

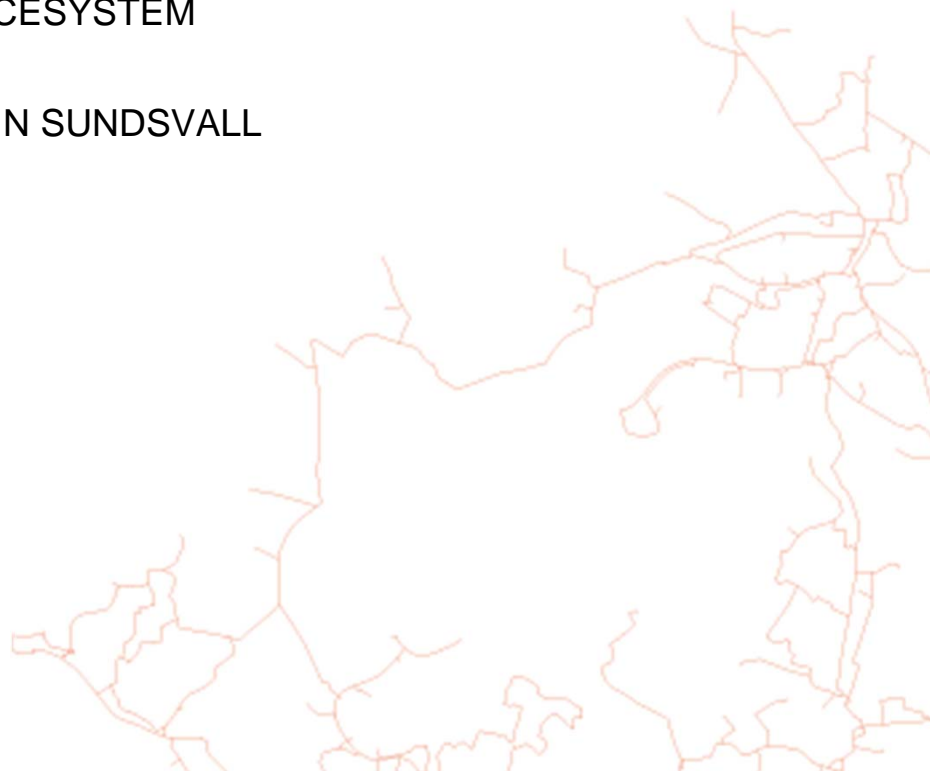
# CHARGING INFRASTRUCTURE

ALONG THE **GREEN HIGHWAY**



## TABLE OF CONTENTS

- DEFINITION OF CHARGING STATION
- GREEN HIGHWAY
- THE PROJEKT (Charging infrastucture along the Green Highway)
- HOW WE PLANED & BUILD
- INVESTMENTS
- OUTCOME & STATISTICS
- OPERATOR & BACKOFFICESYSTEM
- BENEFITS WITH EV
- PICTURE OF A STATION IN SUNDSVALL



# DEFINITION OF CHARGING STATION

Definition from Wikipedia (2016-05-06)

## Charging station

From Wikipedia, the free encyclopedia

*This article is about electrical recharging. For pneumatic recharging, see [compressed-air vehicle](#).*

An **electric vehicle charging station**, also called **EV charging station**, **electric recharging point**, **charging point**, **charge point** and **EVSE** (Electric Vehicle Supply Equipment), is an element in an infrastructure that supplies [electric energy](#) for the recharging of [electric vehicles](#), such as [plug-in electric vehicles](#), including [electric cars](#), [neighborhood electric vehicles](#) and [plug-in hybrids](#).

As [plug-in hybrid electric vehicles](#) and [battery electric vehicle](#) ownership is expanding, there is a growing need for widely distributed publicly accessible charging stations, some of which support faster charging at higher [voltages](#) and [currents](#) than are available from residential EVSEs. Many charging stations are on-street facilities provided by electric utility companies or located at retail shopping centers and operated by many private companies. These charging stations provide one or a range of heavy duty or special connectors that conform to the variety of electric charging connector standards.



## GREEN HIGHWAY – SÖT-COOPERATION





## THE PROJEKT (Charging infrastructure along the Green Highway)



## Diapositive 5

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- 1 **pilot study**  
Daniel Petrovic;
- 2 **consortium**  
Daniel Petrovic;
- 3 **public procurement = kommunal upphandling**  
Daniel Petrovic;

