

Welcome



Agenda

09.00 Introduction to SELECT and the workshop

Lars Bern, Lindholmen Science Park (SE) &
Piret Liv Stern Dahl, EIT Urban Mobility (DK)

09.20 Initial findings in regions

- Mechelen, Flanders – Veerle De Meyer (BE)
- Noord-Brabant – Stefan Ruizendaal (NL)
- Hamburg – Dr. Ulfia Clemen (DE)
- Southwest Sweden – Nikita Zaiko (SE)

09.50 Breakout rooms

10.00 Industry examples

- Colruyt Group, Mathieu Wanderpepen (BE)
- Circle K, Lennart Olsson (SE)

10.30 Coffee break

10.45 Workshop – group sessions

11.30 Summary and way forward



Lars Bern & Piret Liv Stern

SELECT

Electrified logistics – Demand for new services

Interreg
North Sea



Co-funded by
the European Union

SELECT

About

Project duration

July 2023 – Jan 2025

Budget

Appr 450 000 euro

Financed by

Interreg North Sea Region

Project coordinator

Lindholmen Science Park/CLOSER

Participating Cities/Regions

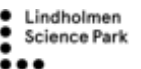
City of Mechelen

Region of Noord-Brabant

Capital Region of Copenhagen

Logistik Initiative Hamburg

Communication/Dissemination partner



Why?

- The electrification of commercial vehicles is perceived as the most important shift in the transport industry for decades, with a huge potential to eliminate greenhouse gas emissions.
 - Large investments are required
 - Electric grid is a potential constraint
 - Public actors want to support the transition
 - The pace of transition varies across the North Sea region



EU Commercial Vehicle Sales 2023

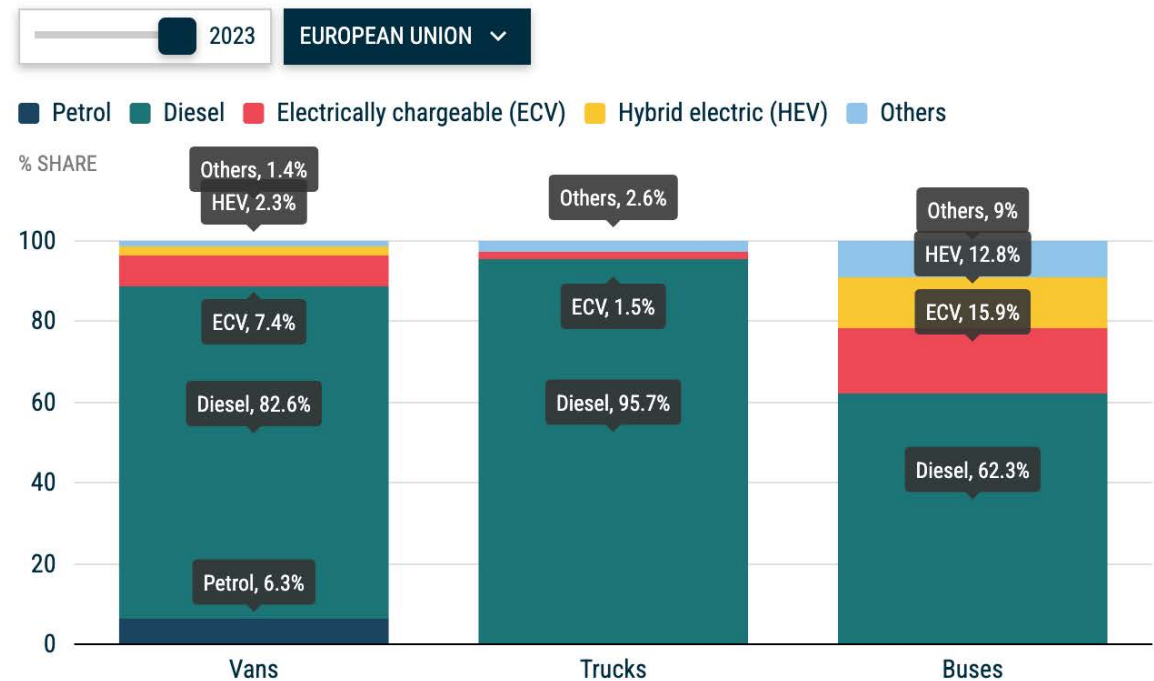
SELECT countries

(Electrically Chargeable Trucks)

- Netherlands – 7,1%
- Denmark – 6,4%
- Sweden – 4,1%
- Germany – 2,3%
- Belgium – 1,1%

More figures: [ACEA](#)

