CALSTART | GLOBAL COMMERCIAL VEHICLE DRIVE TO ZERO | Government of the Netherlands

GLOBAL MEMORANDUM OF UNDERSTANDING

WORKSHOP: THE ROLE OF AS-A-SERVICE PROVIDERS IN HELPING SMALL/MEDIUM FLEETS GO ELECTRIC

ARUBA • AUSTRIA • BELGIUM • CANADA • CAPE VERDE • CHILE • COLOMBIA • COSTA RICA • CROATIA • CURAÇAO • DENMARK • DOMINICAN REPUBLIC • ETHIOPIA • FINLAND • GHANA • ICELAND • IRELAND • ISRAEL • LIECHTENSTEIN • LITHUANIA • LUXEMBOURG • MONTENEGRO • MOZAMBIQUE • NETHERLANDS • NEW ZEALAND • NORWAY • PERU • PAPUA NEW GUINEA • PORTUGAL • SCOTLAND • SEYCHELLES • SINT MAARTEN • SWITZERLAND • TONGA • TURKEY • UKRAINE • UNITED KINGDOM • UNITED STATES • URUGUAY • WALES

+250 ENDORSERS

Workshop Expert Presenters

SPEAKERS



JOHNNY NIJENHUIS

Consultant & Founder

Nijenhuis Truck Solutions



JULIA FEDOROVA

Chief Marketing Officer

L-Charge



PETER PAUWELS

General Manager - Benelux

Zenobe



OTTO GUSSENHOVEN

Global Key Account Manager

Sennder/JUNA



OWEN MACDONNELL

Lead Project Manager (moderator)

CALSTART

AGENDA

1. Welcome & Introduction
2. Why SMEs?
3. Questions & Discussion
4. As-a-Service Carousel
5. Discussion & Close

GLOBAL
MEMORANDUM OF UNDERSTANDING

Workshop Objectives:

- Understand key challenges SMEs face
- Explore As-a-service models
- Enable stakeholder dialogue and foster scalable solutions

E-TRUCK ACADEMY



Johnny Nijenhuis

Consultant & Founder

eTruck Academy/Nijenhuis Truck Solutions

Global MoU 2025 Summit

eTRUCK ACADEMY®

essentials for eTruck experts



Johnny Nijenhuis

Challenges of the SME in the transition to eTrucks.

Margins in roadtransport

Question for the audience:

At what margine percentage do transportation companies operate in a “good” year?

Margins in roadtransport

4x2 tractor + 3 axle trailer

Yearly turnover: €150.000,-

Margin: 3%

Yearly profit: €4.500,-

Daily profit: €19,15

Challenges in roadtransport

Very slim margins

=

Working today, to pay the bills of yesterday

=

Short horizons

=

Knowledge gap

Challenges in roadtransport

Very slim margins

=

Forced to implement to lowest cost solutions

=

Sudden quick transition to eTruck

Challenges in roadtransport

Knowlegde gap

+

Sudden quick transition to eTruck

=

End of SME roadtransport?

Challenges in roadtransport

But wait….

There is more!

(it gets worse)

Challenges in roadtransport

Higher CAPEX eTruck

+

Higher CAPEX charging infrastructure

=

Very high capital demand

Challenges in roadtransport

Very high capital demand

=

Very high depth on balance sheet

=

Very low solvency

=

Banks stop financing your company

Challenges in roadtransport

Knowlegde gap

+

High capital demand

+

Sudden quick transition to eTruck

=

Surely the end of SME transport….



NO!

Offcourse not!

Solutions in roadtransport

My two cents?

Charging as a Service
Power as a Service
eTrucks as a Service

Solutions in roadtransport

As a Service:

- Bridges the knowledge gap
- Bridges the financing gap
- Solves the speed gap of implementation


e van wijk
LOGISTICS
wijk
STICS
e van wijk
26
25
24
23
22
21
20
19
18
17
16


MOVED BY
E VAN WIJK
1948 - 2023
75
YEARS
e van wijk
DAF
e van wijk

Johnny Nijenhuis

Johnny@etruckacademy.com

06 1905 7881

www.etruckacademy.nl

eTRUCK ACADEMY®

essentials for eTruck experts

Breakout Discussion 1:

Break out into groups of 3-4 to discuss the following questions:

- Do the challenges highlighted by Johnny capture the experience of SMEs in your country? What is different? What was not shared?
- In your country or context, how are SMEs supported in their electrification journey? Is this support sufficient?
- What interventions can OR have been implemented to ensure SMEs are not left behind in this transition?

L-CHARGE



Julia Fedorova

Chief Marketing Officer

L-Charge

L-CHARGE

Bridging the Gap to Rapid Fleet Electrification



Ultra-fast, Off-Grid
Pay-As-You-Go Service
for Fleets of any size.

L-CHARGE

Challenge

Fleet managers face challenges including infrastructure limitations, high upfront costs and ensuring reliable charging access while maintaining uptime and cost efficiency.

1

Infrastructure limitations

Existing grid often cannot support the energy demand required for fleet electrification.

2

High upfront costs

Significant capital investment in EVs, charging infrastructure and energy upgrades are necessary.

3

Unpredictable scalability

Fluctuating prices and more demand for grid connection makes it hard to plan for the well timed expansion.

How it works now



Make a decision to electrify



Find infrastruc-ture funds $$$,$$$+



Contact the utilities wait 2-3 years



Start permitting process wait 3-9 months



Order EVs



Find charging equipment provider



Start charging

now

2028

L-CHARGE

How it can work quicker



Decision to electrify



Order EVs



Start charging

now

now + 4 weeks

L-CHARGE

L-CHARGE

One stop shop for EV charging

We take away the headache of finding and managing:

Energy provider

EV charging equipment

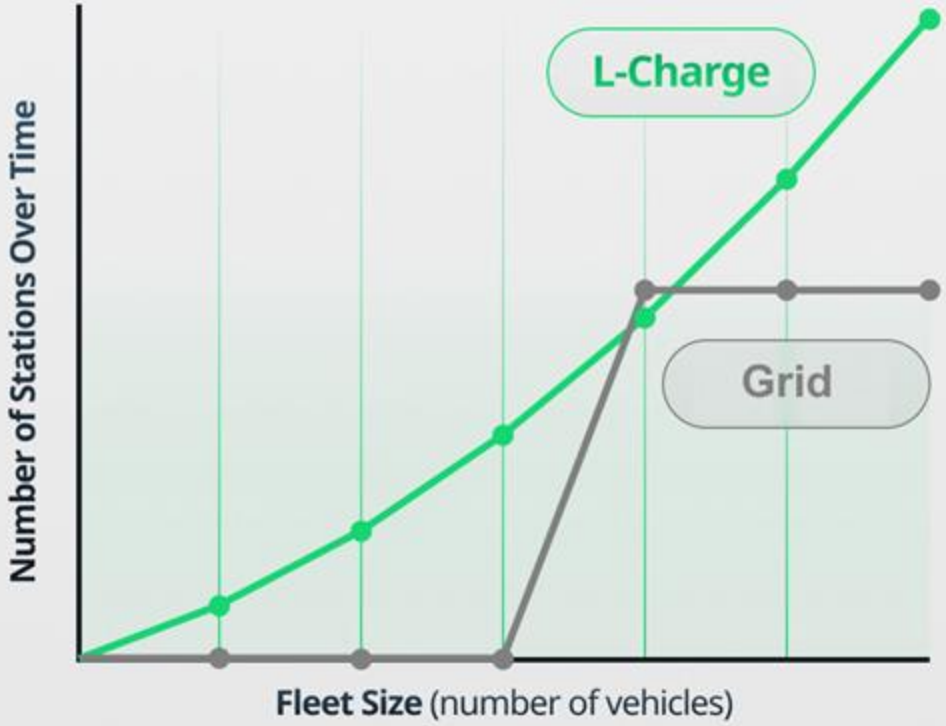
Permit organisation

...by providing all-in-one charging-service



- NO RESOURCE TIE UP : WE DO IT
- START NOW: 4 WEEK DELIVERY
- COST PLANNING FLAT RATE $$
- CAPEX FREE NO RENT, NO LEASE
- 4MWh PER DAY
- L3, ULTRA-FAST CHARGING

Scaling Efficiency



L-CHARGE



Flexible Growth

Start small and scale up as demand increases.

