

ÖBO – vehicle to grid

Participants: ÖBO, Nissan, MagnumCap, InnoEnergy

Category: Electric vehicle charging infrastructure

Time plan: Started in November 2018

Contact person: Jonas Tannerstad, ÖBO

Location: Örebro

Possible to visit: Yes

Background

The public housing company in Örebro, ÖBO, has adopted a holistic view on the energy systems in the buildings that they own, and has decided to treat the entire population as a whole. One way of doing this is to test whether electric cars and their batteries can be integrated as a part of the energy system. While electric cars most commonly only act as a load, it can also be useful to feed back the energy that is stored in its battery to the grid in certain situations. In the view of ÖBO, electric cars are to be seen as mobile power storages. By installing V2G systems, where an electric car and its battery can act as a load or a source of electricity, the storing capacity of the car battery is utilized.

Implementation of the project

In the project, vehicle to grid (V2G) is installed at two locations in Örebro. One is at the ÖBO main office, which gives the company an opportunity to experience and evaluate the vehicle to grid technology themselves. This installation has been up and running since late 2018. The second location is at a newly built residential building in Örebro, where tenants will be able to use the electric car with V2G, as a service. This gives ÖBO further insight in how the system works under realistic conditions, and to what extent a V2G car can be used both as a service to the power grid and for transportation purposes.

Benefits

In the view of ÖBO, the V2G cars are mobile batteries, that can serve multiple purposes. They have already used stationary batteries for a number of years, and the portable batteries will serve as an extension to this. The stationary batteries have been used for peak-shaving, to move energy in time and to provide services to the system, such frequency stabilization. The V2G is expected to further support this, as well as being mobile, which adds another dimension to the benefits of a battery storage.

Scalability

The technology for vehicle to grid is in principle scalable to any number of cars and installations. For a single company, however, the scalability depends on what purpose the V2G is intended to serve. There also needs to be a thought behind how V2G is fit into the energy ecosystem, for the technology to be useful.

Interoperability

For vehicle to grid to work, both the vehicle and the charging point must be adapted to this technology.

Investment horizon

One of the purposes of the project is to test the feasibility of electric vehicles as mobile batteries, and what services they can provide to the grid and the energy system. Before this is established, it is hard to evaluate the investment horizon of V2G as compared to other alternatives.

International potential

Vehicle to grid is a technology that has already been tried to some extent internationally, but not yet at a scale that gives any certain results. Results from the trials in Örebro could therefore garner interest also internationally.