



Powering A Cleaner Tomorrow

How energy management
can increase customer value

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heliox
A Siemens Business

⚡ Heliox is a market leader providing **smart e-mobility solutions**



e-Bus



e-Truck



Passenger vehicles



Marine, port & mining

2009

Founded in Best,
the Netherlands

2018

Acquired by
Waterland
Private Equity

2020

Powered first e-
trucks for Albert
Heijn, Zaandam

2022

Reached milestone of
powering +125 global
cities; entered Truck &
Passenger vehicle
segments

2014

Delivered the
world's first
electric bus depot
in Eindhoven

2019

Delivered the world's
largest fast charging
network at
Amsterdam's Airport
(32 MW)

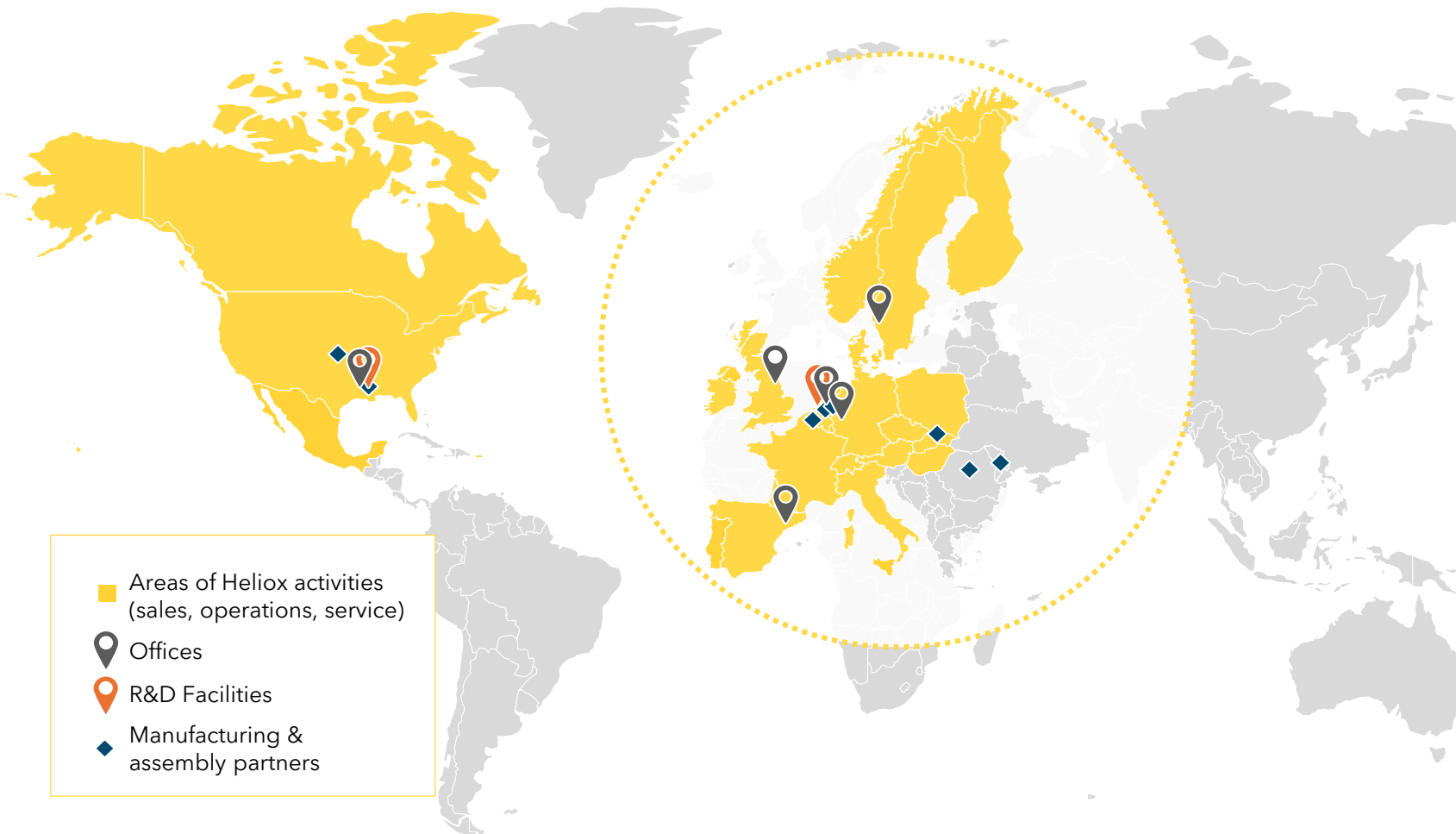
2021

Opened office in
Atlanta, Georgia,
North America

2024

Continue to deliver
fast charging
solutions as part of
Siemens eMobility

A strong international footprint & blue-chip partners



END-USERS		OEMs	
Bus			
 Metro	 SWB Bus und Bahn	DAIMLER	 VPL BUS & COACH
 First	 PRINCETON UNIVERSITY	 YUTONG	 WRIGHT
 transdev the mobility company	 Qbuzz	 BYD	 VOLVO
Truck			
 PROLOGIS	 van Kessel	 VOLVO	PACCAR  Cummins
 PEPSICO	 Ahold Delhaize	 MAACK	 DAF  MAN
Passenger vehicles			
 HANNAIK ENERGY & WATER SOLUTIONS	 TAMAIL	 OK	
Mining & Marine			
		 VOLVO	 DAMEN



