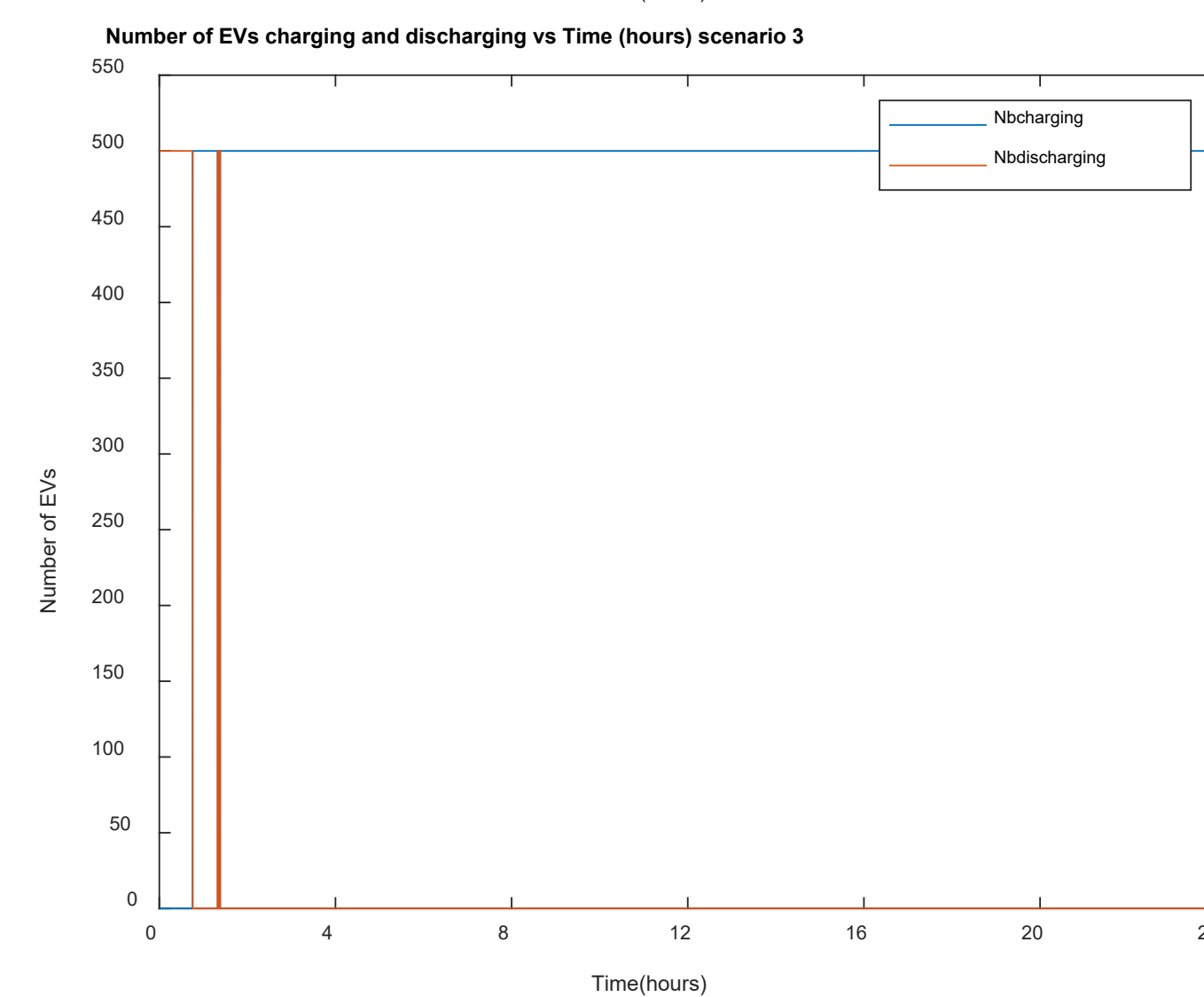
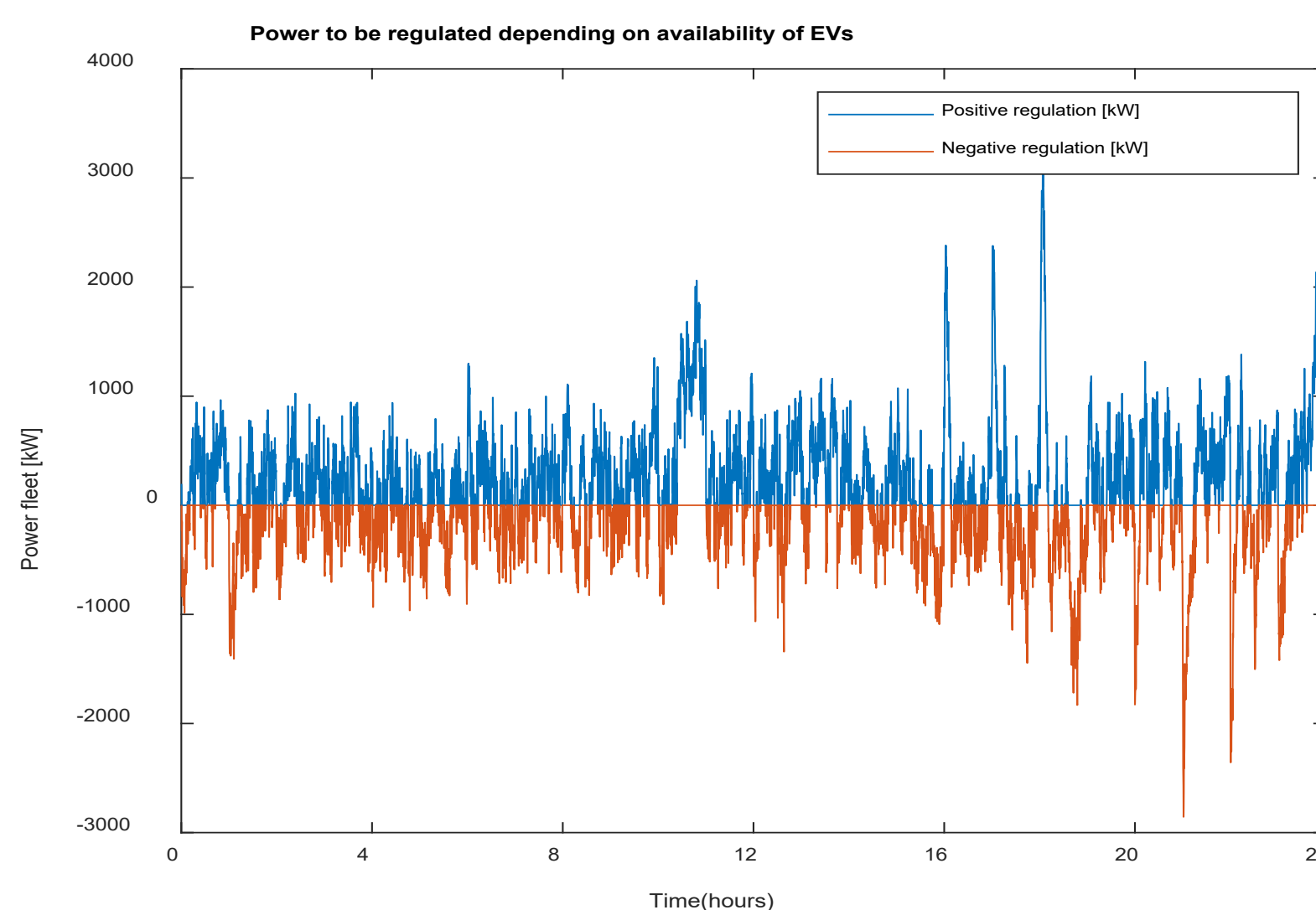
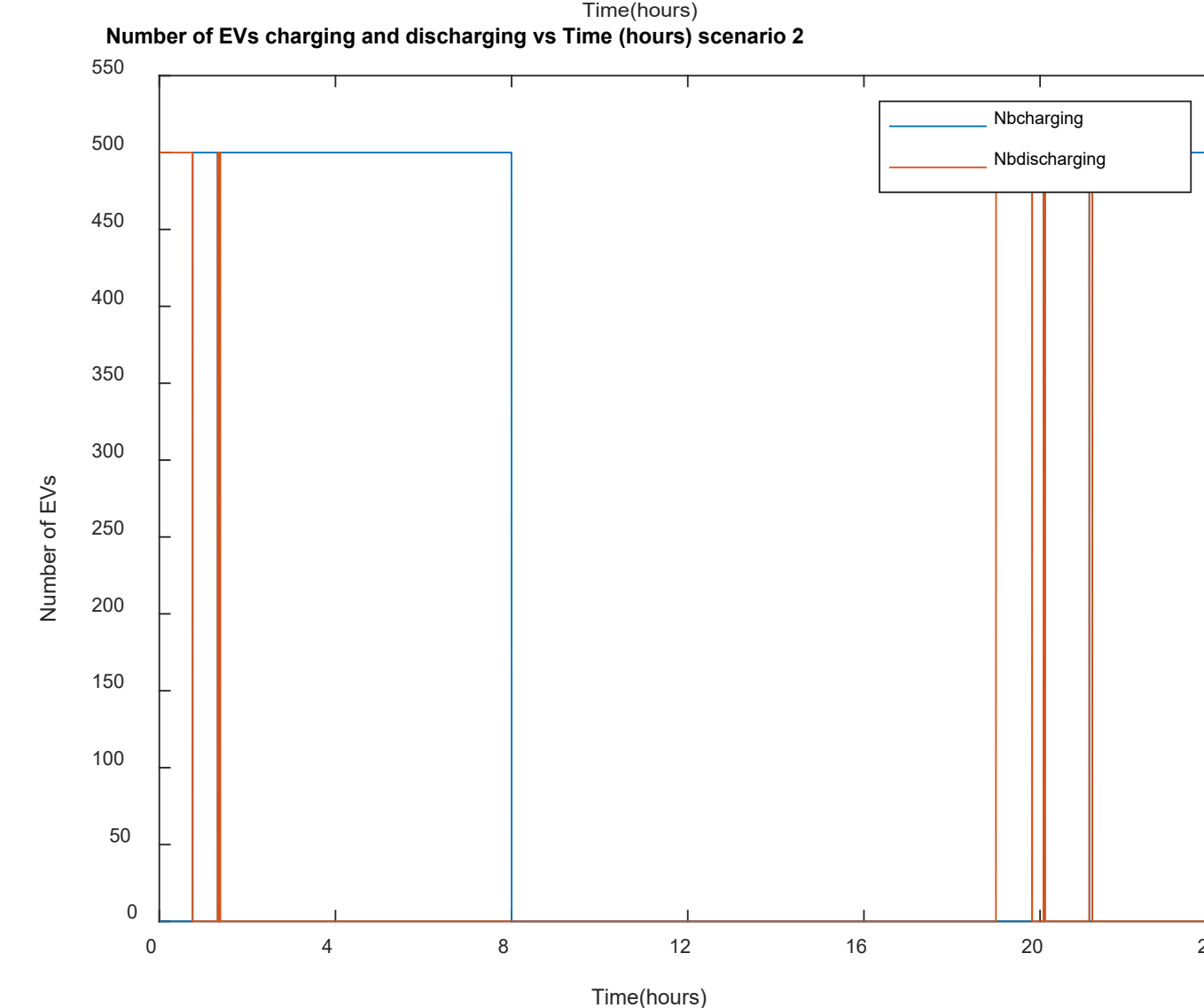
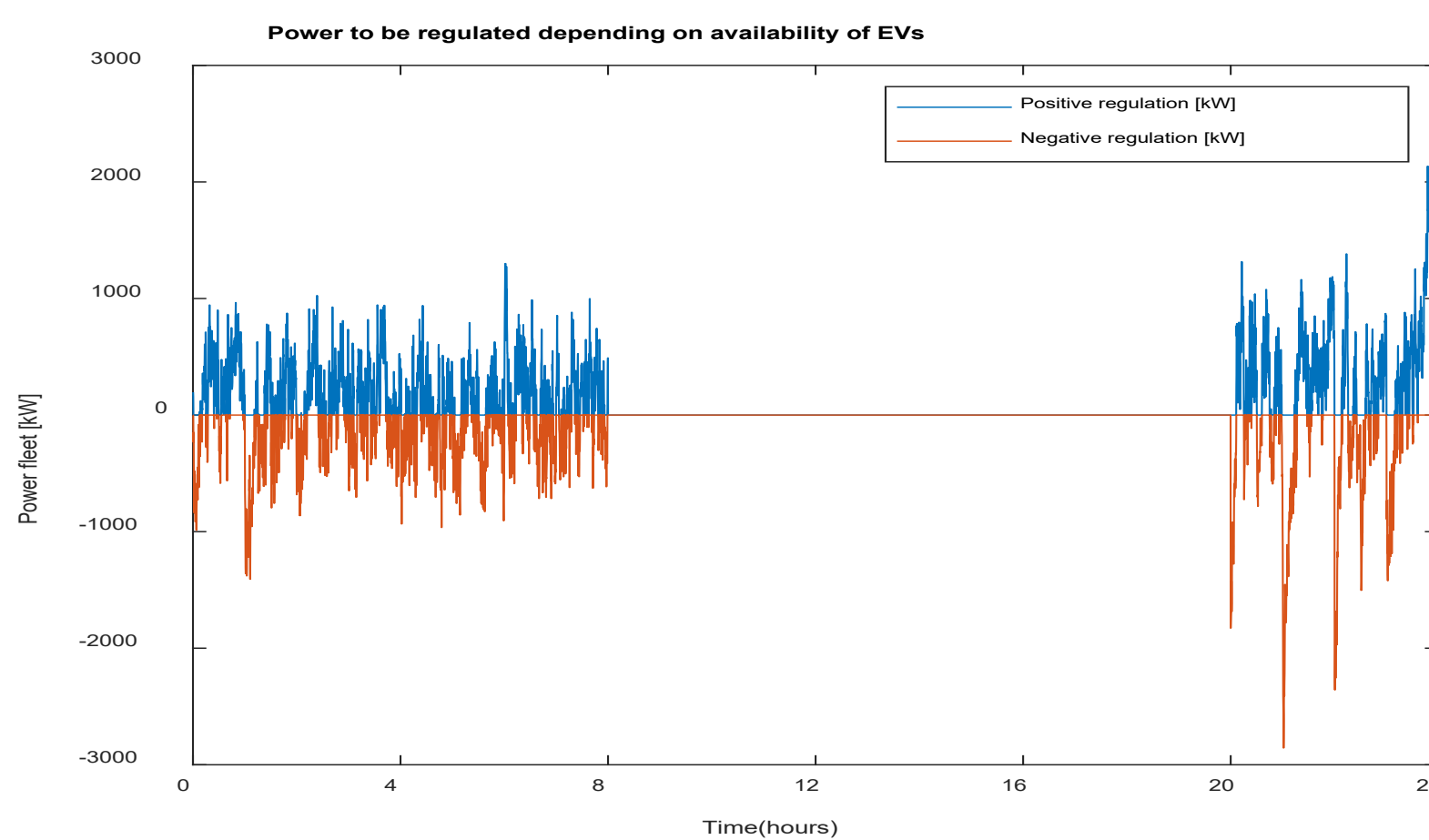
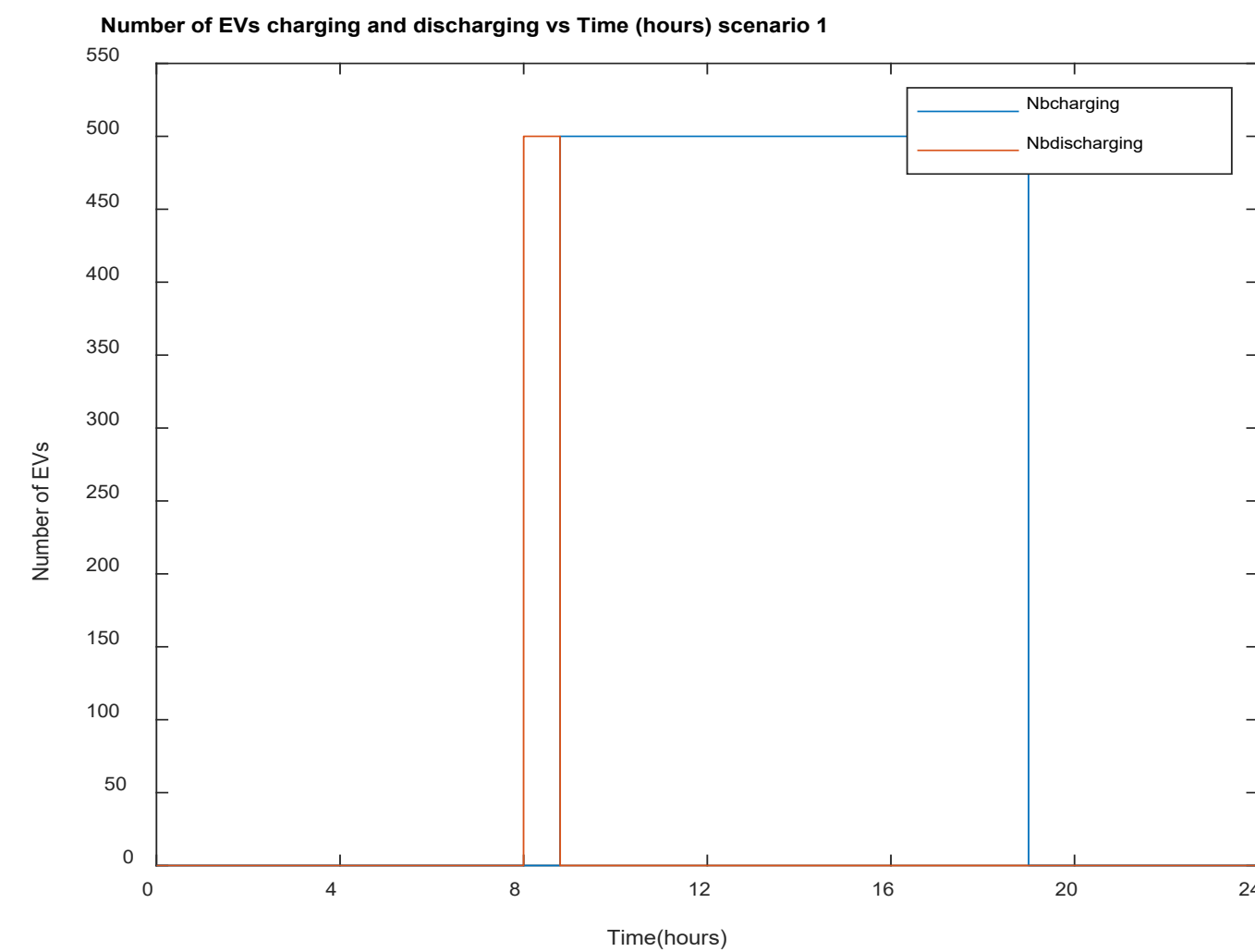
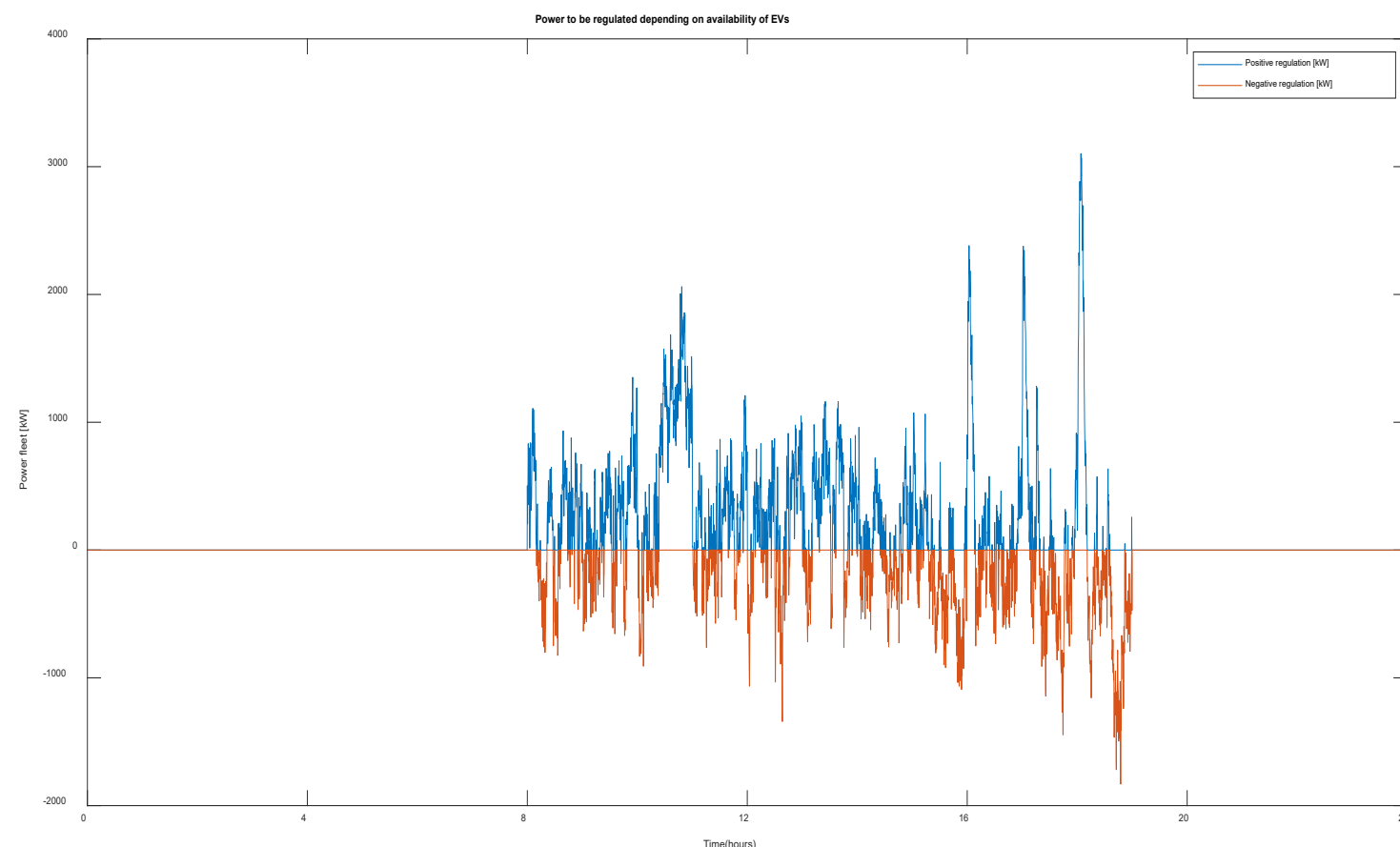


Bachelor's Thesis in Energy and Environmental Systems Engineering

# MODELLING AND COST/BENEFIT ANALYSIS OF BIDIRECTIONAL CHARGING OF EV'S



**PROBLEM**

Due to the increase of EV's connected to the grid, it can mean a problem for the correct operation of the grid; therefore, this project analyses the economic viability of the integration of the EV's for providing frequency control to the grid

**SOLUTION CONCEPT**

Firstly, the series and type of data that formed part of the simulation (data specification) were defined. Different factors were taken into account to define the charge level, availability, and Bid capacity at different day hours. Subsequently, the logical diagrams were defined to define the different sequences that the model would follow in Simulink. Once the model was structured and defined, we proceeded to its realization

**REALIZATION**

Based on the data defined and provided, the data was entered into Matlab to record the data. From the Matlab script, the Simulink program was created for the simulation, in which, from the defined data, we obtained the total profit, and the graphs to determine the load level during the simulation

**RESULTS**

Comparing the three scenarios in which different scenarios were combined, the results showed economic benefits by offering the services shown and taking into account the characteristics of the batteries when they can discharge and when it is not possible to discharge. As we can see with more availability during the day.

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