

Knowledge and innovation center focused on Smart Charging infrastructure in the Netherlands.

Harm van den Brink

Harm.van.den.brink@elaad.nl

Elaadnl

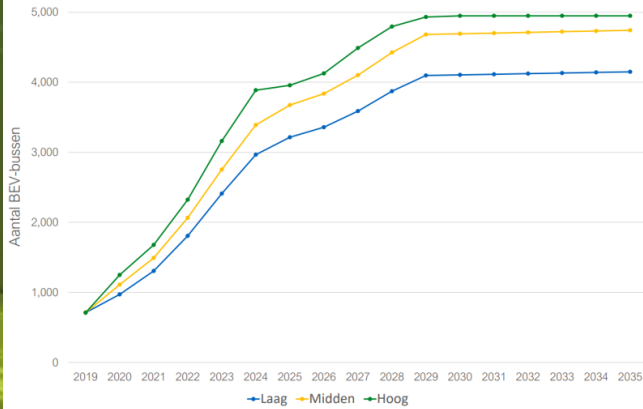
Founded in 2009 by the Dutch grid operators.

- Outlooks
- Smart charging innovation
- Smart charging implementation
- EU largest testing site
 - Interoperability
 - Smart Charging
 - Cyber security
 - PQ
- Promoting open innovation & open protocols
- Tender support

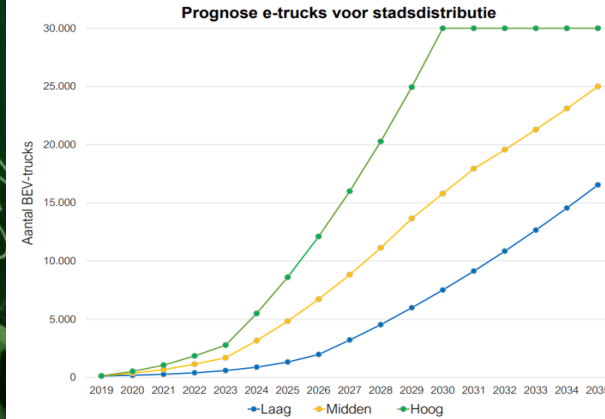


Outlooks

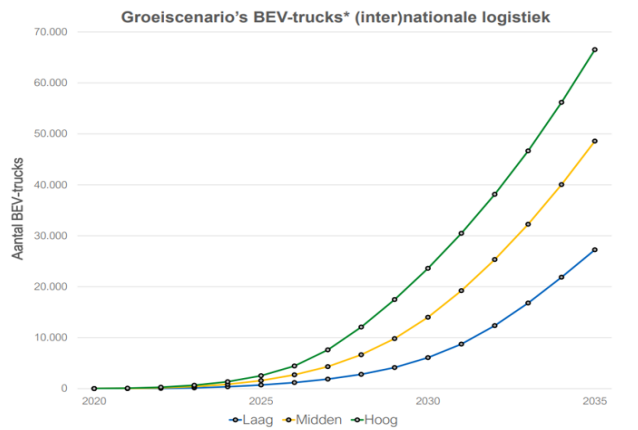
Growth scenario of BEV-busses



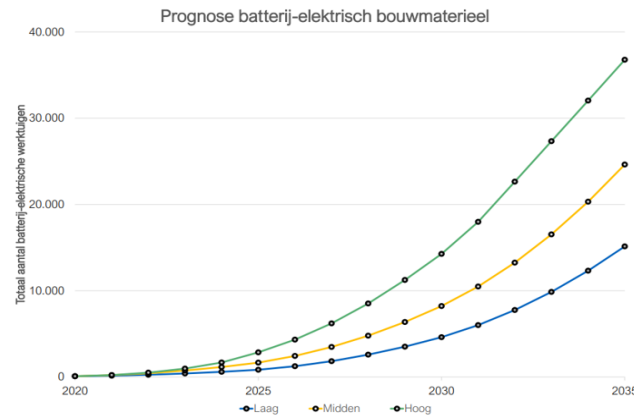
Growth scenario of city-logistics



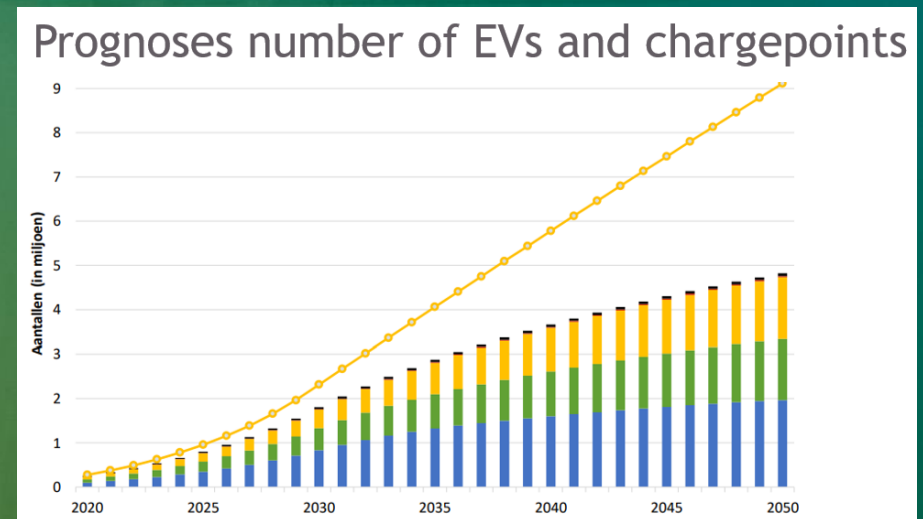
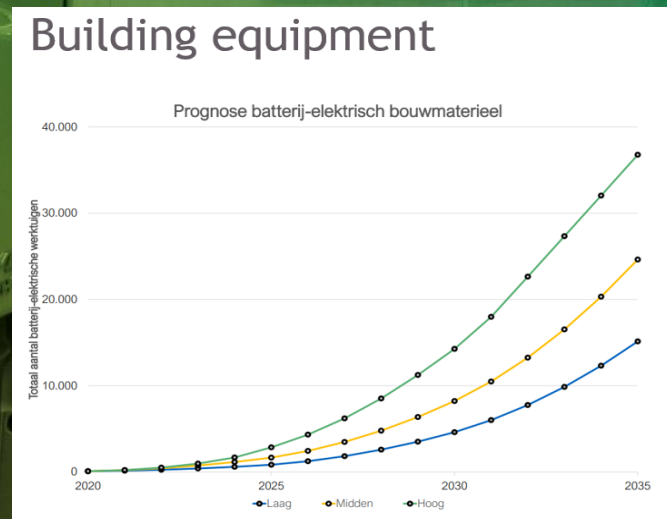
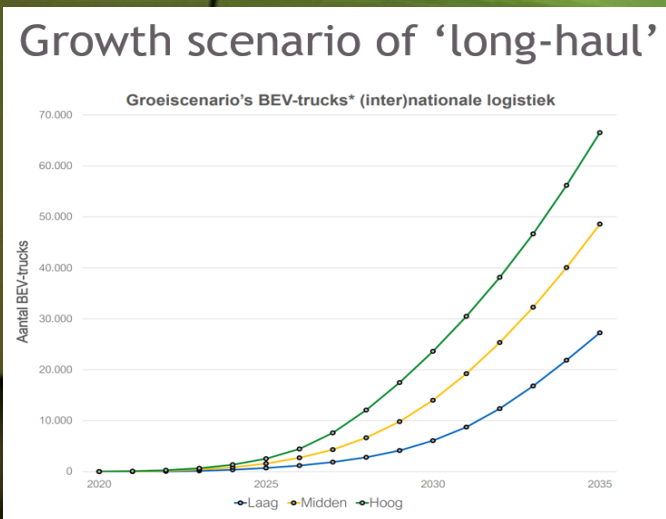
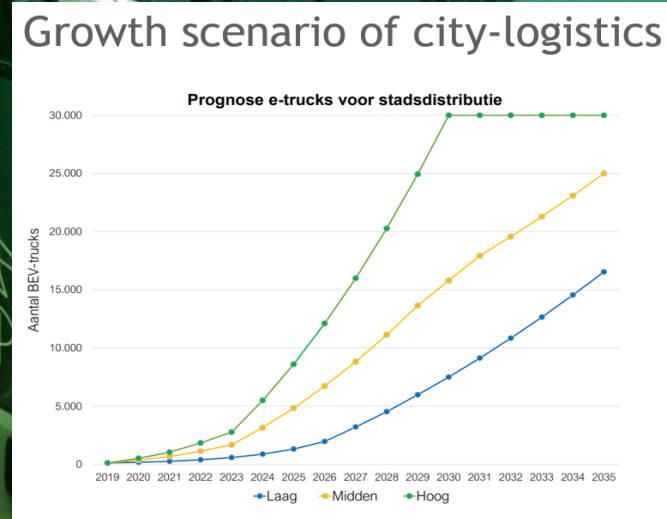
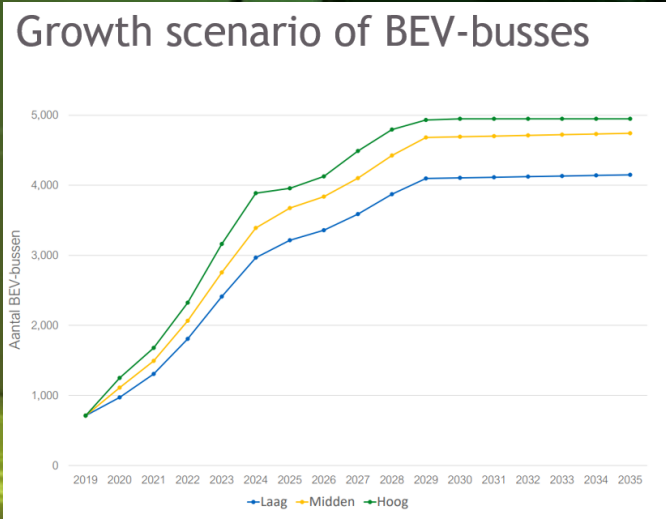
Growth scenario of 'long-haul'