Heliox + Siemens eMobility in numbers



~1,400
Employees



>80,000
Installed chargers



>800
Projects



>60
Countries



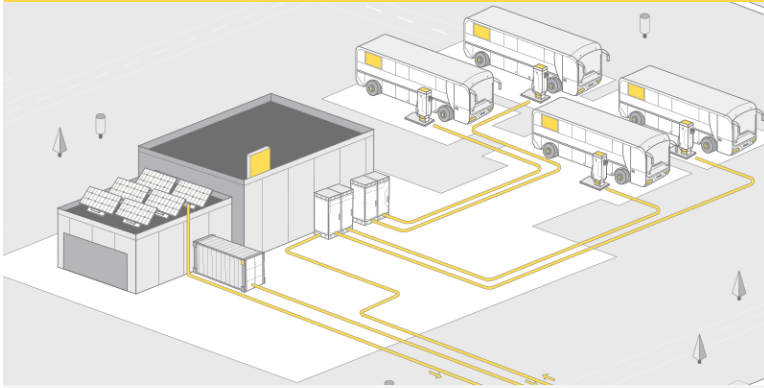
Our offering: The complete charging solution



Charging strategies

How can you charge?

Overnight

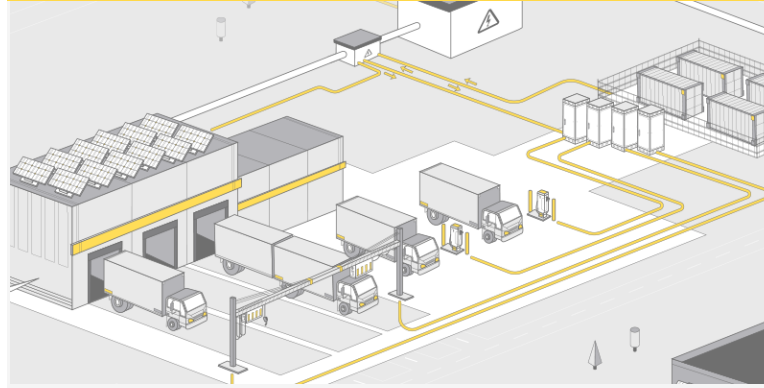


- ✓ Most common charging strategy; lower DC power is cost-effective
- ✓ Works well when vehicles are parked for 4-8 hrs at depot/site

 Depots, Truck stops

 **Bus:** 50 - 100 kW
Truck: 50 - 150 kW

Destination

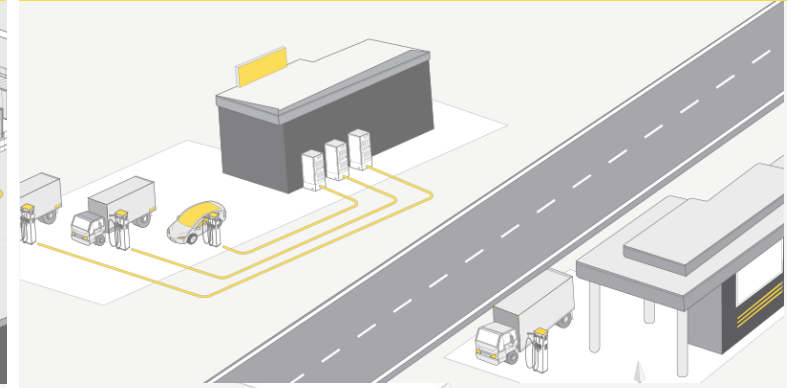


- ✓ Charging during loading / unloading (30 min - 2 hours)
- ✓ Necessary for e-trucks when range < daily distance driven