Cost Efficiency

Add stations without overhauling infrastructure.

Seamless Operations

Keep charging capacity aligned with fleet size.

Case Study:
Texas Fleet - Expansion



1st Location:
April 2024, **11 EVs**
- Mobile Charger 1 CCS1 x 75kW

July 2024 , **15 EVs**
- Trailer Charger 2 CCS1 x 60kW each

Aug 2024, **31 EVs**
Nov 2024, **42 EVs**

2nd Location:
Aug 2024, **15 EVs**
- Mobile Charger 1CCS1 x 75kW

Dec 2024
- Trailer Charger 2 CCS1 x 90kW each

Jan 2025, **20 EVs**




All electric
L-CHARGE




27479Y3


HYDROGEN READY
BYD


SIMPLY PARK LAX AIRPORT SPECTRUM
L-CHARGE
ULTRA FAST OFF-BRO CHARGING
HYDROGEN READY



L-CHARGE

Success stories

Ride-sharing



Will Coleman,
CEO,
ALTO

Watch here

Distribution



Juan Corcino,
Sustainability Director,
Manhattan Beer Distributors
Watch here

Transportation



Remo Weber,
Director,
LAX Transportation Connection Inc.
Watch here

L-CHARGE

No brainer?



portable charging

available to be brought to virtually any location



no CAPEX

preserve capital on our charging-as-a-service model



no wait

unit delivered in weeks not months or years



clean fuels

hydrogen-ready and powered by renewable natural gas and other clean fuels

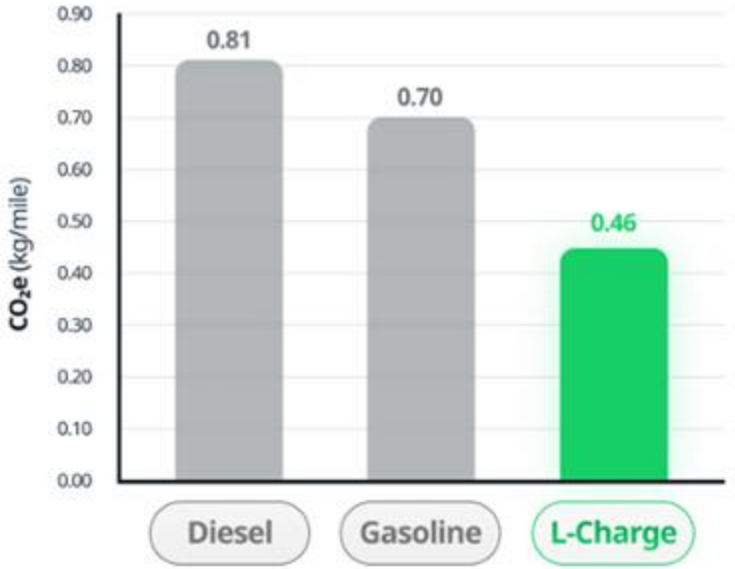
L-CHARGE

Fuels

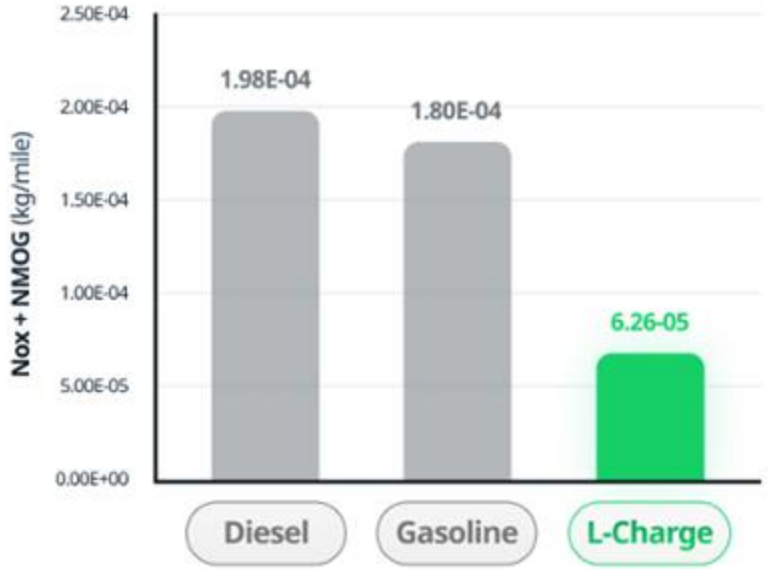


L-Charge Emissions Comparison

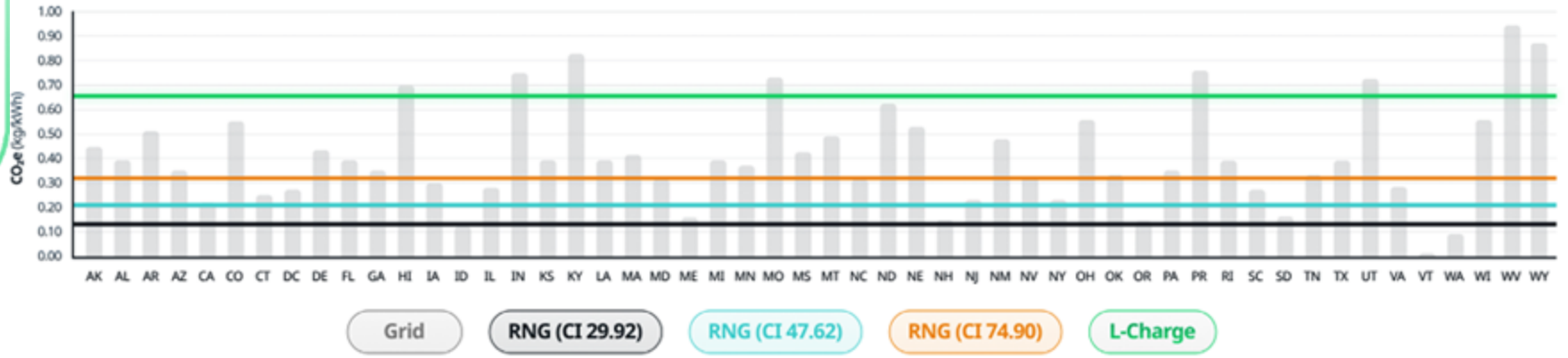
Average GHG by Fuel Type



Average NOx + NMOG by Fuel Type



The Grid vs L-charge w/RNG



L-Charge whitepaper: An Environmentally Friendly Solution for EV Charging (2025)