NEW COMMERCIAL VEHICLES BY POWER SOURCE

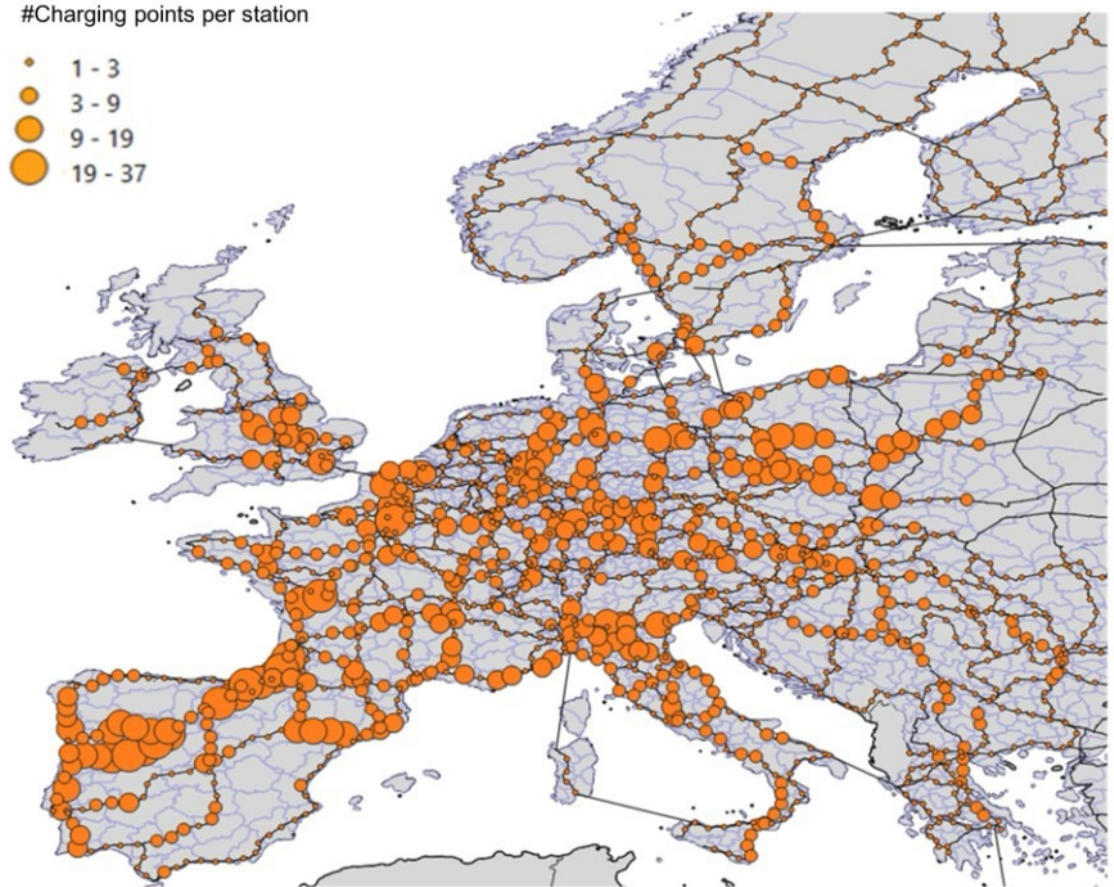


Created with LocalFocus

Source: ACEA

A charging network is needed

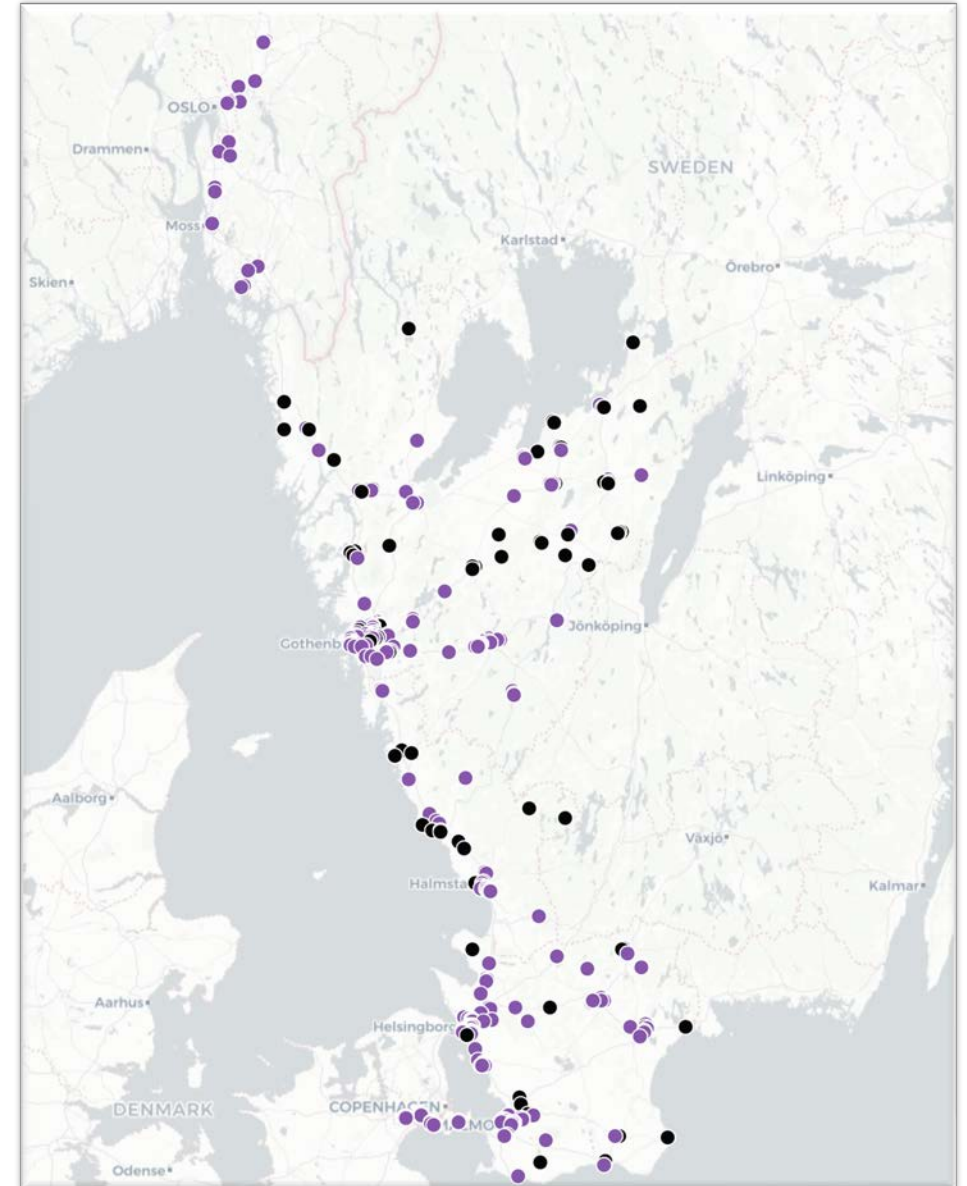
- Terminal / Depot
- Local
- Regional
- Long haul / TEN-T network



