



Moving a taxi sector to become electric: An innovative incentive programme in Amsterdam

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EVS32



Electrifying taxis in Amsterdam:

- October 2015: voluntary agreement between (i) city of Amsterdam & (ii) taxi organizations
- Commitment: Zero emission taxi fleet (4200) in 2025 →
 - Status 2015: 200 e-taxis
 - Status 2019: milestone 1000 e-taxis
- Most important incentives:
 1. Purchase subsidy (€5.000,-)
 2. Taxi stands: Priority rule for *clean* taxis
 3. Fast chargers placed throughout the city

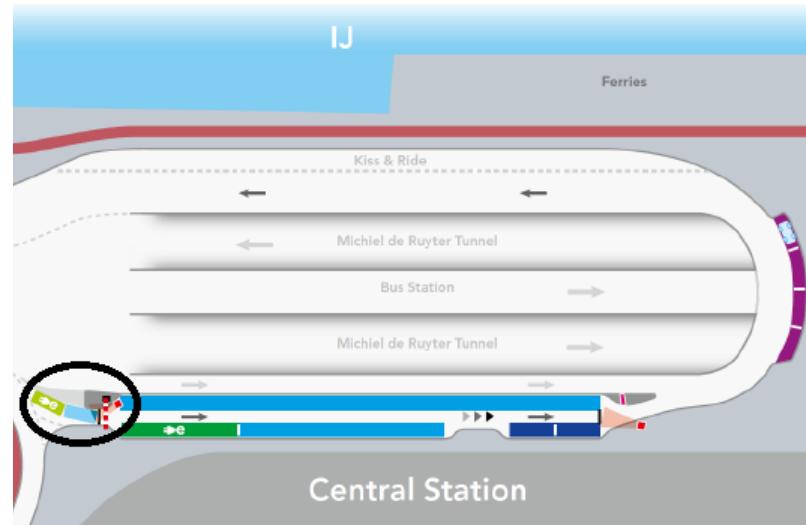




INTERNATIONAL ELECTRIC VEHICLE SYMPOSIUM & EXHIBITION



Taxi stand Central station (2016)