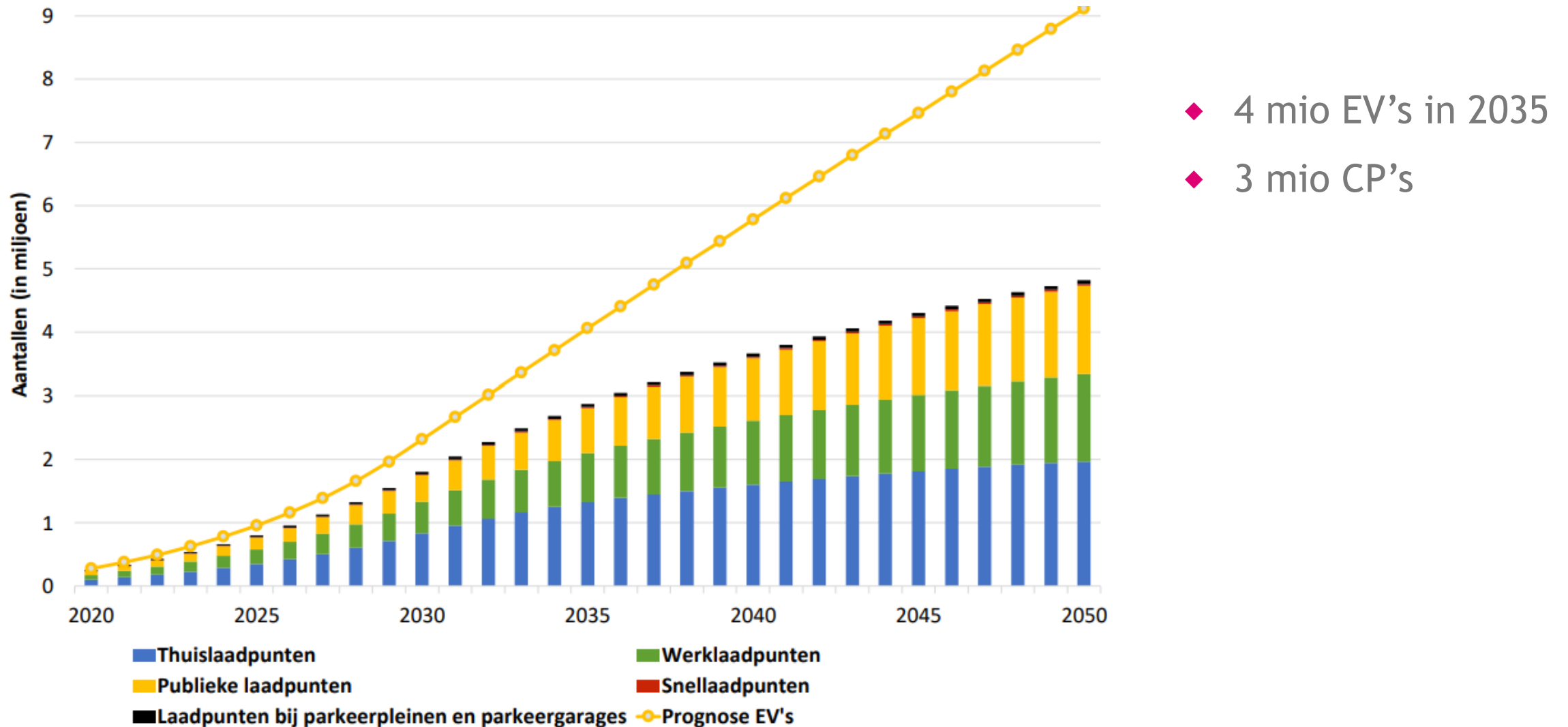
Building equipment



Outlooks



Prognoses number of EVs and chargepoints

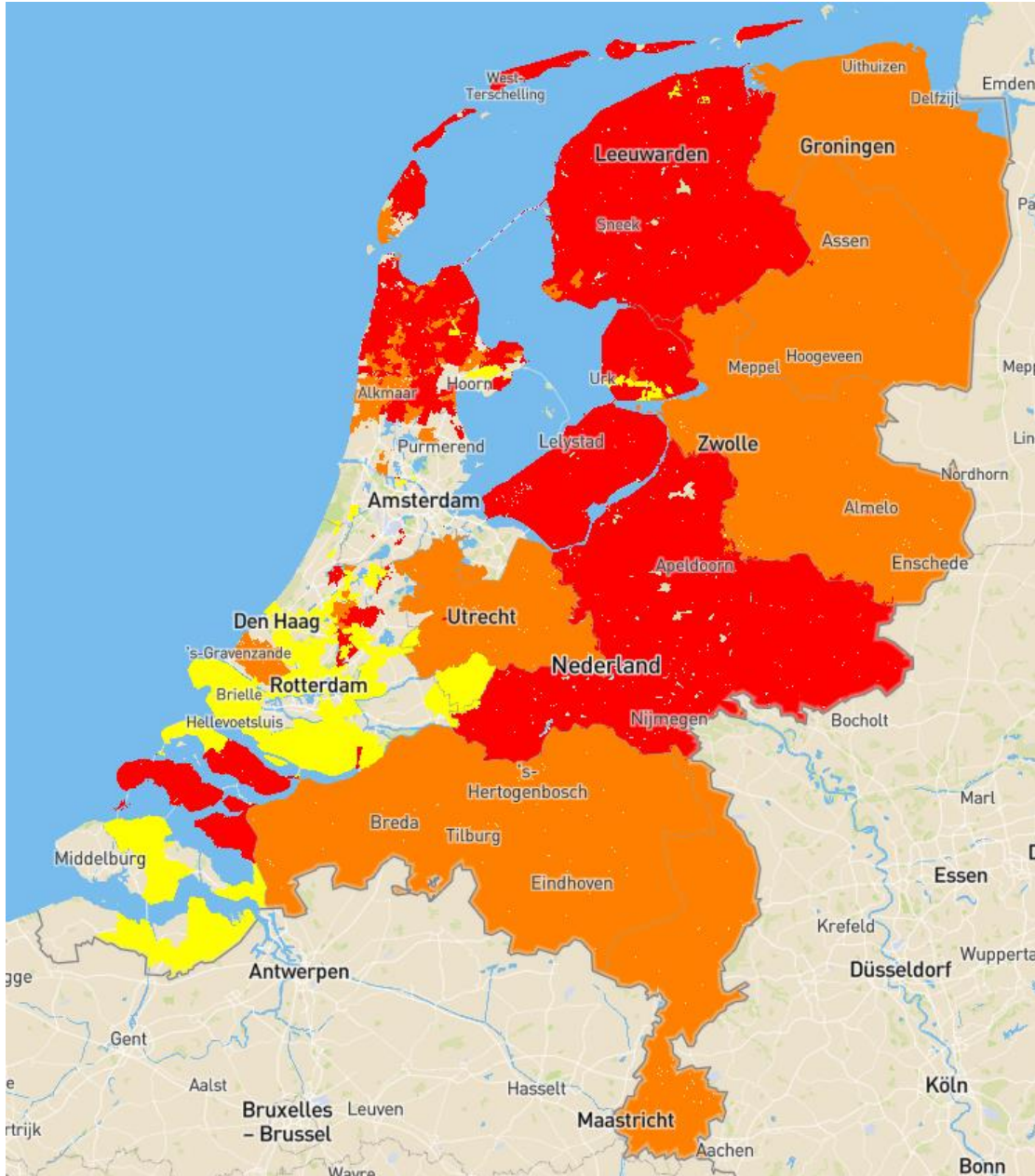