Copyright: Fraunhofer ISI

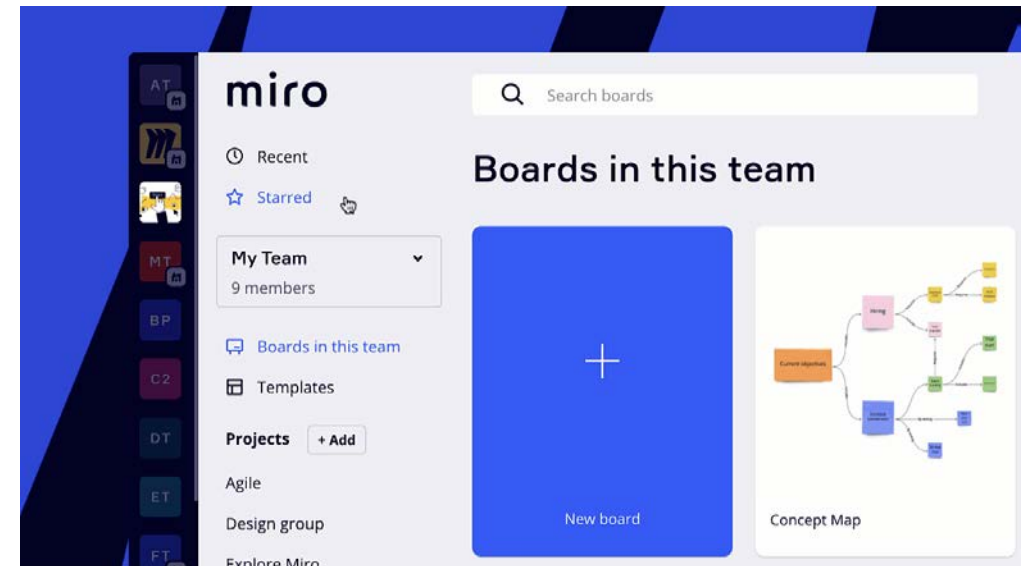
What?

- Examining the operation of logistics stakeholders and their potential needs
- Mapping and analyzing power and energy requirements
- Demand for new services attributed to electrified logistics
- Governance: the role of public actors in supporting the electric transition in logistics
- Communication and dissemination



Who is in the workshop?

- Please go to the Miro board, link in the Teams chat -
<https://miro.com/app/board/uXjVKZohjq4=/>
- Copy a post-it note and insert your name and organisation



What is your opinion?

- Getting to know the group
- Mentimeter question

www.menti.com

8842 5136

<https://www.menti.com/alundonne5et>



Initial findings in regions



Veerle De Meyer

City of Mechelen

The city's point of view and perspective

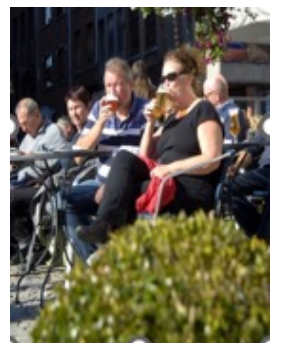
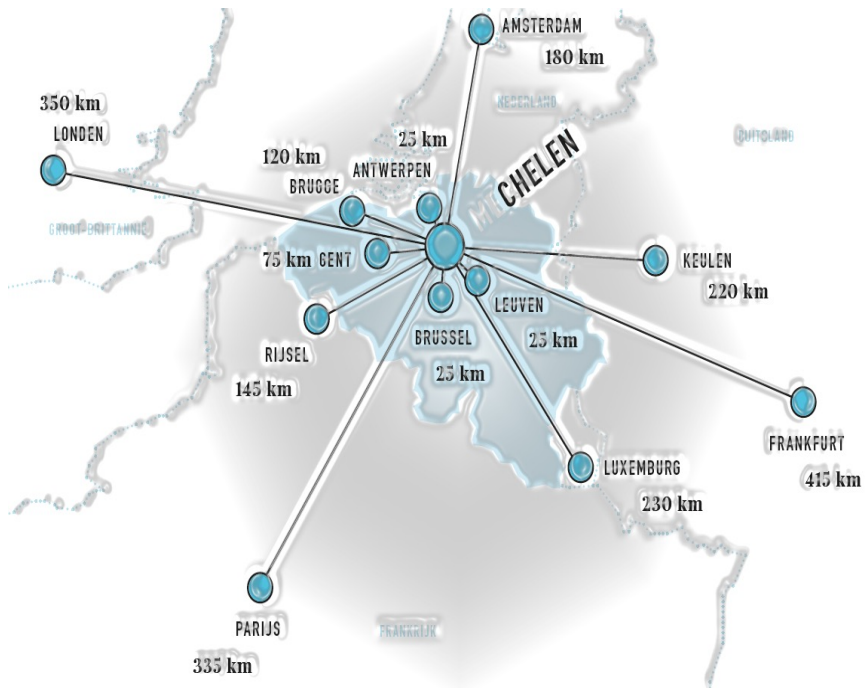
Interreg
North Sea



