



CHALMERS

# Parking policies and charging infrastructure

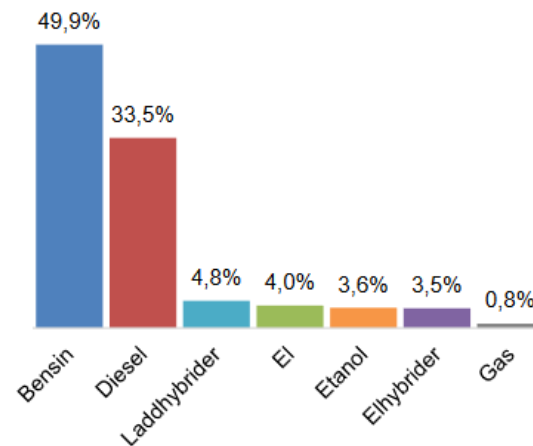
Frances Sprei, Bitr Professor, SEE

# Some numbers...



**4 980 543**

personbilar var i trafik  
i Sverige 2022.



Figur 2. Fördelningen av antal personbilar i trafik per drivmedel. Årsskiftet 2022/2023.

**~95%**

Share of time a car  
stands still

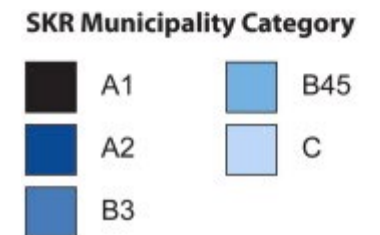
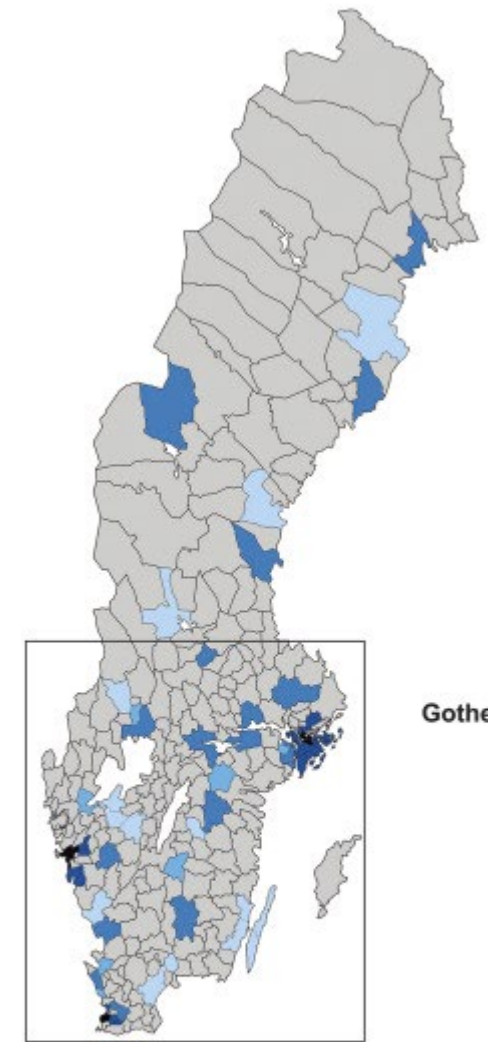
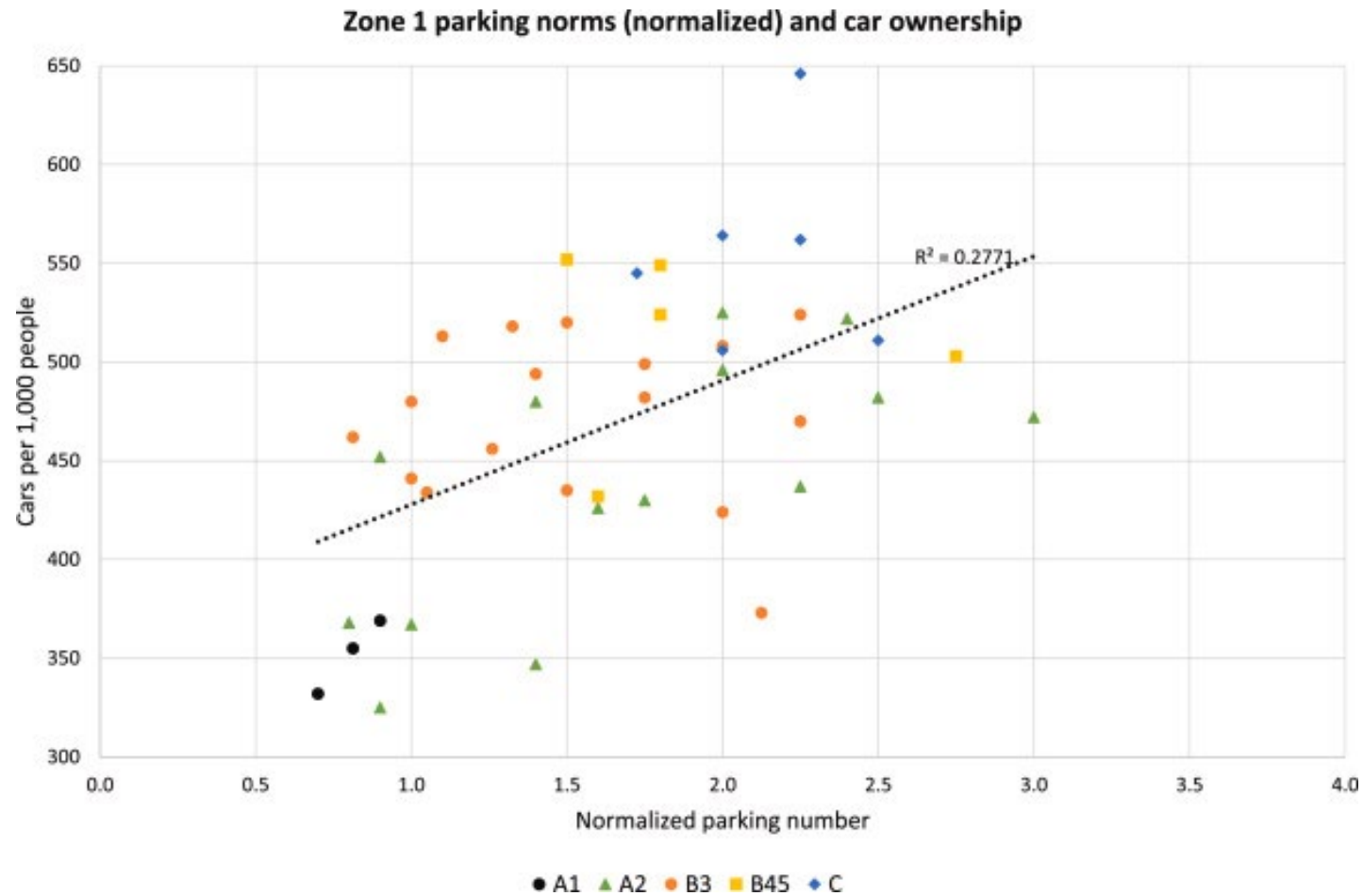
**15-25 million**

