

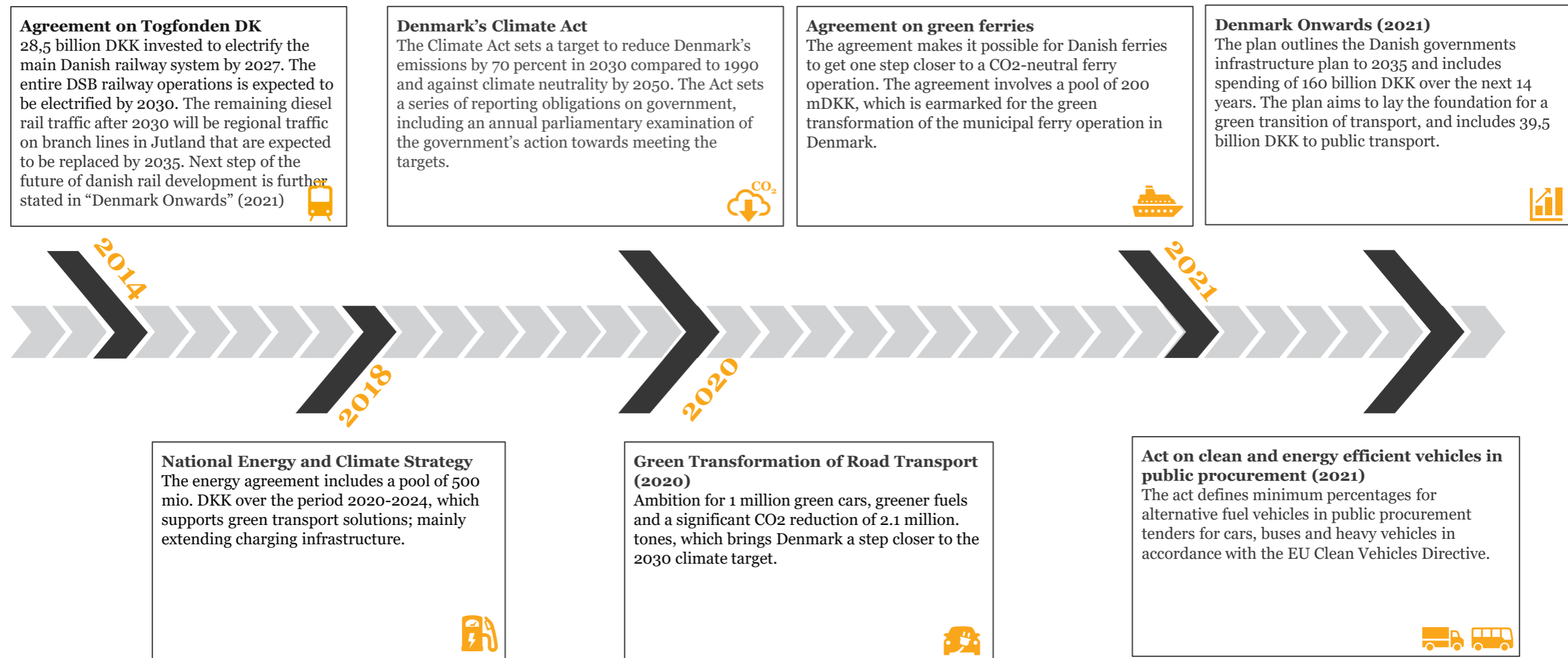


# Market snapshot - Smart Mobility Denmark

Business Sweden  
December 2021



# Denmark has decided on several green initiatives to transform the Danish transport sector towards significant lower CO2 targets







*“ Lower registration tax, better charging and more new electric models are really getting the ketchup out of the bottle right now ”*

Dansk Elbil Alliance



# PHEVs is increasing as Denmark strives to reach its national target with 1 million green cars by 2030



## Battery electric & plug-in hybrid passenger car market



### National targets

- Ambition 1 million green cars by 2030
- Target of stopping sales of new fossil driven cars by 2030



### Car fleet

- About 2,6% of the 2.6 million passenger car fleet in DK are BEV or PHEV
- The number of BEV & PHEV vehicles has been growing at a GAGR of 48% between 2016-2021. PHEV stands for the largest growth.