Co-funded by
the European Union

SELECT

Introducing the city



Logistics in the city



> 7500 deliveries
per week

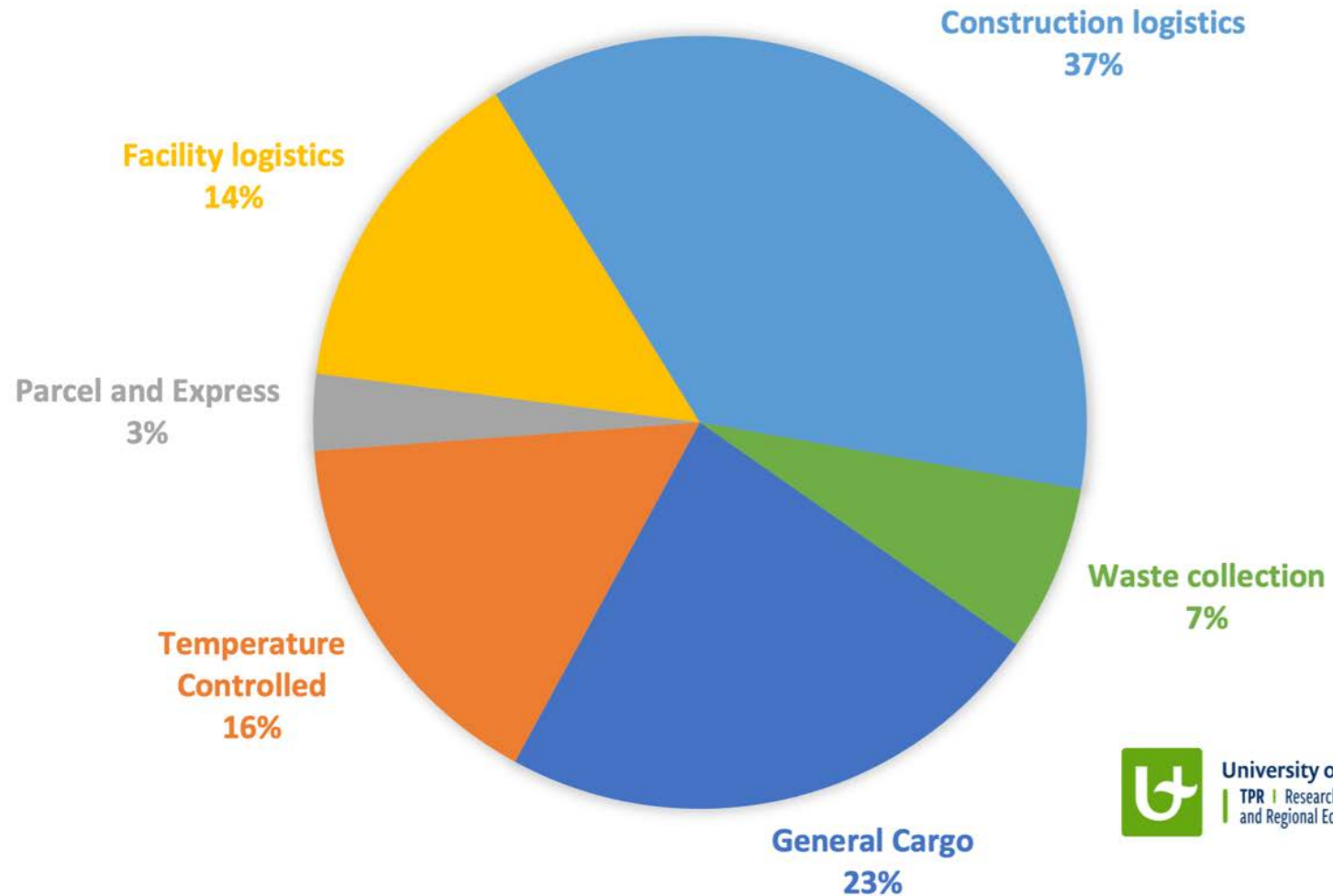
10%
Logistics traffic

32% CO²-emission
by 2030

77% via road



Logistics in the city



Electric mobility & charging infra

- Electric mobility necessary to achieve climate neutrality by 2050
- Real zero-emission = Green supply of public charging poles
- Achieve a high rotation (charging vs parking)
- Logistics companies: focus on charging on own company property, no specific policy
- Clustering of infrastructure
 - Double use (semi-public)
 - Parking at the edge of the city
 - Combination with carsharing
- Program: Clean Power for Transport (CPT), Flemish program
- Flanders target = 1 charging pole per 100 inhabitants
- Mechelen target = 870 (semi)public charging poles by 2030



Status electrification logistics sector

- Early adopters (big companies) vs followers (smaller companies)
- Big companies: own environmental goals
- charge on own premises as there is no public charging infra foreseen (cheapest)
- subjected to peak tariffs
- the same challenges:
 - weight of the vehicles/payload (3,5 ton → 4,2 ton)
 - business case: CAPEX and/or TCO (less for vans, more for trucks)
 - Load capacity
 - Infra and space for charging infra
 - Autonomy/range of the vehicles
 - Capacity grid mainly on peak moments
- needed support:
 - subsidies to compensate TCO/CAPEX
 - regulatory framework/laws to solve f.e. weight/payload (+ driving permit B/C)
 - For vans 4,2 tons: Tachograph , OBU , max 90 km/h
- extra services:
 - fleet management and charging software (EaaS)



Stefan Ruizendaal

Provincie Noord-Brabant

Interreg
North Sea



Co-funded by
the European Union

SELECT

Overview

- 9 interviews in total: 7 logistic operators, 1 umbrella organization and 1 grid operator
- Size of logistic operators varies from medium sized to large (international) companies. Inside & outside the region.
- Smaller logistics stakeholders represented via umbrella organization
- Average usage electric trucks ~1-1,5 kWh/km
- Biggest challenges: **costs required for electrification & grid congestion** (~10 years for grid connection)
- Incentive to electrify on short term lacks without direct link to ZE-zones.



| Challenges | Proposed solutions |
|---|--|
| <ul style="list-style-type: none"> Costs BEV's | <ul style="list-style-type: none"> Specific subsidies for electrification logistics fleets |
| <ul style="list-style-type: none"> Grid congestion | <ul style="list-style-type: none"> Regulations that incentivize electrification (deadlines for 'subsidy rounds' & permits for energy storage) |
| <ul style="list-style-type: none"> Lacking information: where to start? | <ul style="list-style-type: none"> Reservation systems needed for long-haul transport |
| <ul style="list-style-type: none"> Lacking clarity on regulations | <ul style="list-style-type: none"> Conditionally open for sharing charging infrastructure |
| <ul style="list-style-type: none"> Food services consume more energy | <ul style="list-style-type: none"> CO2 e-credit system for clients that want to become more sustainable |
| <ul style="list-style-type: none"> Physical infrastructure | <ul style="list-style-type: none"> Increase 'time margin' for electric vehicles to enter cities |
| <ul style="list-style-type: none"> No fixed routes are hard to electrify | |
| <ul style="list-style-type: none"> Unclear regulations & costs related to energy storage | |