Grid impact

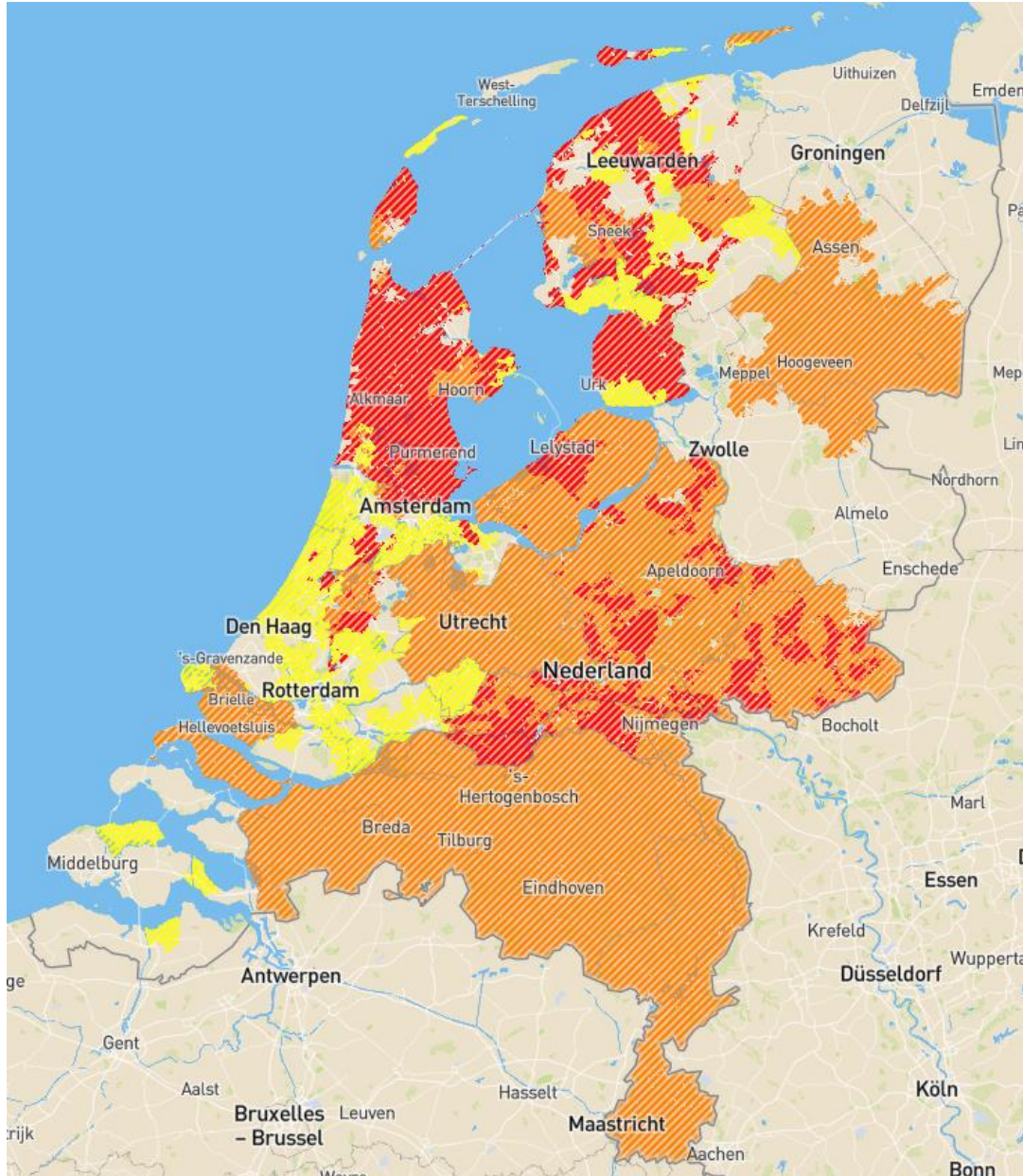
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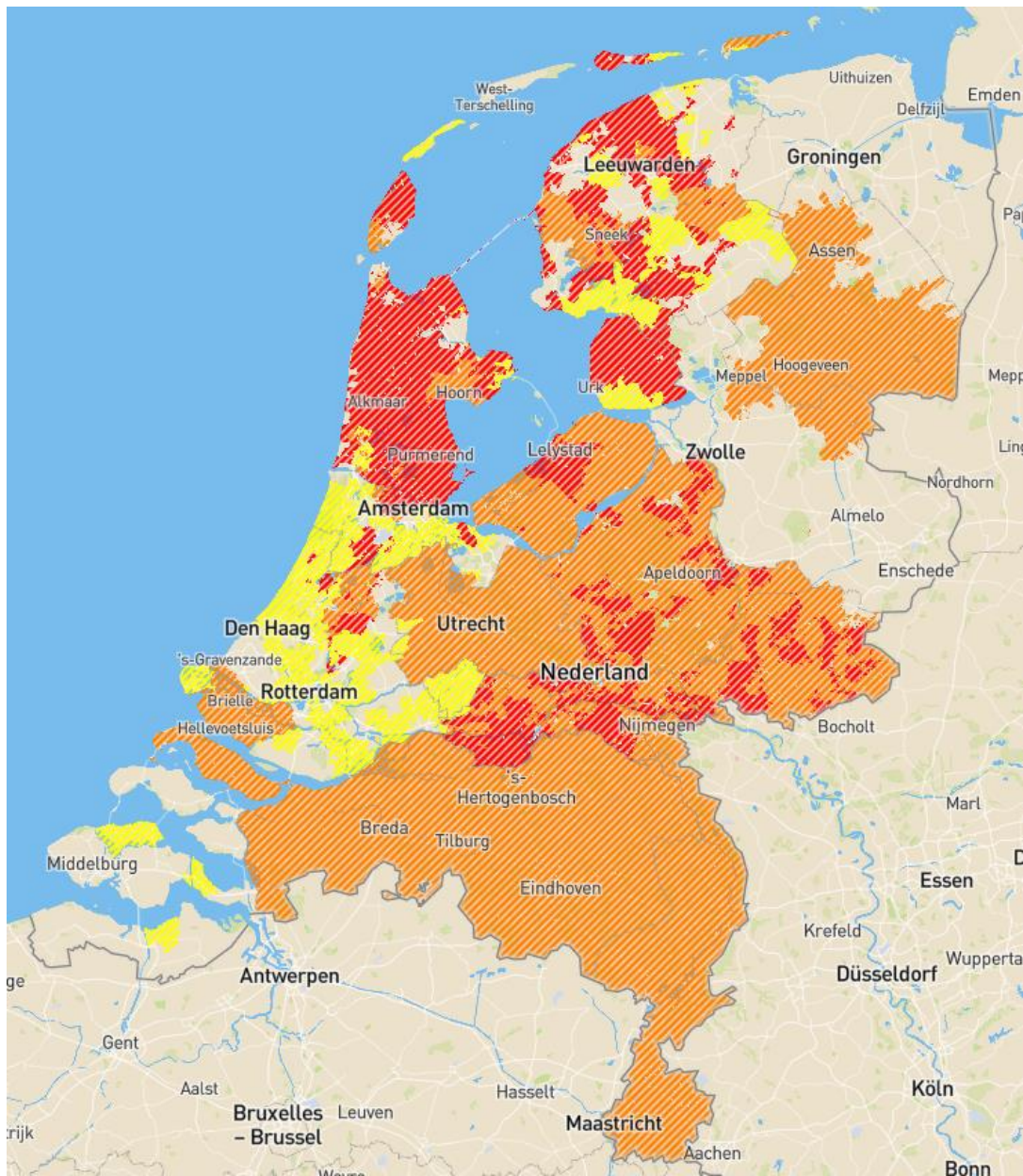
TESTING