parking spaces



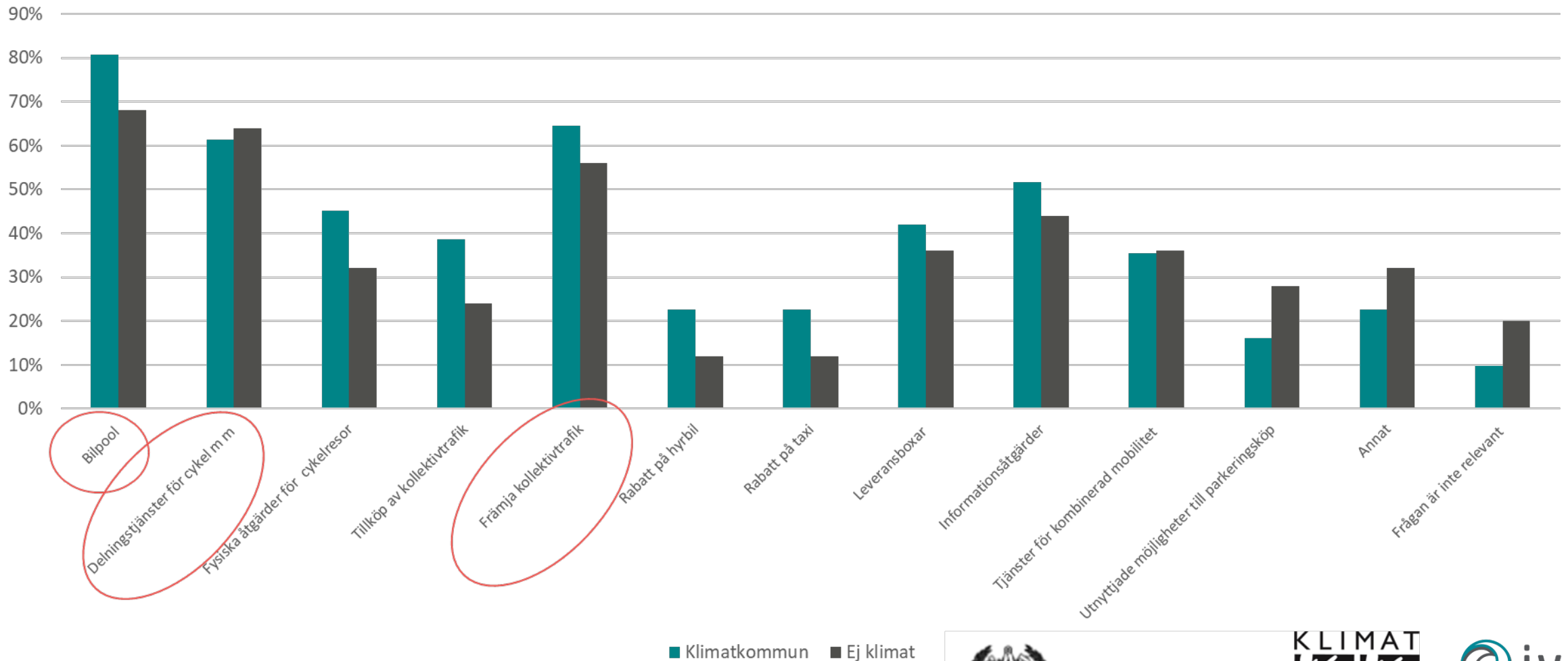
Sources: <https://www.trafa.se/globalassets/statistik/vagtrafik/fordon/2023/fordon-i-lan-och-kommuner-2022.pdf>  
<https://www.naturvardsverket.se/data-och-statistik/klimat/sveriges-utslapp-och-upptag-av-vaxthusgaser/>  
 Spaceskape m fl 2020

# Parking and vehicle ownership



McAslan, D., & Sprei, F. (2023). Minimum parking requirements and car ownership: An analysis of Swedish municipalities. *Transport Policy*, 135, 45-58.