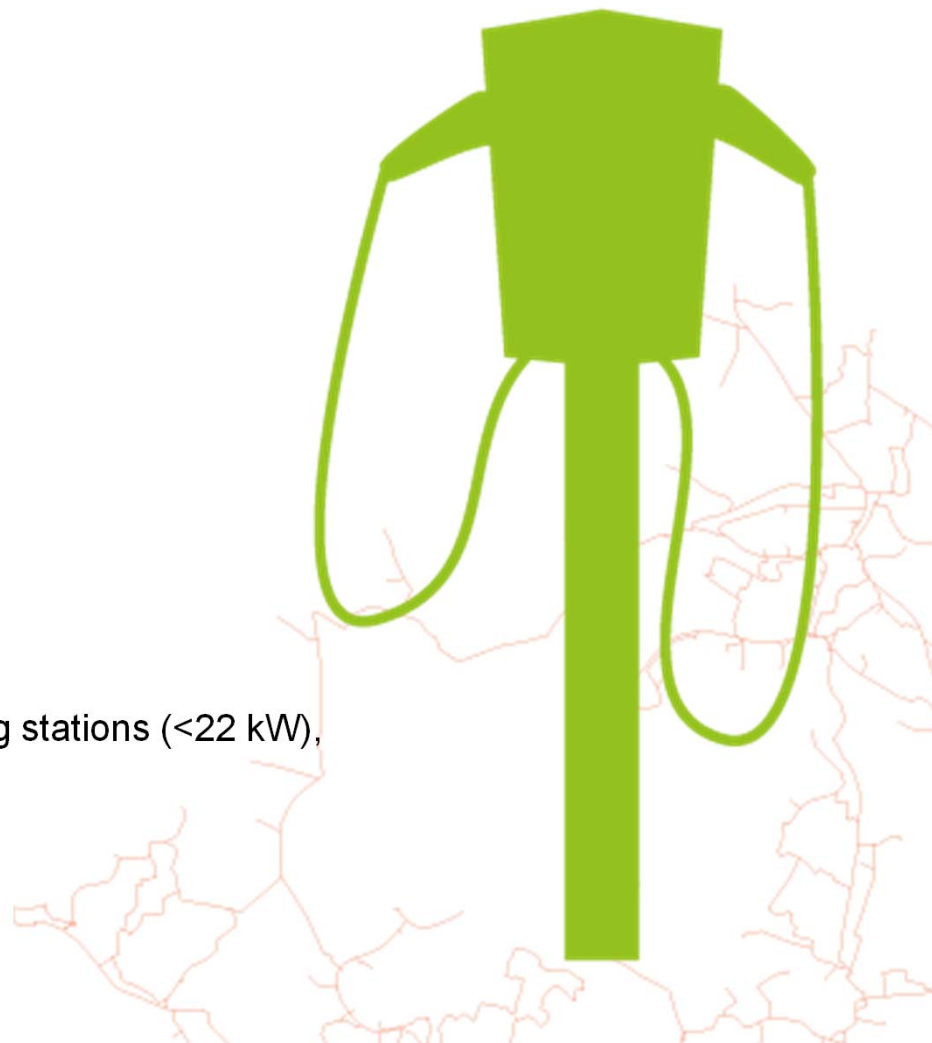
# FAST CHARGERS

Installation of 11  
fast charging stations (<50 kW),  
22 charging points,



# SMART CHARGERS

Installation of 82 smart charging stations (<22 kW),  
164 charging points.