### Sales of electric cars

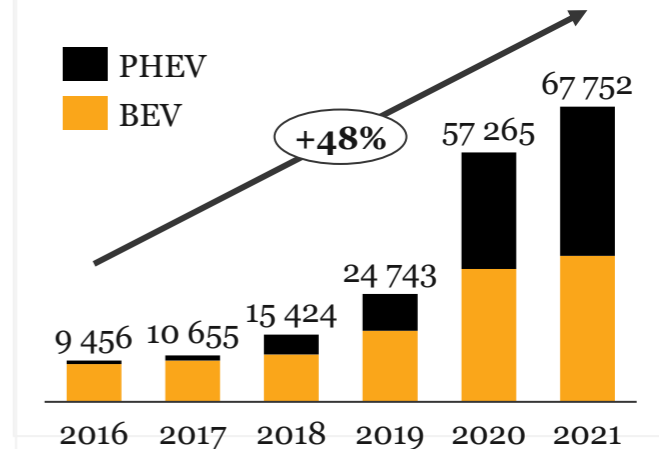
- 31% newly registered cars in 2021 were BEV or PHEV
- Strong increasing trend in PHEV during recent year



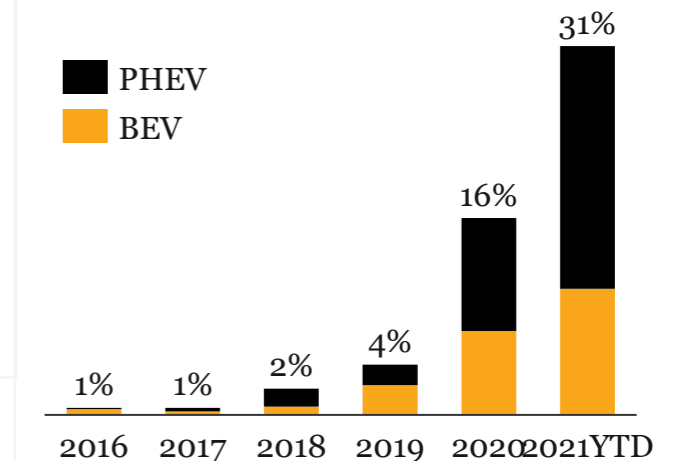
### Incentives and Legislation

- BEV: 55-60% registration tax reduction for BEV and PHEV up until 2025 and 2030
- Subsidised charging fee for BEV and PHEV cars until 2030.
- Higher taxes on fossil driven cars to disincentivize ownership

### Nr. Of BEV & PHEV passenger cars



### Yearly registration of BEV & PHEV



Source: European Alternative Fuels Observatory, Danish Government, Dansk Elbil Alliance

# Danish EV infrastructure towards great enhancements to reach ambitious EV goals



## EV charging infrastructure



### National target

- 5 000 charging points by 2020
- 29 400 charging points by 2030
- 18 000 fast charging points by 2030



### Current infrastructure

- 42 high-power public recharging points per 100 km highway concentrated around Statsvejnettet
- 18 PEVs per public recharging point



### Planned investments in public infrastructure

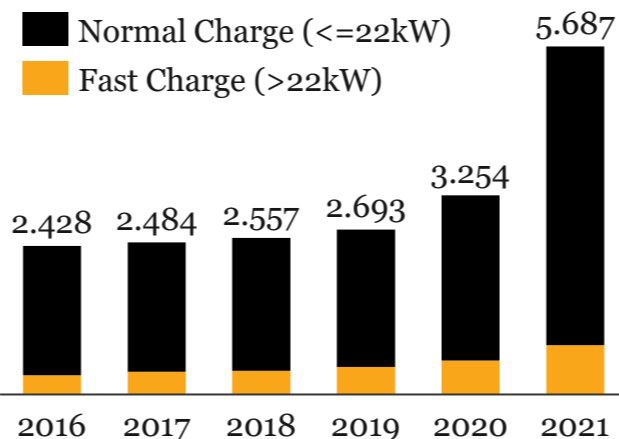
- Danish government has budgeted 500 million DKK to build nationwide charging point network (along stadsvejnettet) until 2030, equivalent to 50 charging parks with approx. 630 new charging points for fast charge