Limited transport capacity for feed-in



Limited transport capacity for consumption on higher grid levels

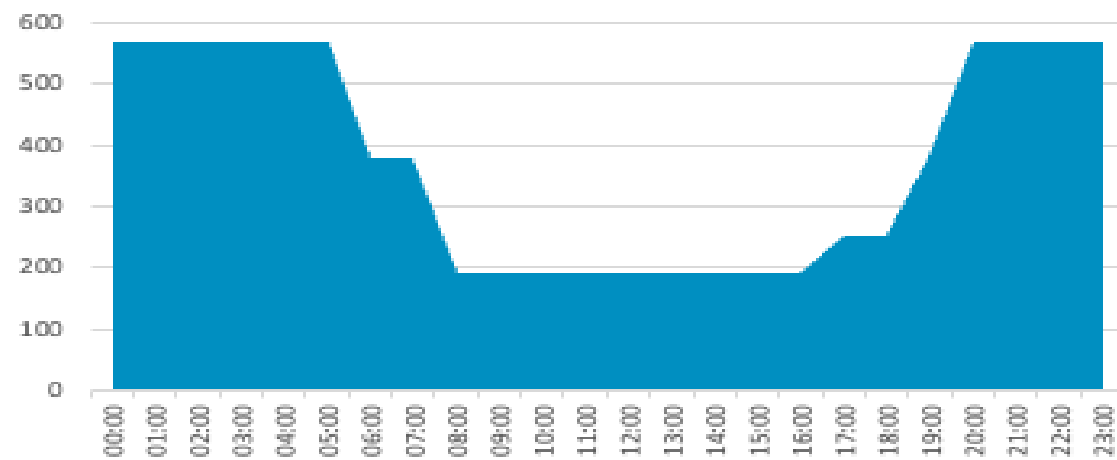




Grid capacity situation on daily basis



New DSO products Non-form capacity agreement



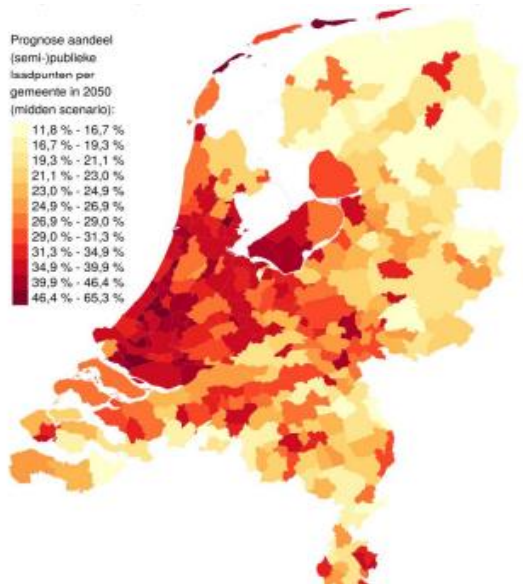
Grid impact of EV charging on LV-level



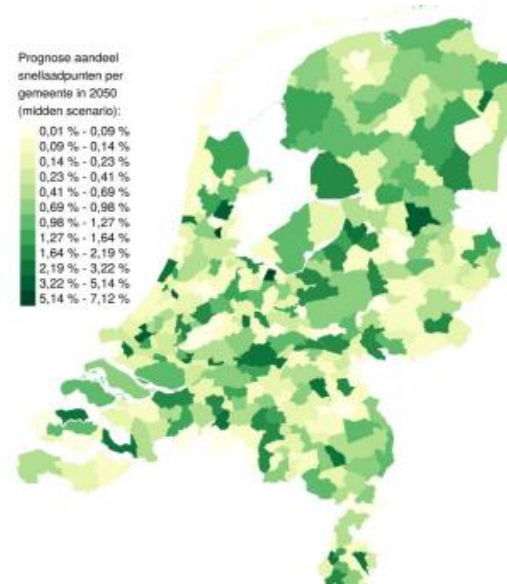
TESTING

Regional spread EV adoption leads to EV hotspots

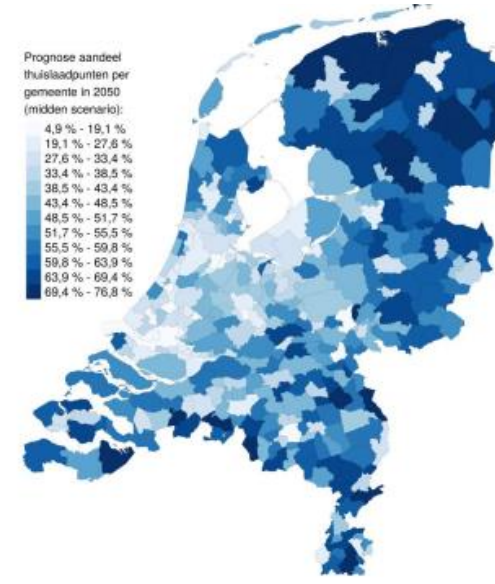
(Semi-) public charging stations (30.1%)



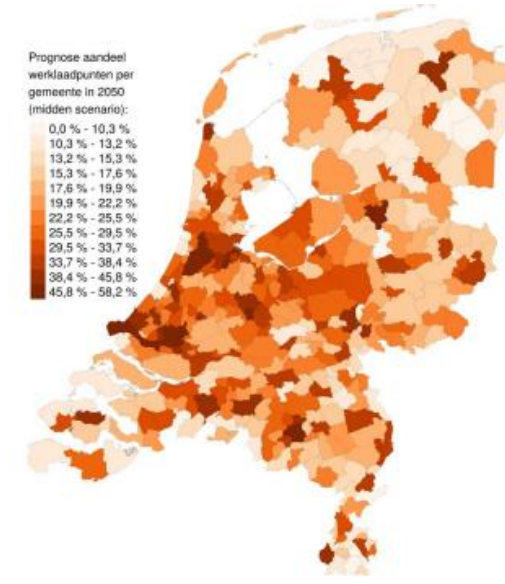
Fastchargers (0.6%)