## HOW WE PLANED & BUILD

### CRITERIA

- Connecting businesses



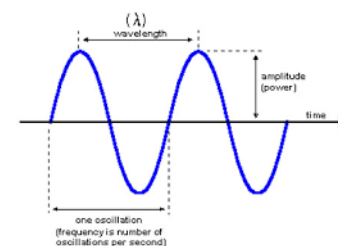
- Spreading



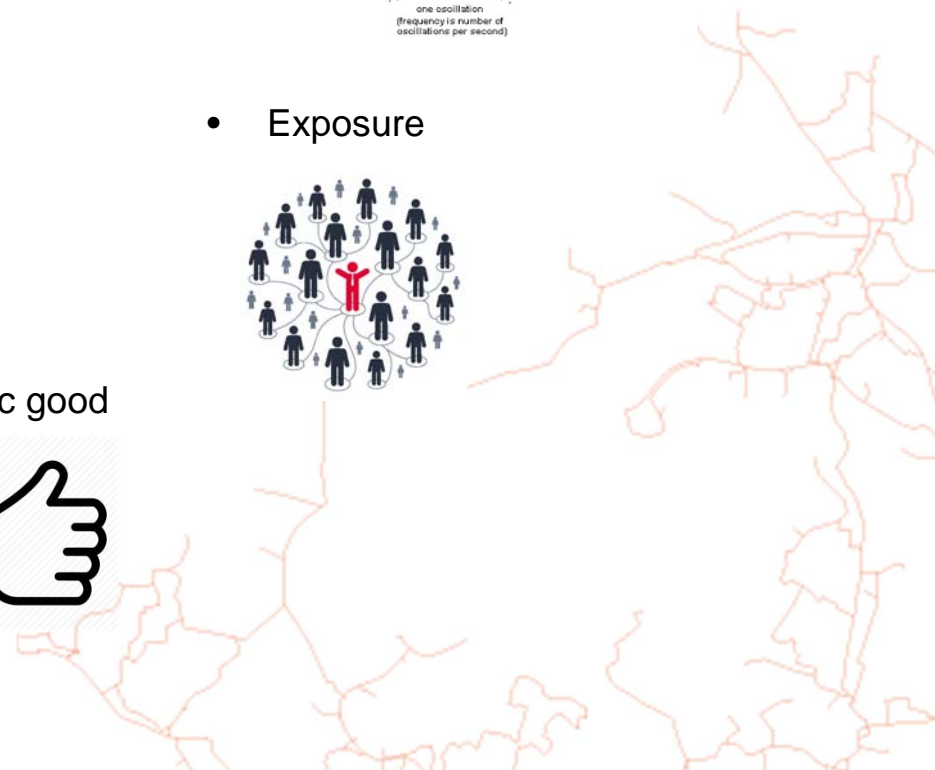
- Public good



- The highest frequency of use

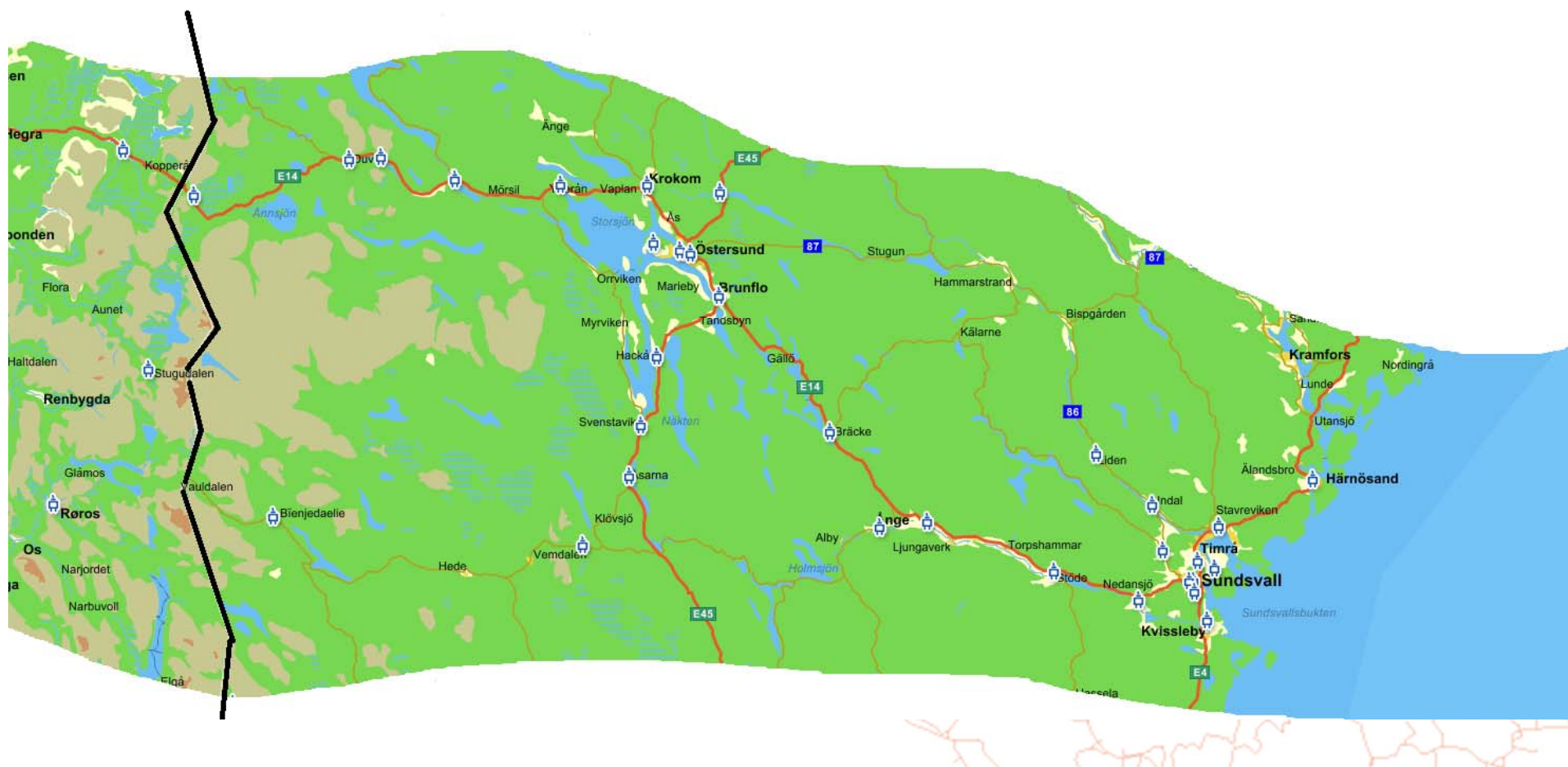


- Exposure



Map over the charging infrastructure in the Green Highway region

