



A European urban transition project towards more sustainable cities through innovative solutions, in the fields of mobility, energy and digitality.

## Smart City

### Global Project

**Coordination:** CARTIF  
**European grant:** 18M €  
30 partners, 6 countries

**Period:** Dec.2016 - Nov.2021  
**Demonstrators:**  
Hamburg, Helsinki, Nantes

@mysmartlife\_EU  
<https://mysmartlife.eu/>

### Helsinki Demonstrator Site

**Coordination:**  
The City of Helsinki  
**European grant:** 5,6M €  
7 partners

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## Mobility

### Charging Stations

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Helsinki

## ACTION OVERVIEW

### Electromobility Charging Node

This action was implemented by VTT Oy. A full report (D 4.17), written in English, November 2019, is available on <https://mysmartlife.eu/publications-media/public-deliverables/>

### ► OBJECTIVES

- › To implement a shared electromobility charging node which integrates fast charging for e-bus, city maintenance and commercial logistic fleets
- › To increase the utilization of chargers and improve the return on investment
- › To chart out the technical, operational and innovation aspects for scaling up multi-use commercial electric vehicle's charging nodes for a wider market up-take of the system

### ► IMPLEMENTATION



### CHALLENGE / CONTEXT

The goal of being a carbon-neutral state or municipality requires the development of a charging infrastructure for the electric transport system. Currently, there are dedicated systems for charging the city's electric buses. The charging stations for city maintenance fleets, commercial logistics trucks or other commercial vehicles do not exist in Helsinki yet. To prevent soiling, it is important to build the charging infrastructure to benefit multiple user groups, whenever possible. This will also enable an accelerated shift to e-mobility in new vehicle categories.

E-mobility is being promoted with ambitious goals at various levels, but electric vehicles cannot be commissioned without charging solutions. However, installing chargers alone is not enough. Monitoring the system and fleet status is also required, including the availability and status information of the chargers, perhaps ensuring the right prioritization for using them, too. The integration includes also technical and invoicing aspects.

## PROGRESS

The action consists of modifying two electric bus-charging stations with automatic opportunity charging by equipping them with the additional high power (~100 kW) CCS plug chargers so that this enables the charging of the maintenance fleet and logistics.

The sharing was planned carefully not to distract the operation of the different users, especially considering the public transport needs. One had to plan the sharing, such that the public transport is given the necessary priority to be able to maintain reliable operation of the whole city's transport system. The charging location for the plug charging was also separated from the e-bus charging point (a bus stop).

In practice, electric buses are given a simple priority over the available charging power. When an electric bus is charging, the charging session on the external charging interface is put on hold, and once the bus has finished charging, the charging session is resumed with the external vehicle. The charging sessions are handled automatically. The operators of the external vehicles do not need to worry about the process. The external vehicle is charged according to the available capacity.

The external vehicle charging session is interrupted whenever a bus is coming for a charge. A bus charging session lasts typically 4 – 5 minutes when the external vehicles typically charge 30 – 45 minutes. Thus, the interruptions by the buses, especially outside peak charging hours, will leave enough excess capacity to be shared with external users.

The charging node for commercial vehicles was implemented in existing bus charging stations in Hakaniemi and Vuosaari. The Vuosaari charging node is utilized mainly as a bus backup charging location, but the Hakaniemi charging point is planned for bona fide shared use. Charging node installations needed various permits and architectural design iterations, which delayed the process. After obtaining permits, the final installation was delayed due to the corona pandemic. Charging nodes were ready for use in January 2021.

The data from the chargers is available on the charging operator Plugit Finland's back-end system, from where an integration to the Helsinki's urban data platform has been created in order to allow the monitoring of the operation and for producing the project KPI's.

## LESSONS LEARNT

The sharing of charging infrastructure is showing potential in accelerating the electrification of especially heavier transport in the city. However, a plan for sharing must be done very carefully not to reduce the service level of existing users.

Collaboration between the cities' divisions that utilize the charger is required. This may sometimes prove to be difficult, for example, from an electricity billing perspective. The charging events need to be carefully managed, potentially by a specified operator, and to ensure reliable operation while acting as a link between the stakeholders.

### FURTHER DEVELOPMENT

In the next step, various pilot vehicles are introduced that will start benefiting from the shared pilot charger. The fleet includes a full-electric refuse truck, a city delivery truck and a 26-ton, multipurpose city maintenance truck.

Innovation intervention has been realized and Helsinki Regional Transport Authority has started a new project called Helsinki Open Charging System (HOCS), funded by European Investment Bank's ELENA facility. One important aspect of the project is to increase the shared use of the growing e-bus charging network. The new project has been benefitting much from the pre-work performed in the mySMARTLife project.



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