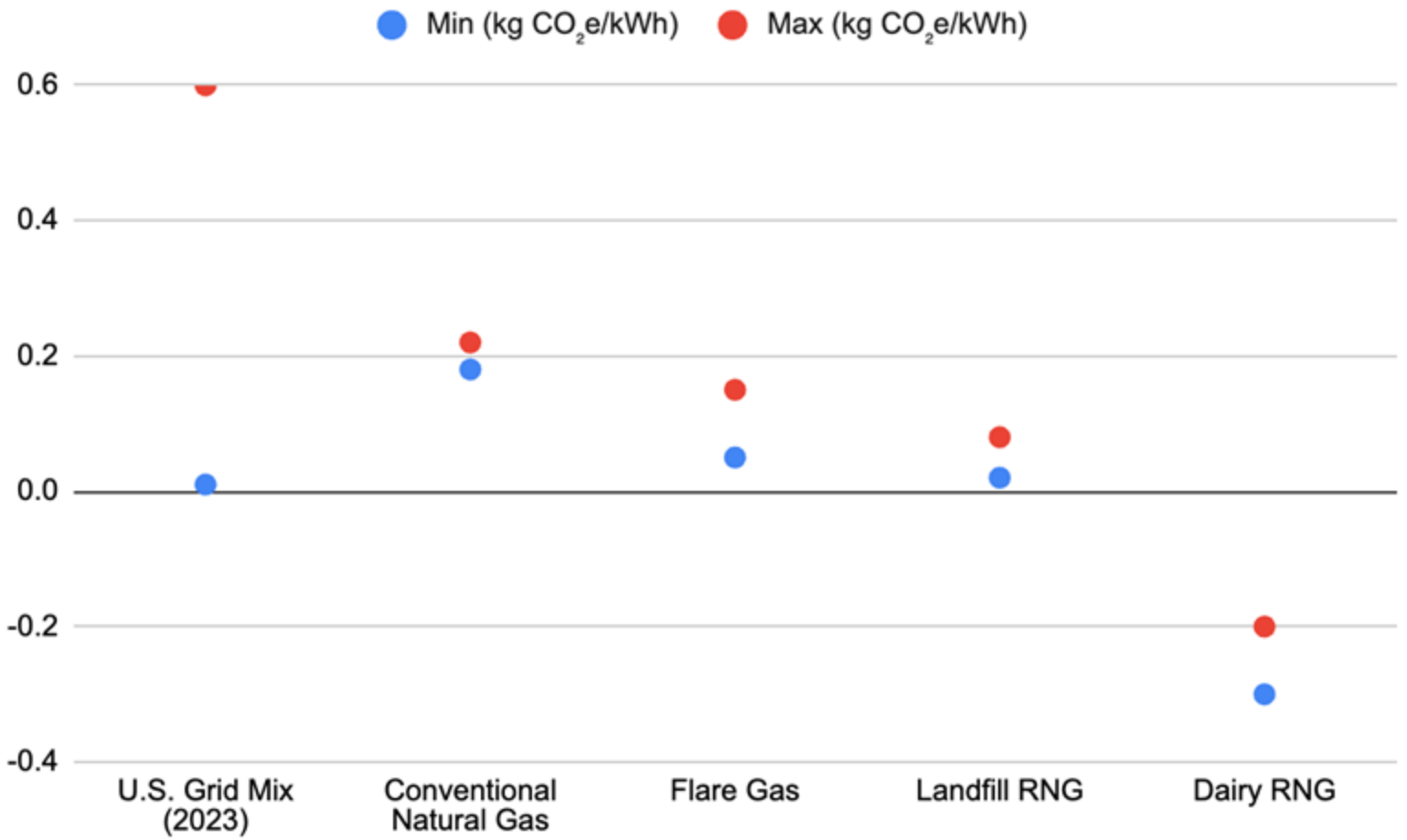
Emission levels for electricity production (g/kWh)

Emission	Diesel	Propane	Natural Gas	RNG	Flare Gas
NOx*	0.032	0.032	0.032	0.032	0.032
VOC*	0.045	0.045	0.045	0.045	0.045
CO*	0.09	0.09	0.09	0.09	0.09
CO_2	**835.77**	**748.73**	**626.23**	**<0**	**-146.72 (CO_2e)**

*Governed by SCAQMD regulations (strictest in the world)

L-CHARGE

Lifecycle emissions intensity by fuel type



L-CHARGE

L-CHARGE

Ballpark Pricing

US Nationwide Pricing (including Austin, Atlanta, and Los Angeles; excluding New York State islands)



Price per kWh, based on fuel gas type

LNG/CNG	$0.30 per kWh
Grid equal RNG mix (29%)	$0.45 per kWh (0.8lbs CO2/kWh)
Net zero RNG mix (72%)	$0.59 per kWh (0.0lbs CO2/kWh)

Solution



1

Speedy deployment

L-Charge’s mobile charging units allow for quick deployment, enabling businesses to expand EV infrastructure with minimal setup time.

2

No infrastructure cost

Charge-as-a-Service model allows for tailored pricing per customer, making charging accessible without large upfront investments.

3

Scalability, to add more energy

Our modular design allows us to scale together with the businesses we power, as their EV demands grow.

L-CHARGE



About us

At L-Charge, we envision a world where electric **fleets aren't limited by charging infrastructure**, but instead thrive with clean and innovative charging solutions.

> Our mission is to lead the charge in the global **transition to sustainable** transportation by providing ultra-fast immediately available, CAPEX-free EV charging services.

We aim to **accelerate the adoption** of electric vehicles, reduce carbon emissions, and shape a cleaner, greener planet for generations to come.

