OTTO VON GUERICKE UNIVERSITÄT MAGDEBURG | EIT | FAKULTÄT FÜR ELEKTROTECHNIK UND INFORMATIONSTECHNIK | LENA

Non-Technical Project

for Ms./Mr. xx xx (123456)

Topic: Comparative Review of Methods for Analyzing Electric Vehicle Hosting Capacity in Distribution Networks

Task:

The electrification of the transport sector is one of the key actions to ensure that the energy transition can be achieved in a sustainable and efficient manner. This is being stimulated by increased adoption of electric vehicles (EVs), notably due to the ongoing decline in battery costs and the continuous search for improvements in EV technology. However, the growth of the EV fleet poses significant challenges to power system operators, as it can lead to a significant increase in energy demand from the grid, overloading of equipment, and problems with voltage regulation.

In this context, the concept of "EV hosting capacity" has emerged, which refers to the maximum capacity of EVs that a given electric system can host. In other words, it is the maximum energy capacity that can be supplied to EV charging loads without the existing system needing to be upgraded. In this sense, the purpose of this literature review is to explore this concept, focusing on investigating and deepening the discussion around the methods for analyzing hosting capacity found in recent studies.

The study has to cover the following points:

- Literature review on EV hosting capacity in distribution systems
- Overview of the different algorithms and techniques used in recent works on EV hosting capacity
- Comparative analysis of the different methods for EV hosting capacity studies
- Identify the advantages, disadvantages and limitations of using this concept
- Documentation of the results

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