 Warehouse, distribution centres, logistic hubs

 **Truck:** 150 - 400 kW

En-route

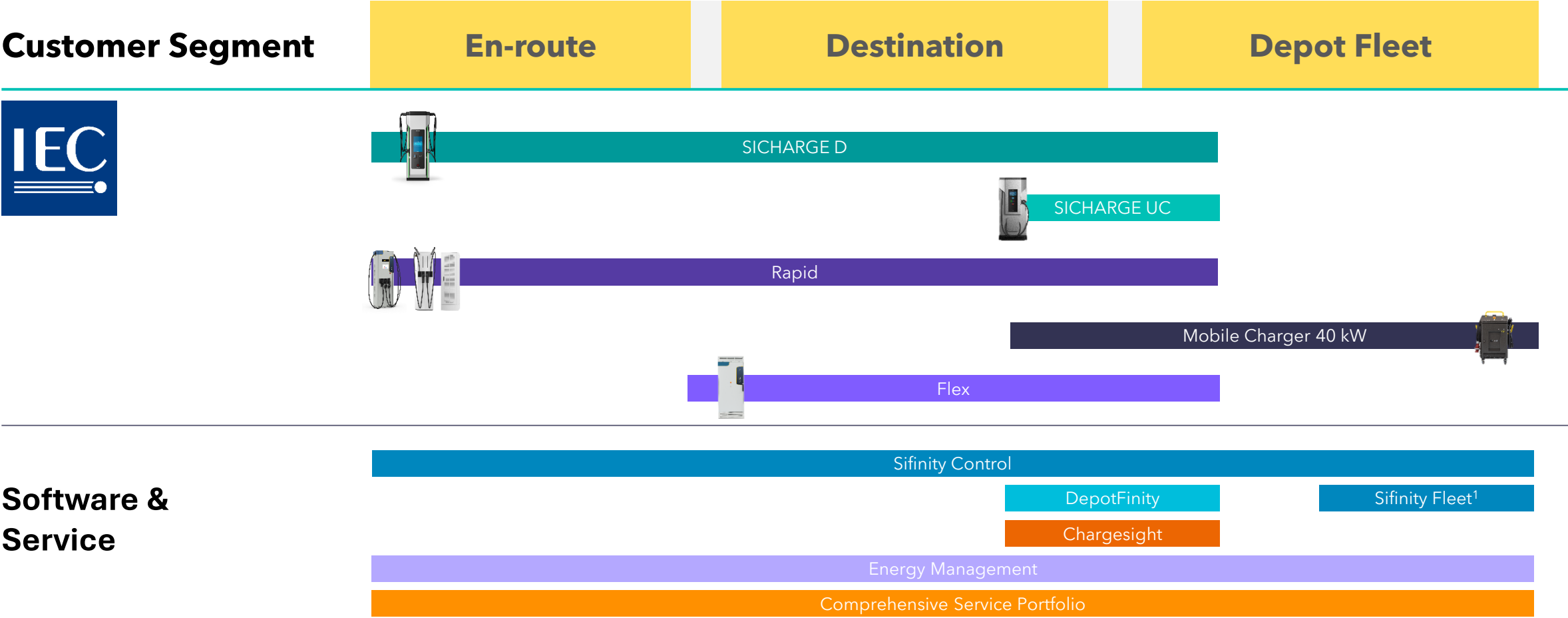


- ✓ Charging at end of route (10-15 min) or along corridors (30-45 min)
- ✓ Necessary when range < daily distance driven

 Bus stops, public charging stations along highway

 **Bus:** 350 - 600 kW
Truck: 500 - 1200 kW

eMobility Portfolio Overview



¹ Once authorized for sale

Mobile charger 40 kW CE

“Works with your car, bus and truck, anywhere, anytime; the ideal plug and play solution”



IP54 rated,
suitable for
outdoor use

Up to 10m reach
(5m AC, 5m DC
cables)

16A (10kW) /
32A (20kW) /
63A (40kW)
power options



Reliability on-the-go: DC fast charging in workshops, testing environments or for emergency situations / redundancy at your site. The ideal solution to start your electrification journey.



Plug & play: Charging starts automatically after plug in, providing a hassle-free and user-friendly experience. Its various power options provide flexibility to match your AC wall-socket connection



Robust & portable design: A strong metal casing and wheel system design to withstand the demands of daily use

Flex system 180 / 360 kW CE



Class-leading power factor (0.99) and efficiency (>96%)

Supports CCS, Panto-up and panto-down

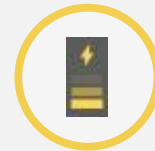
Supports charging of multiple outlets

Supports depot and opportunity charging

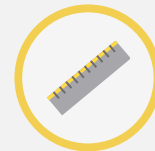
“Flexible in power range, interface, outlet number and power sharing capabilities”



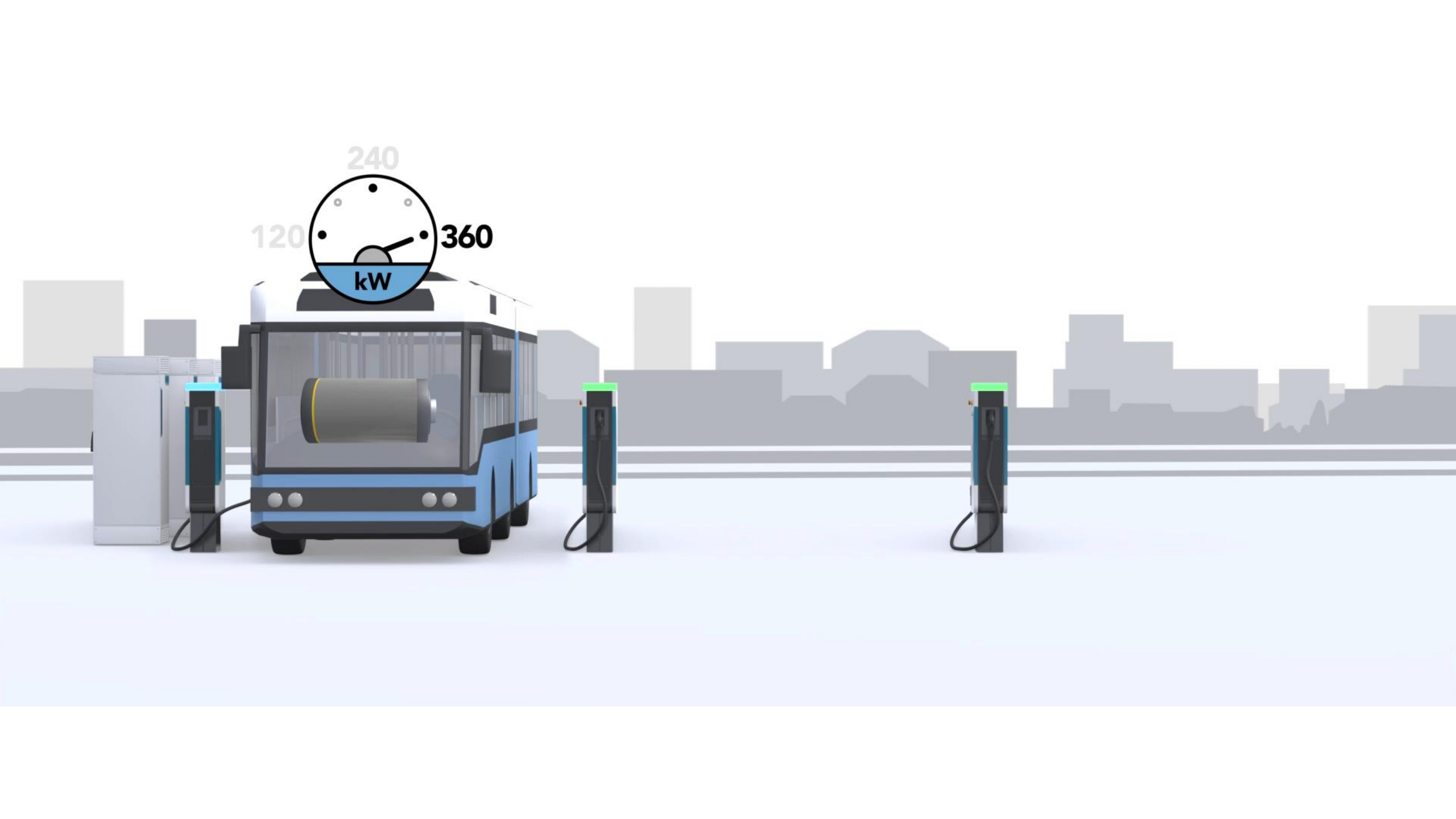
Flexible configuration: Mix and match power cabinets with your preferred connector type and dispenser design (pedestal, wall-mounted, overhead) to create the optimal charging solution for your site.