Charging at home (40.8%)

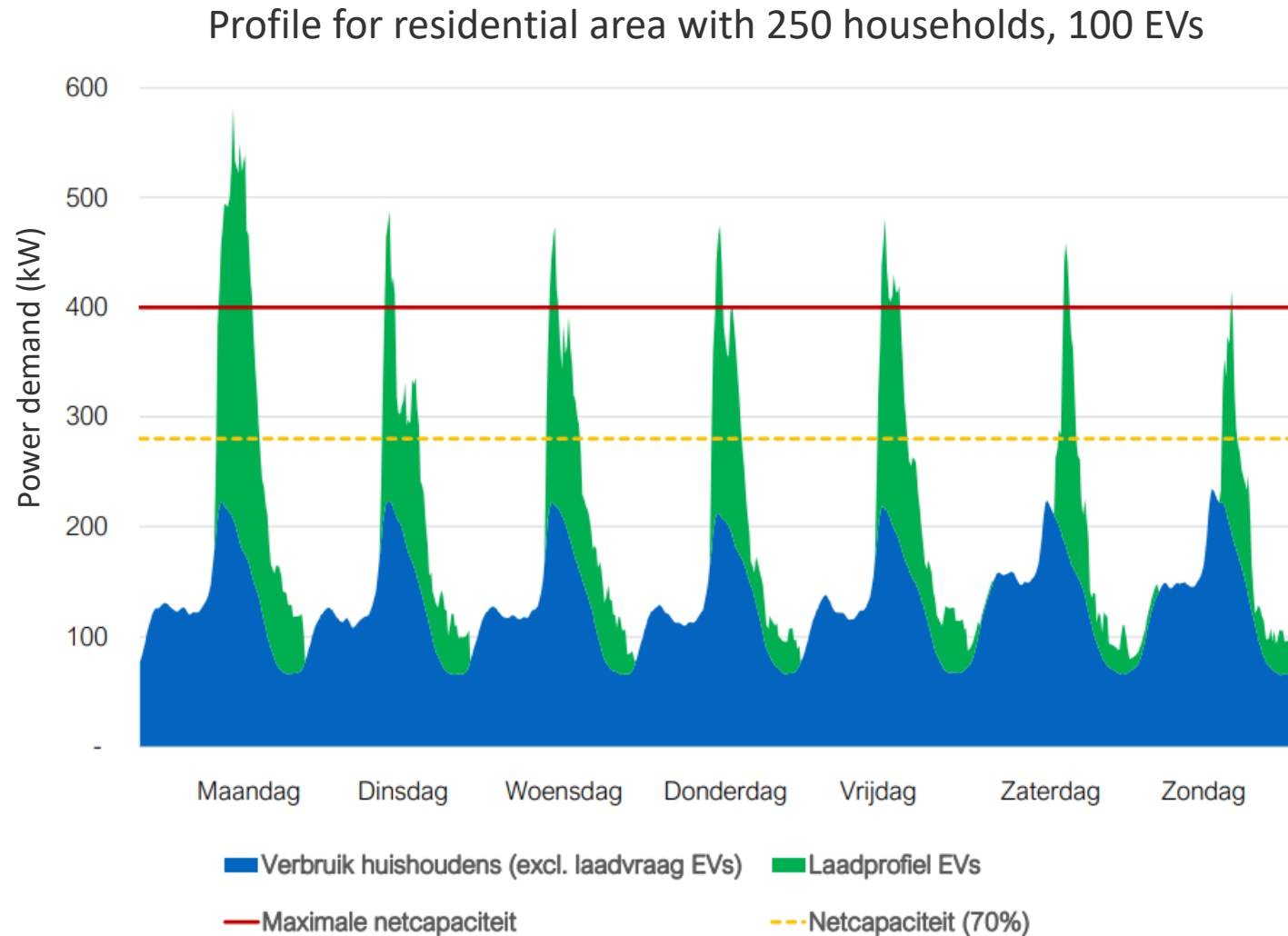


Charging at work (28.4%)



