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Sustainable change.



Charging Infrastructure – How to pick-up speed?

Cologne, 22–23 May 2024



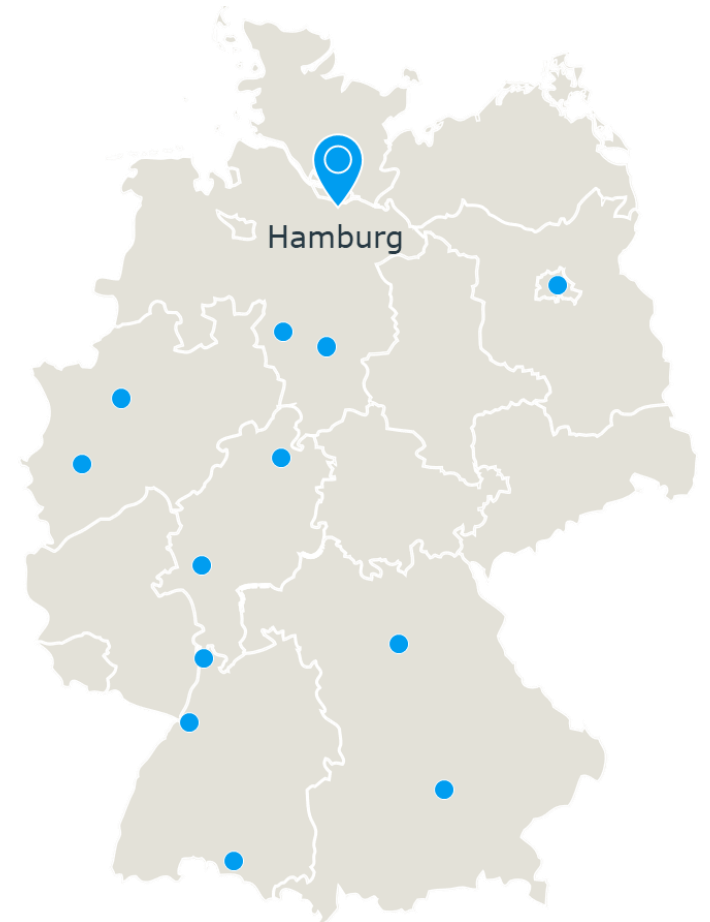
Ramboll is a global architecture, engineering and consultancy company with more than 18,000 experts, creating sustainable solutions for governments and companies.

- Over 1,200 experts across 13 sites in Germany
- Full-spectrum international expertise in real estate, energy, water, transport, industrial, resource & waste, government & public, finance & investment and technology sectors
- 2,3 Mrd EUR revenue in 2023
- Foundation-owned since 1972

Geographical footprint



- Ramboll presence
- Ramboll office



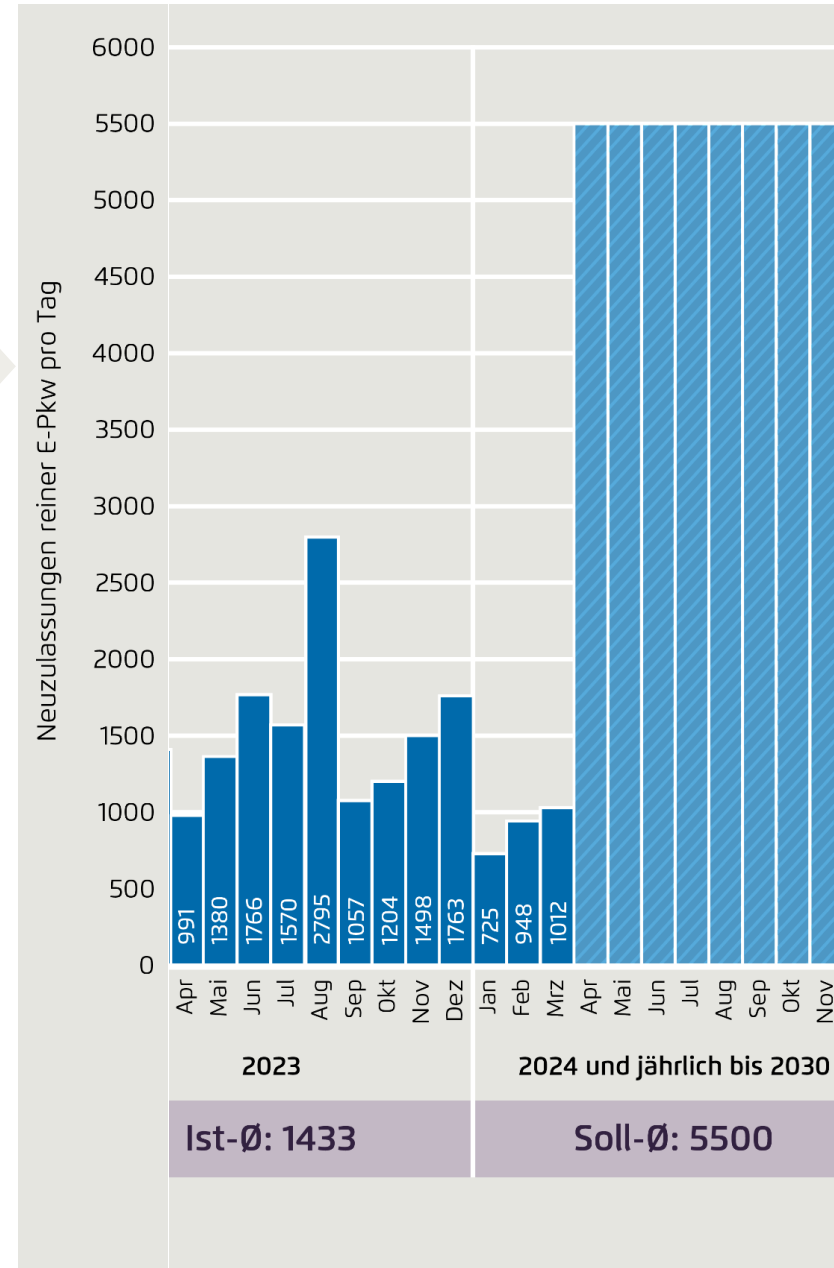
Our Service Portfolio in Sustainable Mobility



