

Master Thesis/Project

Electric Bus in the City Fleet – Impact on the Electrical Grid

Background Emission-free city traffic is a target set by the EU government. To achieve the goal, city authorities are introducing innovative schemes on their public bus services, such as full electric fleet, hydrogen fuel-cell fleet and hybrid (diesel-electric fleet or hydrogen-electric fleet).

This project would focus on full electric bus (E-Bus) adoption in the urban public transport fleet. The project is intended to analyse the impact of an electric bus charging station on the existing electrical grid. The charging station may consist: (i) Photovoltaic generators (PV), (ii) stationary storage, (iii) public grid, (iv) electric bus and (v) auxiliary loads.

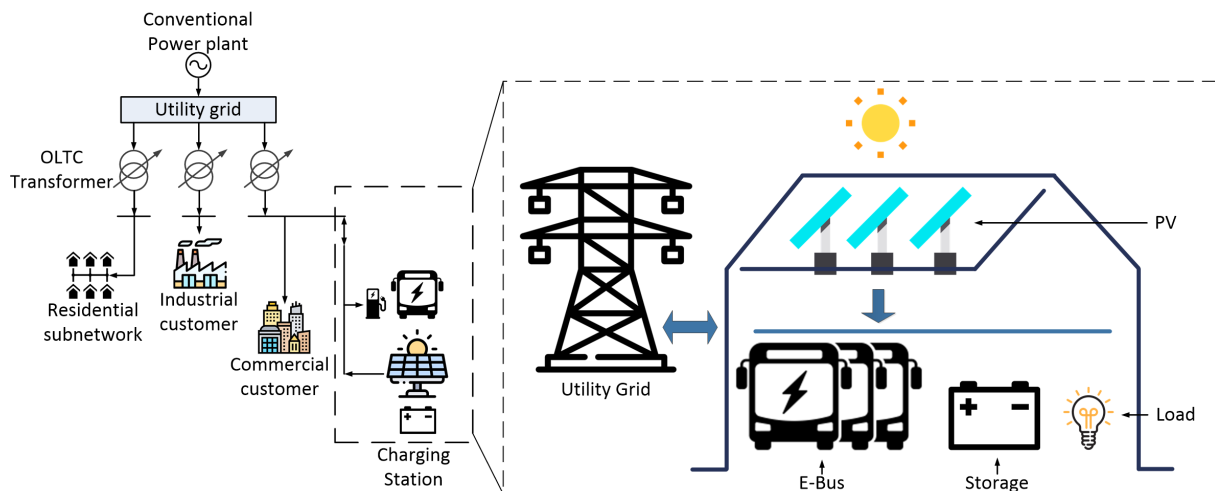


Figure 1: Components of an E-Bus charging station and power flow.

Figure 1 shows the proposed charging station, which is connected to a low voltage distribution network. It consists, PV generators on the roof-top, bi-directional charging systems and stationary storage systems.

Tasks

1. Design an electric bus charging station
2. Implement a simulation model to examine the impact on the electrical grid

Desired Competencies:

1. Programming skills, especially in Python
2. Independent work

If you are interested, please send your short application (CV and transcript/notenbescheinigung) to the below mentioned email address.