Source: ElaadNL outlook: Elektrificatie van personenauto's tot 2050

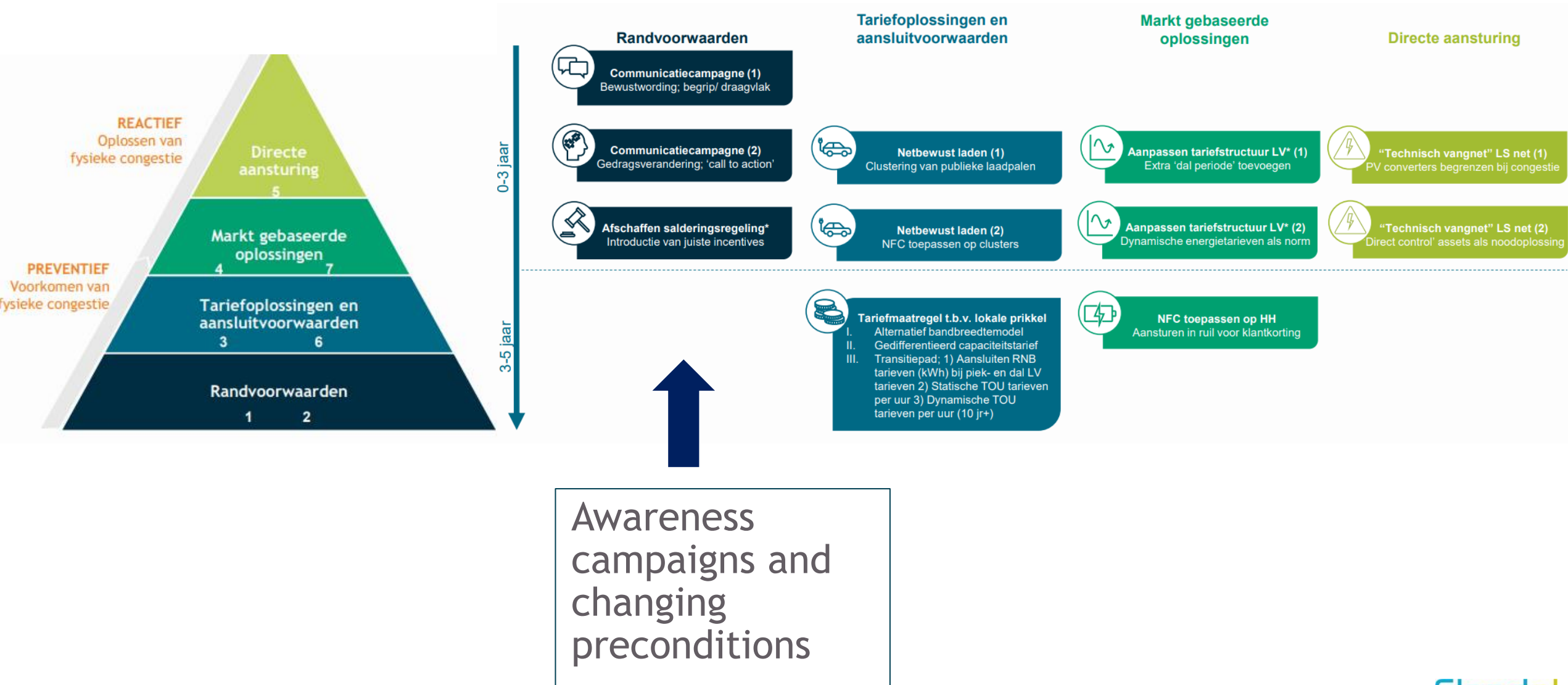
EV peak demand



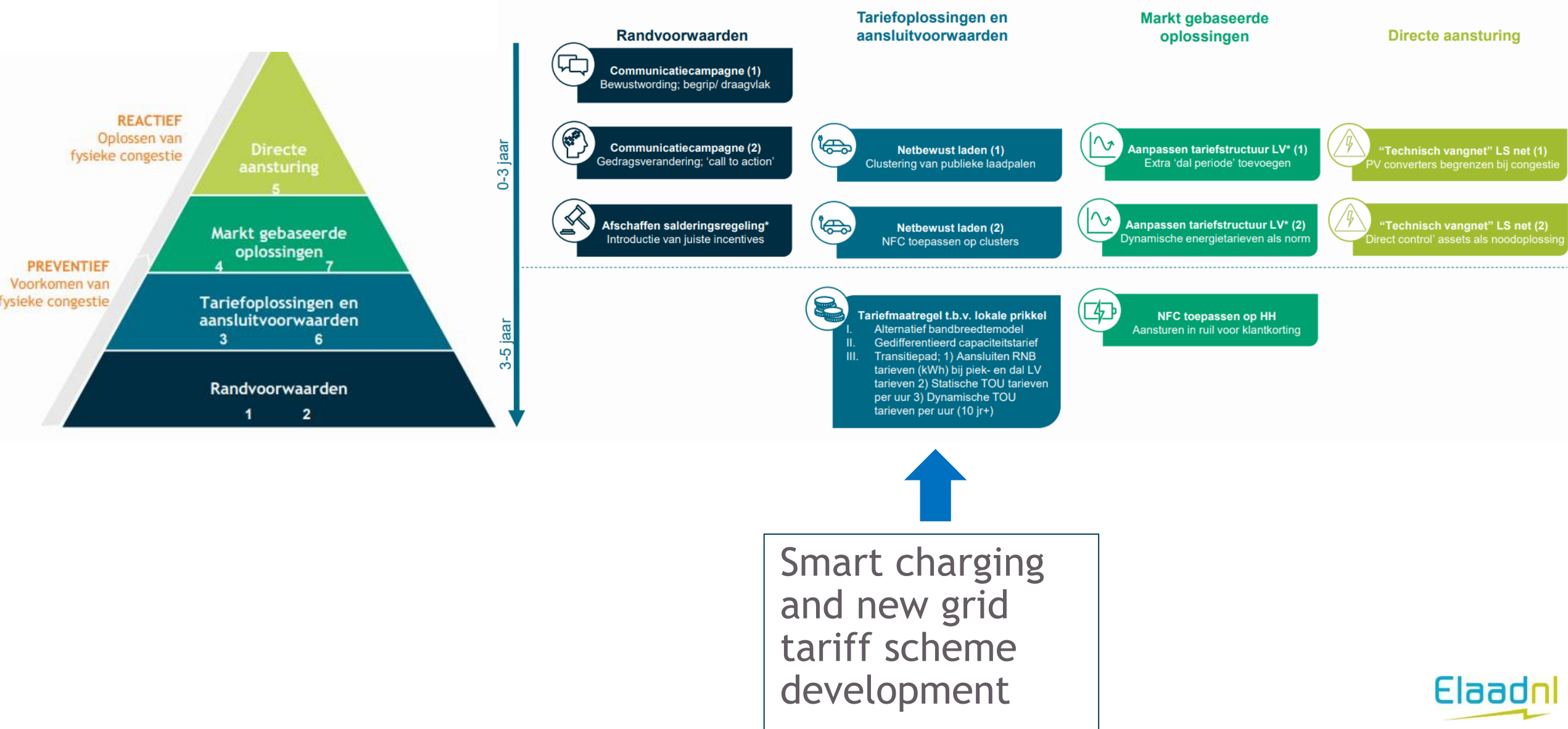
Different measures to prevent and solve LV grid impact in preparation



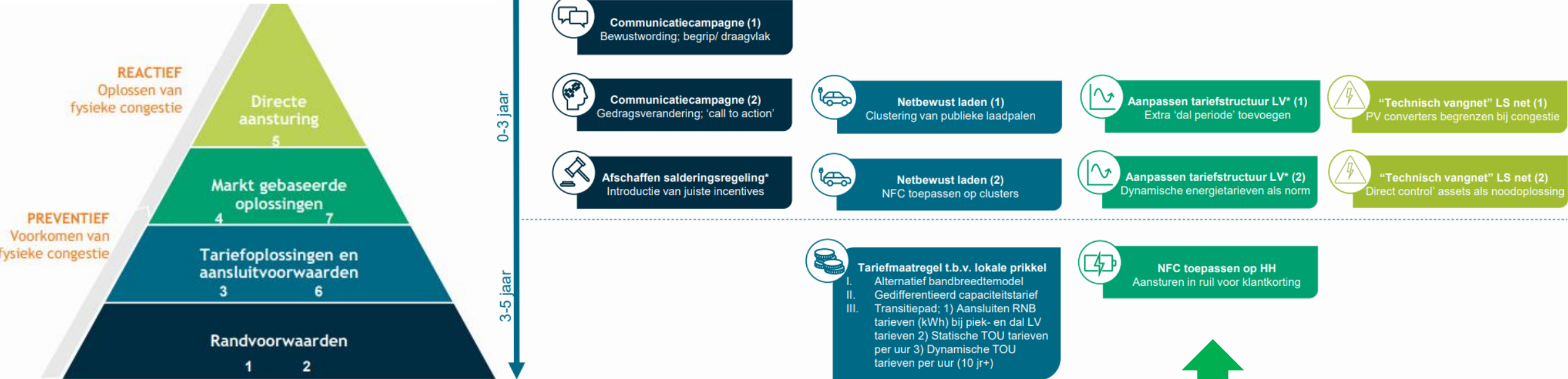
Different measures to prevent and solve LV grid impact in preparation



Different measures to prevent and solve LV grid impact in preparation



Different measures to prevent and solve LV grid impact in preparation



Adapt energy tariff scheme and non-firm capacity on residential level.
DSO-control for certain compensation
(= a.o. smart charging)

Different measures to prevent and solve LV grid impact in preparation



Direct control as a 'grid shield' (for emergency situations)

ElaadNL is involved in the development of all measures



Focus on smart charging for public charge stations

Smart charging and new grid tariff scheme development




Development of

Dynamic grid aware charging with OpenADR

Offers more precise grid reduction

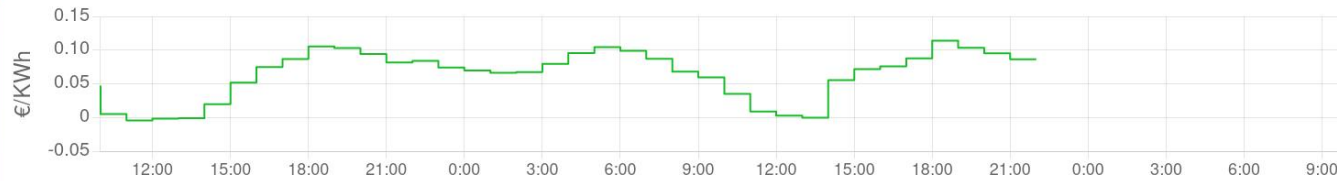
Pilot implementations

- Based on OpenLEADR The logo for OpenLEADR, featuring a stylized network icon with orange and blue nodes and lines, followed by the text "OLF ENERGY" in blue and "openLEADR" in orange and blue.
 - OpenADR to a Home Energy Management System
 - OpenADR to a charging hub