Dynamic charging: The Flex charger can route power in increments of 60/120kW, serving up to 3 vehicles at the same time. This provides in-system redundancy and increases the utilization of the total power installed



Optimize footprint: With a max distance of 100m between a power cabinet and dispenser, this system enables efficient and safe site design



240

120

360

kW

⚡ Rapid 360 at a glance

Operator-friendly

- ✓ Quick installation & commissioning
- ✓ Pre-conditioning & wake-up support
- ✓ Supports energy management

Powerful

- ✓ Parallel charging
- ✓ Constant 500A output > 60 min.



User-friendly

- ✓ Intuitive user interfaces incl. payment terminal
- ✓ Convenient cable management
- ✓ Barrier-free access

Grid-friendly

- ✓ High-quality power conversion
- ✓ Reactive power compensation to serve grid instabilities



Energy management

It's more than just hardware...

Virtual Power Plant

Combining decentralized energy resources to act as a single entity, improving grid stability and efficiency. Involves participation in imbalance markets, adjusting in real-time to match electricity supply and demand.

Potential savings of up to 60%

Charging Unit

Stationary battery

Potential savings of up to 33%

Charging Unit

Stationary battery

Charging Unit

Load Management

Efficiently distributing power to charge multiple EVs while considering local grid capacity and power limitations. Charge as fast as possible based on your current grid connection.

Energy Management

Optimizing EV charging for speed, sustainability, and cost-effectiveness using local green energy and/or a stationary battery. Works with a day-ahead market contract, allowing for better planning based on expected supply and demand conditions.

ISO 15118-20 introduces so-called 'value adding services':

The VDV introduces the following two:

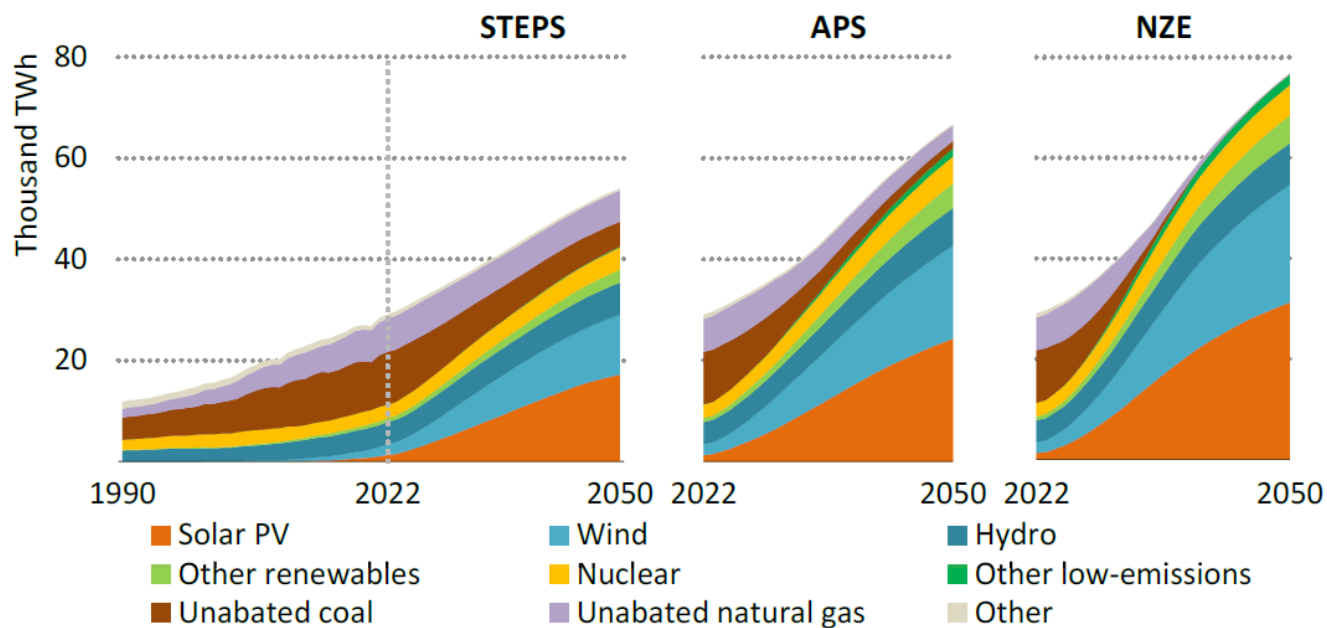
1. Preconditioning
VDV261

2. Smart Scheduling
VDV463

Developments in Europe

A rapid increase in sustainable energy production

Figure 3.15 ▶ Global electricity generation by source and scenario, 1990-2050

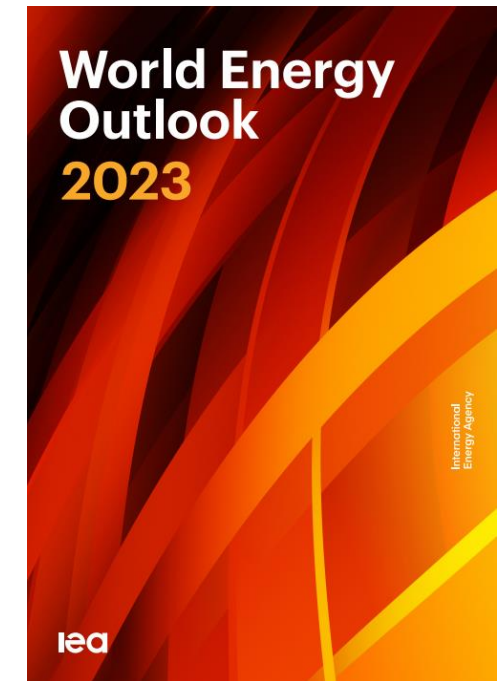


IEA. CC BY 4.0.

Renewables outpace electricity demand growth to 2030 in the STEPS, leading to a peak in coal-fired power in the near term though announced pledges call for faster declines

[Met betrekking tot Europa]

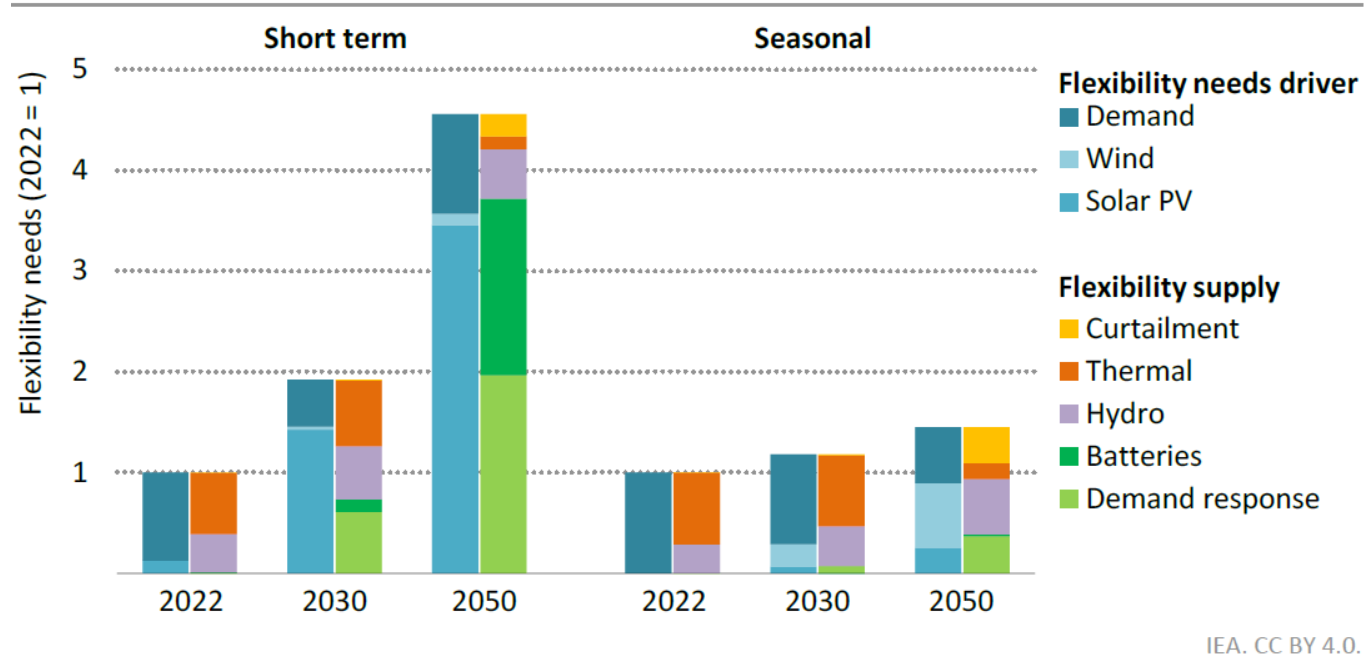
"Renewables make up two-thirds of electricity generation in 2030, up from 39% in 2022, with wind and solar PV accounting for over 85% of the new capacity built in this period." (p. 216)