# D1. Vilka mobilitetsåtgärder ger möjlighet till reduktion av parkeringstalet vid byggande av bostäder i er kommun?



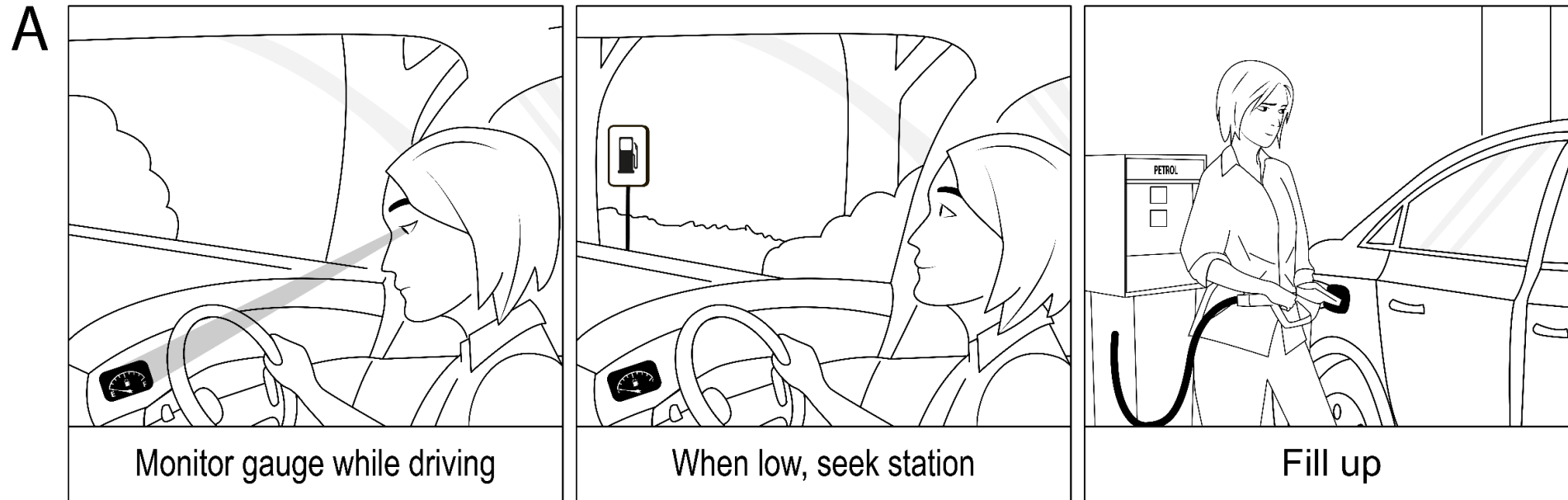
■ Klimatkommun ■ Ej klimat



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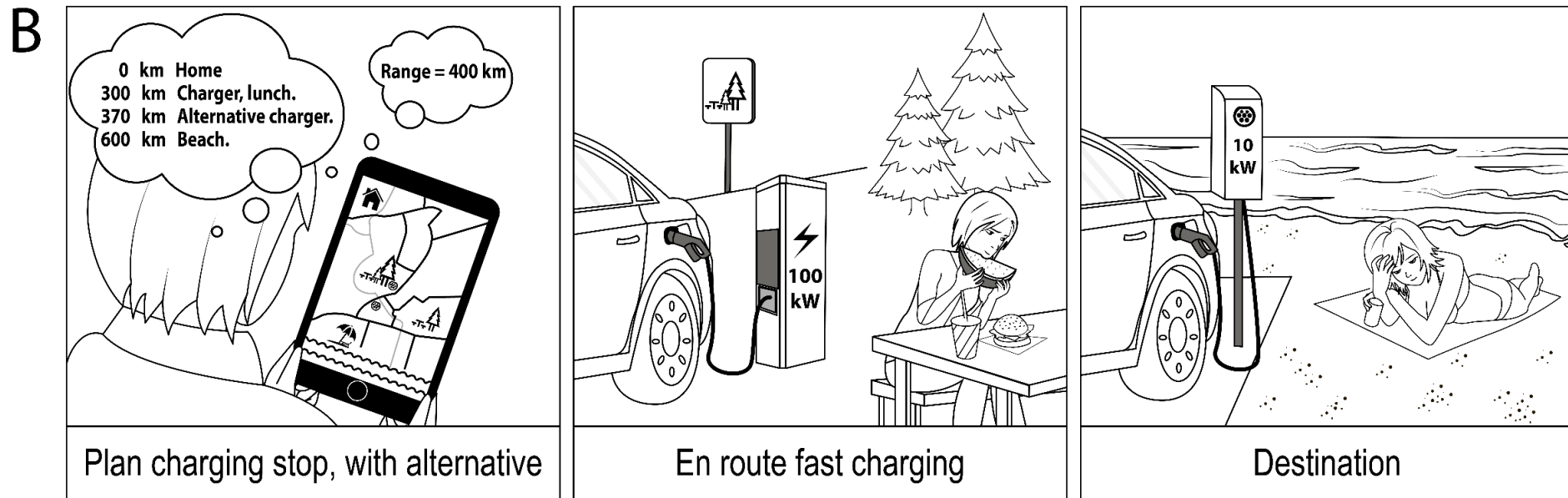