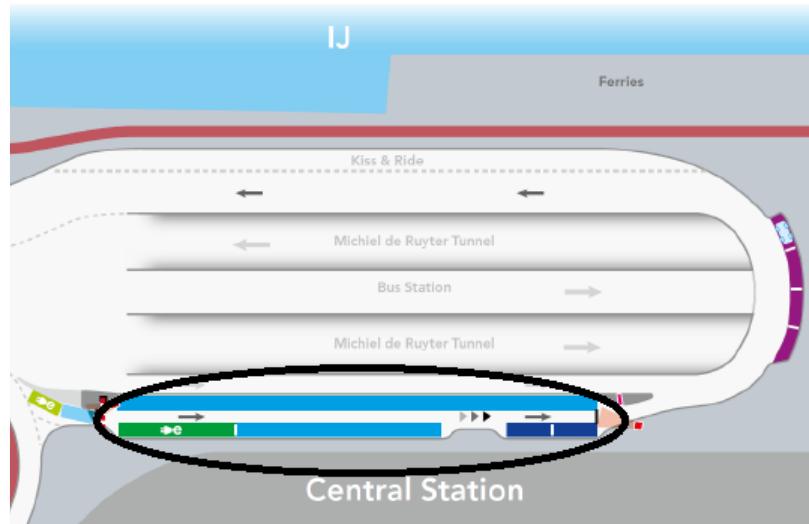




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Taxi stand: Waiting line

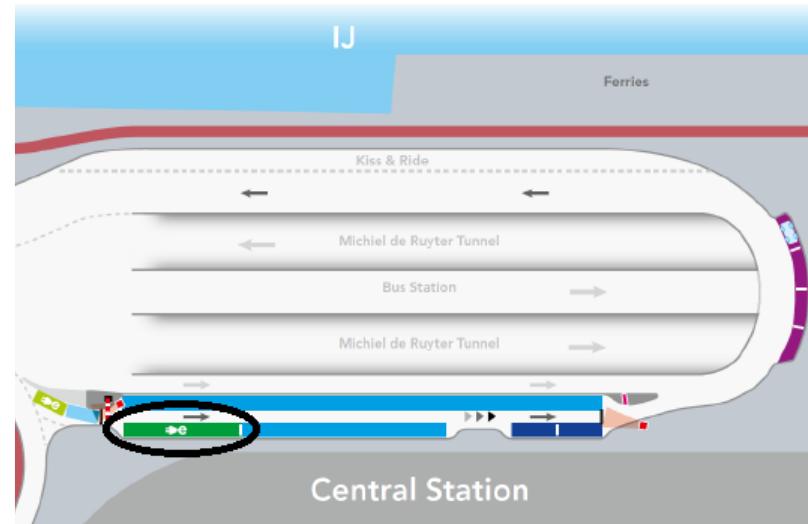




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Fast charger facilities

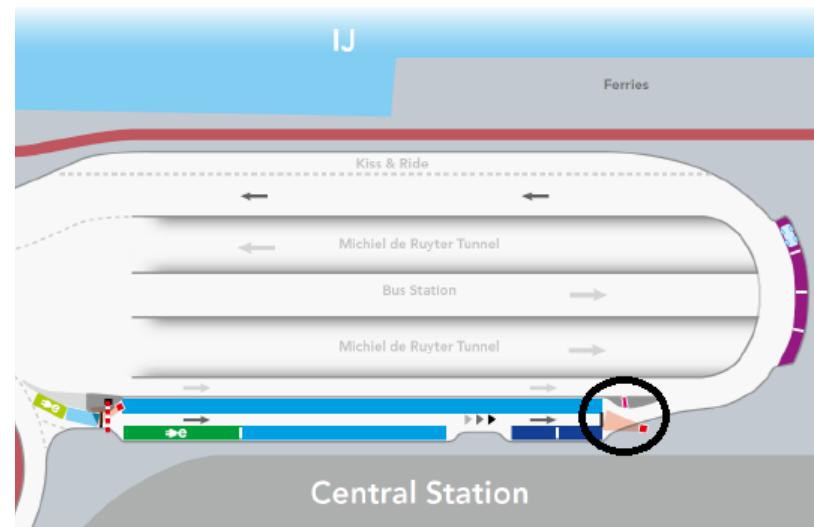