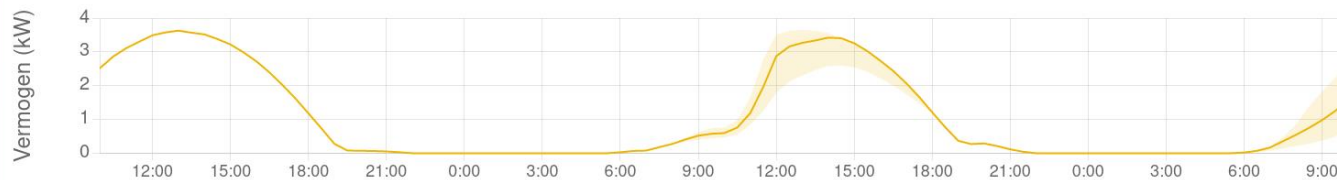
OpenADR and HEMS



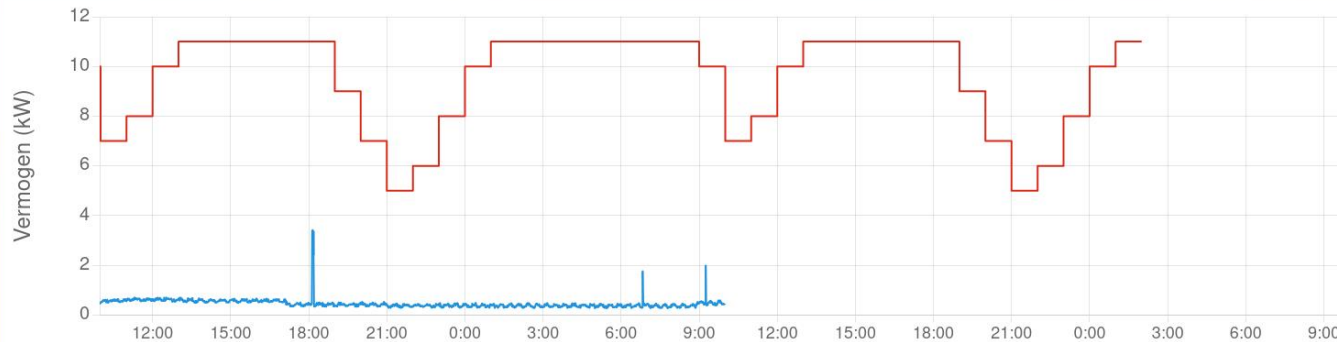
Energiedashboard



↑
€
Dynamische
energieprijs



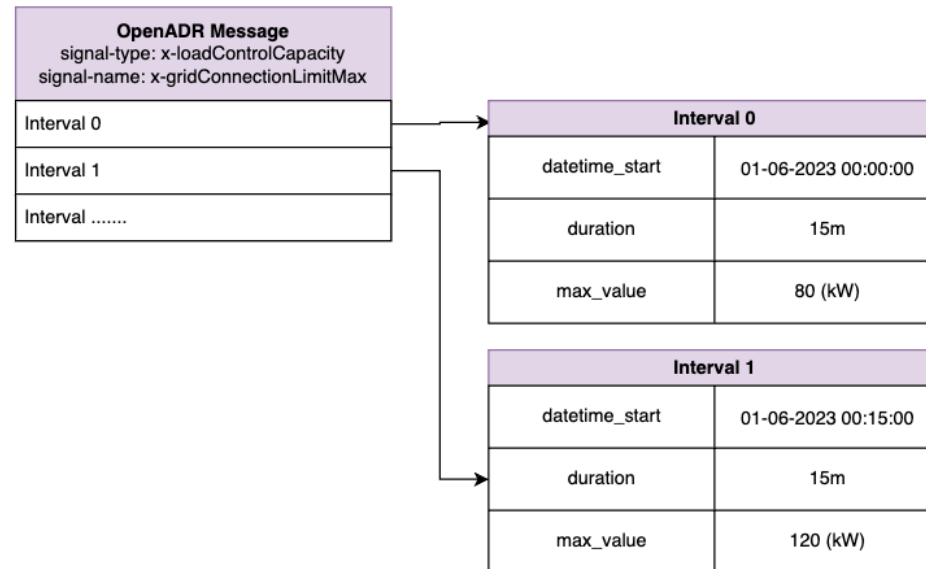
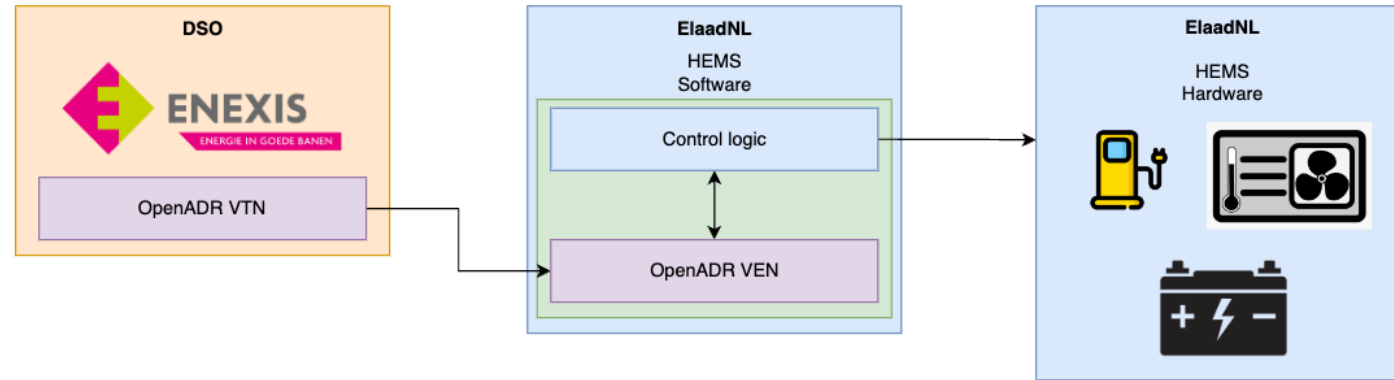
Verwachte
opwek