# Liquid fuel model



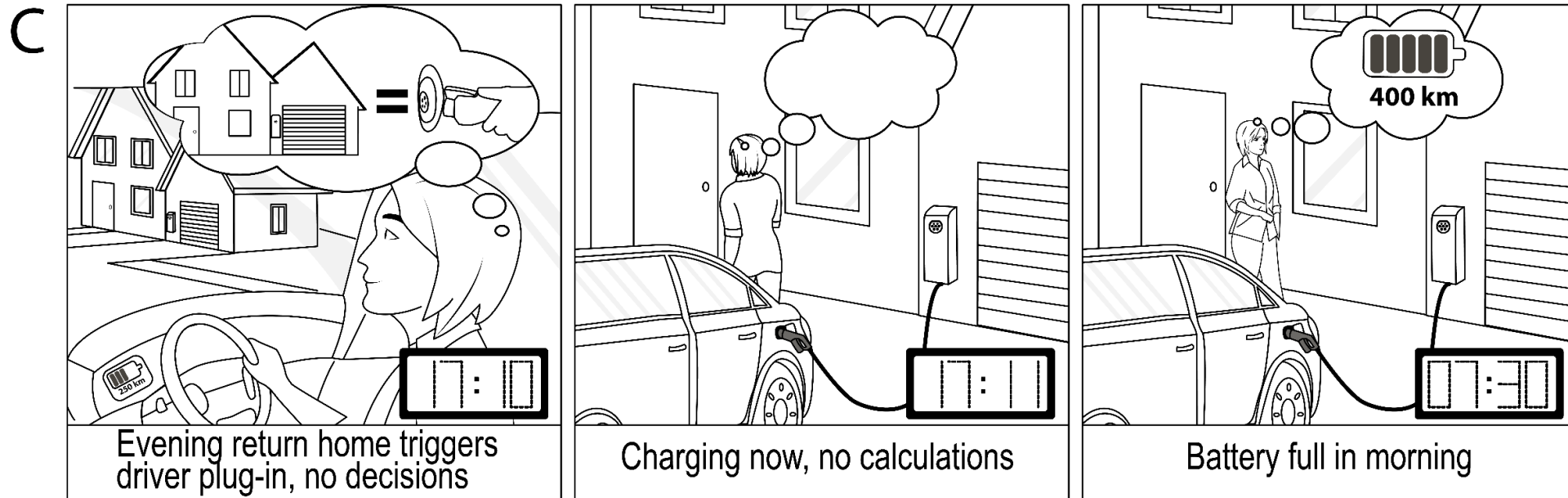
Source: Sprei & Kempton, under review

# Plan ahead

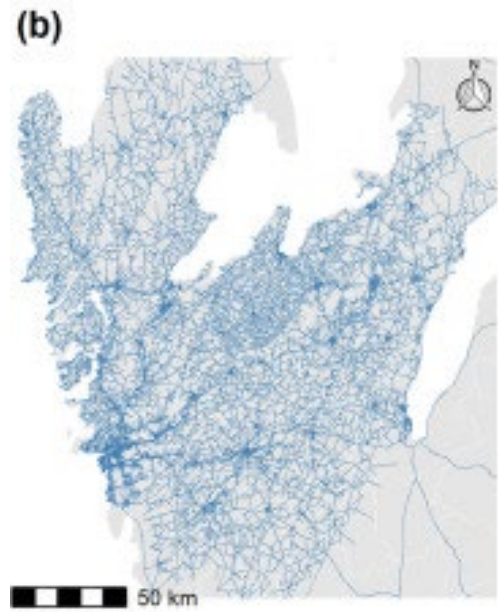
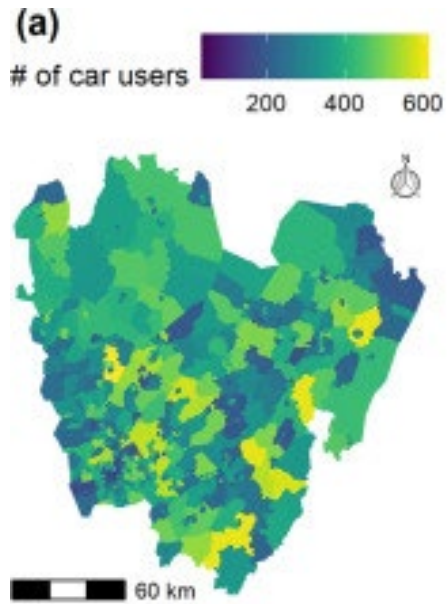


Source: Sprei & Kempton, under review

# Event-triggered charging



Source: Sprei & Kempton, under review



# Agents, activities, and road network

- 284,000 car users in VG (35% of all car users, 18% of total population)
- Daily activity category: home, work, school, other
- All cars BEV ( 40 kW, 60 kW, 100 kW)