L-CHARGE



Power the future of EV charging and sustainability with us

L-CHARGE

ZENOBĒ



Peter Pauwels

General Manager - Benelux

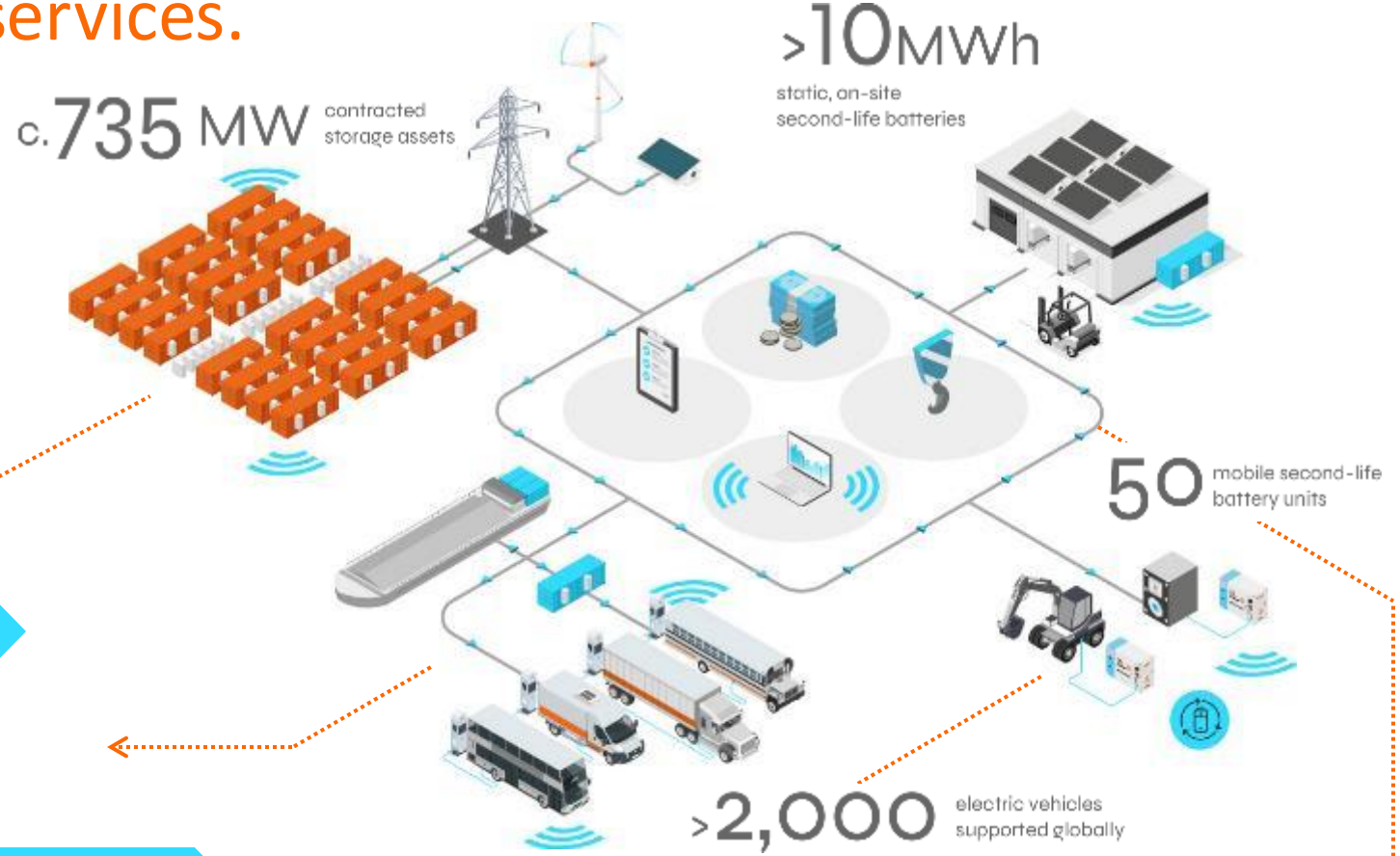
Zenobē

+ Introduction to Zenobē -

ZENOBĒ



Zenobē designs, finances, builds and operates battery-based services.



1. Network infrastructure

We develop, finance, build and operate grid-scale battery storage systems.

2. Fleet electrification

We provide end-to-end electric vehicle and software solutions for fleet operators

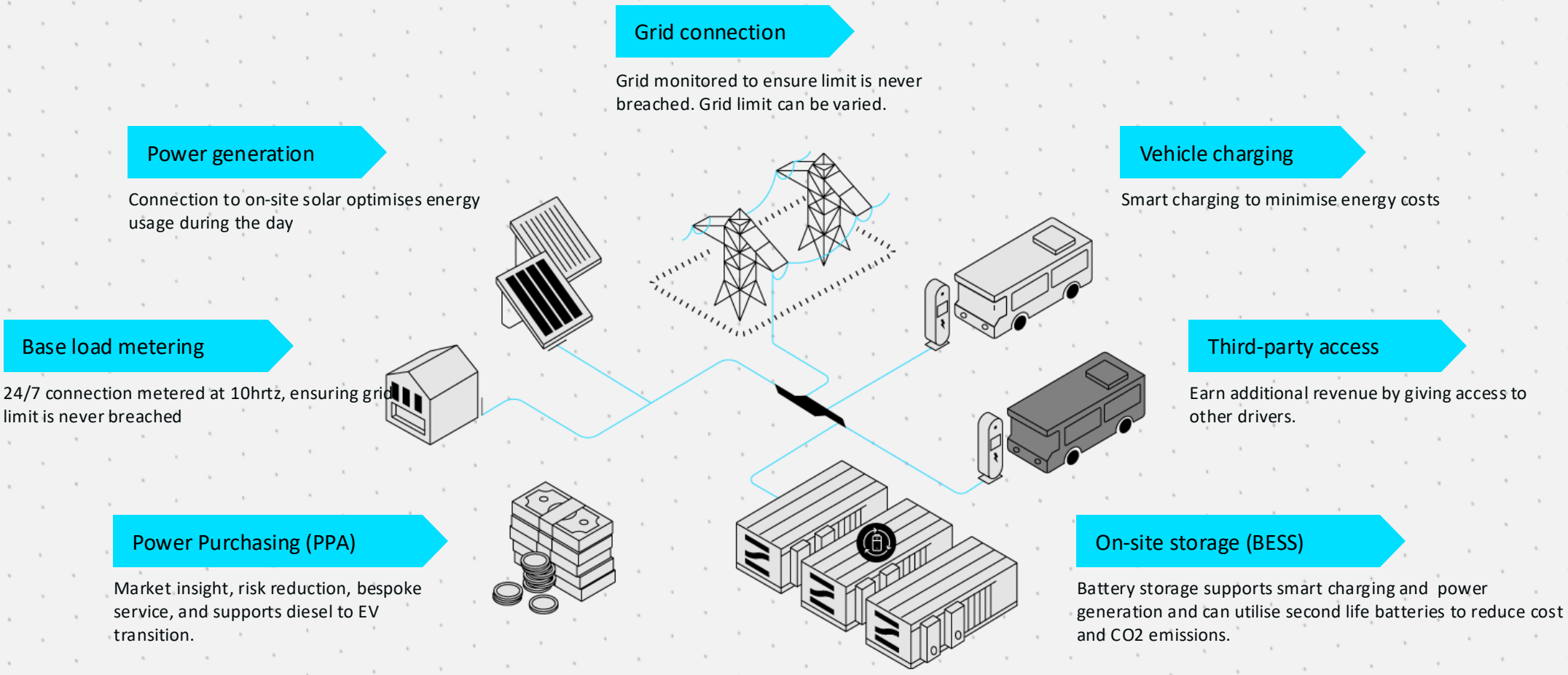
3. Second life batteries

We support the circular economy of batteries – upcycling, reuse, and recycling.

We also offer financing, operational support, software management and construction to help de-risk our battery storage and fleet electrification offerings.

Maximising power across all assets

Moving to electric enables you to take control of your power. Zenobē can help you capture, store and distribute power all while running successful, hyper-efficient bus operations.



EURO PER KILOMETER

- EURO/KWH
  - Grid connection
  - Contract
  - Renewable energy
  - Timing
  - Revenue
- KWH/KM
  - Chauffeurs
  - Vehicles
  - Routes

