

## Intelligent EV chargers



### Main sector

- Smart urban mobility

### Overview

As part of Sonderborg's mobility activities, 30 intelligent "Evergreen" rechargers will be installed. The chargers will be supplied by Sonderborg Forsyningservice AS and installed in private homes, companies as well as public locations. The electrical vehicles will be charged with wind electricity produced by the Lillebælt Syd near shore wind park and, until the wind park is completed, with wind electricity delivered to the Danish grid, which has a 40%+ wind electricity penetration.

Potentially, there is an additional CO2 saving of 60 grams/km (110 grams/km compared to a non-intelligent charging system that saves 50 gram/km) by using intelligent charging. This reflects the importance of intelligent chargers for e-mobility. Petrol cars emit 150 grams CO2 emission/km. This pilot project will evaluate the impact of CO2 emission savings from an intelligent e-mobility recharging strategy.

Evergreen provides chargers for EVs and backend systems to remote control rechargers. The Evergreen web service is used to interface Evergreen with Energy Manager. The rechargers can run as a standalone solution and will be remote controlled through the Energy Manager to ensure that the charging takes place during the best time of the day. The goal is to charge when we have lowest prices for electricity and move charging to a time of day when the net is free. The Evergreen intelligent recharging station is currently available in 3 different languages (read more at <http://www.evergreen.dk/>)

### Business model

Sonderborg Forsyningservice AS (SONF) owns and operates all the chargers throughout the SEC project, although Vikingegaarden AS is responsible for smooth operation and troubleshooting. The city is not involved, except for allowing the public charging stations, and all agreements are made between SONF and the household/business owner where the chargers are installed. The chargers are bought at cost prize, but installation costs are additional.

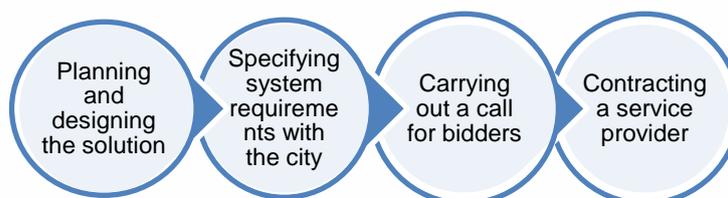
The households/business owners will get the charger and installation free of charge, but due to the national tax regulations they are taxed off of the value of the charger. Furthermore, the households/business owners are paying for the electricity used through the charging station as this is not included in the service.



## Citizen engagement

A smart mobility video introducing the solution will be developed. Public events about EVs will also be organized, targeting the local community.

## Process



## Benefits

- Peak load shaving
- Reduction of carbon emissions
- Increased resource efficiency
- Autonomy of fossil fuels
- Behavioral change

## Stakeholders

<b>Owner of the solution</b>	Sonderborg Forsyningsservice AS
<b>Service/technology provider</b>	Vikingegaarden AS
<b>Users</b>	Local individuals and companies
<b>Investors</b>	Sonderborg Forsyningsservice AS (H2020 grant)

## Investment/Finance

Ca. €2500/ charger incl. installation costs

## Potential for replication

The solution has great potential for replication and its benefits will be demonstrated through the Sonderborg pilot. The prerequisites are basic – access to electricity, a parking space and 3G network coverage. The unique product of the charger is the backend system combining weather forecasts and national grid data to analyze when the largest amount of renewable electricity is available in the grid and to start the charging process at that point.

The market for the providers of intelligent EV chargers is growing and there are now at least 3 companies present in Denmark offering this solution, although the definition of “smart charging” is not an agreed upon standard.



## Contact

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