LIHH

Hamburg

Workshop: Electrified logistics – Demand for new services

Interreg
North Sea



Co-funded by
the European Union

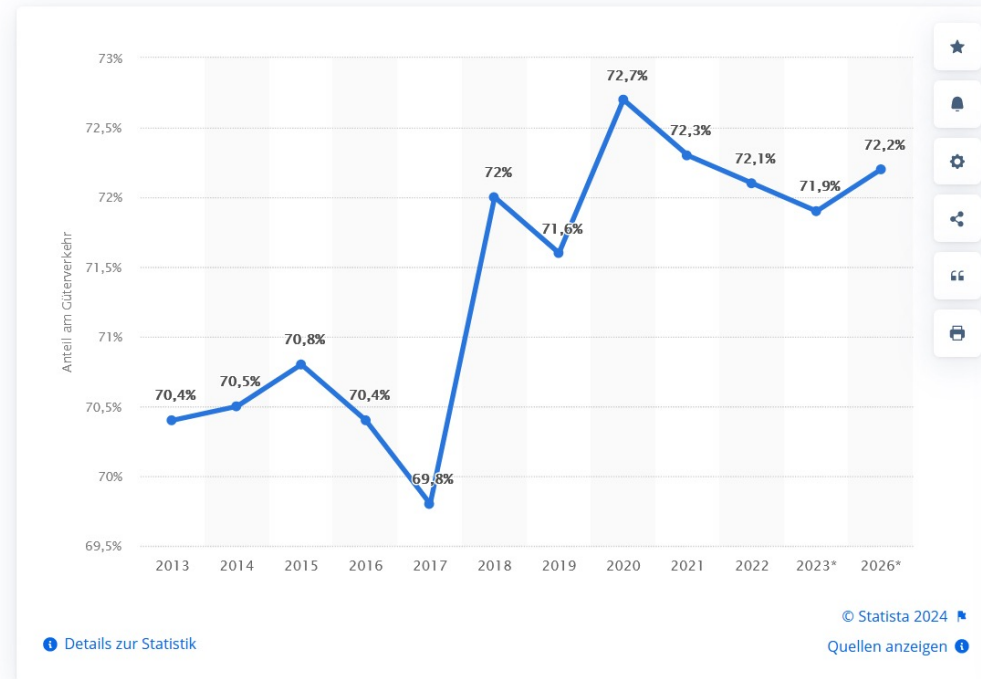
SELECT

Germany: 1,300,000 trucks per day on motorways

Verkehr & Logistik > Logistik & Transport

Anteil der Lkw an der Transportleistung im Güterverkehr in Deutschland von 2013 bis 2026*

(laut Modal-Split)



STATIS
Statistisches Bundesamt

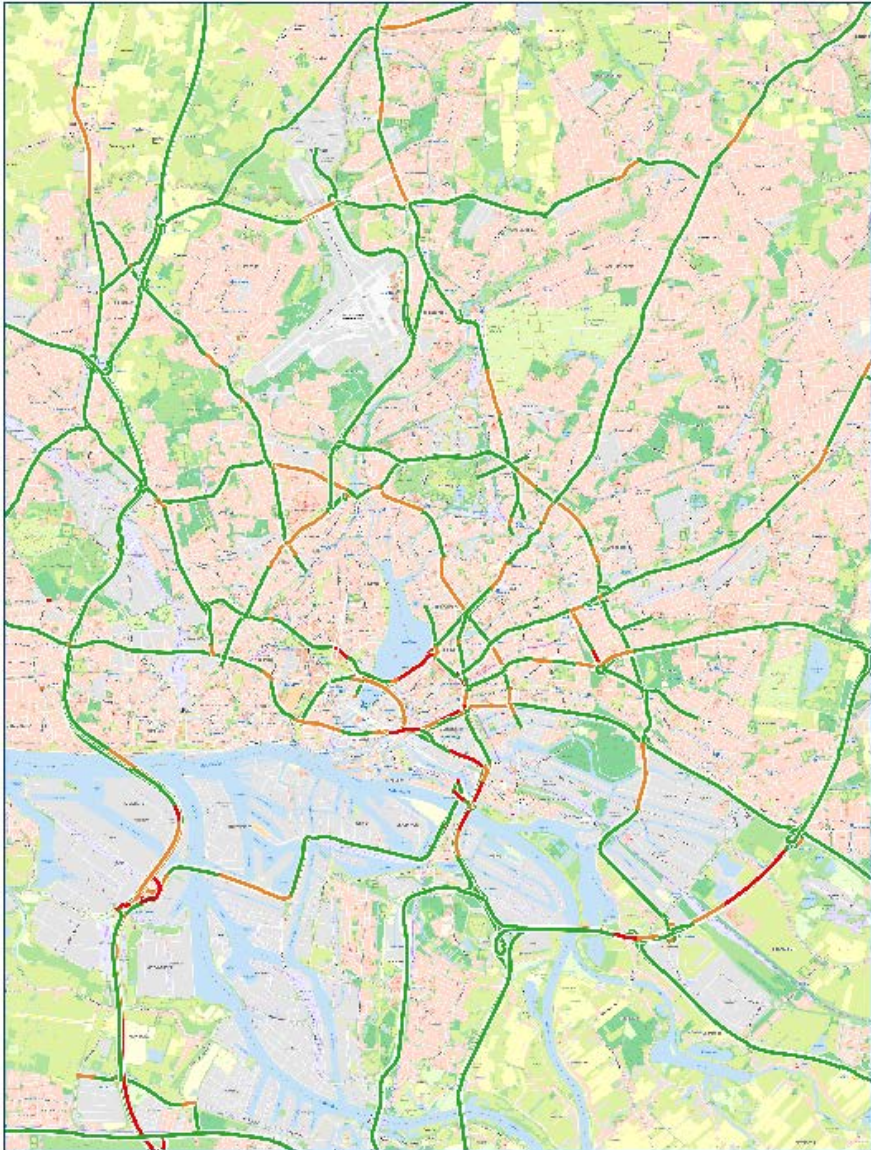


➤ >70% of goods are transported by truck

Hamburg – traffic

Live traffic situation 9:00 (holidays)

- **Large harbour area in the middle of the city area**
- **The Elbe river must be crossed**
- **Lots of traffic jams on the main roads from north to south**



Hamburg: 40,000 trucks per day

- HH: 17,000 trucks pass through the port every day (2,000,000 container movements/year)
- New charging station for HDV: ARAL - In 45 minutes the vehicles (HDV) have enough power for 200 km
- Daimler Truck E-Actros 300: - battery weighs 3.6 tons (about two tons more than diesel engine)



Alexander Junge (Aral, v. l.), Wirtschaftssenatorin Melanie Leonhard und BP-Chef Patrick Wendler stößten den ersten E-Lkw an die Ladestation.