EPEX prijzen 2023

UUR	jan	feb	mrt	apr	mei	jun	jul	aug	sep	okt	nov	dec
0:00	€ 98	€ 125	€ 99	€ 105	€ 94	€ 104	€ 93	€ 97	€ 91	€ 79	€ 72	€ 56
1:00	€ 87	€ 120	€ 92	€ 96	€ 86	€ 96	€ 81	€ 91	€ 85	€ 70	€ 66	€ 52
2:00	€ 83	€ 115	€ 90	€ 95	€ 83	€ 91	€ 73	€ 88	€ 83	€ 62	€ 63	€ 48
3:00	€ 76	€ 112	€ 87	€ 92	€ 80	€ 90	€ 68	€ 84	€ 81	€ 58	€ 58	€ 45
4:00	€ 76	€ 110	€ 87	€ 91	€ 81	€ 88	€ 67	€ 84	€ 79	€ 57	€ 59	€ 45
5:00	€ 83	€ 114	€ 91	€ 99	€ 88	€ 93	€ 72	€ 88	€ 86	€ 63	€ 65	€ 49
6:00	€ 108	€ 131	€ 109	€ 114	€ 96	€ 102	€ 79	€ 104	€ 109	€ 84	€ 84	€ 58
7:00	€ 132	€ 153	€ 127	€ 129	€ 104	€ 112	€ 87	€ 114	€ 134	€ 107	€ 104	€ 71
8:00	€ 158	€ 166	€ 132	€ 132	€ 99	€ 109	€ 90	€ 107	€ 123	€ 122	€ 115	€ 87
9:00	€ 163	€ 154	€ 118	€ 113	€ 84	€ 92	€ 77	€ 94	€ 103	€ 112	€ 109	€ 92
10:00	€ 148	€ 135	€ 102	€ 94	€ 69	€ 77	€ 62	€ 80	€ 81	€ 95	€ 99	€ 87
11:00	€ 139	€ 122	€ 93	€ 76	€ 54	€ 67	€ 44	€ 68	€ 72	€ 79	€ 95	€ 83
12:00	€ 132	€ 117	€ 82	€ 60	€ 37	€ 57	€ 25	€ 56	€ 61	€ 69	€ 90	€ 74
13:00	€ 128	€ 112	€ 77	€ 48	€ 22	€ 46	€ 15	€ 47	€ 53	€ 63	€ 91	€ 72
14:00	€ 132	€ 116	€ 77	€ 48	€ 14	€ 49	€ 12	€ 44	€ 55	€ 62	€ 98	€ 78
15:00	€ 139	€ 125	€ 80	€ 56	€ 23	€ 56	€ 19	€ 54	€ 66	€ 70	€ 109	€ 86
16:00	€ 146	€ 136	€ 90	€ 71	€ 49	€ 68	€ 41	€ 67	€ 80	€ 89	€ 119	€ 91
17:00	€ 167	€ 160	€ 118	€ 94	€ 72	€ 86	€ 63	€ 87	€ 108	€ 118	€ 137	€ 104
18:00	€ 169	€ 180	€ 139	€ 117	€ 92	€ 105	€ 84	€ 108	€ 145	€ 141	€ 136	€ 102
19:00	€ 154	€ 168	€ 148	€ 136	€ 110	€ 121	€ 108	€ 134	€ 190	€ 153	€ 121	€ 94
20:00	€ 144	€ 154	€ 133	€ 140	€ 119	€ 136	€ 122	€ 144	€ 160	€ 127	€ 107	€ 84
21:00	€ 131	€ 145	€ 121	€ 132	€ 113	€ 133	€ 123	€ 132	€ 122	€ 102	€ 96	€ 73
22:00	€ 123	€ 139	€ 113	€ 121	€ 105	€ 121	€ 115	€ 118	€ 107	€ 97	€ 92	€ 68
23:00	€ 108	€ 127	€ 104	€ 110	€ 96	€ 108	€ 103	€ 102	€ 95	€ 87	€ 80	€ 57

Bron: ENTSO-E





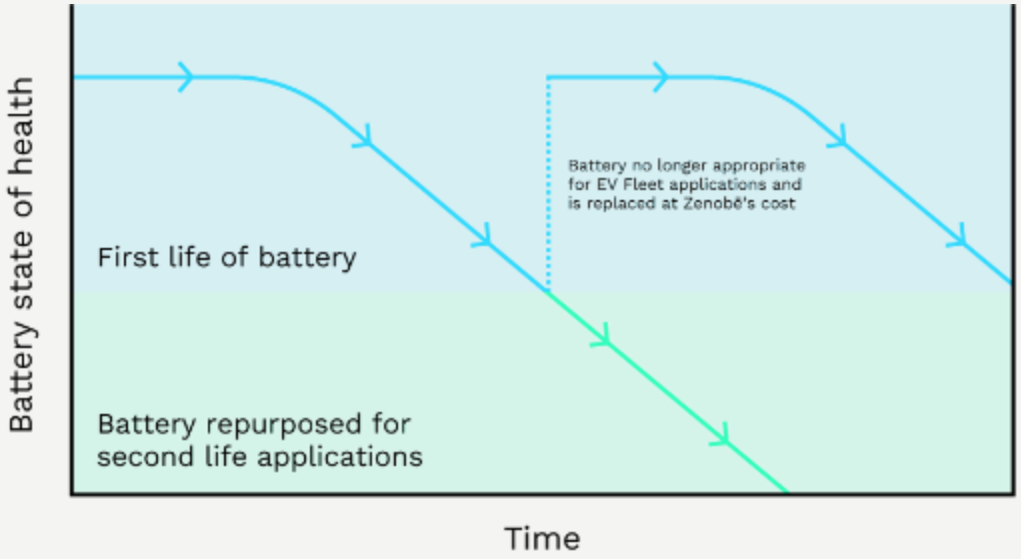
Second life batteries

Extending EV battery life and value in second-life applications



Why are we giving a second life to electric vehicle batteries?

- ✓ Support the circular economy of batteries – upcycling, reuse, recycling
- ✓ Avoids the environmental impact of new battery production
- ✓ Extends the life of batteries so that they can continue to replace emission-generating technology
- ✓ Lowers the cost of first life battery applications







+ THANK YOU-

peter.pauwels@zenobe.com
+32 477 503553

ZENOBE



SENNDER/JUNA



Otto Gussenhoven

Global Key Account Manager

Sennder/JUNA

sennder

×

SCANIA

ELECTRIC TRUCKS. MADE POSSIBLE.

Accelerating risk-free EV adoption for SMEs

PAN-EUROPEAN FOOTPRINT

Operating in
>20 markets

120K+
FTL per month

800+
Chartered trucks

25,000
Vetted carriers

25
offices

1,600+
employees

6
Acquisitions

SERVING

12+

INDUSTRIES

Including food & beverage, FMCG, automotive, fashion & retail, logistics partners, industrial manufacturers, e-commerce and more.

PROVIDING ACCESS TO

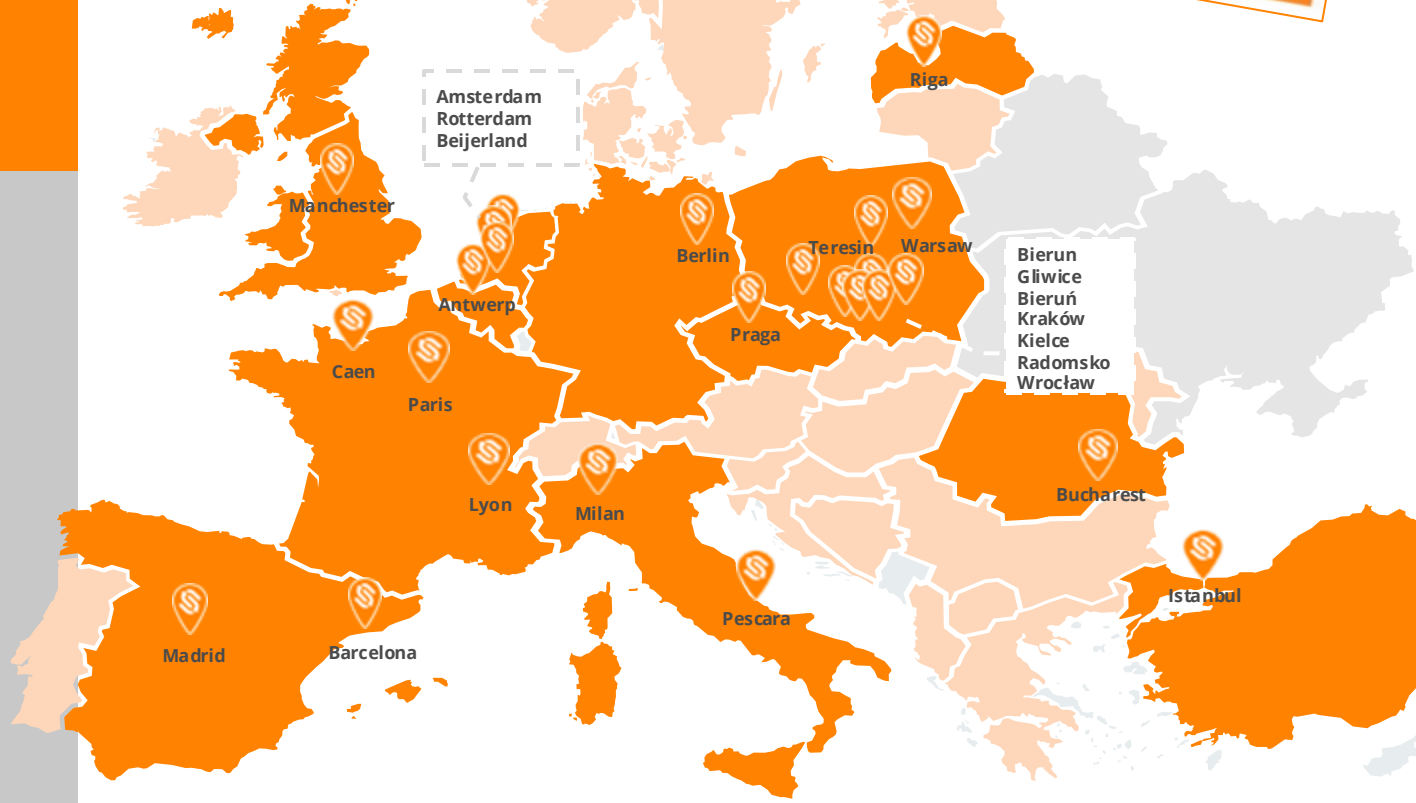
250K*

VEHICLES

Covering local and international lanes across Europe.