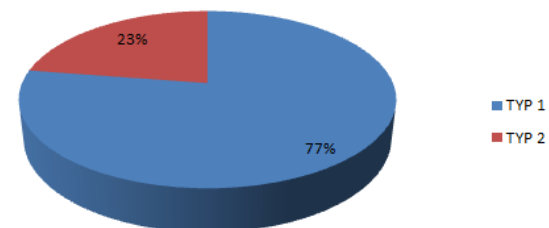
Sundsvall → Östersund → Storlien



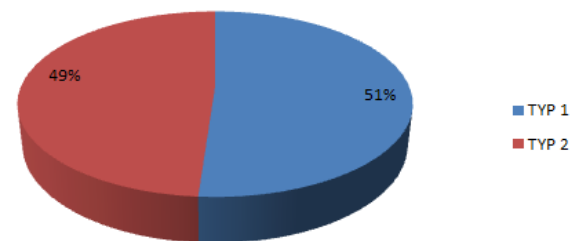
## HOW WE PLANED & BULID

- The majority of electric car stock was using the TYP 1
- EU-standard TYP 2

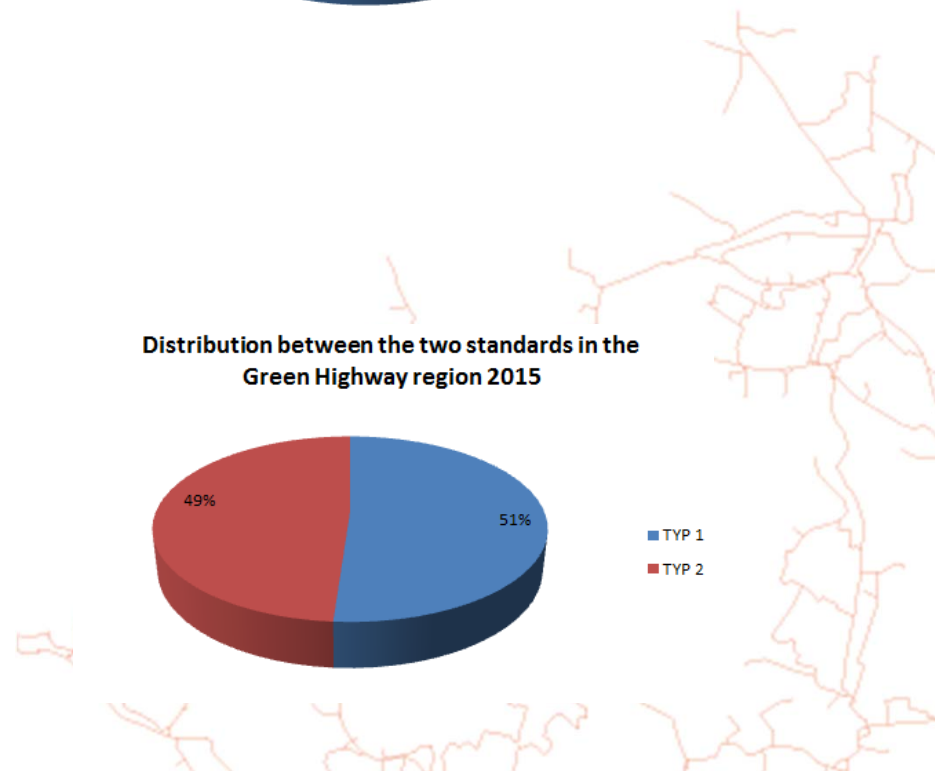
Distribution between the two standards in the Green Highway region 2013