# Most drivers manage their daily driving

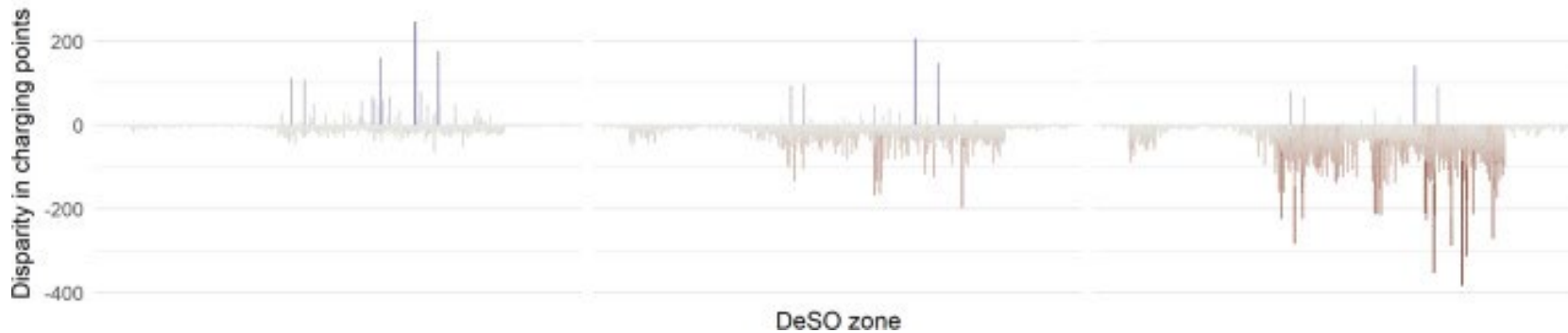
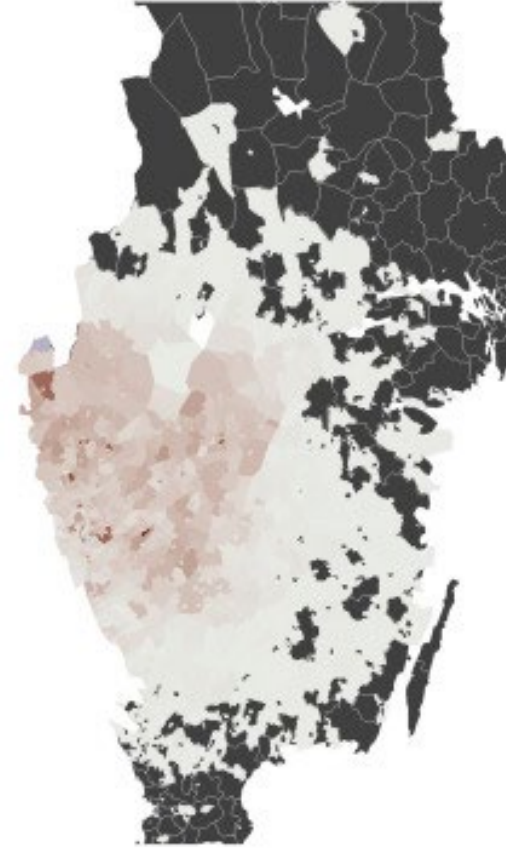
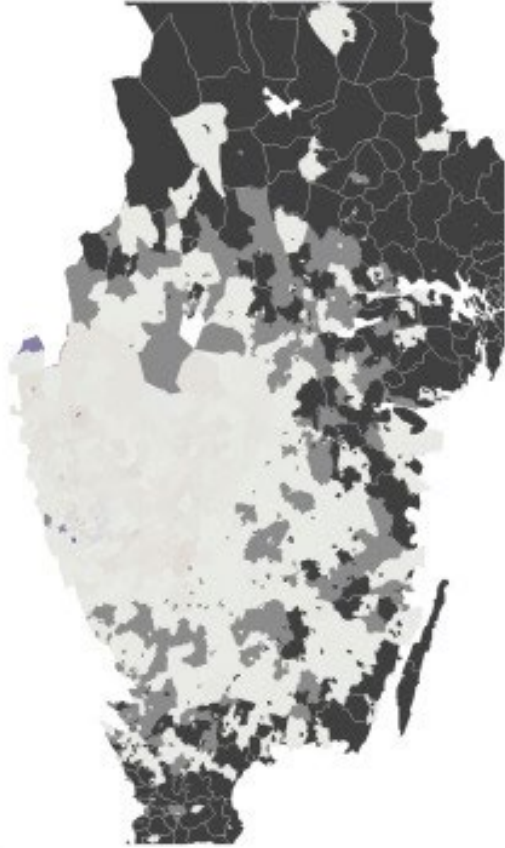
Mental model	Failure rate (%) no home charging	Failure rate (%) home charging
Liquid fuel	0.96	1.17
Plan ahead	0.68	0.37
Event-triggered	0.57	0.37

Disparity in charging points -200 0 200

Liquid fuel

Plan ahead

Event triggered



**Spatial disparity in charging points between simulated results and today's infrastructure**

# Conclusions

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There is close relation between parking and car ownership and usage

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There is no contradiction between reduced parking and electrification – we need both!

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Charging behavior influenced by mental models

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Charging behavior will affect demand and planning of charging infrastructure