Maximale
capaciteit

Daadwerkelijk
verbruik

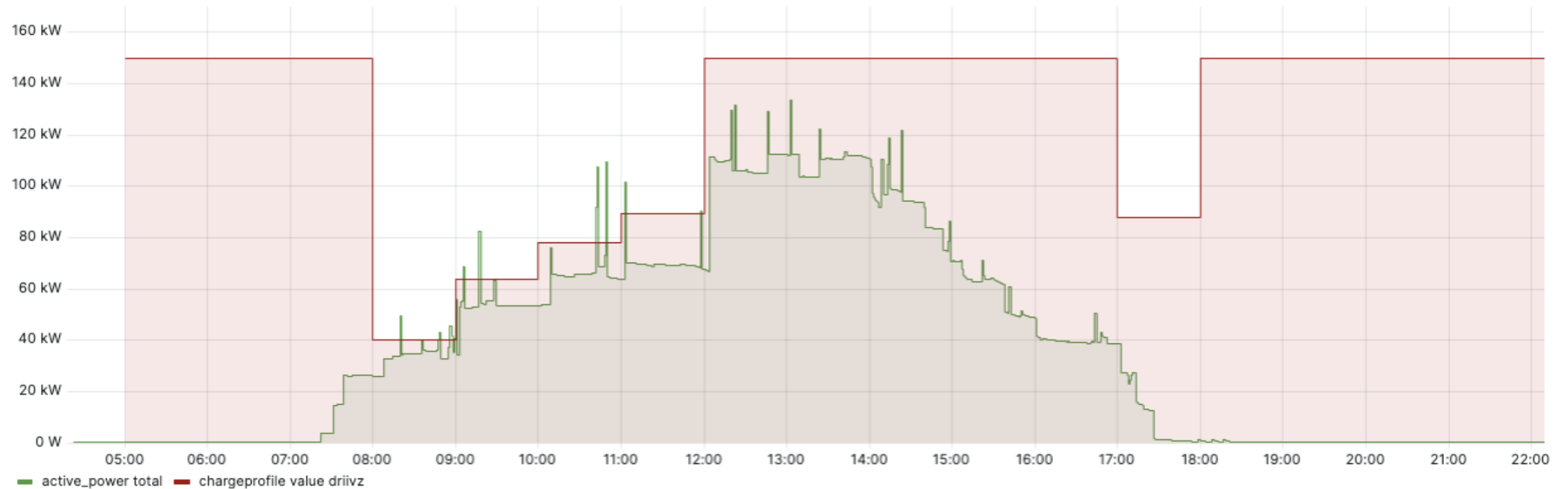
OpenADR and HEMS



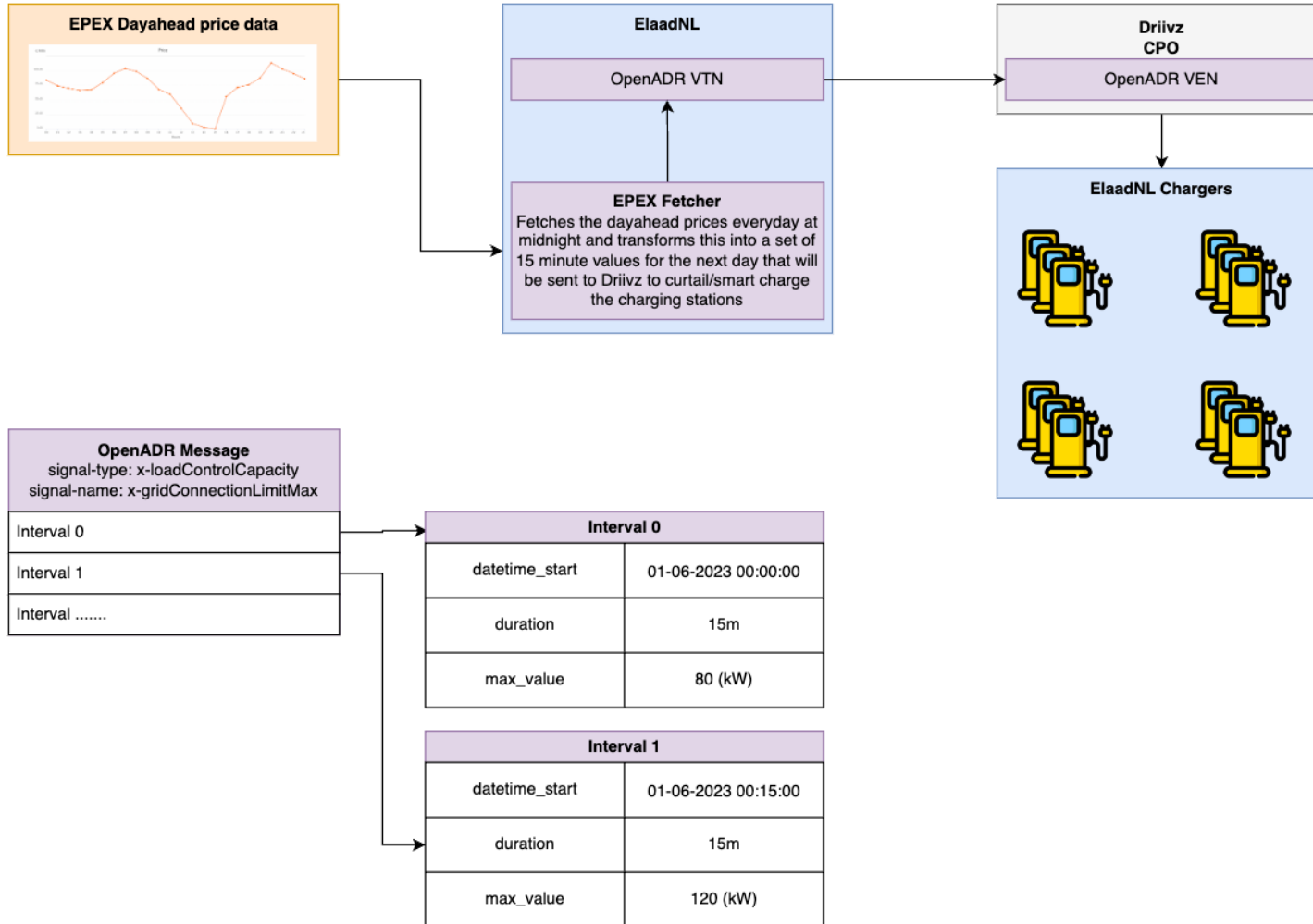
OpenADR and charging EVs



Vermogen laadplein



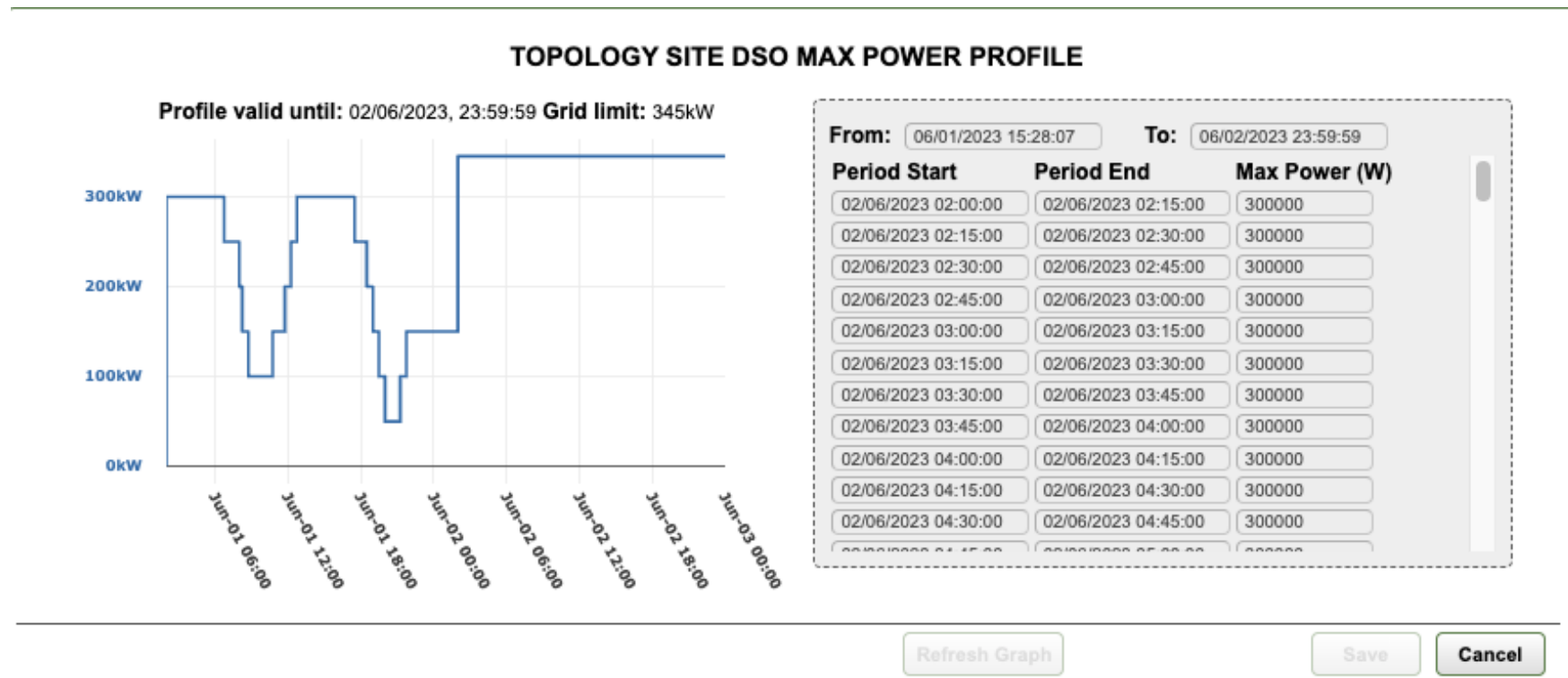
OpenADR and charging EVs





OpenADR and charging EVs

Driivz charge point operator backend





Questions