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**Optimize Charging of
EV Busses & Trucks**

Agenda



Development Manager at Adibus
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- Who is Adibus?
- Facts about EV charging and EV fleet operations
- What is ChargePlan?
- How can ChargePlan help EV fleet operators?

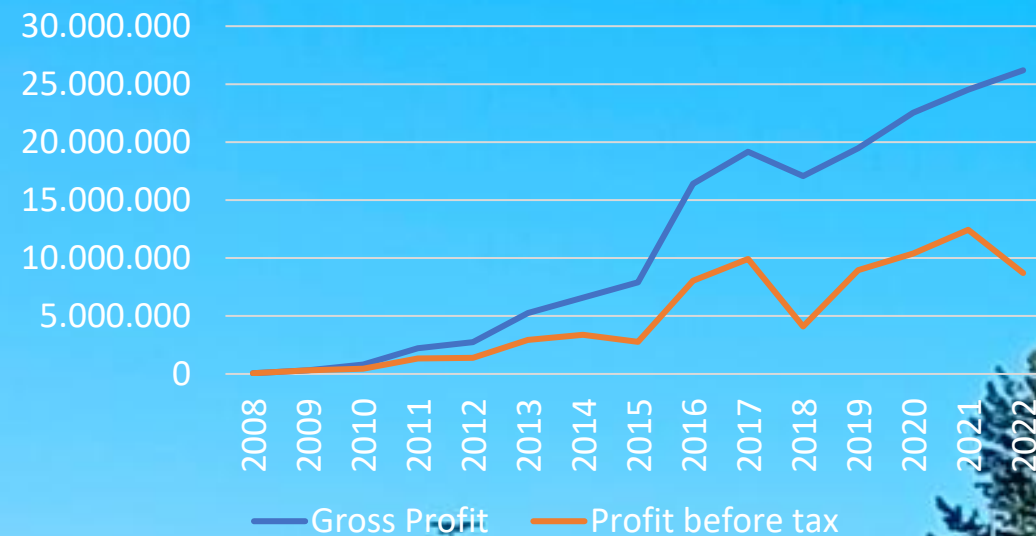
- Profitable since 2007

- 3.000 Vehicles

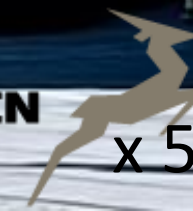
- 35 Employees

- Product portfolio

- Charge Management
- Real time Fleet Monitoring and Planning
- Infotainment
- Lane Management
- And much more...