HELAND WAGNER



Hamburger Abendblatt 22.4.2024

Initial findings in Hamburg

General Information

Company sizes varied, with the largest employing 250 or more

Transportation and Logistics were prominent sectors, followed by trade, agriculture, construction, sports and fitness, and waste management

Real estate ownership was diverse among respondents

Infrastructure on Company Premises

Parking spaces and charging infrastructure availability varied

Most companies expressed interest in **expanding charging infrastructure** by 2030

Others

Some companies had dedicated parking spaces

Concerns highlighted included **incentives**, **knowledge exchange**, and **infrastructure improvements**

Vehicle Fleet

The number of commercial vehicles and electric ones in the **fleet varied** across companies

Adoption of electric cars among company fleets **was limited**

Electrification Plans & Challenges

Plans for electric vehicle adoption by 2030 **varied**

Challenges for electrification ranged from **internal operational issues** to external factors like **incentives** and **infrastructure**

Nikita Zaiko

Southwest Sweden

REEL – Regional Electrification in Sweden

Interreg
North Sea



Co-funded by
the European Union

SELECT

REEL – Regional electrified logistics



REEL involves 45 organizations all around Sweden, together we establish, operate, and analyze electrified logistic solutions for various types of goods



CLOSER

Participating actors

- | | | | |
|--|--|--|--|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

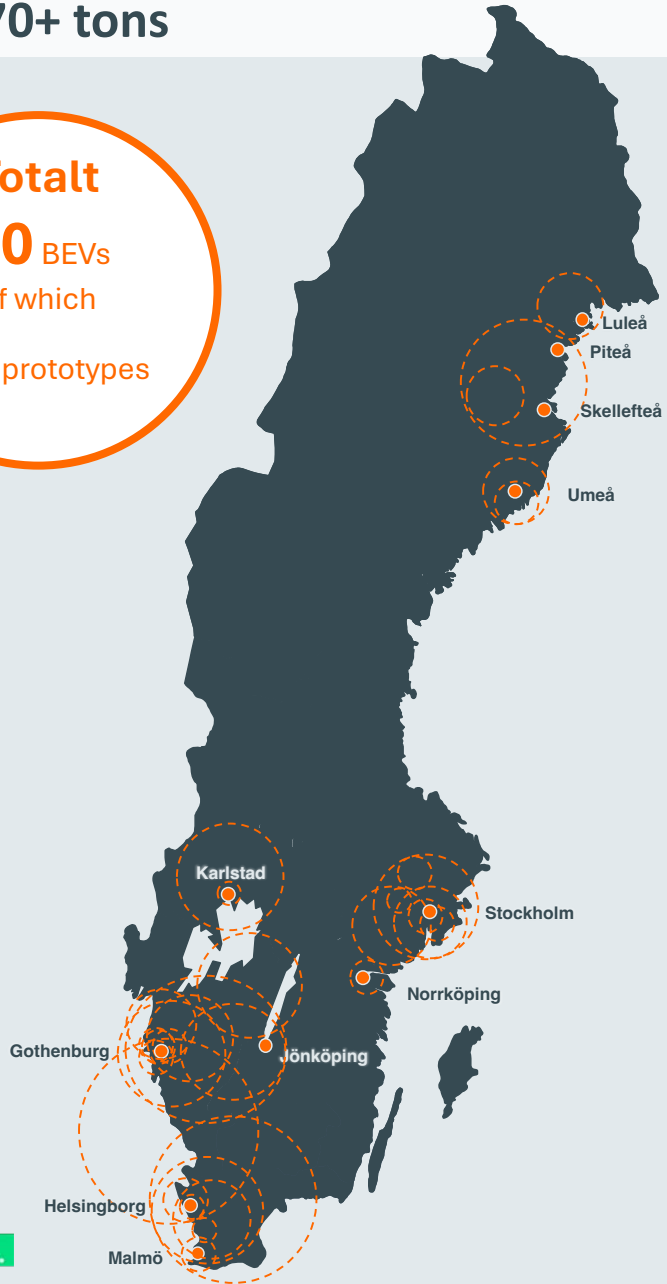
CLOSER

Public co-financing

- | | | | |
|--|--|--|--|
| | | | |
|--|--|--|--|

In the project, 70 logistic solutions are established and cover multiple applications with trucks in the range from 16 to 70+ tons