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Call system

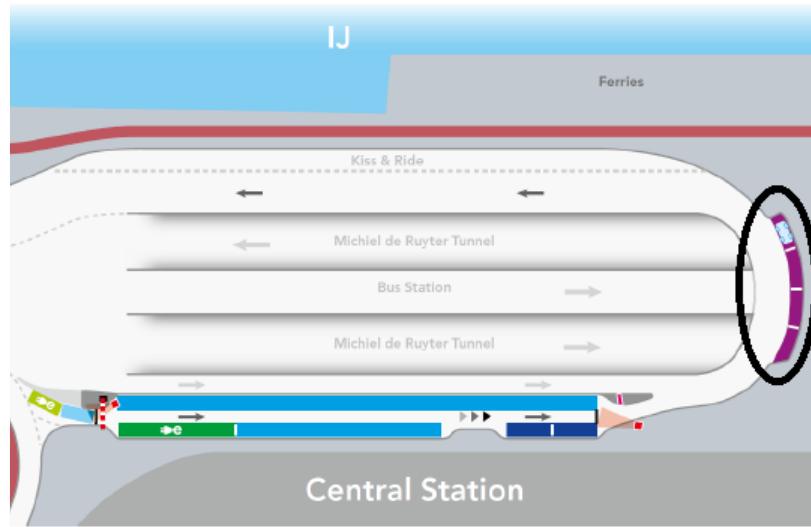




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Pick up section

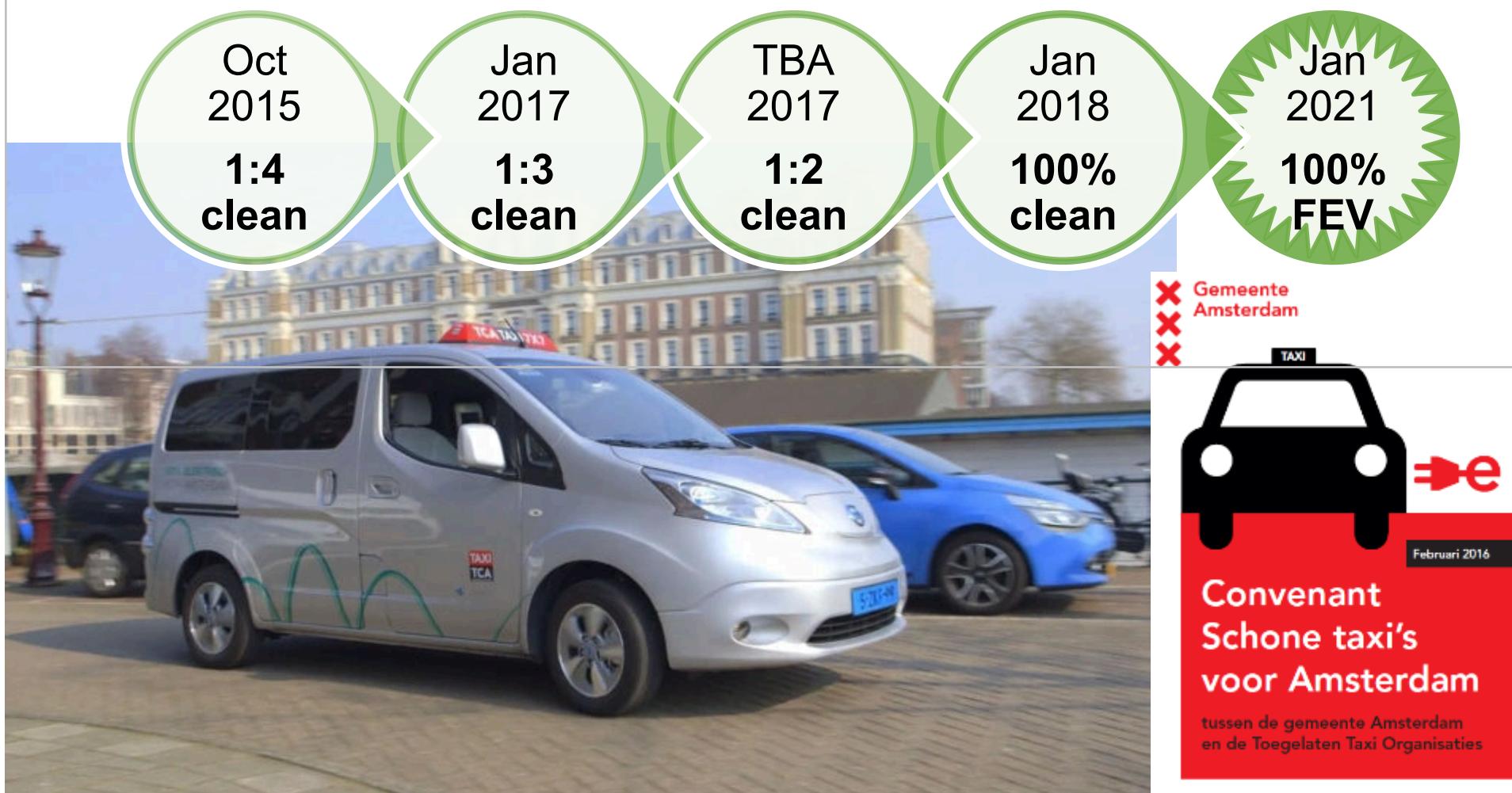




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Taxi stand: priority for E-taxis