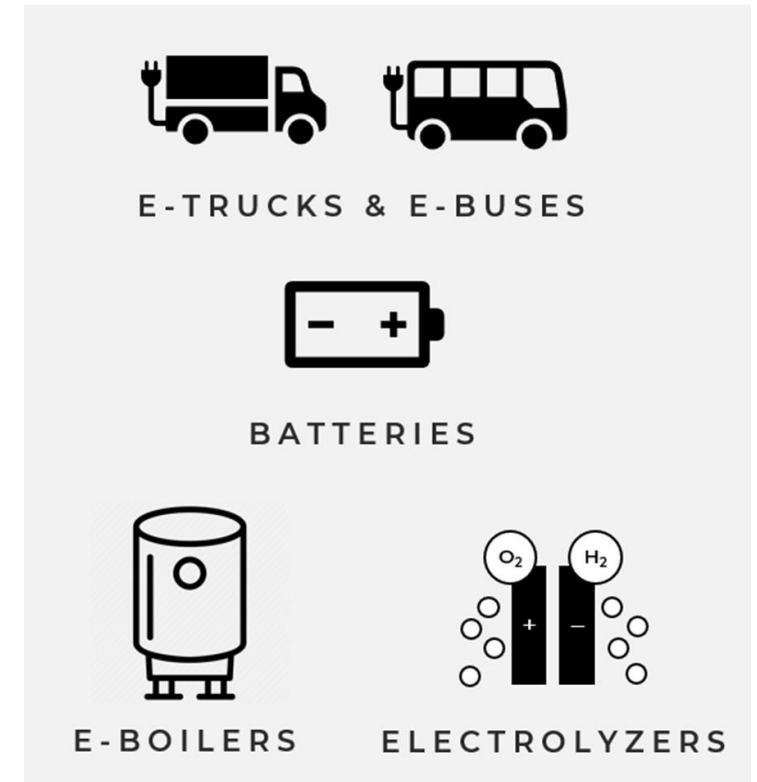
Developments in Europe

A growing need for flexibility

Figure 4.13 ▶ Global power system flexibility needs and supply in the APS



Short-term needs increase significantly, mainly due to solar PV, with batteries and demand response emerging as crucial suppliers of flexibility; seasonal needs rise less sharply



Stabilize the national energy grid?



Why?

Lower your charging costs, and thereby your TCO!

Relieve the regional energy grid

De impact op het elektriciteitsnet

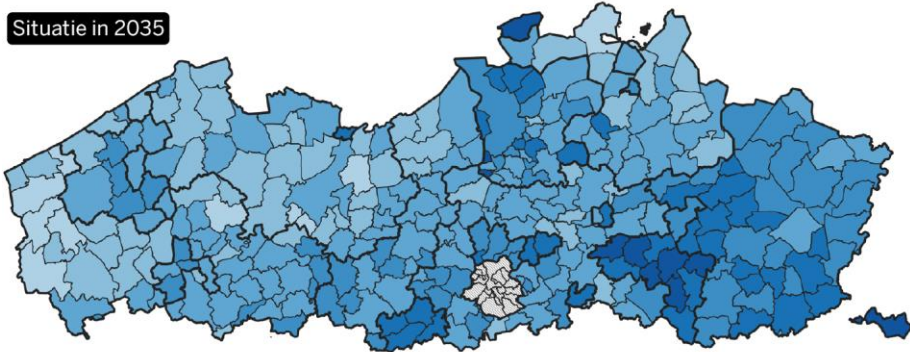
Aandeel van het distributienetwerk dat overbelast kan raken zonder bijkomende investeringen
in procent per gemeente

0-10 10-20 20-30 30-40 40-50 50-60 60-70 70-80 80-90 90-100

Situatie vandaag



Situatie in 2035



DS Infografiek | Bron: Fluvius

Flex

€



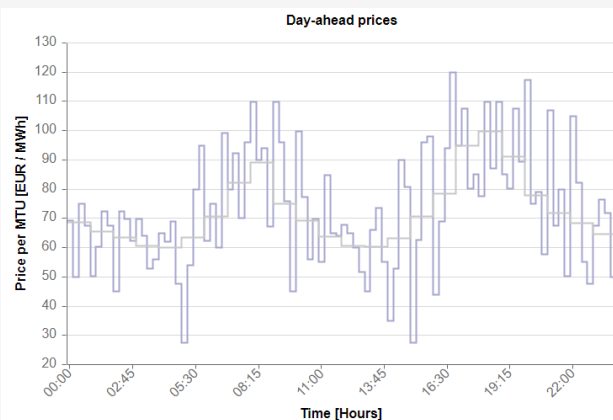
Why?

Lower your charging costs, and thereby your TCO!