* as of October 2022

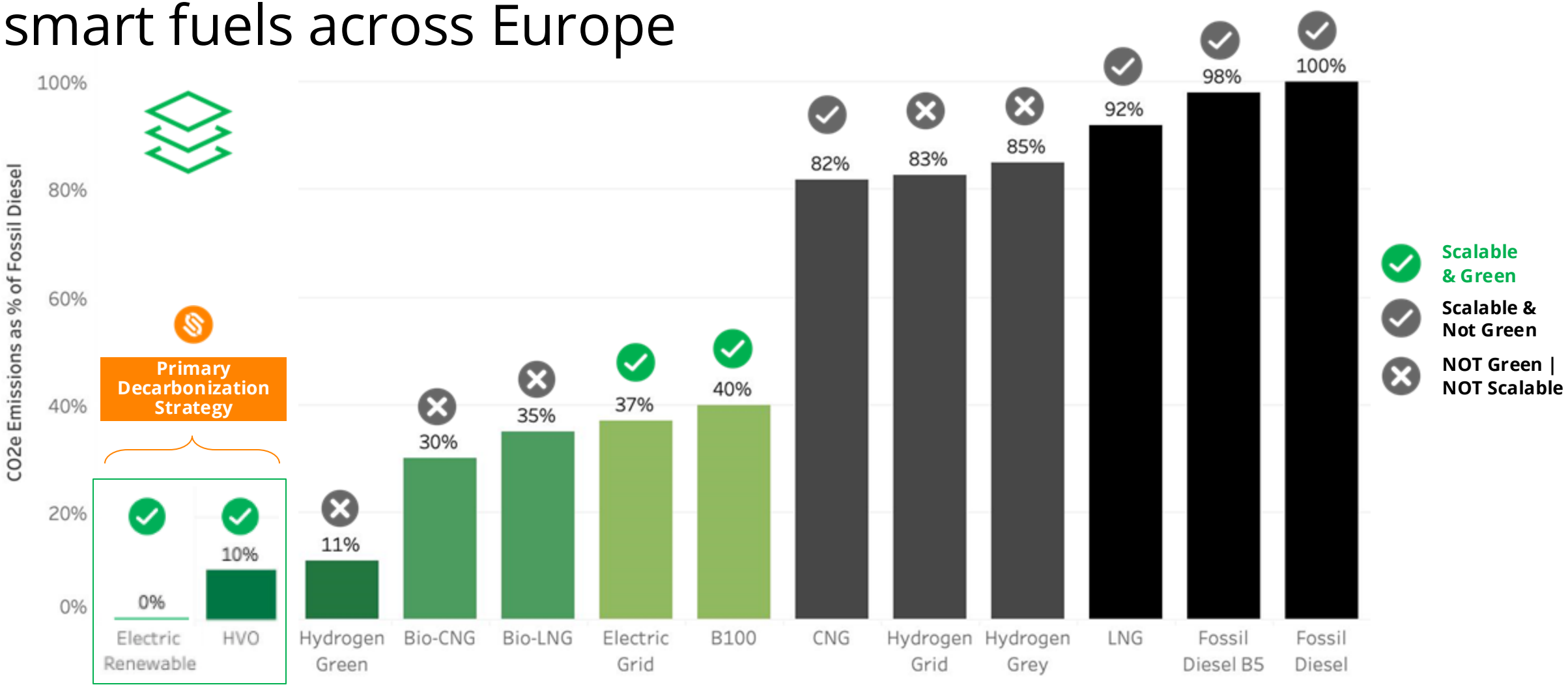





Our ambition is to be the g enes
freight company in Europe
Moswens.nl
100% natuurlijk, 0% onderhoud!
Moswanden
Mosbogs's
Mosschilderijen
Akoestische mosparneien
Jungle wanden

sennder

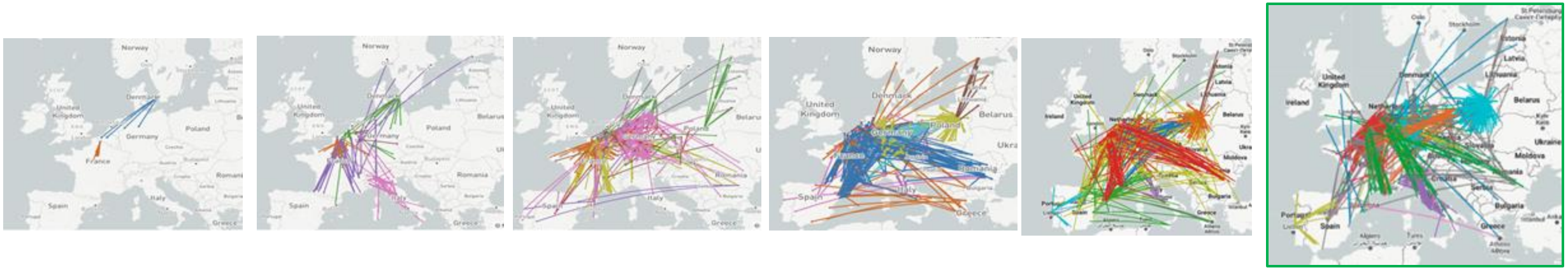
We enable scalable decarbonization through smart fuels across Europe



sennder

Exponential growth of Green operations





JUNA JUNA JUNA

- 100,000+ Green Loads Executed
- World-Class Carbon Reporting
- Leader in Electrification

Global MoU Summit 2025 - sennder & JUNA



DRIVING THE ADOPTION OF ELECTRIC TRUCKS AT SCALE WITH A SOLUTION TAILORED TO INDUSTRY NEEDS

SHIPPERS

~25%

of shipper's emissions are from transports

(-35% average reduction target*)

ENABLE COST-EFFECTIVE ZERO-EMISSION TRANSPORT SOLUTIONS!

TRUCK OEMs

~300K

average cost of an electric truck

(2-3x ICE truck cost)

MARKET E-TRUCKS TO MEET NEW FLEET EMISSION STANDARDS!

CARRIERS

~7 TRUCKS

average fleet size of EU carriers

(-300k euro average fleet book value)

DE-RISK FLEET RENEWAL DURING TECHNOLOGY SHIFT TO E-TRUCKS!