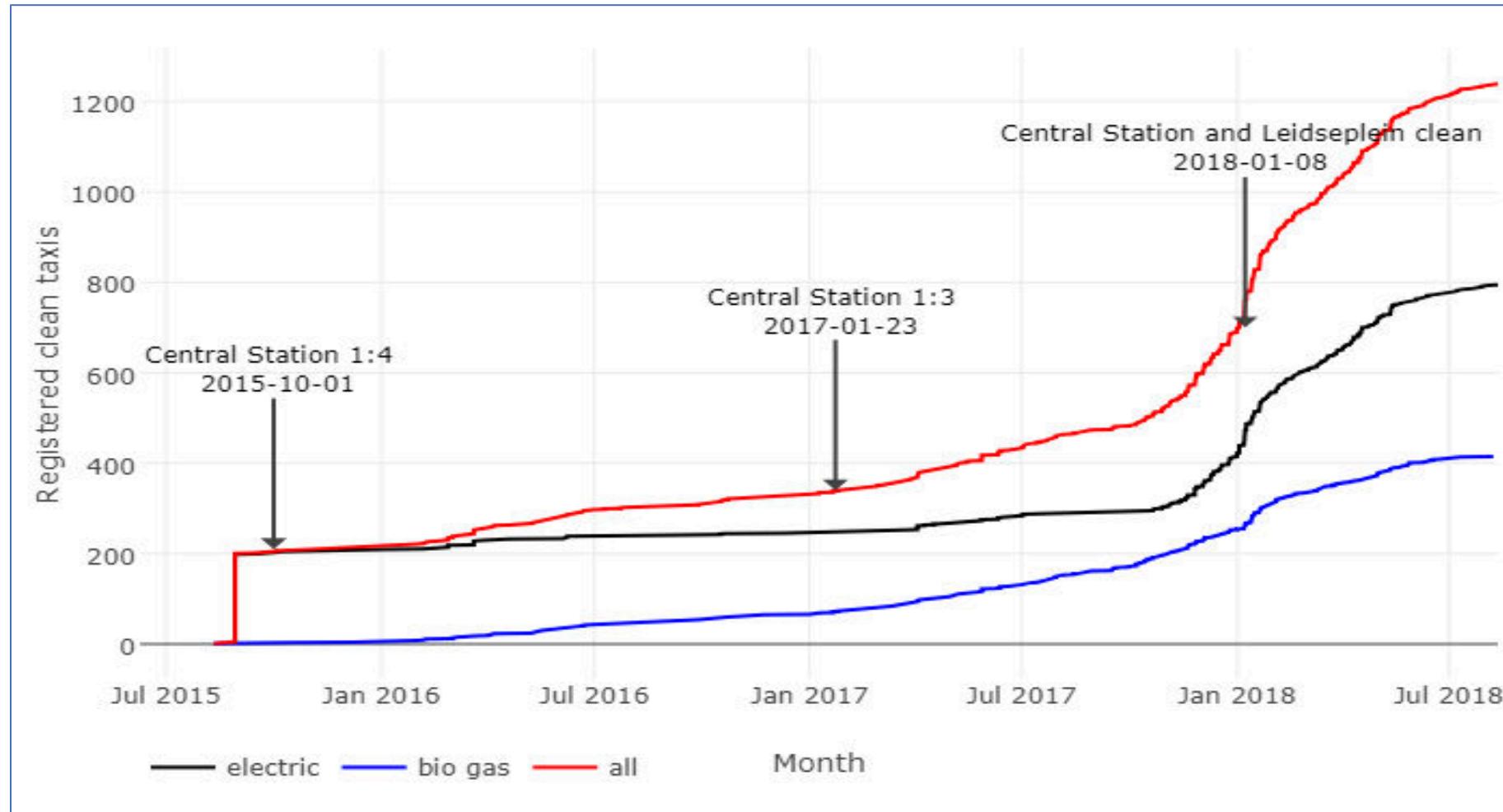




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Growth in clean taxis

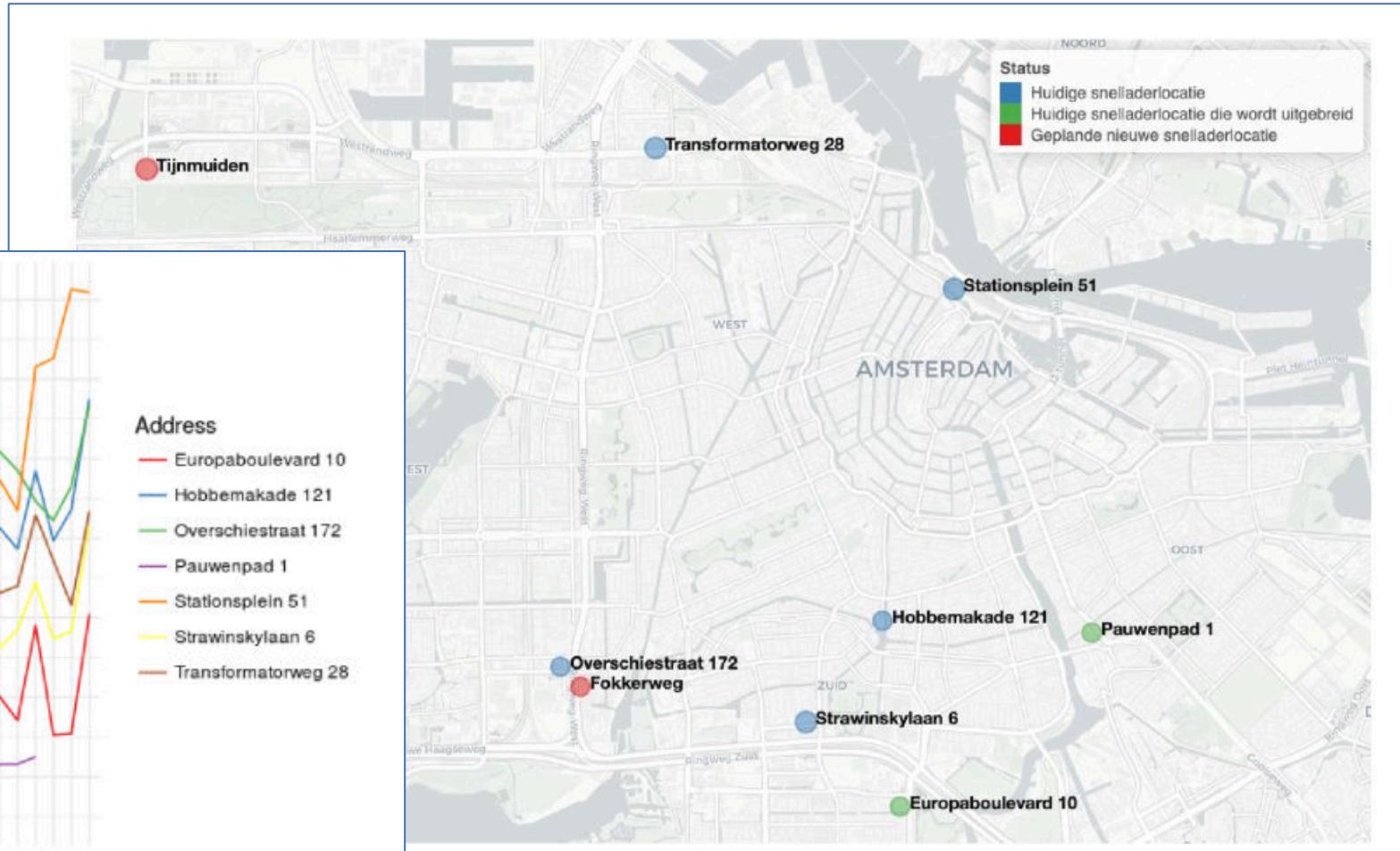
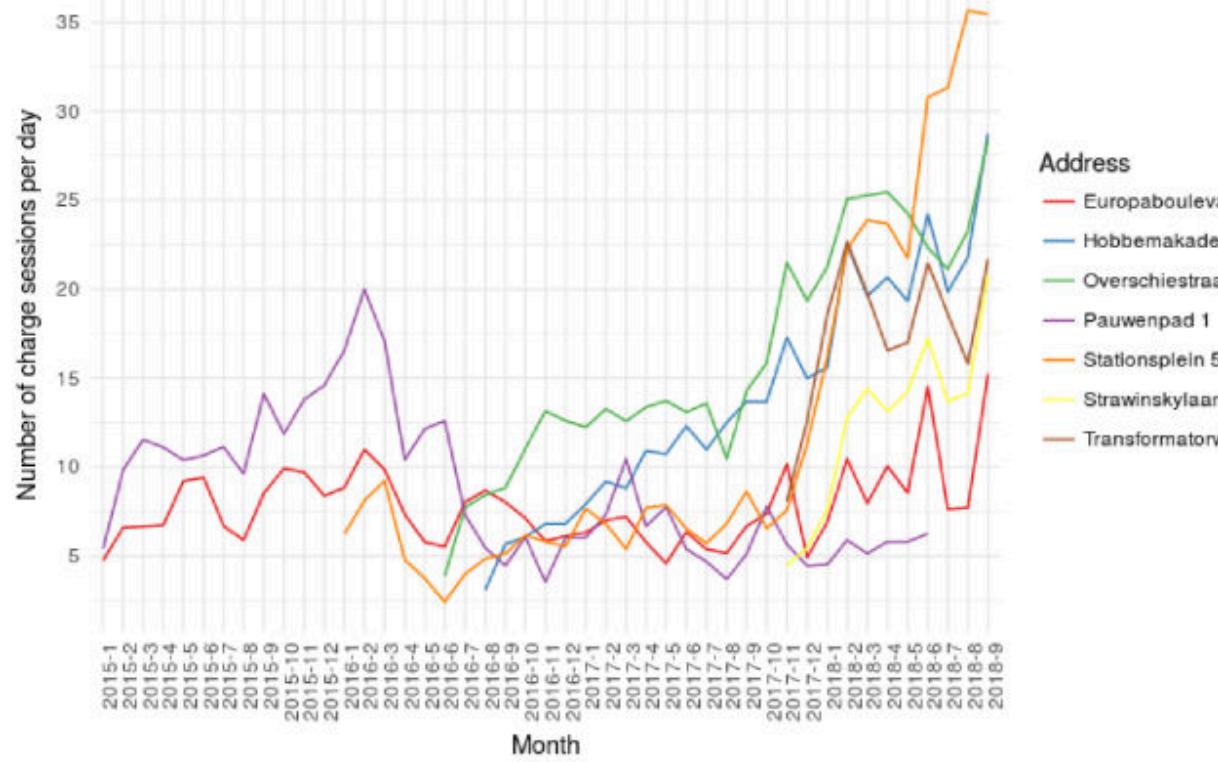




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Fast chargers





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How do taxi drivers evaluate the incentives?