Distribution between the two standards in the Green Highway region 2015

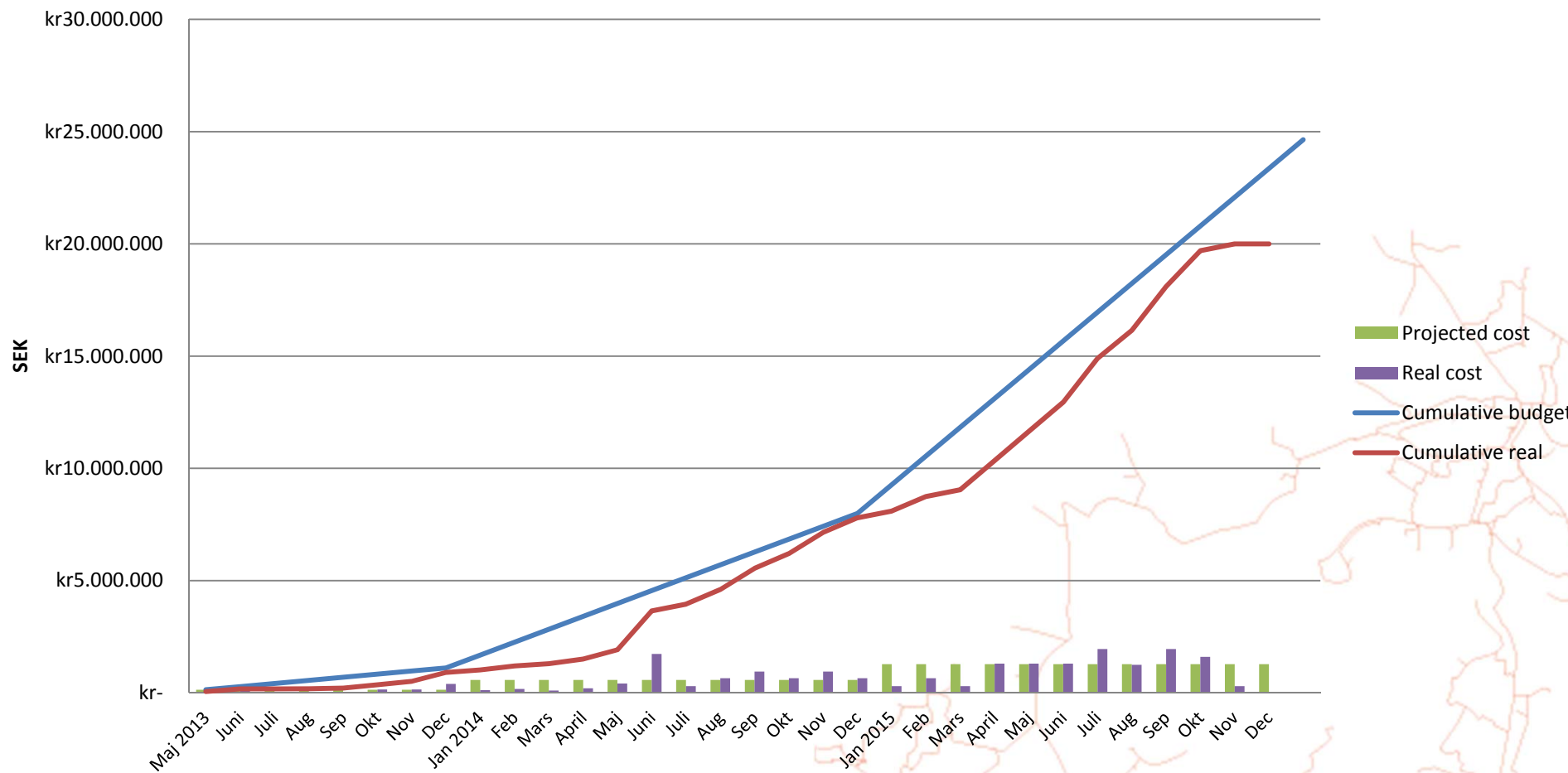


- We choose therefore both standards