The Charging Infrastructure Landscape

Field of discussion

Ramp-up of electric cars in Germany and Europe



The Charging Infrastructure Landscape

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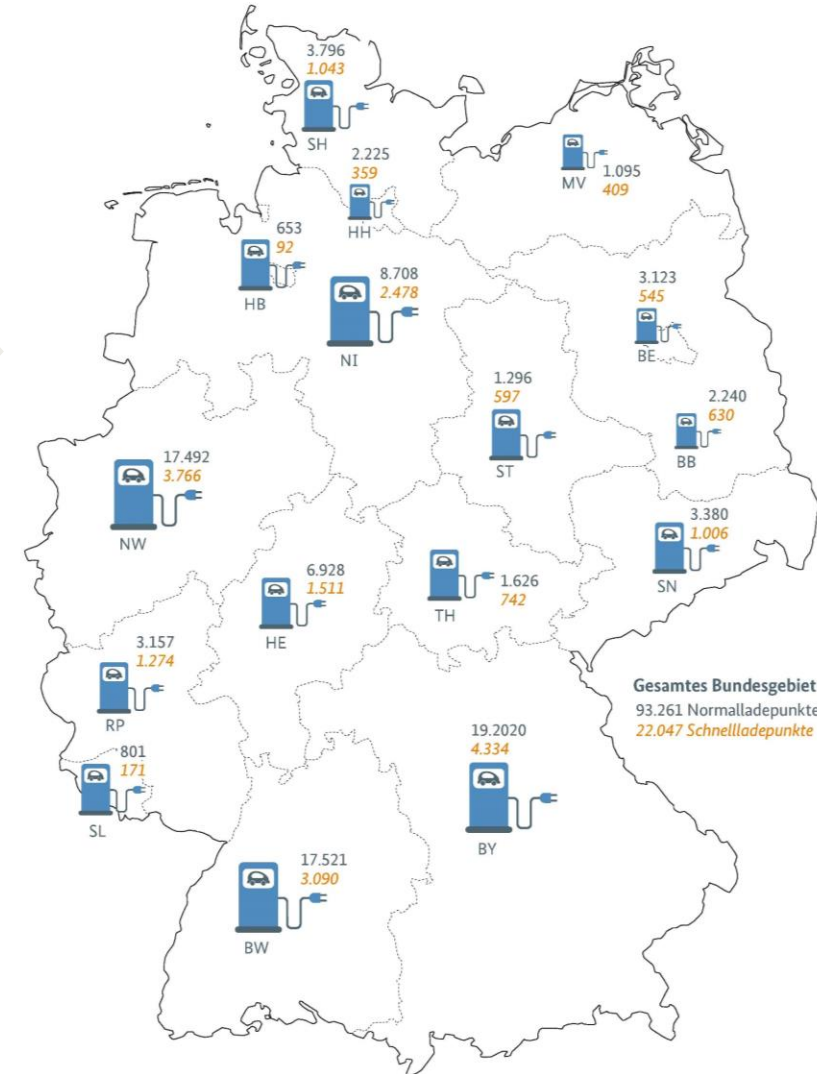
Ramp-up of electric cars in Germany and Europe

Building public charging infrastructure in Germany



Verteilung der öffentlich zugänglichen Ladepunkte auf die Bundesländer

Stand: 11/2023



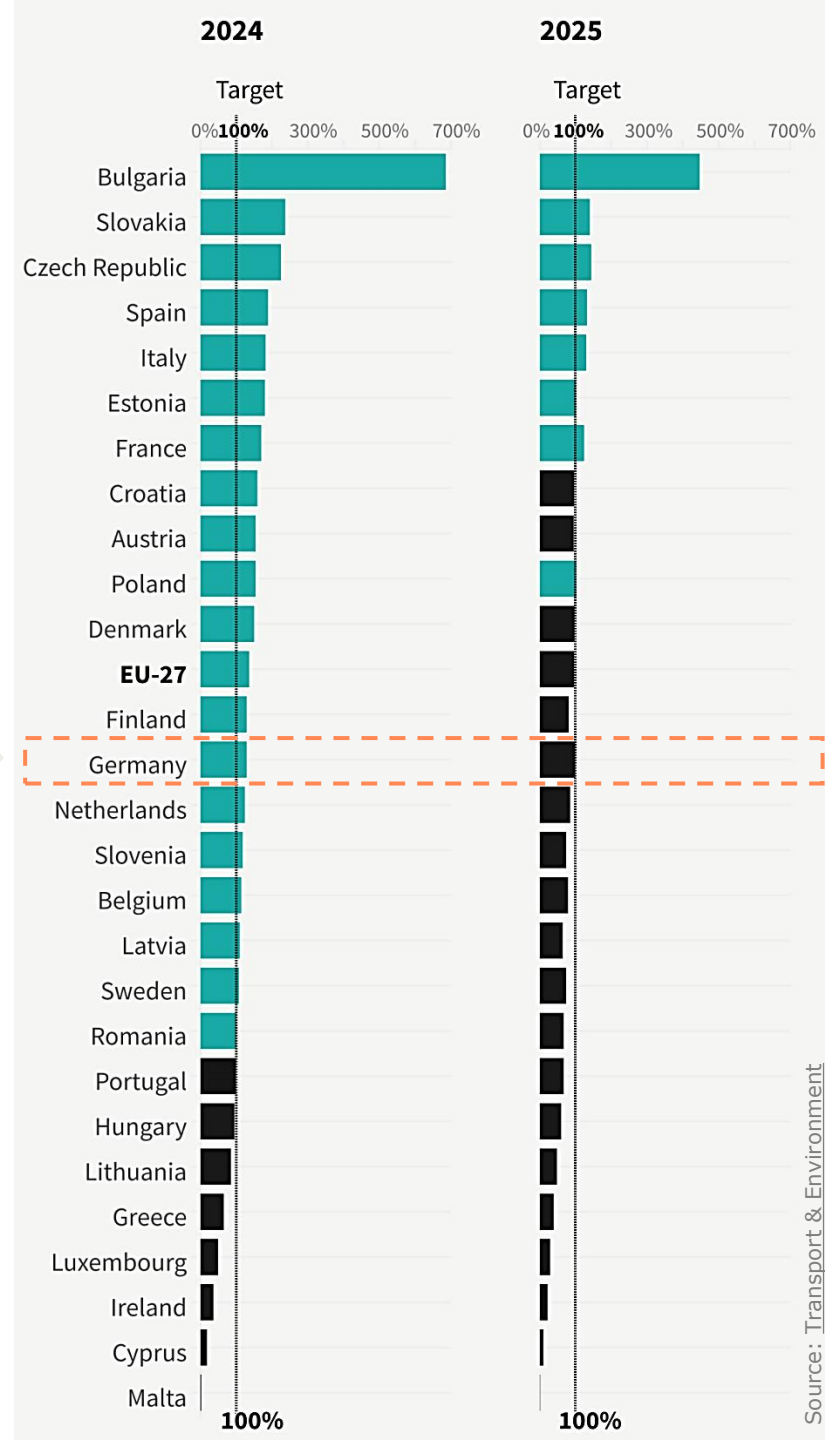
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*Ladesäulenverordnung (LSV) and
Alternative Fuels Infrastructure Regulation (AFIR)*