Incentives:

1. Purchase subsidy
2. Taxi stands: Priority rule for *clean* taxis
3. Fast chargers placed throughout the city



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Methodology

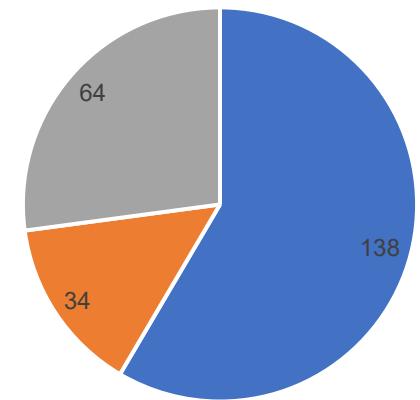
- Digital survey sent out in oktober 2017 (~4000)
- 301 unique responses (8%).
 - 236 (77%) Internal Combustion Engine Vehicle (ICEV)
 - 36 (11,8%) Full Electric Vehicle (FEV)
 - 12 (3,9%) Plug-in Hybrid Electric Vehicle (PHEV)
 - 12 (3,9%) Natural Gas Vehicle (NGV)



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ICEV drivers' interest in FEV



- not interested in FEV
- neutral interested FEV
- interested in FEV



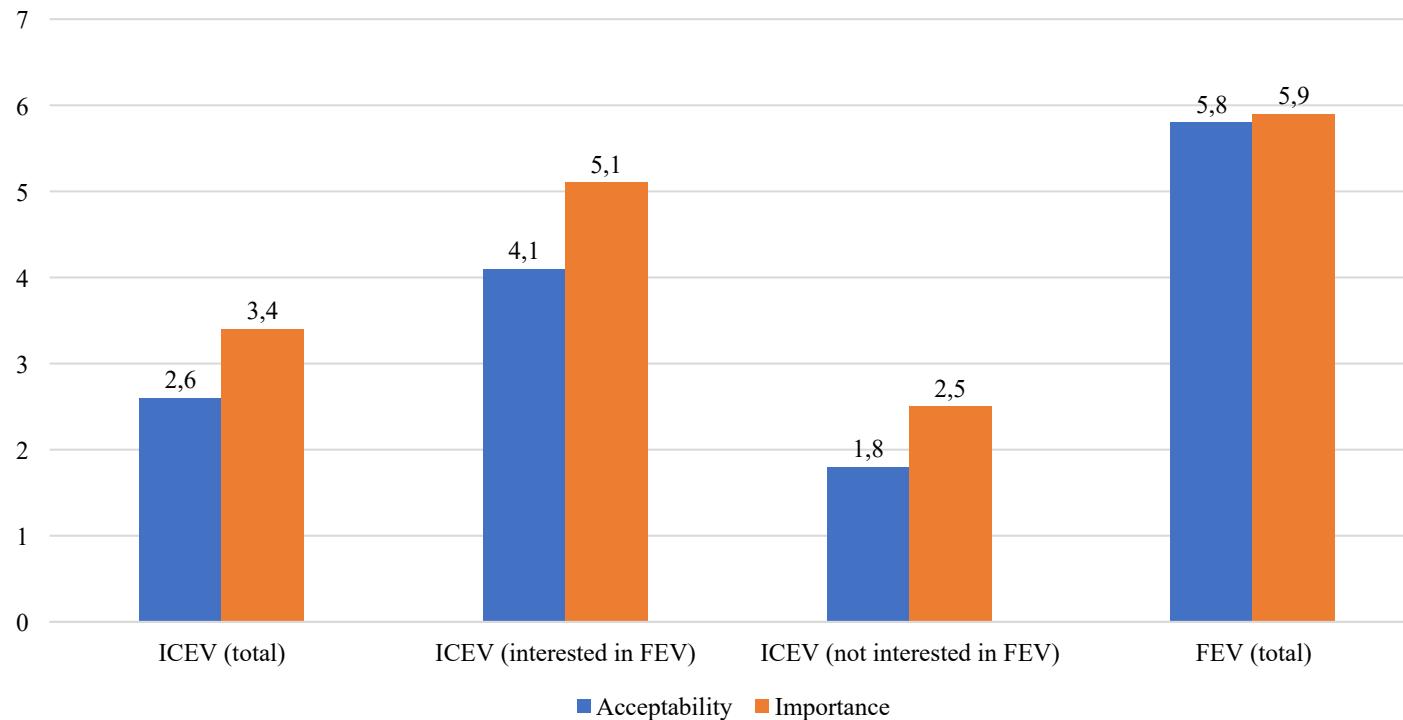
Demographics and Characteristics

- Average age: 39
- Markets active (multiple markets possible):
 - Taxi stand market (66,8%)
 - Appointment based requests (40,2%)
 - Hotel transfer (29,9%)
 - Airport transfer (27,9%) → FEV exclusive market
- Sharing vehicles:
 - 37 out of 236 ICEV drivers
 - 23 out of 36 FEV drivers → hypothesis: due to high purchase price
- Longer average rides by FEV taxi drivers (16.5 km) compared to ICEV drivers (11 km)
 - 26 of 36 drivers work primarily as airport transfer