### Investments in private infrastructure

- Ongoing investigation of adjusting electricity fees for households to promote house-installations as the majority of charging stations needed in DK are localized at free-standing houses
- Clever and E-On maintains strong positions in DK. Danish hydrogen-champion Everfuel increases ventures in DK through expanding operations with hydrogen-partners (NEL, Ballard, Energinet)

### Total number of public charging points



### Main infrastructure providers

e-on

VIRTA

Everfuel



Clever

SPIRII

Air Liquide

“

*The next step towards a green transport sector is to largely expand the charging infrastructure by tenfold*

”

Dansk Elbil Alliance



# Denmark to accelerate the green transport sector by spending 160 billion DKK

## Sustainable transport



### Denmark onwards (2021)

- The Danish governments 160 billion DKK infrastructure plan includes:
  - Road and rail (electrification) improvements, regional development projects as well as initiatives geared towards supporting the green transitions within the transport sector



### Targets - Local bus service market

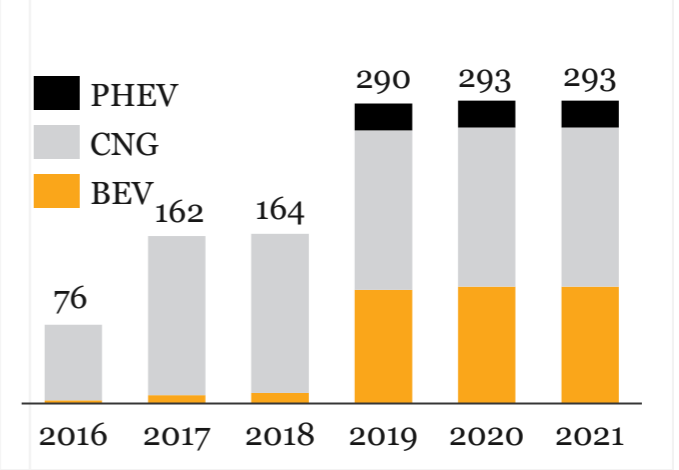
- Transition-target to full EV-bus operations by 2030
- From 2021, 5 regions & 23 municipalities will only procure green busses
- 800 Mn DKK invested in new tracks for Bus Rapid Transit (BRT) system at Region Zealand



### Targets - Local train service market

- To have electrified the main railway system by 2027
- To only have battery/hydrogen driven trains by 2030
- A co2 neutral public railway system

Total nr. of electric buses 2016-2021



“ With the government’s proposal, we will have a future with room on the roads for the many electric cars, where bicycles are given much greater priority and not least where public transport gets a boost. With this massive investment we are entering the decade of the railway ”

- Benny Engelbrecht, Transport minister Denmark

Source: European Alternative Fuels Observatory; Danish Regional Transport Authorities



# There is a need of a green transition in one of Denmark's core sectors – Logistics



## Heavy-duty & light commercial vehicles



### National targets

- 3000 electric vans by 2020
- 35 000 electric vans by 2030
- No specific targets for trucks
- Public procurement targets for heavy-duty vehicles:
  - 10% green trucks procured until 2025
  - 15% green trucks procured until 2030
- A mileage-based toll for trucks differentiated according to the trucks' CO2 emissions.