JUNA'S PRODUCT APPROACH TO IMPLEMENTING COST-EFFECTIVE ELECTRIC TRANSPORT



+ **EV ADVISORY & OPS PLANNING** — sennder JUNA

+ **PRIVATE & PUBLIC CHARGING** — Shell, Aral pulse, Erinion, ElectroFleet, EnBW, PFALZWERKE, milence, Allego

+ **UTILIZATION & CARRIER SERVICES** — sennder

CAPACITY + TRANSPORT DISTANCE →



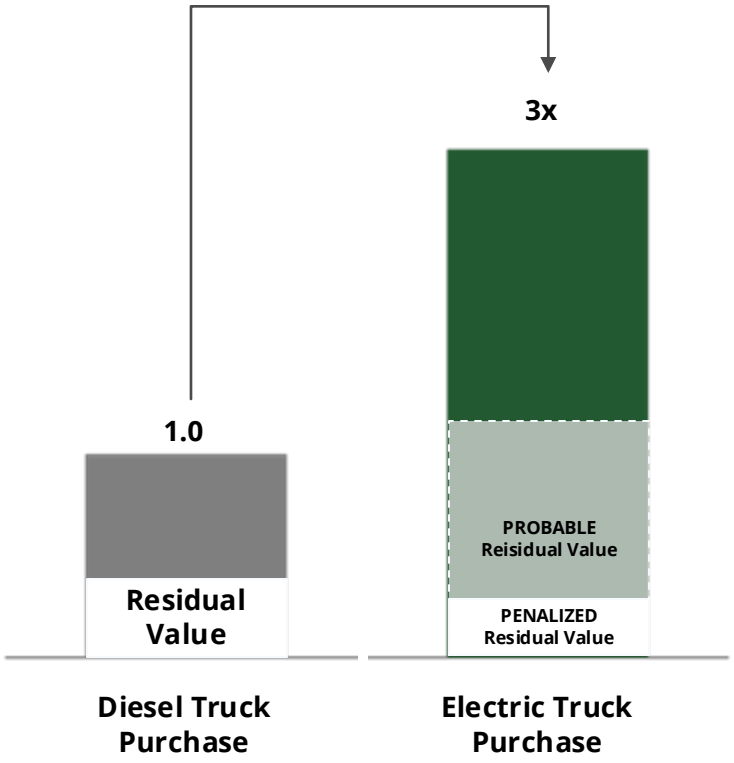


REGIONAL AND LONG-HAUL TRANSPORT

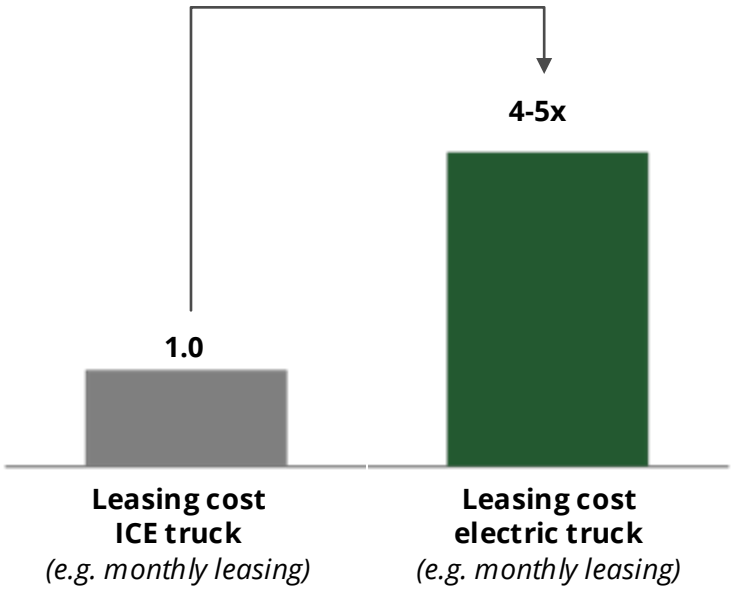


JUNA Solves a critical issue to make electric trucks affordable and possible

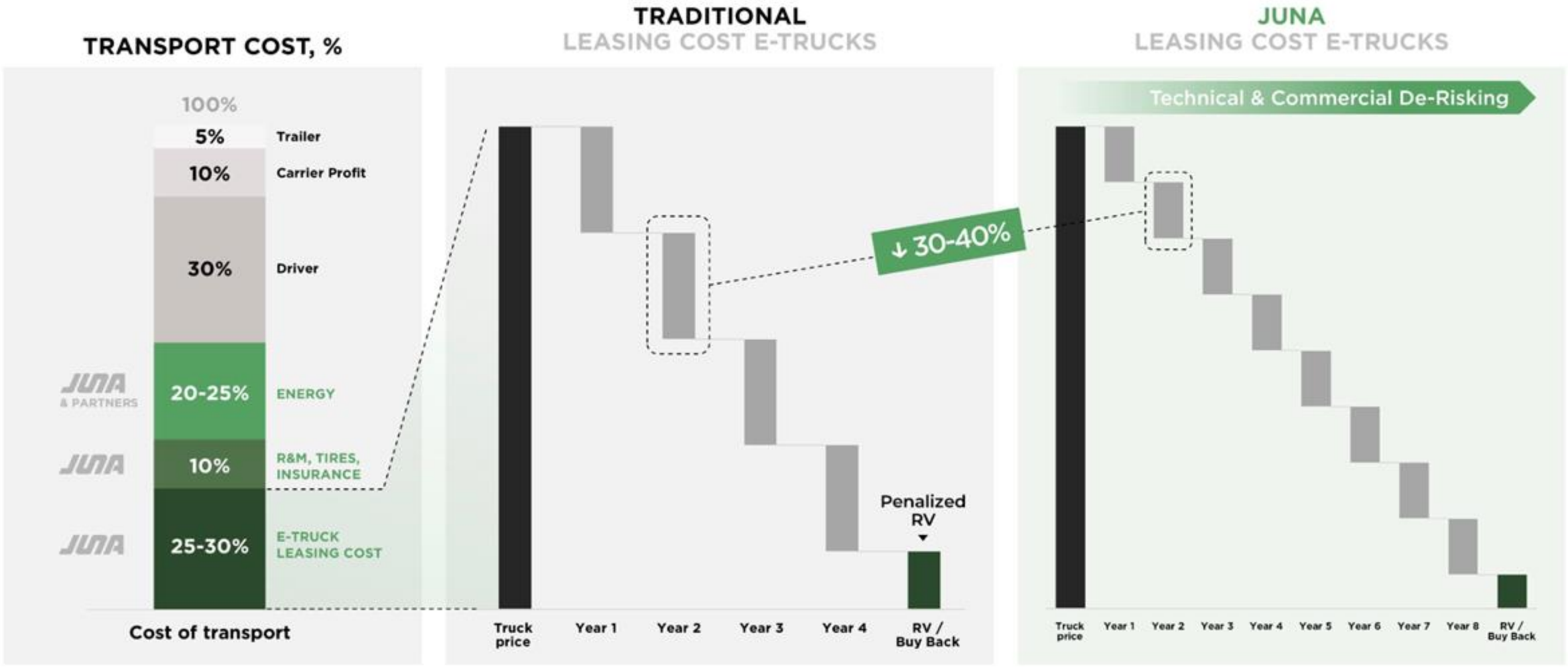
Diesel vs. Electric Truck Purchase Price