Attitude regarding voluntary agreement

- Strong positive correlation between interest in FEV and attitude towards voluntary agreement





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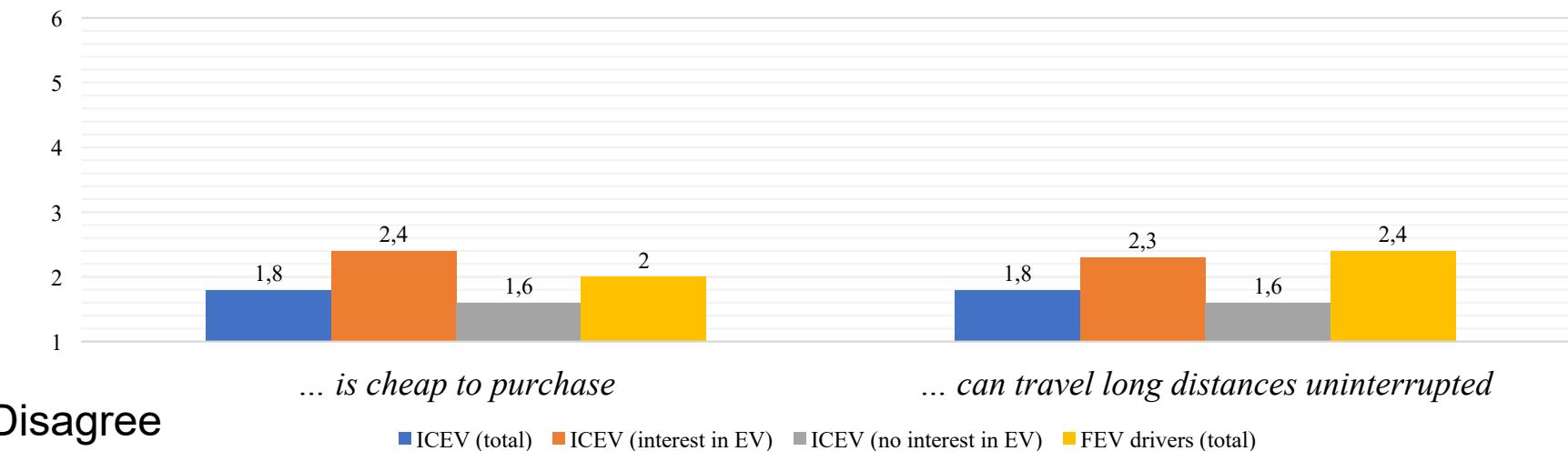


Purchase price and range

- Low purchase price and long range not associated with electric vehicles

Agree

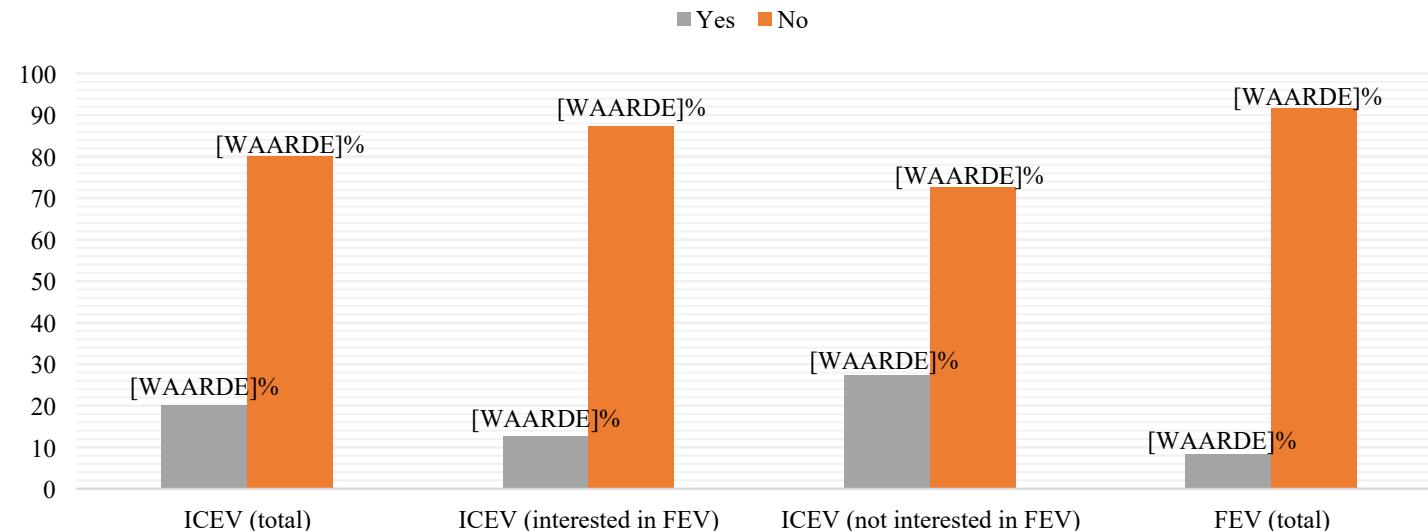
An electric vehicle...





