

# Fast Chargers in Sweden



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# Fast Chargers in Sweden



Initially only utilities.  
Commercial actors are  
now installing fast  
chargers.

Until now about 7 public  
and 4 others are in place

Swedish Energy Authority  
has an EV Infrastructure  
Demonstration program  
(200 MSEK) 2011-2014

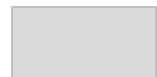
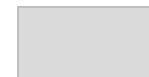
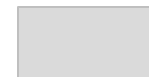
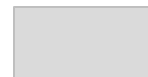


# Future plans in Sweden



e-mobility NSR

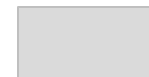
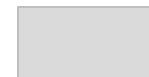
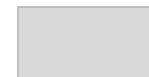
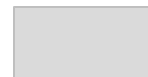
- OKQ8 have an agreement with Siemens to install QC at service stations
- A national demonstration program to coordinate, collect and analyze data from fast chargers is under preparation
- Focus on "Green Transport Corridor"s like E14 and E6. between Norway, Sweden and Denmark.



# Market barriers



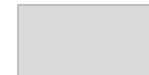
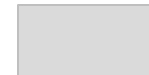
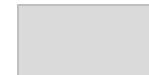
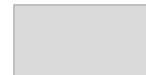
- Lack of standardization
- Lack of vehicles
- Cost of fast chargers
- Lack of good business models



# TEST ENVIRONMENT FOR FAST CHARGING



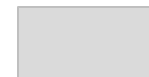
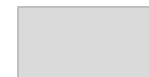
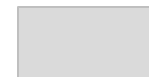
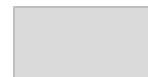
## Experiences from establishing two fast charging stations in Gothenburg



# Aims



- To contribute to EU ' low-carbon roadmap' aims by 2020
- To establish one of the first test and demonstration platforms for fast charging of EVs in Scandinavia
- To install two fast chargers for CHAdeMO-adapted Evs in the Gothenburg region
- To perform risk assessments regarding environmental, health and technical aspects
- To evaluate fast charger user experiences
- To study communication between fast chargers and EVs, as well as potential impact on the surrounding grid

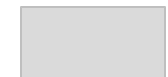
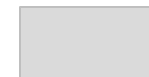
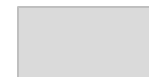
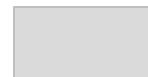




# Deliverables



- Test environment of two fast charger stations for CHAdeMO EVs established at two different sites in Gothenburg
- Reports from establishing the test environment and experiences from collaboration between the project partners
- Reports regarding safety assessments and user experiences
- "Lessons learned" and "know-how" that can serve as valuable information for establishing future test environments, and forming a well-organized infrastructure for fast charging of EVs



# Station Agnesberg



e-mobility NSR

Distributor: ABB

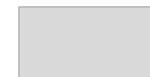
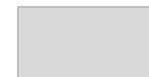
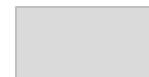
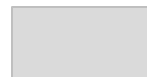
User: H-O Enterprise



Mitsubishi iMiEV



Citroën Z-Cero





# Station Agnesberg



Solar panel



Slow AC  
charging 230 V

Fast DC  
charging 400 V

# Station Ringön



e-mobility NSR

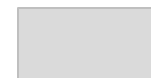
Distributor: TurningPoint Cleantech/DBT  
User: Göteborgs Gatu AB



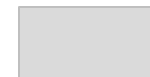
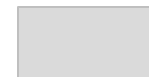
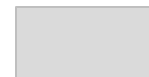
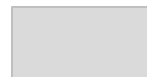
Micro-Vett Fiorine



Micro-Vett Ducato



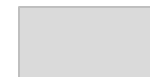
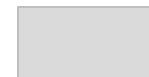
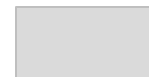
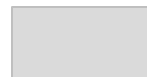
# Station Ringön



# Winter testing R & D projects



- DC fast charging in winter climate, 2011 by Jämtkraft, Takaoka & Elforsk
- AC 16A/230V demand & response charging, 2011 by Jämtkraft, ABB, Chargestorm & SEA



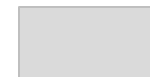
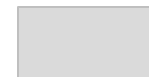
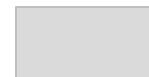
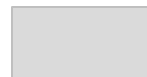


# National demo-project 2012-15



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- DC fast charging
- Charging infrastructure
- Energy storage
- Jämtkraft & ABB
- Universities
- Swedish Energy Agency



# Planned DC chargers at the Green Highway



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