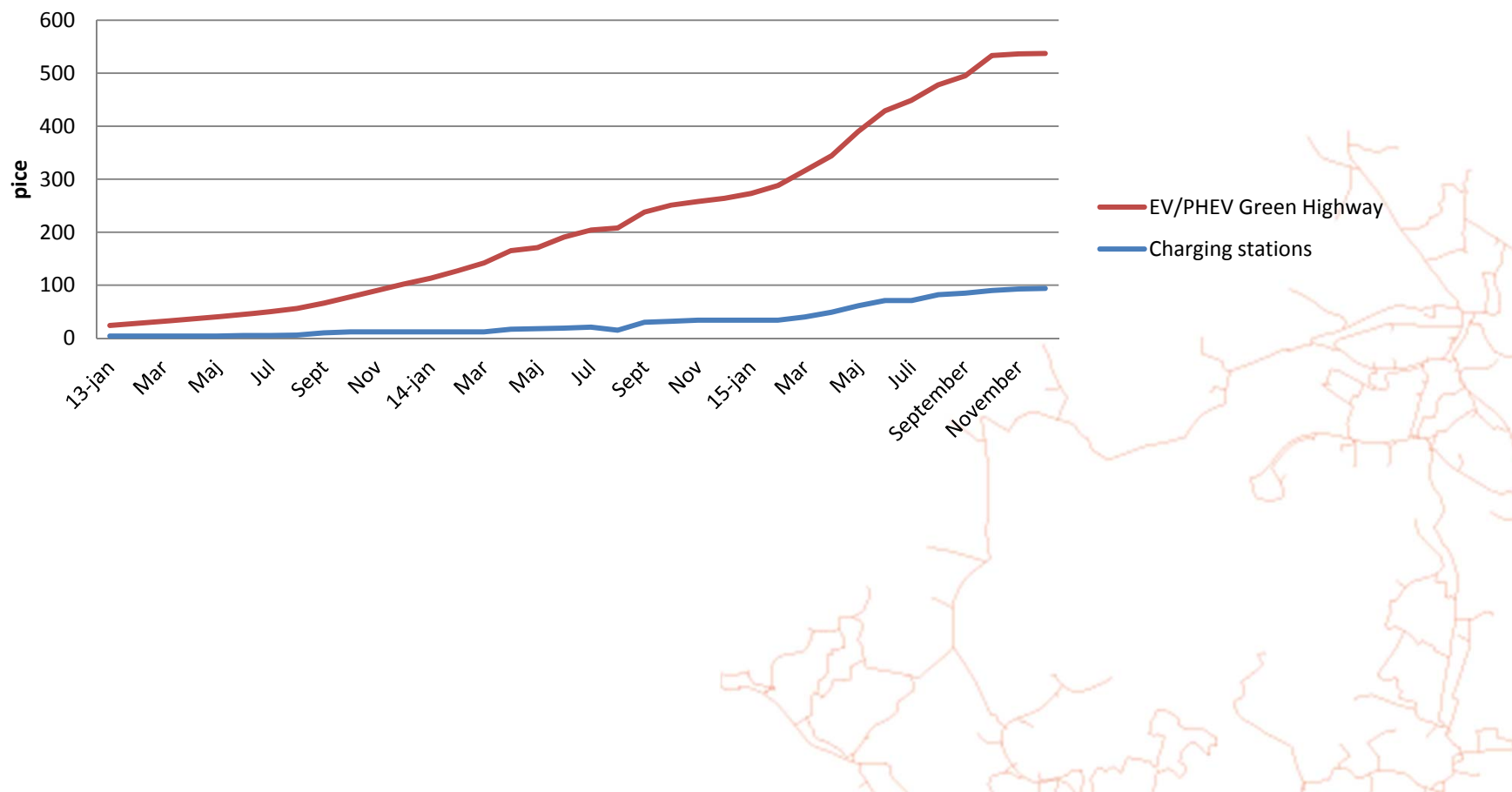
# INVESTMENTS

## Budget



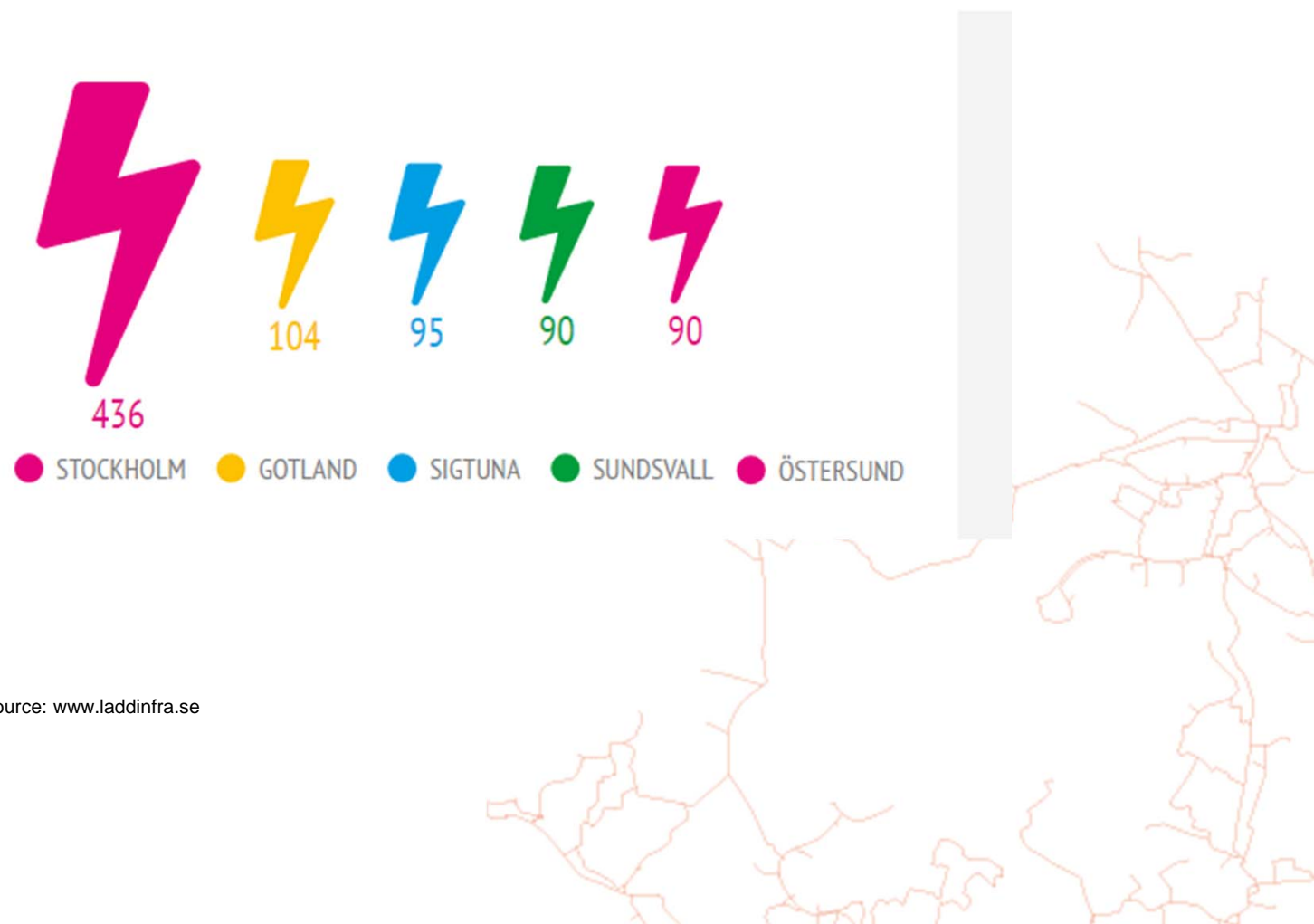
## OUTCOME & STATISTICS

**Development of the EV/PHEV fleet of vehicles