

# Amsterdam University of Applied Sciences

## Inefficient use of charging stations

*analysis, quantification and solutions*

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### Publication date

2017

### Document Version

Final published version

[Link to publication](#)

### Citation for published version (APA):

Wolbertus, R. (2017). *Inefficient use of charging stations: analysis, quantification and solutions*.

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# *Abstract ARCHI symposium*

*Amsterdam, The Netherlands, January 24, 2017,*

## **Inefficient use of charging stations: Analysis, quantification and solutions**

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The Netherlands is a frontrunner in the area of public charging infrastructure having the highest number of public charging stations per electric vehicle in the world. Occupation of these charging stations is growing and availability is becoming a problem. Installing more charging infrastructure is problematic from both a public (tax payers money, parking availability) and private (business case) perspective. Increasing the utilization of available charging stations seems one of the solutions to satisfy the growing need of electric drivers. Currently, only 15-25% of the time connected to the charging station is actually used for charging. The longest 4% of all sessions account for over 20% of all time connected while barely using this time for actually charging. Using a large dataset on charging infrastructure usage, the presentation provides an analysis of the inefficient use of charging stations along three axes: *Spatial*, *user* and *time* oriented. First, the spatial analysis compares cities and identifies hotspots for potential increased utilization. Secondly, the user perspective is analyzed to see if the problem is widespread or can be boiled down to a few users. Lastly, an analysis of the time component is provided to signal patterns throughout the day, week and year. Using this analysis we quantify the effect of the inefficient use on the availability of charging stations showing that charging stations are unnecessary unavailable for over a week each year. The research also provides an overview of solutions showing their potential and possible pitfalls.

- Preference: Oral presentation
- References of presenter:
  - o Benchmarking Charging Infrastructure Utilization, EVS29 symposium, Montreal, Canada  
<http://www.idolaad.nl/publicaties/item/benchmarking-charge-infrastructure-utilization.html>
  - o Door de bomen het bos niet meer zien, Smart E-Mobility, Juni 2016  
<https://smartemobility.nl/u/files/smarte-mobility2-2016.pdf>
  - o RVO Special: Publieke laadinfrastructuur in de gemeenten Amsterdam, Rotterdam, Den Haag en de Metropool Regio Amsterdam (MRA-e)  
<http://www.rvo.nl/sites/default/files/2016/07/Special%20Publieke%20laadinfrastructuur%20G4%20en%20MRA%20juli%202016.pdf>
  - o Diverse Blogs over laadinfrastructuur  
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