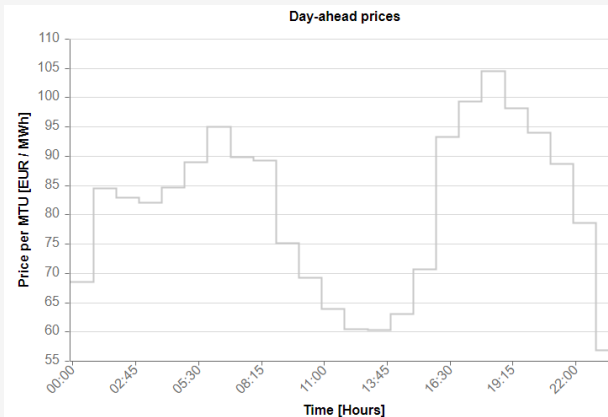
⚡ Day ahead smart charging already an opportunity

Day ahead market prices on for example February 13th, 2024

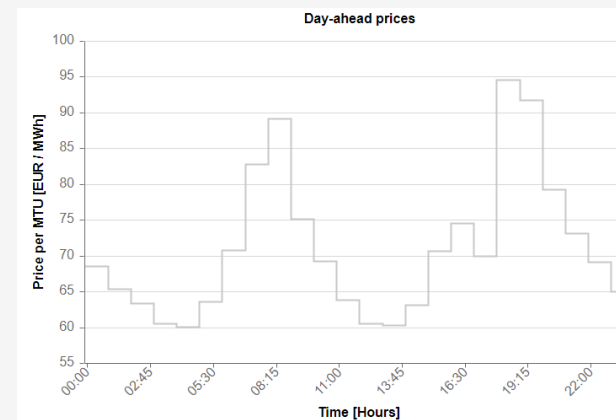
Luxembourg



Greece



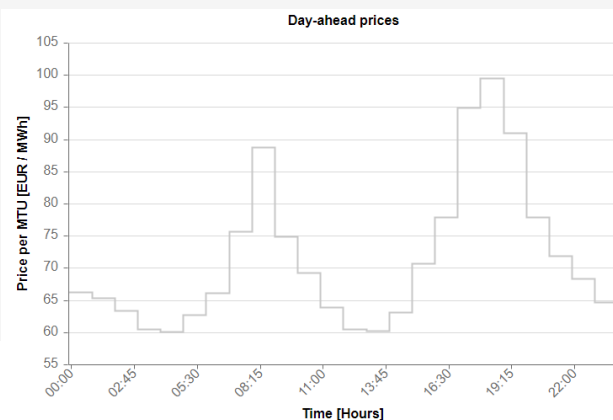
France



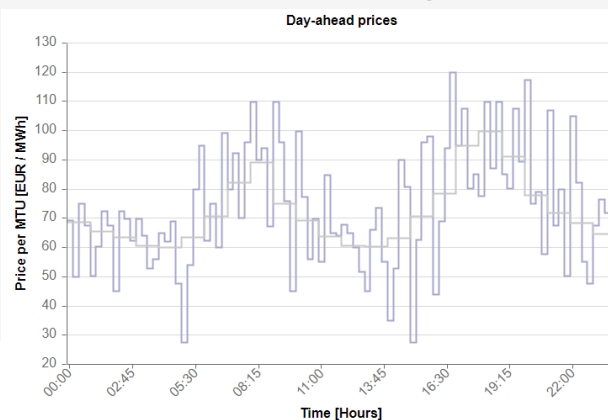
And at the same time
lowering



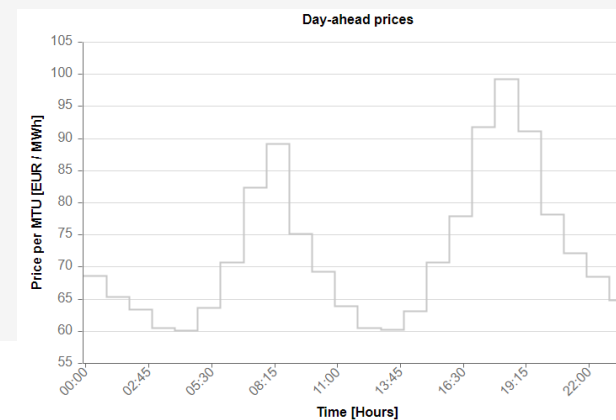
Denmark



Germany

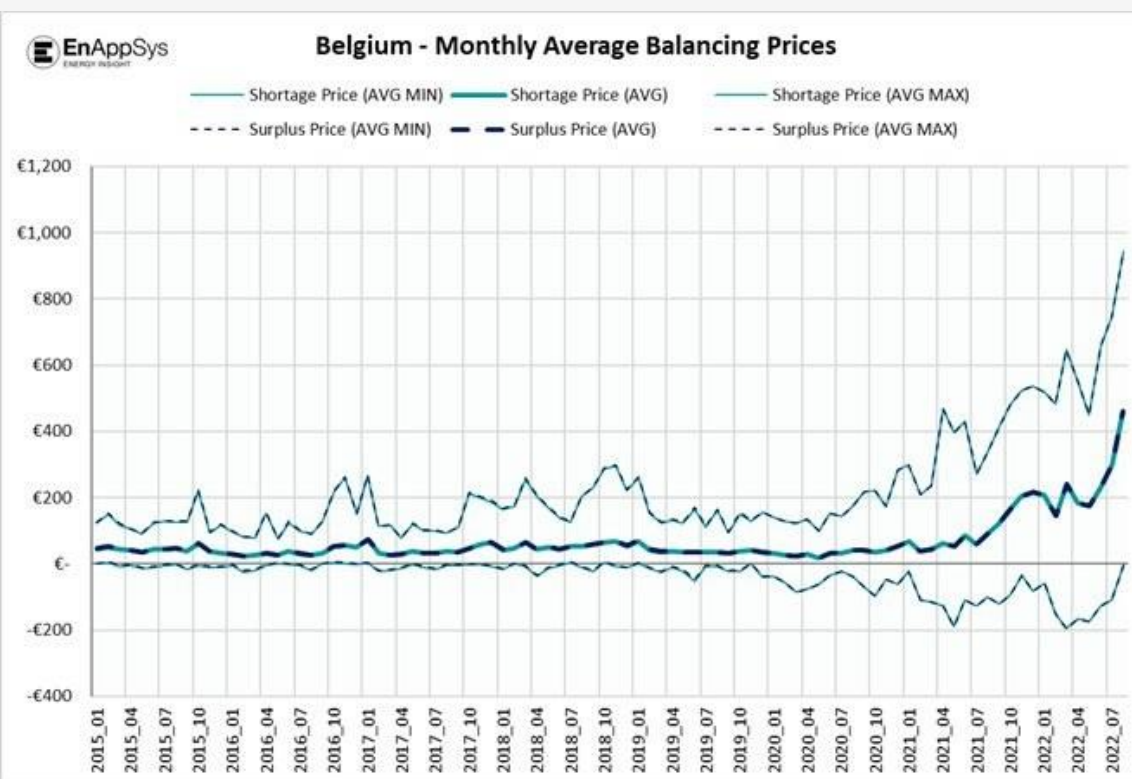
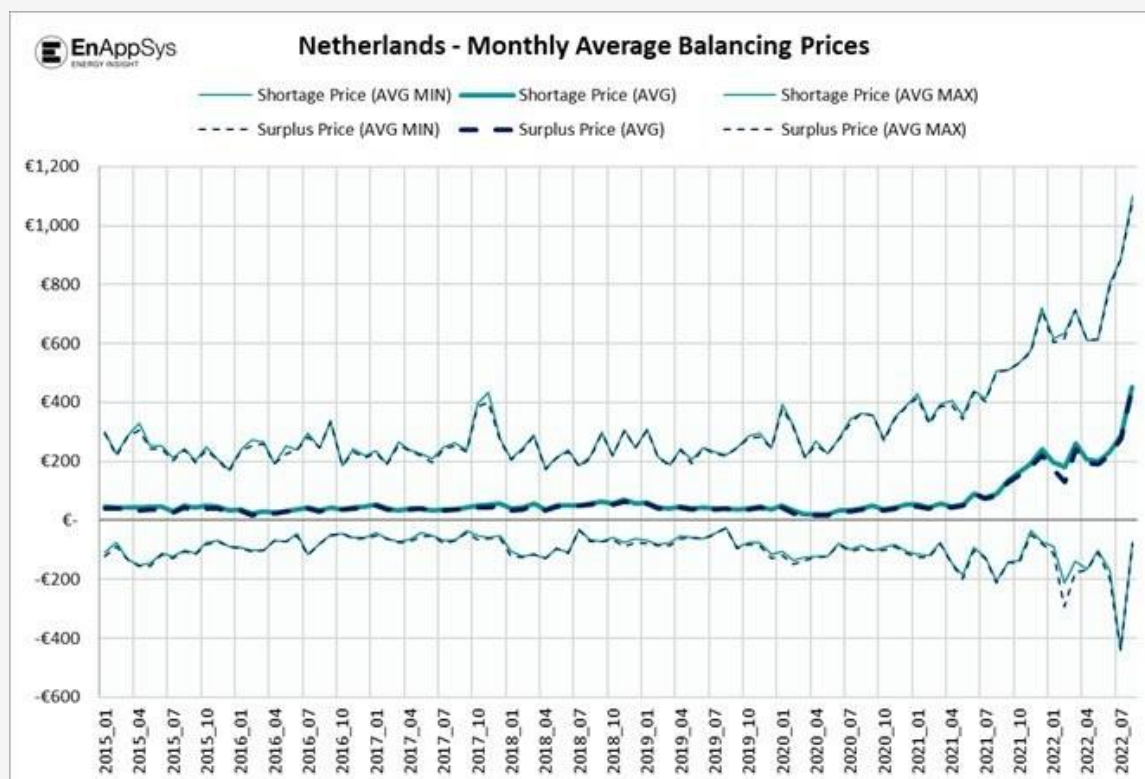


Netherlands



⚡ Imbalance as a new reality... and opportunity

Day ahead prices are interesting, imbalance prices even more so





Use Cases: Electrifying the charge ahead





Arriva Brabant Oost

Tilburg/Uden

Netherlands

63

e-Buses

65

Charge points

4MW

Power installed

2

Locations







Arriva Twente

Enschede-Hengelo-Almelo-Oldenzaal-Groenlo

Netherlands

108

e-Buses

112

Charge points

7MW

Power installed

5

Locations



Smart charging

By smart charging Arriva's buses on the Dutch imbalance market, we can help lower her energy costs with up to 60%

At the Enschede bus depot, this is combined with Load Management due to a limited grid connection

VDV261

Preconditioning of their Volvo 7900e buses to help get the most range out of these vehicles

⚡ Sligro Amsterdam Netherlands

Supporting Sligro Group in their strides towards sustainable food service transportation in Amsterdam.

50

e-Trucks

36

Charge points

2.2 MW

Power installed







⚡ PreZero Berkel en Rodenrijs Netherlands

Helping PreZero to charge their trucks via an overhead gantry solution, minimizing the physical footprint of the charging solution

12

Charge points

0.7 MW

Power installed

Future-proof e-Mobility Solutions

Friso Schuring

Energy Management Market Segment Manager

www.heliox-energy.com

End-to-End service

Tailored to your
needs

Experience and
expertise