and the charging infrastructure 2013-2015 in the Green Highway region**



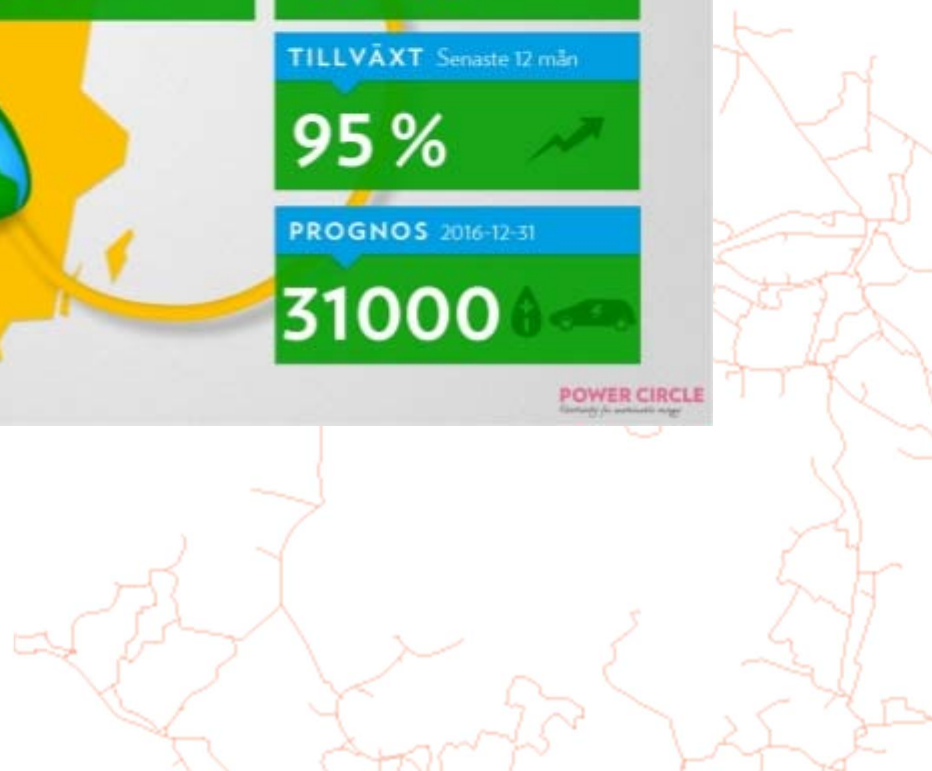
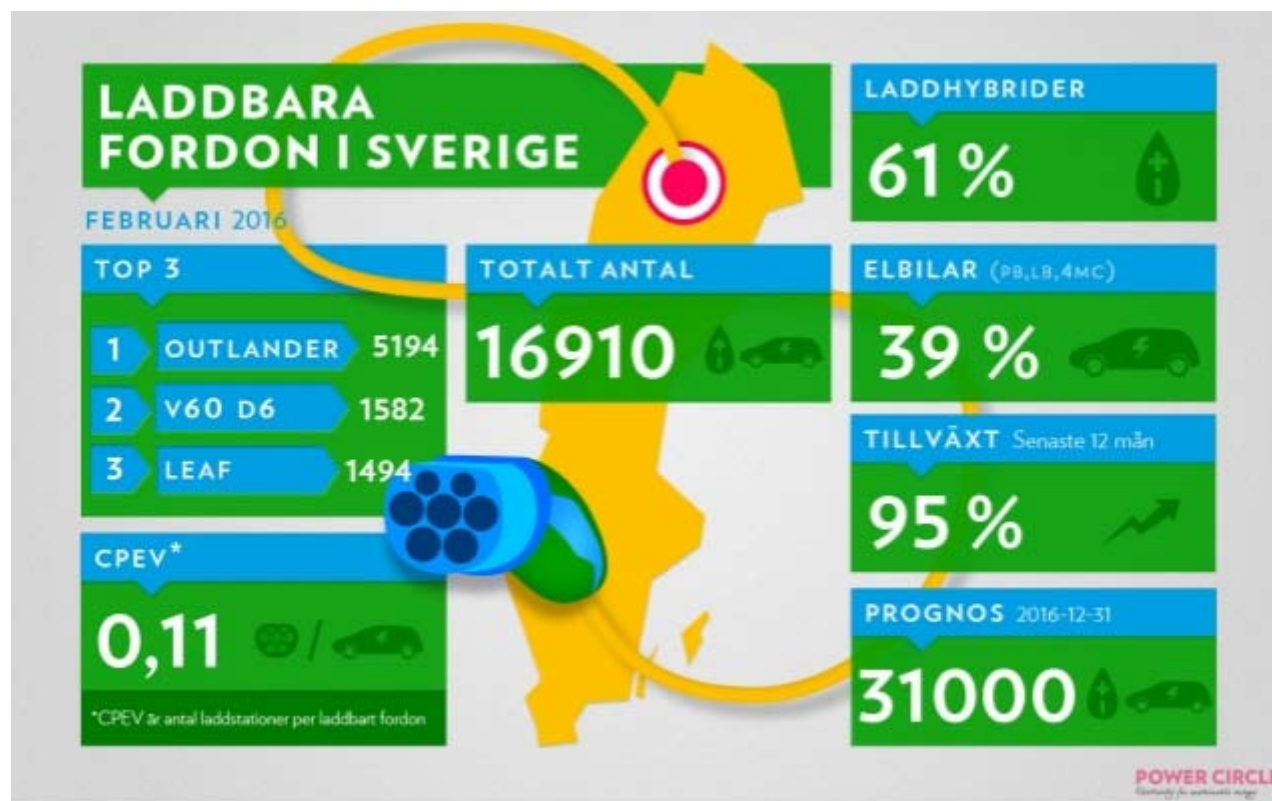
## STATISTICS