Fast chargers to facilitate the transition

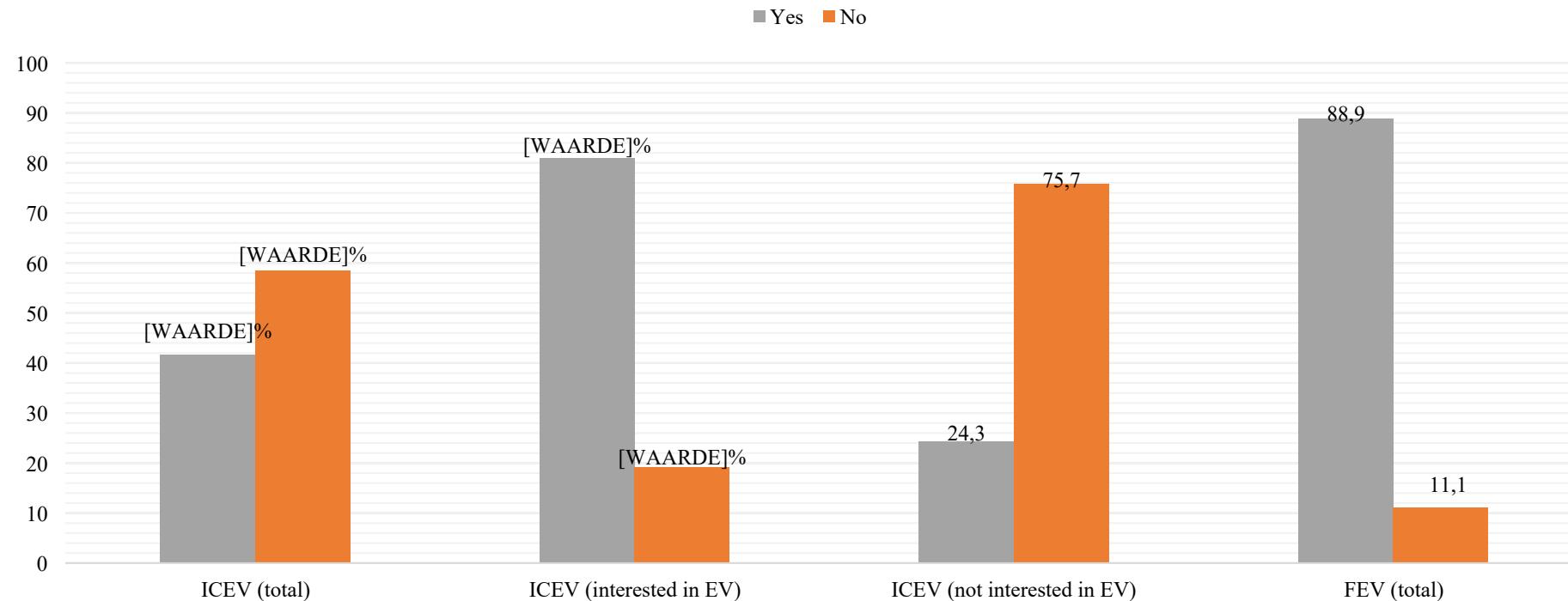
Are there enough fast chargers?





Fast chargers & purchase decision

Would you purchase an e-taxi faster if there were more fast chargers?





Conclusion

- Innovative set of incentives has started the transition towards electrification of taxi sector
 - Subsidy
 - Taxi stand (priority scheme)
 - Fast chargers
 - (Schiphol access)
- Important role for (fast) charging infrastructure
 - Facilitate current FEV drivers
 - Incentivize potential FEV drivers
- Range anxiety and high price did not withhold early adopters

Further work: bi-annual survey to monitor attitude and purchase behavior of the taxi sector



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Questions?