Totalt
70 BEVs
 of which
18 prototypes



CLOSER

Participating actors

| | | | |
|--|--|--|--|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

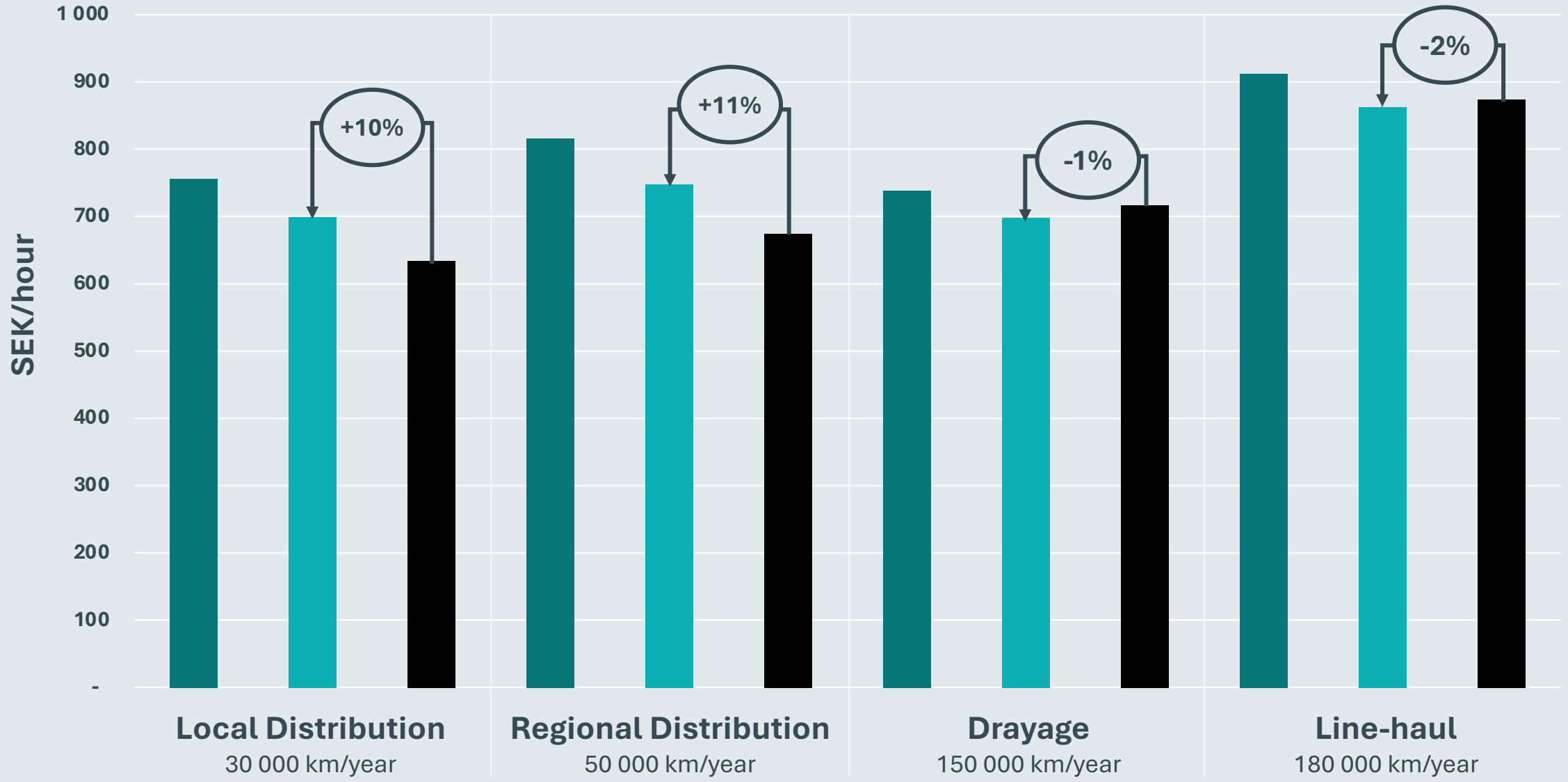
CLOSER

Public co-financing

| | | | |
|--|--|--|--|
| | | | |
|--|--|--|--|

REEL paves the way for large-scale electrification of regional logistics systems in Sweden by demonstrating solutions adapted to the logistics needs





Electric operation without incentives

Electric operation with current incentives

Diesel MK1 operation

NB: 1 € equals 11.5 SEK

Regional Distribution - Rigid truck and trailer distribution with **December 2023 energy prices**

- 1st of January 2024 the Swedish government changed the reduction quota of renewables in diesel fuel, from **30.5% to 6%**
- Resulting in approx. 30% lower diesel prices

| Cost element | Electric with current incentives Jan-Mar (kSEK/month) | Diesel December Jan-Mar (kSEK/month) | Electric with current incentives December (kSEK/month) | Diesel December (kSEK/month) |
|---|---|--------------------------------------|--|------------------------------|
| Truck (incl. superstructure) | 35.2 | 17.8 | 35.2 | 17.8 |
| Charging infrastructure | 1.7 | 0 | 1.7 | 0 |
| Interest | 12.3 | 6.0 | 12.3 | 6.0 |
| Insurance, vehicle & road tax, parking wash, IT | 8.8 | 8.1 | 8.8 | 8.1 |
| Tires, service, maintenance | 9.0 | 8.6 | 9.0 | 8.6 |
| Energy | 4.4 | 20.8 | 5.5 | 28.8 |
| Grid transmission, energy tax and power tariff | 3.6 | 0 | 3.4 | 0 |
| Staff | 62.3 | 62.3 | 62.3 | 62.3 |
| Total cost | 137.2 | 123.7 | 138.1 | 131.7 |
| % from diesel option | +11% | | +5% | |

Regional Distribution - Rigid truck and trailer in with **100% public charging**

- Average energy prices from Jan-Mar 2024 are applied and public charging price at 5.89 SEK/kWh
- Currently there are approx. 40 public charging stations for trucks in Sweden in operation
- Logistics actors estimate that approximately 95% of all energy charged will be charged at non-public chargers in the next five years

| Cost element | Electric with current incentives (kSEK/month) | Electric with current incentives and 100% public charging (kSEK/month) | Diesel (kSEK/month) |
|---|---|--|---------------------|
| Truck (incl. superstructure) | 35.2 | 35.2 | 17.8 |
| Charging infrastructure | 1.7 | 0 | 0 |
| Interest | 12.3 | 11.9 | 6.0 |
| Insurance, vehicle & road tax, parking wash, IT | 8.8 | 8.3 | 8.1 |
| Tires, service, maintenance | 9.0 | 8.6 | 8.6 |
| Energy | 4.4 | 36.8 | 20.8 |
| Grid transmission, energy tax and power tariff | 3.6 | 0 | 0 |
| Staff | 62.3 | 62.3 | 62.3 |
| Total cost | 137.2 | 163.1 | 123.7 |
| % from diesel option | +11% | +32% | |