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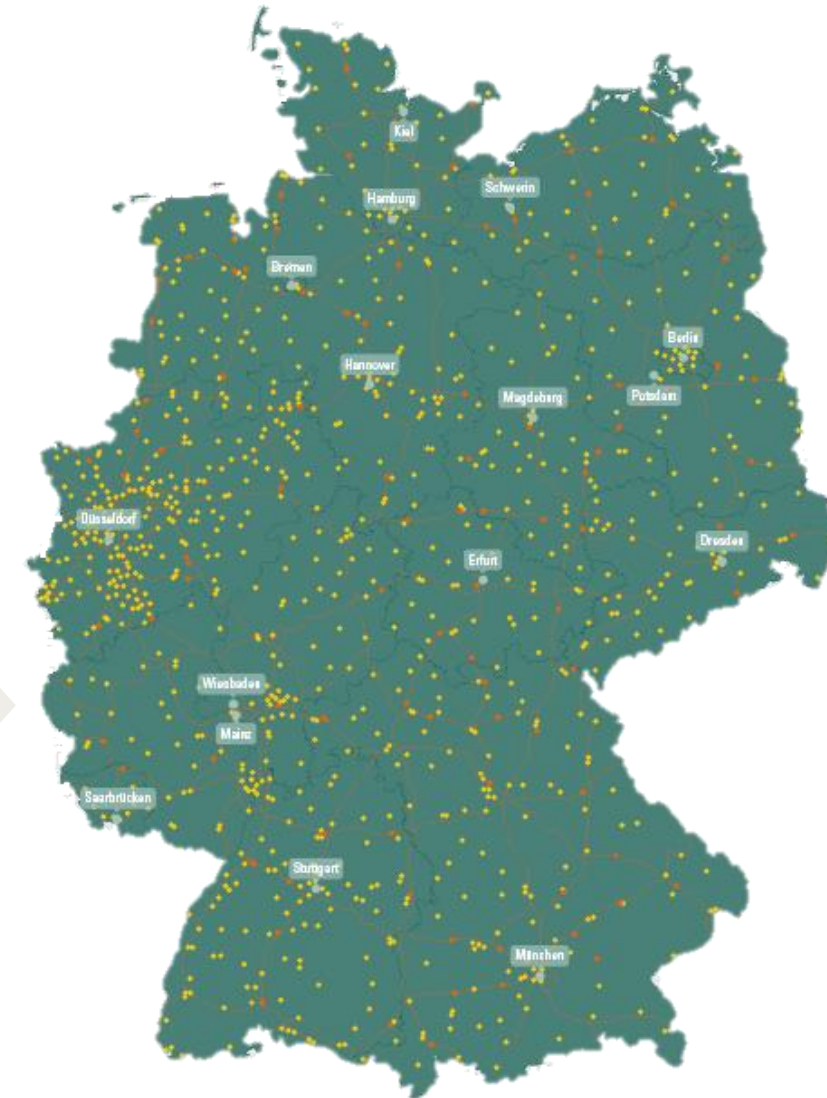
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Deutschlandnetz till 2026



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Deutschlandnetz till 2026:
9,000 fast charging points at approx. 1,000 locations

Germany has approx. 11,000 communes



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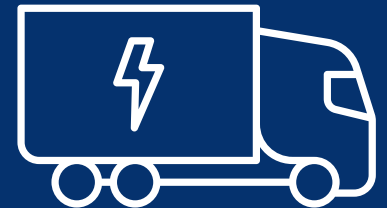
Building public charging infrastructure in Germany

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Deutschlandnetz till 2026:
9,000 fast charging points at approx. 1,000 locations

Germany has approx. 11,000 communes,
incl. approx. 2.050 cities, incl. approx. 80 large cities

Passenger car segment, but also truck segment



The Danish context

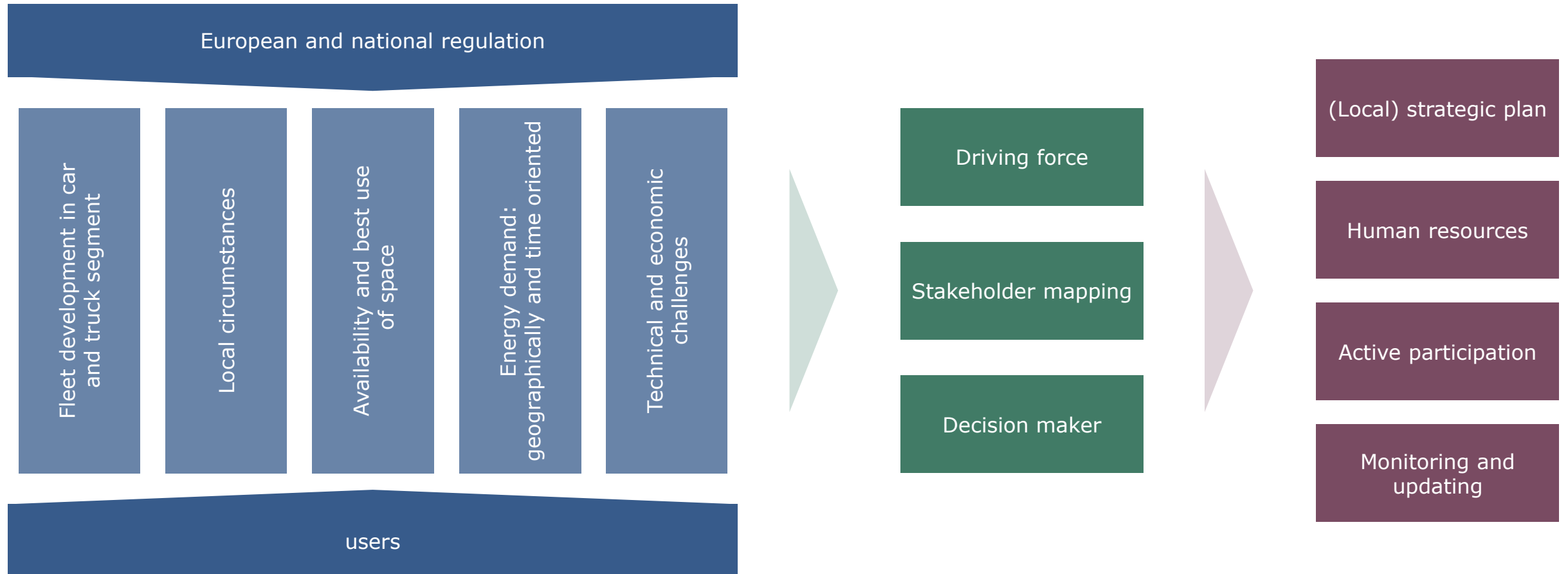
Anno 2021

The burning platform:

- **Project DK2020:** 95 of 98 Danish municipalities have engaged to work with the C40's international standard 'The Climate Action Planning Framework' (CAPF)
- The transport sector as the problem child
- A wider adoption of the EVs will not be possible without an **appropriate charging infrastructure**
- **Energy Performance of Buildings Directive:**
 - Existing non-residential building with more than 20 parking spaces: at least 1 charging point before 2025 – **"GEIG"**
- How do the municipalities ensure enough, efficient and appropriate EV charging infrastructure?