TOP 5 – MOST CHARGINGPOINTS PER MUNPLICITY 2016-05-01



Source: [www.laddinfra.se](http://www.laddinfra.se)

## STATISTICS





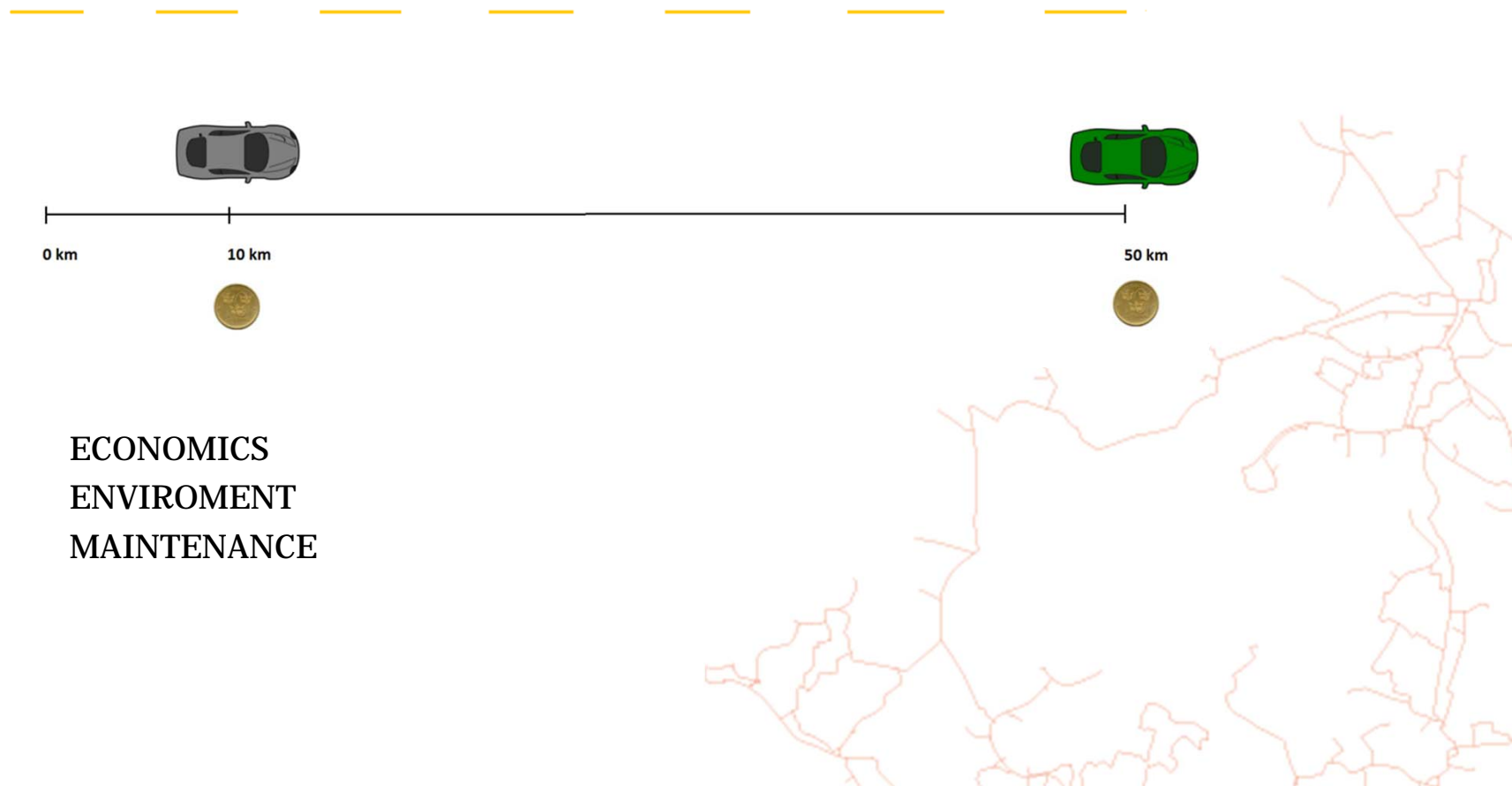


## OPERATOR & BACKOFFICESYSTEM





## BENEFITS WITH EV



- ECONOMICS
- ENVIROMENT
- MAINTENANCE

## PICTURE OF A STATION IN SUNDSVALL



# THANK YOU!

QUESTIONS?