### Current situation

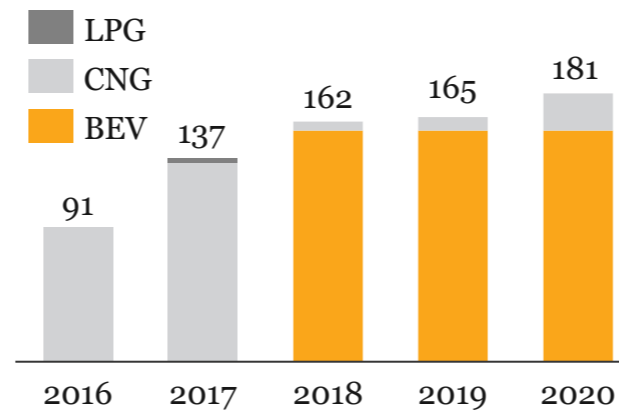
- Less than 1% of all the vans on Danish roads uses green technologies
- 0,7 % of all the trucks on Danish roads uses green technologies

### Planned investments

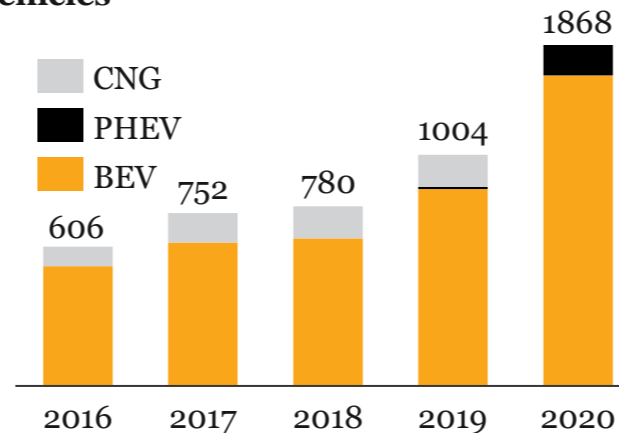


- Coop DK have initiated a partnership with Scania to cover for city-distribution with full e-trucks. This will be the first full e-truck solution provided in DK
- Freja Transport has invested in a full e-logistic on-site trucks and focus on local distribution in DK