Diesel vs. Electric Truck Traditional Lease

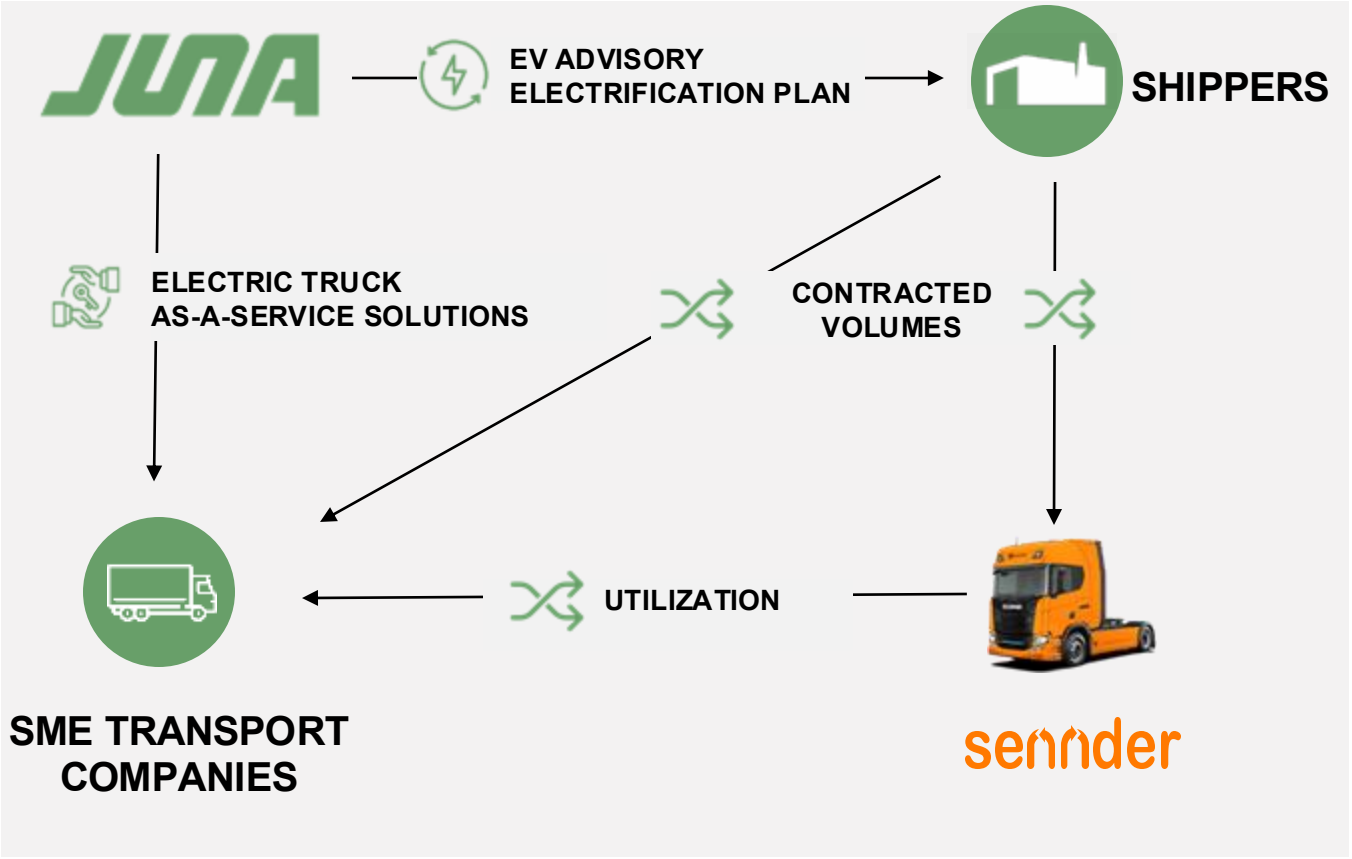


OPTIMIZING LONG-TERM FINANCING & FLEET UTILIZATION



THE SENNDER & JUNA APPROACH
ENABLING THE ECOSYSTEM TO SCALE ELECTRIFY

APPROACH: ENABLING THE ECOSYSTEM



UNIQUE VALUE SCALING ELECTRIC TRANSPORT

- **COST-OPTIMIZED** E-TRUCK SOLUTIONS THROUGH A **TURNKEY SOLUTION**
- **EFFICIENT** ELECTRIC LANES **IDENTIFICATION AND PLANNING** (I.E., MAX UTILIZATION)
- **EFFECTIVE RISK MGMT.** THROUGH PAY-PER-**UTILIZATION AND FLEXIBLE CONTRACTS**
- **EFFICIENT AND RELIABLE CHARGING SETUP** WITH **IMPROVED ENERGY COSTS**

THE MULTI-BRAND FLEET STRATEGY ADDRESSES A DIVERSE SET OF USE CASES







Model	Scania BEV 3	MAN eTGX	Volvo FH Electric	Renault E-Tech T	Daimler eActros 600
Configuration	4x2 Standard	4x2 Low-Liner	4x2 Standard	4x2 Standard	4x2 Standard
Battery size	624 kWh	534 kWh	540 kWh	540 kWh	621 kWh
Usable battery	518 kWh (83% SOC)	480 kWh (90%)	378 kWh (70% SOC)	378 kWh (75% SOC)	560 kWh (95%)
Battery chemistry	NMC	NMC	NCA	NCA	LFP
Range	400 Km	400 Km	300 Km	300 Km	500 km
E-Axle	No	No	No	No	Yes
Weight	11.23	10.640	10.581	10.945	11.605
Availability	***Immediately***	***Q3 2025***	***Immediately***	***Immediately***	***Q3 2025***

1. NMC: stable and known tech. , more energy density, LFP: lower energy density, NCA: similar to NMC


sennder
THIS TRUCK RUNS 100% ELECTRIC
sennder
Nestlé Good food, Good life
SCHOBER
JUNA
SCANIA
100% Electric Vehicle

sennder JUNA

Thank you



Otto Gussenhoven
Head of Commercial
Green Business and eMobility
otto.gussenhoven@sennder.com

Breakout Discussion 2:

Break out into (new) groups of 3-4 to discuss the following questions:

- Considering the barriers that SMEs face, do you feel the AAS model is a fitting solution to accelerate MHDV decarbonization in your country/context? Why or why not?
- Several AAS models were presented. In your perspective what aspect of the AAS models would be most useful at this stage/in your context? Would a specific model work better or worse?
- What are the underlying risks (pros/cons) of the models presented? Many SMEs are used to owning the vehicle assets, how might this shift?
- What would effective public-private partnership look like in this context?

CALSTART | GLOBAL COMMERCIAL VEHICLE DRIVE TO ZERO | Government of the Netherlands

FOR MORE INFORMATION, VISIT: HTTPS://GLOBALDRIVETOZERO.ORG/MOU/

GLOBAL MEMORANDUM OF UNDERSTANDING

Summit Sponsored by: DHL Group | milence

ARUBA • AUSTRIA • BELGIUM • CANADA • CAPE VERDE • CHILE • COLOMBIA • COSTA RICA • CROATIA • CURAÇAO • DENMARK • DOMINICAN REPUBLIC • ETHIOPIA • FINLAND • GHANA • ICELAND • IRELAND • ISRAEL • LIECHTENSTEIN • LITHUANIA • LUXEMBOURG • MONTENEGRO • MOZAMBIQUE • NETHERLANDS • NEW ZEALAND • NORWAY • PERU • PAPUA NEW GUINEA • PORTUGAL • SCOTLAND • SEYCHELLES • SINT MAARTEN • SWITZERLAND • TONGA • TURKEY • UKRAINE • UNITED KINGDOM • UNITED STATES • URUGUAY • WALES

+250 ENDORSERS

As-a-Service Business Models

Charging-as-a-Service (CaaS)
- Charging infrastructure
- Charge management
- Fleet management software
- Utility bill management



Infrastructure-as-a-Service (IaaS)

CaaS PLUS:
- Distributed Energy Resources
  - Solar PV
  - Energy storage systems
- Microgrid configurations



Electrification-as-a-Service (EaaS)

CaaS or IaaS PLUS:
- Vehicle procurement and ownership
- Vehicle leasing/rental
- Vehicle maintenance