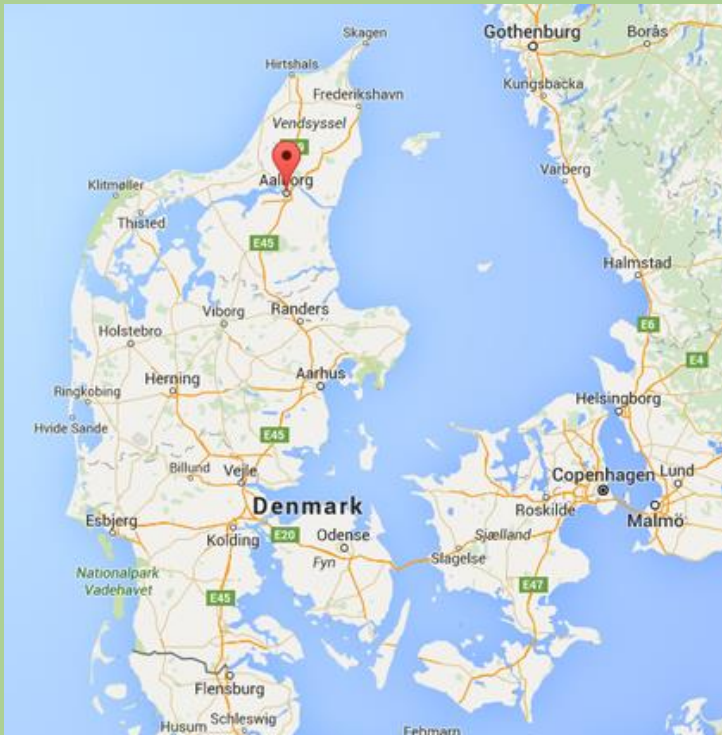
Strategic plan

from challenge to solution



Aalborg, Denmark

- 4th biggest city in Denmark
- 120.000 inhabitants
- 139 m² surface expansion



Project objective

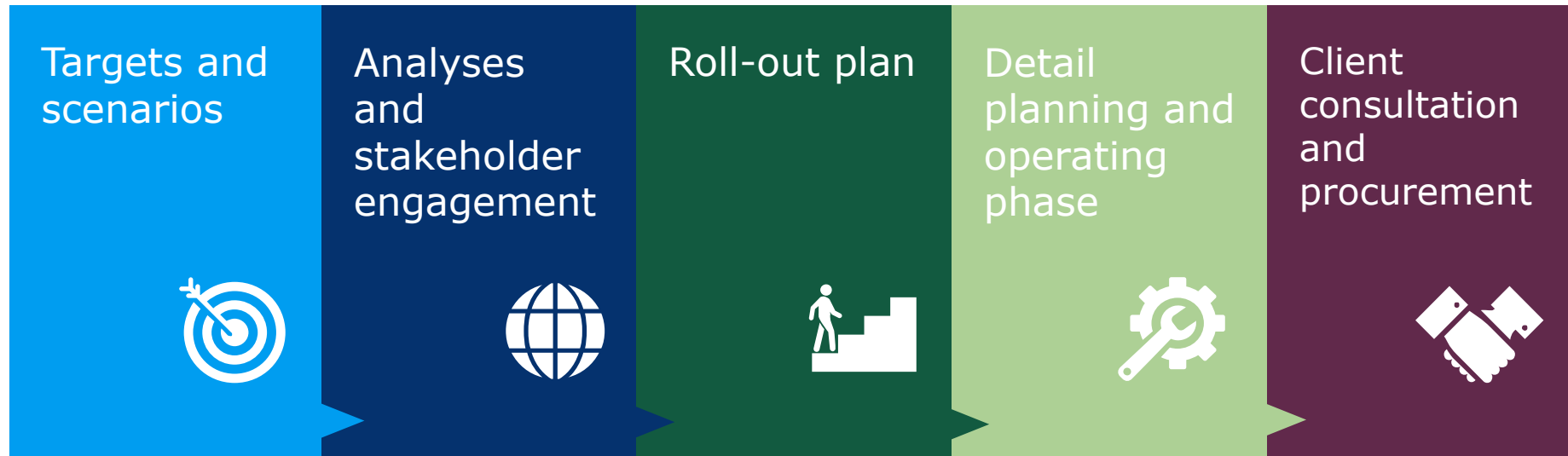
The assignment from the Danish Road Directorate:

"This handbook should provide guidance on how to plan for the establishment of infrastructure for electricity charging stations in the public urban space. The task must primarily focus on charging facilities for everyday charging for citizens without the possibility of home charging."



Our approach to eMobility planning

From strategy...



...to implementation



Step 1	Plans, objectives & goals as well as circumstances	Chapter 5
Step 2	Municipality's role considering stakeholders' plans	Chapter 6
Step 3	Demand for publicly available charging infrastructure	Chapter 7
Step 4	Mapping existing, planned and expected publicly available chargers and any gaps in the charging network	Chapter 8
Step 5	Making a roll-out plan for charging infrastructure	Chapter 9
Step 6	Making tender material and setting requirements	Chapter 10
Step 7	Specific locations and design at charging sites	Chapter 11

