

## Region Uppsala – Power management in bus garage

**Participants:** Region Uppsala

**Category:** Electric vehicle charging infrastructure, distribution management

**Time plan:** Started January 2019

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**Location:** Uppsala

**Possible to visit:** Yes, from autumn 2019

### Background

A new bus garage is being constructed in Uppsala for use from the autumn 2019 and onwards. The regional authority Region Uppsala has high ambitions for their commuter traffic and sees a future with a significant share of electric busses. To accomplish this, the garage is able to accommodate several busses charging their batteries at the same time. This leads to a significant load on the power grid, and as Uppsala is experiencing capacity challenges, this might be an issue at times with power peaks. To cope with this situation, a project has been initiated to cooperate with close-by players such as IKEA, ICA and property owners in order to investigate the possibilities for flexibility in the area. As busses sometimes will need to be charged also at times with peak load, local flexibility will be of outmost importance if it is possible to achieve.

### Implementation of the project

As the bus garage is still under construction, the project initially focuses on how the power profile in the surrounding area looks at present. There can also be simulations made based on the bus fleet that is already available and forecasts regarding the future use of electric busses.

Based on this data, models and control systems for local flexibility is to be developed and also tested in the live-in test-bed, to verify the models. The exact details on how this is to be done is depending on the findings when data of present power usage and flexibility availability has been analyzed.

### Benefits

With the transmission capacity in certain areas reaching its limit, increasing flexibility is going to be one of the most important ways to meet the challenge of uninterrupted electricity delivery. To start the analysis already in the planning phase of a major infrastructure project, such as this bus garage, allows for a better cooperation with surrounding players.

In the bigger picture, projects such as this are important when energy is not a limiting factor, but when power might be. If for example the transport sector is going to meet goals regarding electrification and lower emissions, there will be examples of increasing power demand that need to be handled by for example increased flexibility.

### Scalability

The scalability of a project like this will very much depend on the local conditions.

### Interoperability

While some new installations and functionality might be needed, the idea is to keep inside the limits of present infrastructure to the extent that is possible. Thus, any installation to increase flexibility needs to be interoperable with the existing infrastructure.

### Investment horizon

If increased flexibility is a pre-condition that needs to be met in order to be able to run the bus garage optimally, the investment of increased flexibility will pay itself quickly.

## International potential

Congested lines is a problem in numerous locations, and solutions that show increased flexibility will be useful internationally.