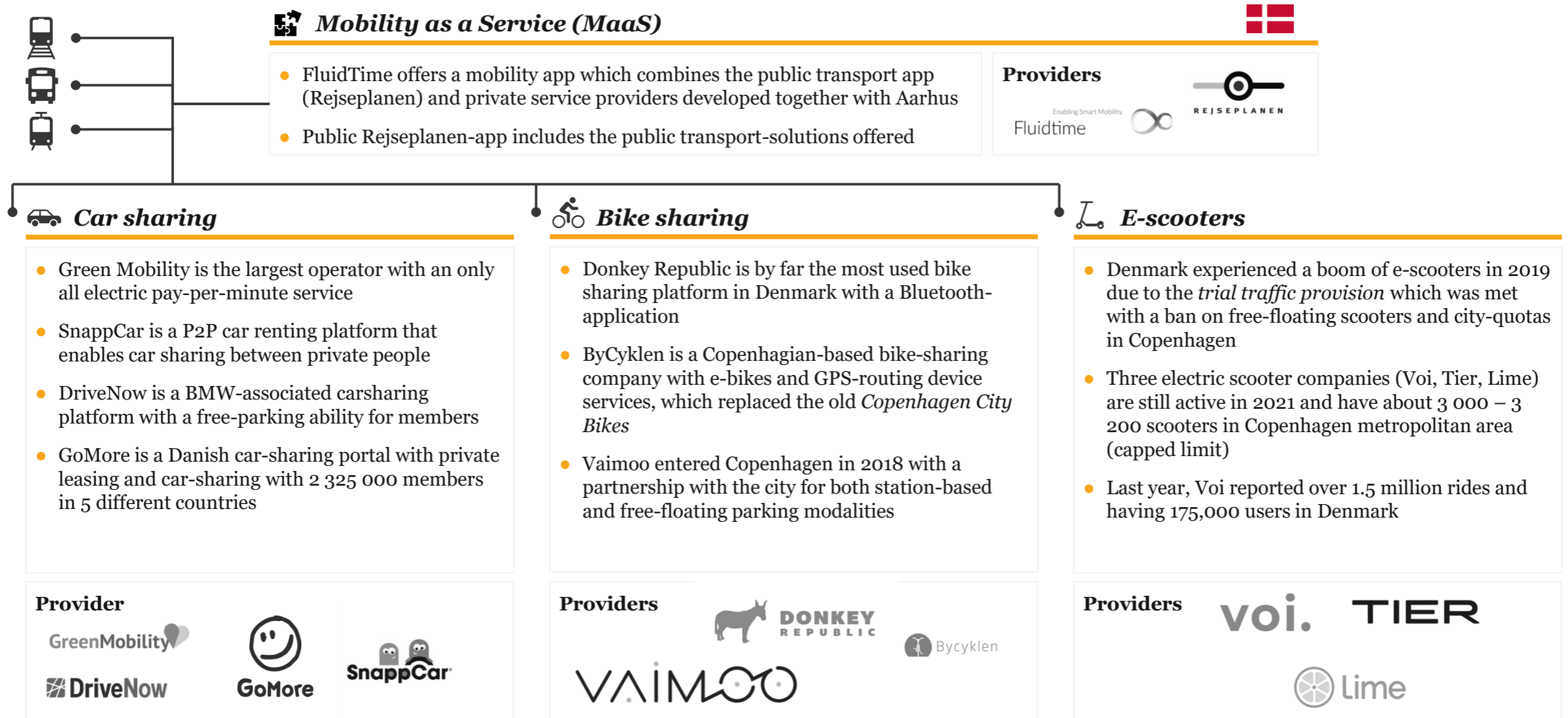
Total number of AF trucks



Total number of AF light commercial vehicles



# Current MaaS-solutions available are a project-integrative solution combined with a vast variance on mobility providers



# Infrastructure:

## Major projects focuses on green and tight proximities between consumers

### **The Metropol-Network**

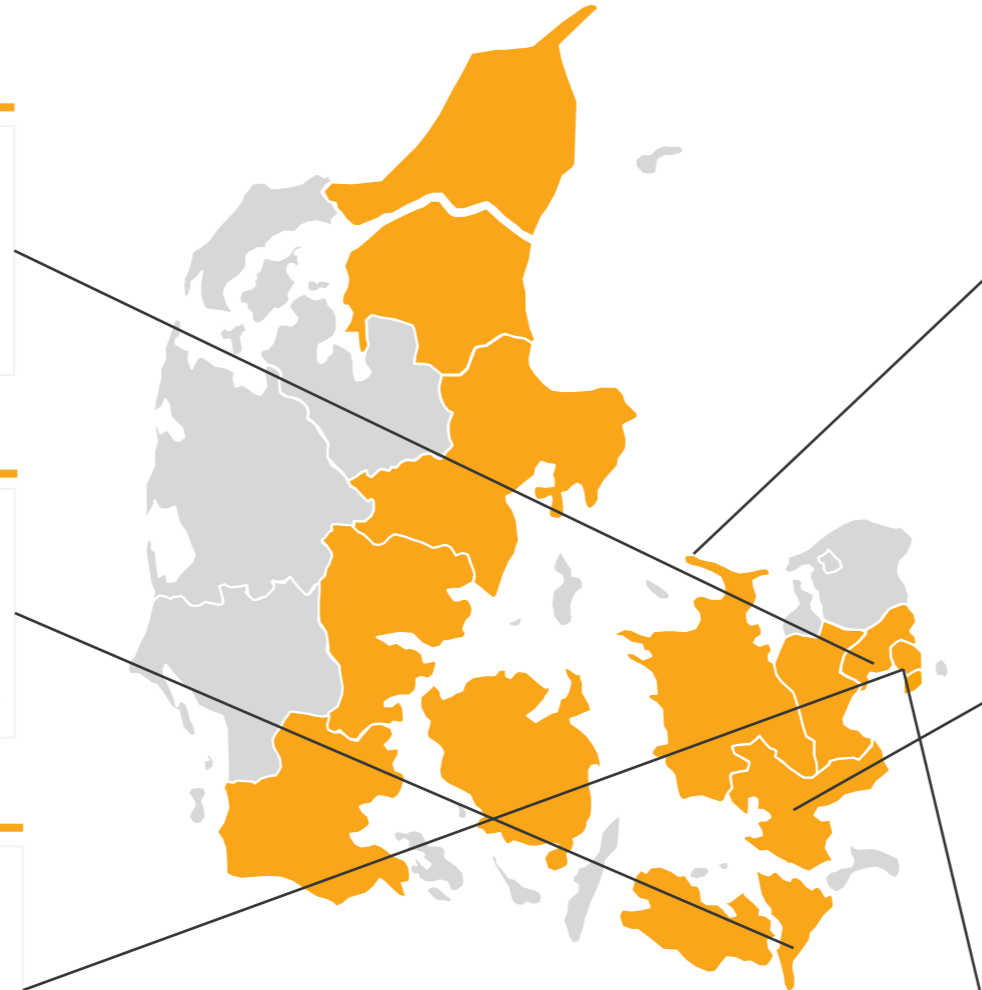
- DK has initiated a plan to expand the Copenhagen public transport by integrating stations with cross-city transport
- New transports concern light rail, BRT and the South Corridor (expanded railroads)