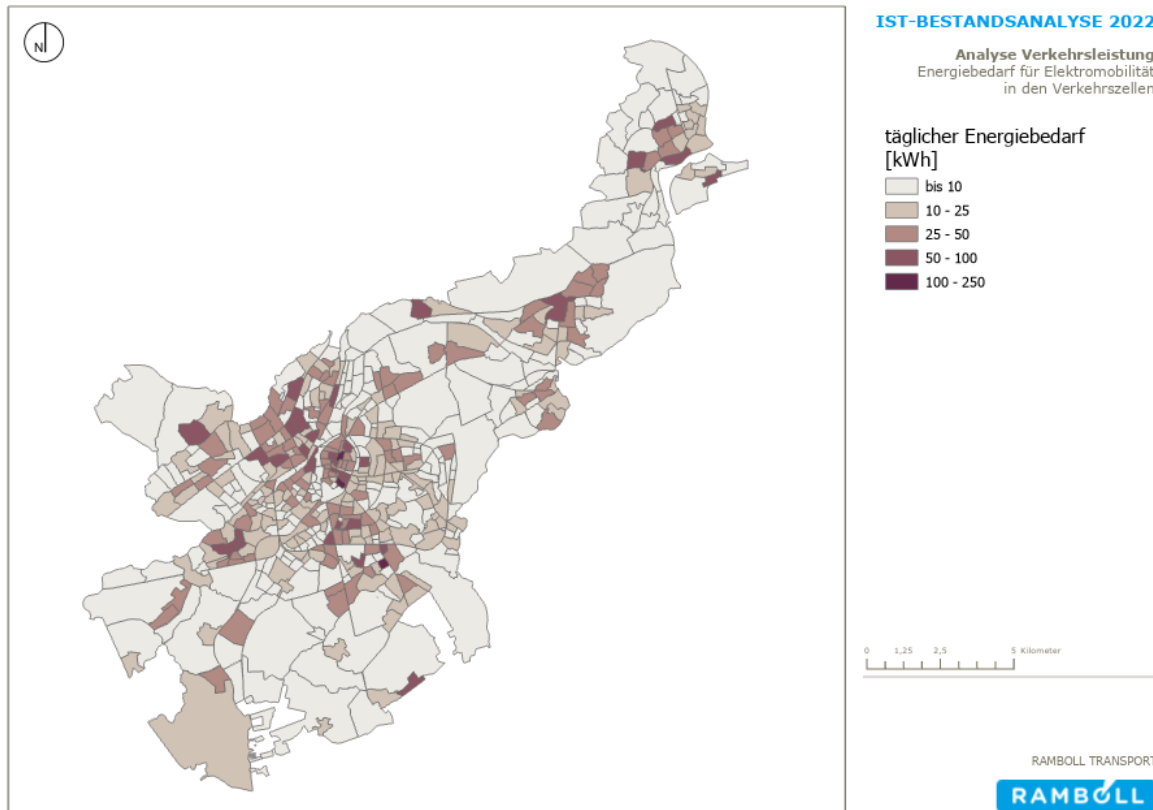
DOWNLOAD HANDBOOK



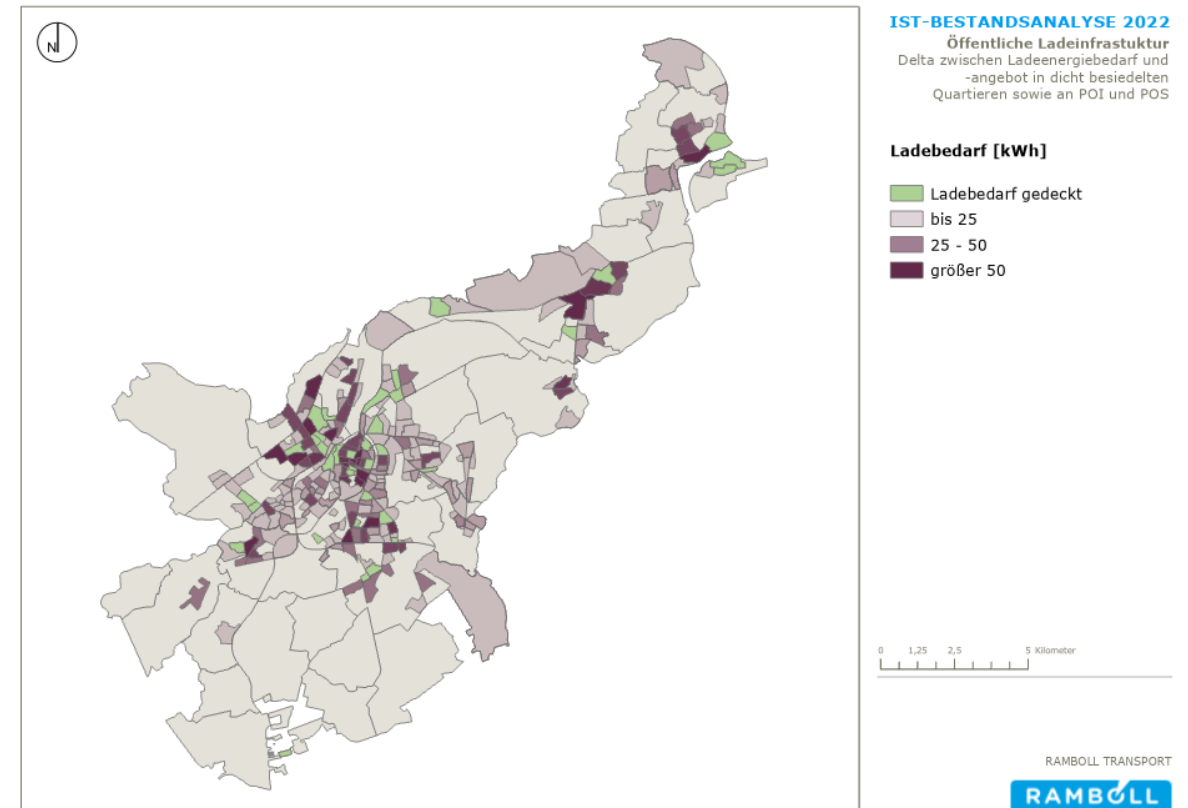
German Example

Step 1: Current situation

Transport performance



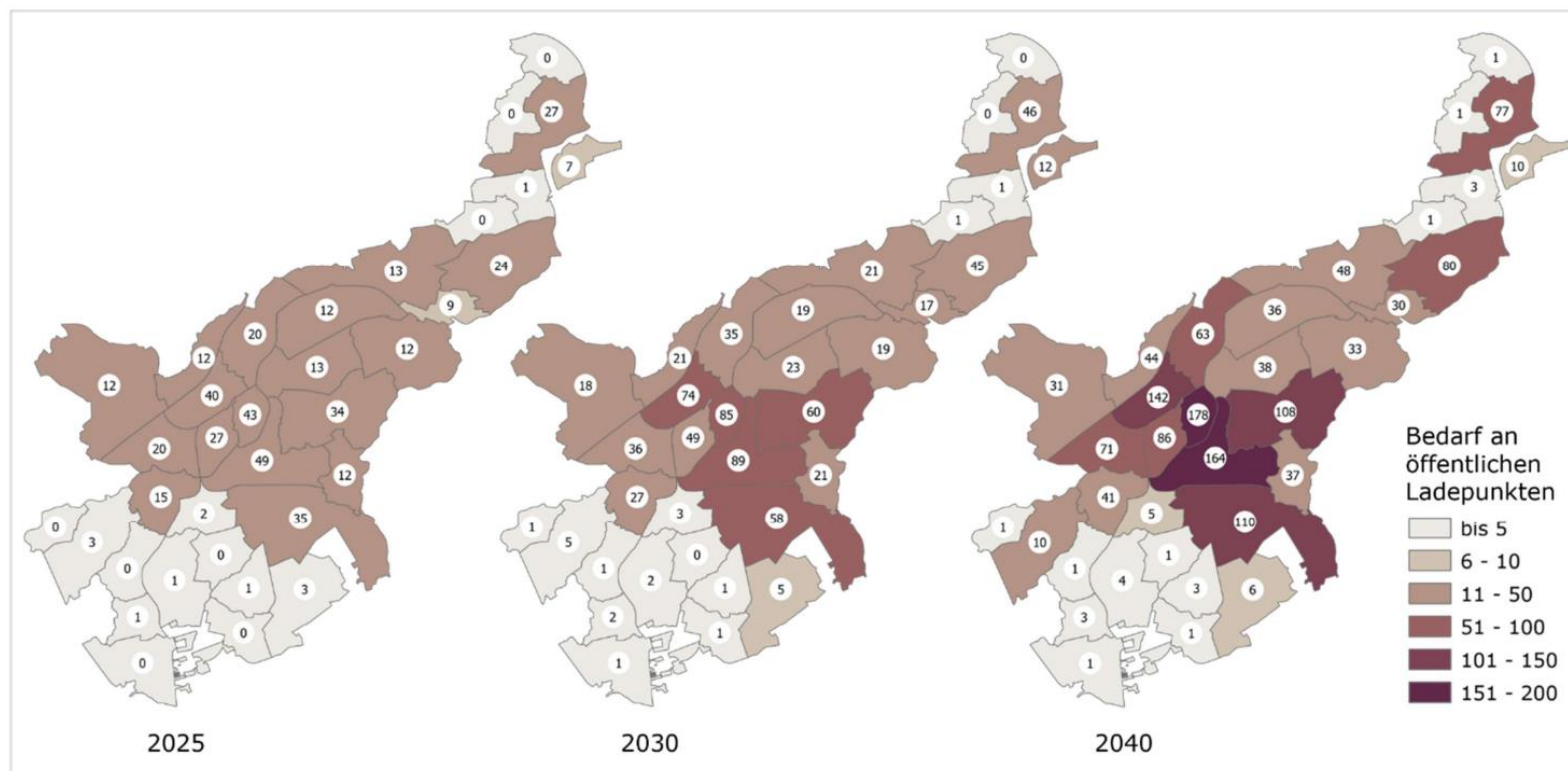