Falkenklev Logistik - Rifil

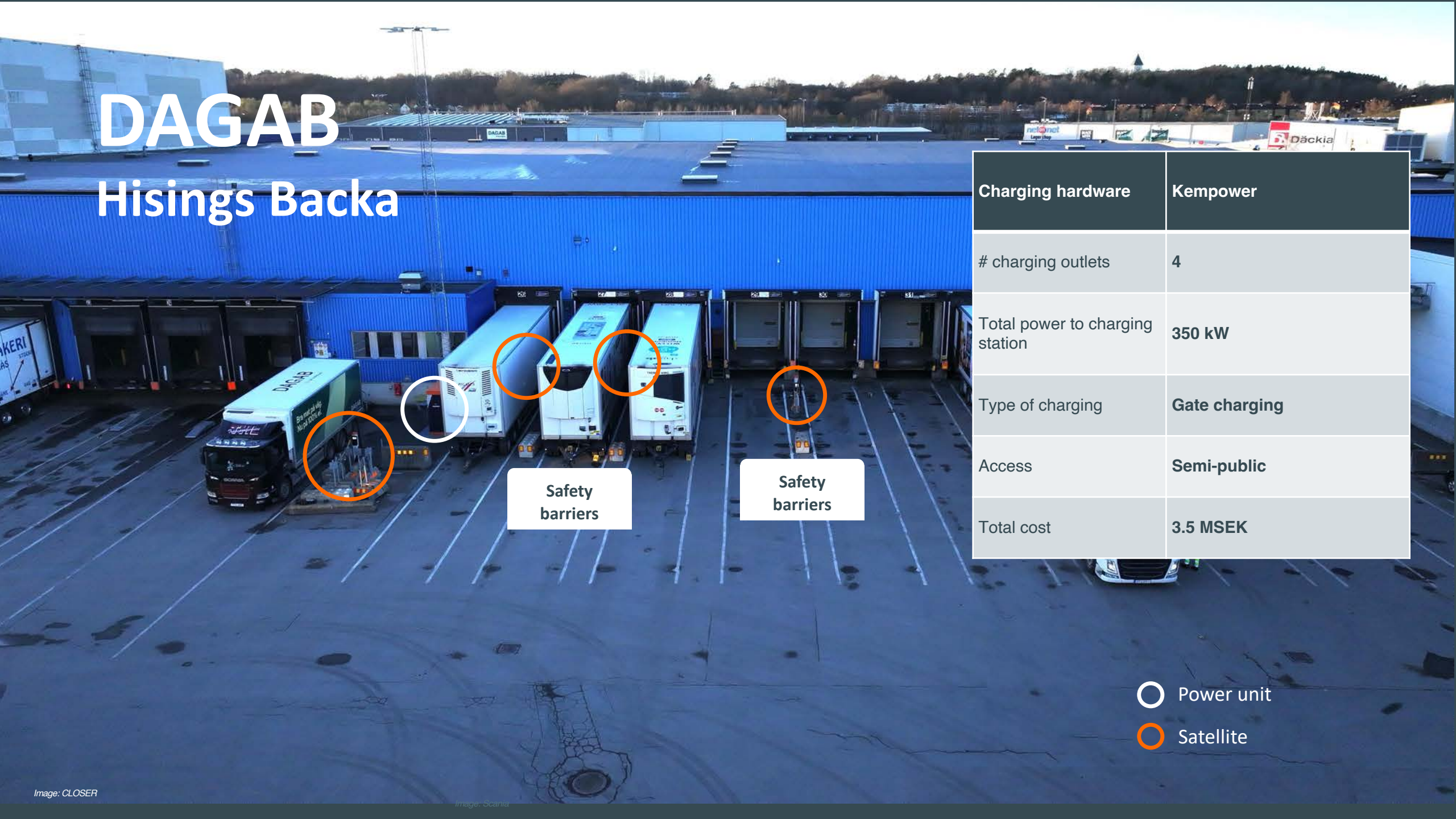
Malmö



| Charging hardware | Kempower |
|---------------------------------|-----------------------------|
| # charging outlets | 22 |
| Total power to charging station | 2.5 MW from the grid + BESS |
| Type of charging | Drive-through |
| Access | Public |
| Total cost | 18 MSEK |

DAGAB

Hisings Backa



| Charging hardware | Kempower |
|---------------------------------|---------------|
| # charging outlets | 4 |
| Total power to charging station | 350 kW |
| Type of charging | Gate charging |
| Access | Semi-public |
| Total cost | 3.5 MSEK |

Safety barriers

Safety barriers

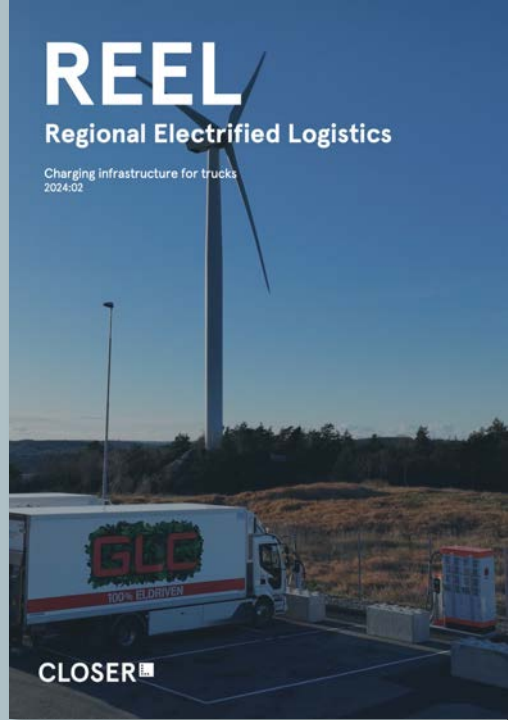
○ Power unit

○ Satellite

GLC Gårdsten



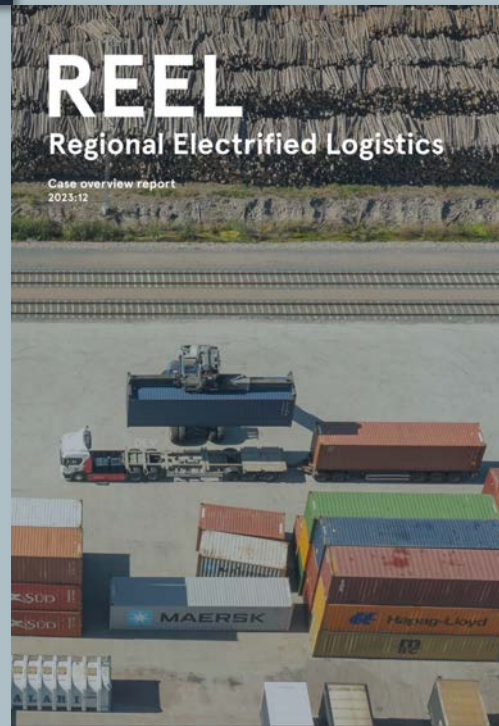
| Charging hardware | Kempower |
|---------------------------------|------------------|
| # charging outlets | 15 |
| Total power to charging station | 1 MW |
| Type of charging | Terminal parking |
| Access | Semi-public |
| Total cost | 8.2 MSEK |



Charging infrastructure for trucks



Case overview



E-Charge: System demonstration of electrified long-haul transports





closer.lindholmen.se/projekt/reel



@CLOSERse



nikita.zaiko@lindholmen.se