### **Fehmarn Belt Fixed Link**

- Fehmarn Belt Fixed Link is part of the German/Danish/Swedish/Norwegian STRING-corridor
- The Fehmarn Belt Fixed Link provides a tunnel and integrates the Öresund bridge with Germany

### **Fixed Links across Öresund**

- Metro-tunnel to be constructed between Copenhagen and Malmö to integrate regional labor-market
- Expanding the Øresund-bridge with a cargo-track to solve for bottlenecks when Fehmarn belt fixed link is constructed



### **Kattegatt Connection**

- Future high potential opportunity where a bridge over Kattegatt will connect Zealand and Jutland with car- and train opportunities
- The potential is focused to increase Lufthavn-access for the eastern Jutlandic population with 4Mn potential new air travelers

### **STRING – Hydrogenkorridoren**

- The STRING-project focuses on connecting Hamburg – Oslo through Copenhagen, Malmö and Gothenburg with a hydrogen-corridor through *Fehmarn* and *Øresund*
- The project intends to strengthen the logistics- and distributions in the region by integrating local-, regional- and national actors

### **Metron**

- The newly built “City Ring” was finished in 2019 and connected the central station with the metro-network
- New project of opening up M4, connecting Sydhavn and Valby within the metro-network



# Smart Road:

## There is a focus on autonomous testbeds combined with green transportation solutions

### **Statsvejnettet**

- The Danish Road Directorate will install approx. 50 fast charging parks along the public road network through Denmark
- The 630 chargers will decrease the need for detours for EVs while on road

### **INRIX – Congestion planner**

- INRIX is mapping possible congestion from connected vehicles and re-direct the drivers to other roads
- INRIX has operated since 2015, partnering with the danish road authority (Vejdirektoratet)

### **Smart Bus (V2X) - Holo**

- Autonomous bus operations in Aalborg since 2020 provided by Holo and partnering with Navya was inaugurated by Minister of Transport Benny Engelbrecht
- The pilot project have expanded to Copenhagen as the first autonomous public road service operating in the capital using V2X-tech



### **Shipping Lab**

- Several projects within automation for maintenance of shipping as well as automated optimized coastal routing for fuel-efficiency
- Several ongoing initiatives to transform shipping towards hydrogen-fuelled ships

### **LINC – Autonomous test beds**

- LINC will initiate two tests in Copenhagen at Lyngby and Albertslund to test for how to integrate autonomous shuttles in the public space
- The vision is to have 29 connections across Copenhagen attached to the light rail stations

### **Smart City Clusters**

- Green Mind Project is a Danish-European initiative to promote SME's within innovations of green and smart mobility
- Projects on intelligent road lights to increase energy-efficiency for the municipalities through smart steer-systems.

Source: Road Directorate; INRIX; Holo; Shipping Lab; LINC; Smart City Clusters

# Danish smart sustainable transportation ecosystem