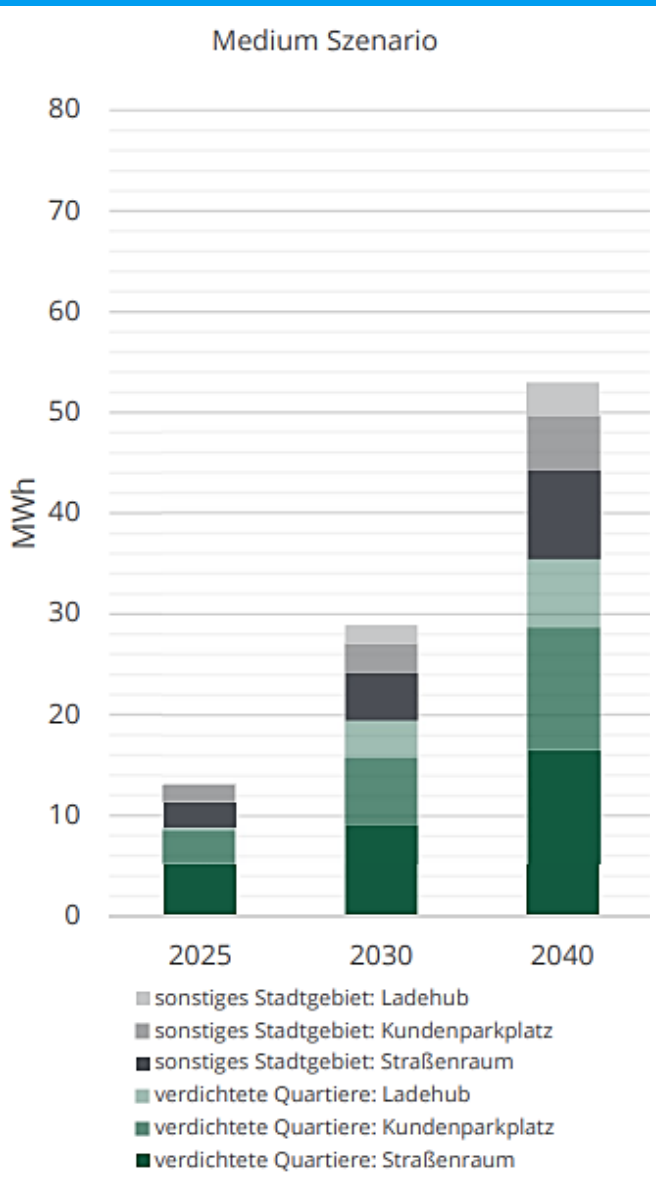
Charging demand vs. charging performance



German Example

Step 2: Demand

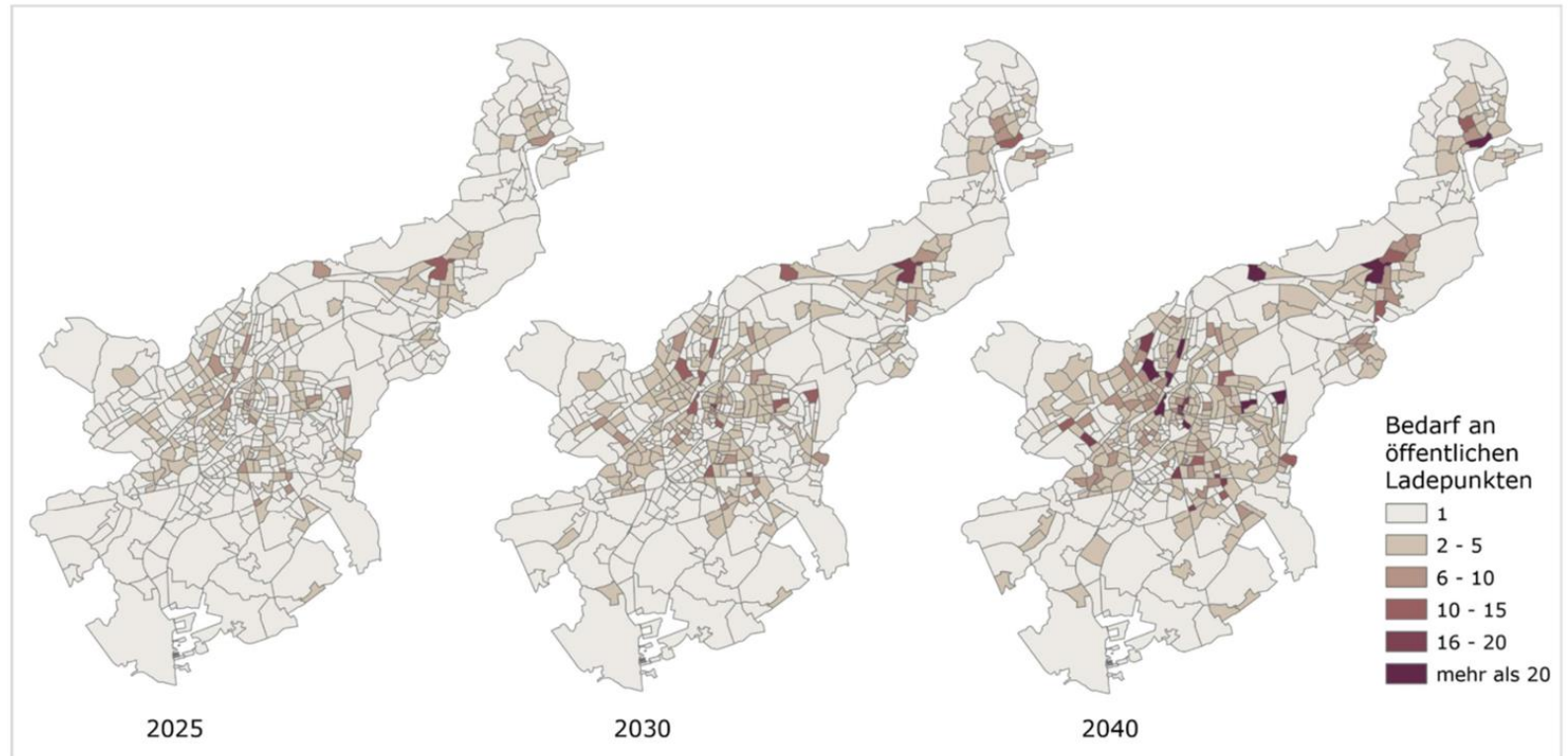
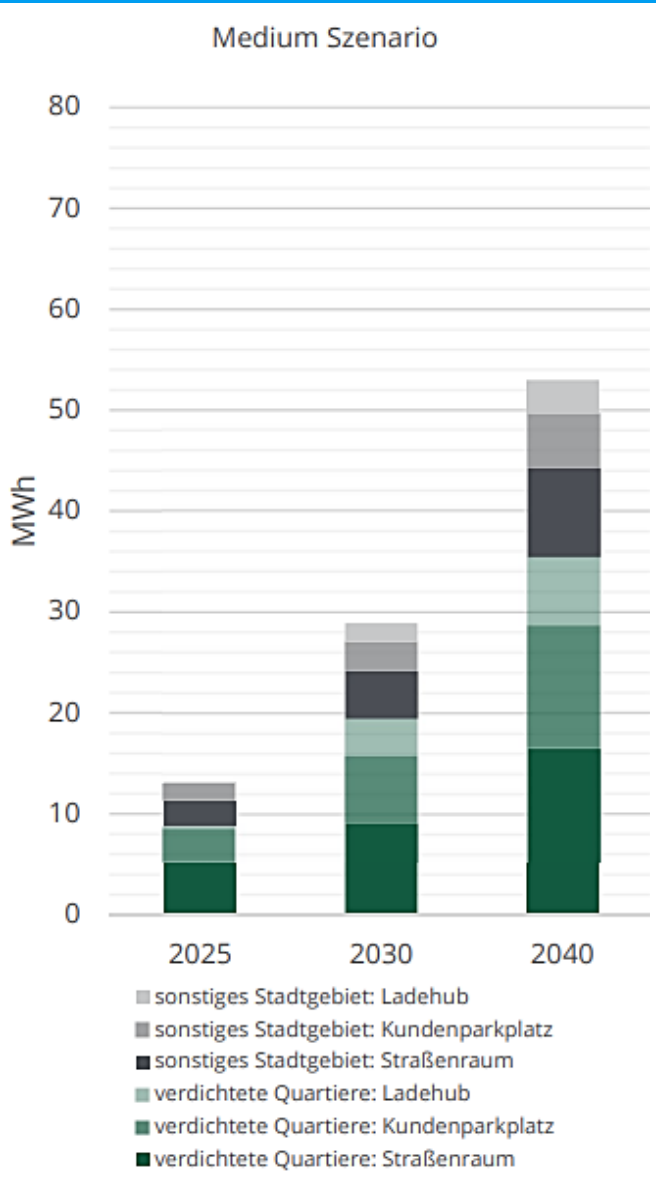
Required charging points per **district**:



German Example

Step 2: Demand

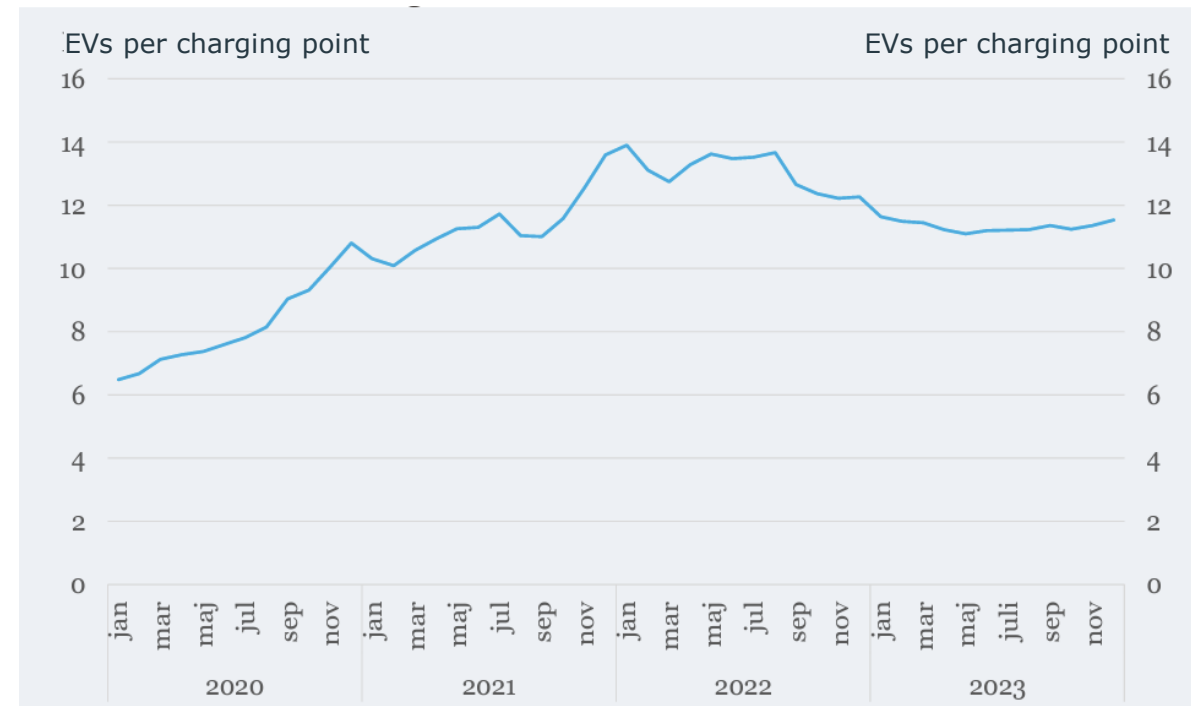
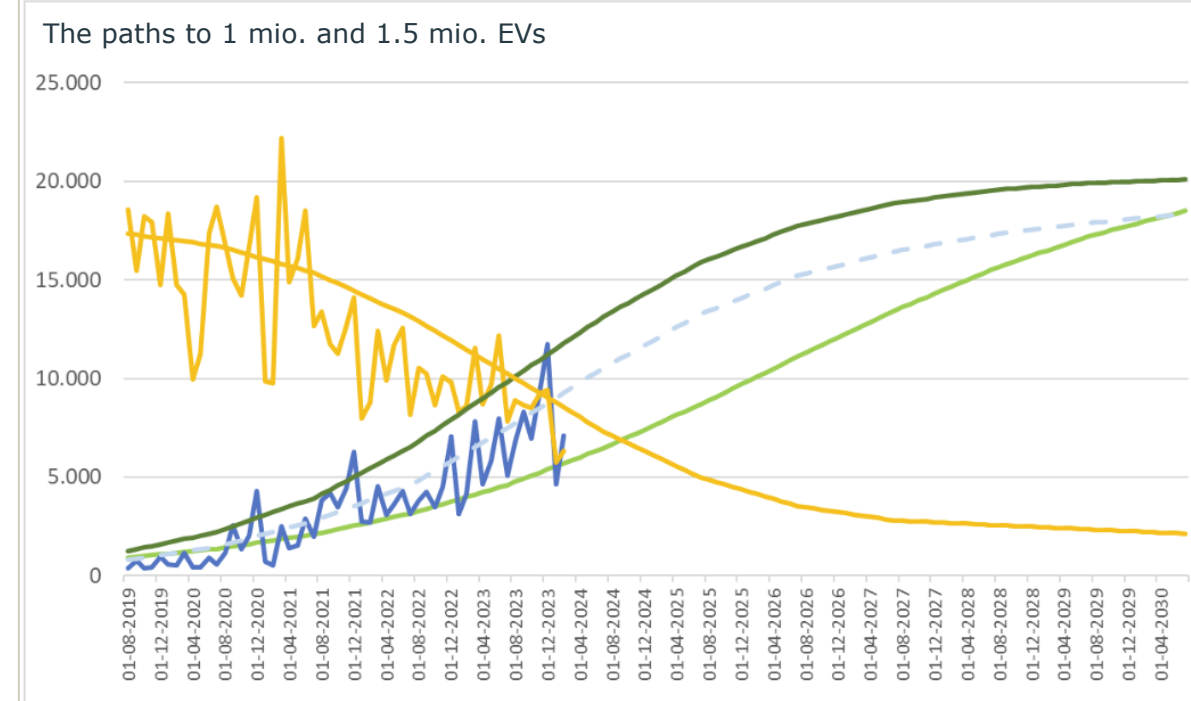
Required charging points per **traffic cell**:



Status in Denmark

- No. of EVs end December 2023: more than 200.000 BEVs (360 000 incl PHEVs) equaling to 7% (13%).
- New sales (passenger cars): 50% are BEVs/PHEVs
- By end of 2023 17.400 charging points = a rise of 88% compared to 2022
- 11.5 EVs per publicly available charging point by end December 2023

- BEV = Battery Electric Vehicle
- PHEV = Plugin Hybrid Electric Vehicle
- EVs = BEVs + PHEVs



Status in Denmark

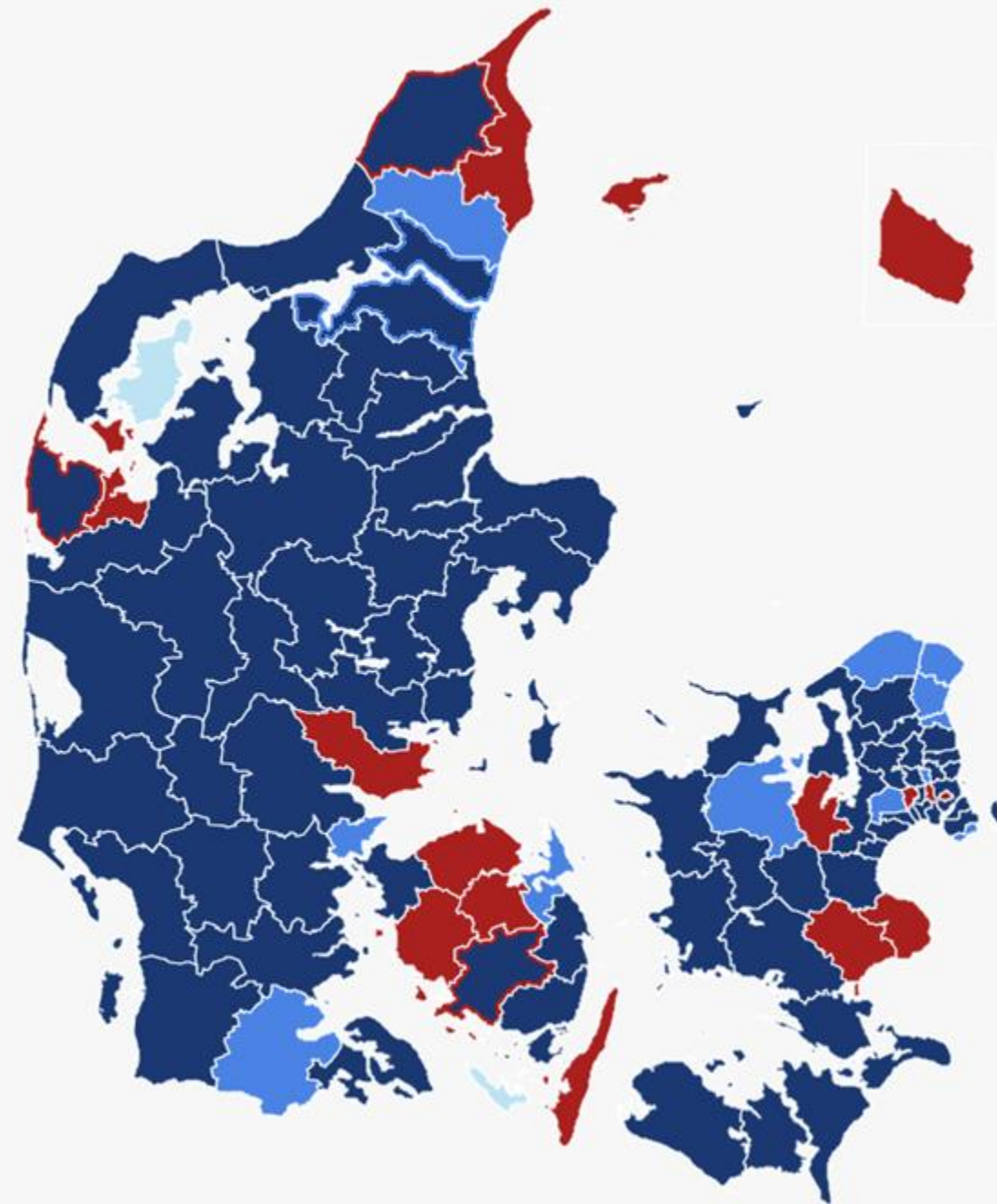
- Close to 90% of the 98 Danish municipalities have procured charging points since April 2022
- Municipal procurement have resulted in more than 10.000 charging points
- Even in outskirts where there has proven to be a profit for the municipalities in the procurement

About procurement

Type of contract: concession contracts

Including both required charging points and non-required charging points on publicly owned properties

More attractive when more than only legally bound charging points



● ongoing ● yes ● no ● NA

Wrap-up and Key take aways

- Create the **overview, plan, coordinate** and ensure that the amount of charging infrastructure is adequate to the need
 - Calculations on demand and mapping might be necessary
 - Stakeholder engagement
- Support the emergence of EV chargers where there are gaps in the charging infrastructure or insufficient charging infrastructure
- **Guide and help** companies and housing associations that often need and/or demand a helping hand
 - **Facilitate collaborations** between housing associations and companies and consider joint tenders
- **Create dialogue and collaboration** with the energy provider (DSO) on prioritisation and planning of the expansion of the electricity grid



Let`s talk!



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*Sr Consultant, Smart Mobility
Ramboll Germany*



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