BØRSEN

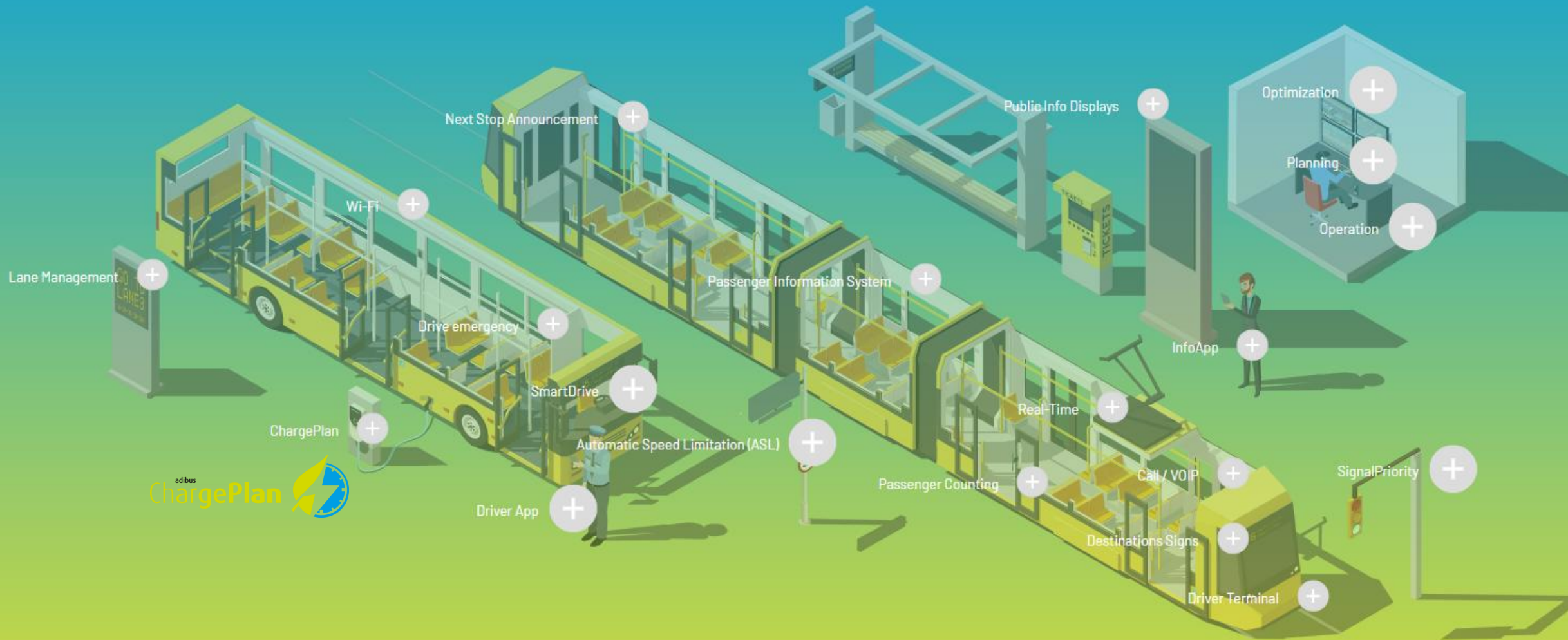


It started with a Monitor



INNOVATIVE IT SOLUTIONS FOR PUBLIC TRANSPORT

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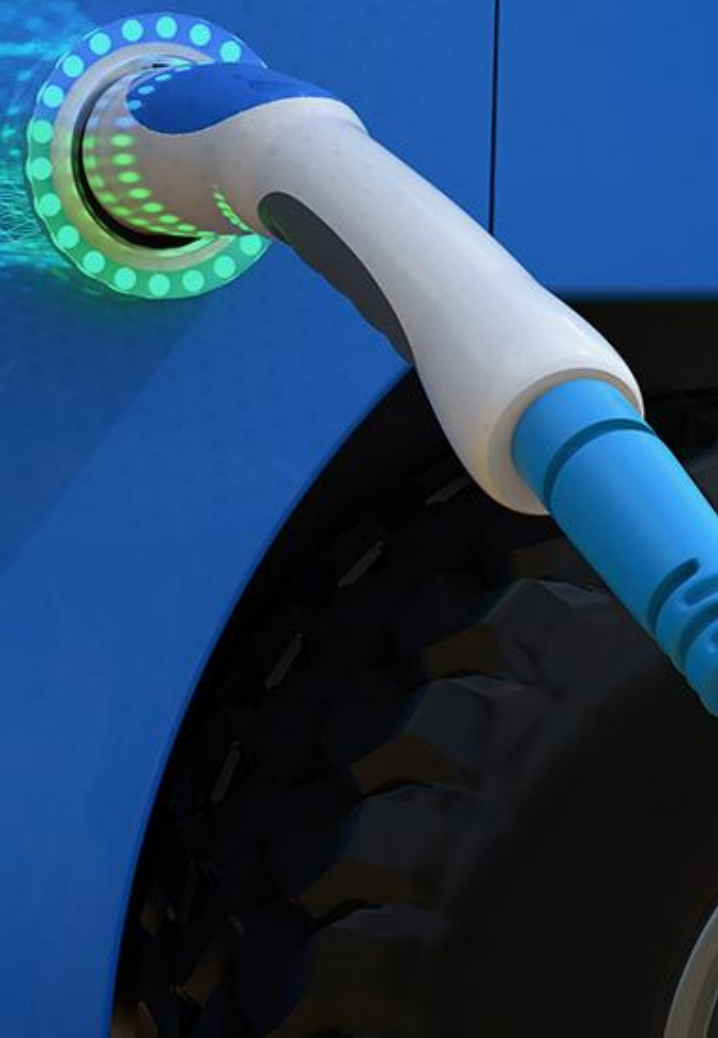


ONE SYSTEM - LOTS OF POSSIBILITIES

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ChargePlan

Reliable, Convenient, and Sustainable
Charge Management Solution



Facts about EV Fleet Operations

1 | **EV fleet Management is Challenging**

Diesel fueling is a 10 minutes tasks. EV fueling is technology management – vehicles, chargers, local energy resources and storage makes it complicated.

2 | **Electricity prices fluctuate 400% per day**

Green energy equals high price fluctuation. This can be exploited!

3 | **CO2 reduction**

Emission free or CO2 reduced delivery is a market demand and authority requirement.

4 | **Charging infrastructure creates new revenue opportunities**

Ancillary Services creates earning opportunities in the millions
B2B sales of charging capacity

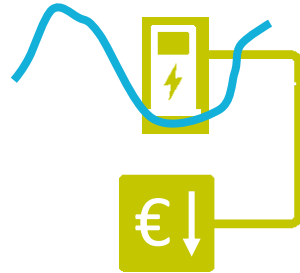
Unlock the Potential of EV Charging

- Ensures price optimal charging
- Retrieve CO2 emission data on all Charging sessions
- Makes sure that your EV is fully charged without overloading the grid
- Get informed early through proactive monitoring and alarming
- Minimal administration
- Supports a fixed fleet of vehicles chargers

ChargePlan Product Options

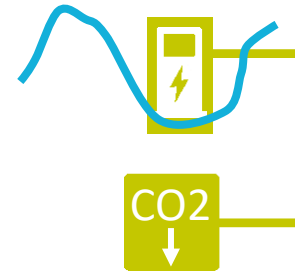
SMART Charge

Energy Price Optimization



Move charging to reduce electrical cost

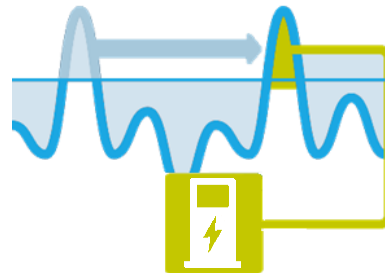
CO2 Optimization



Move charging to reduce emissions

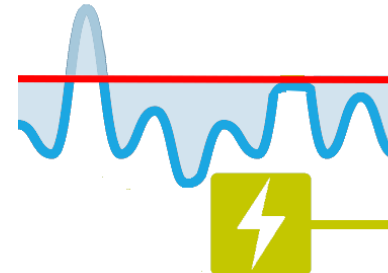
Balance

Load Shifting



Distributing power among EV chargers to prevent overload

Peak Shaving



Reduce electricity peaks to avoid overload

Features in the Detail

ChargePlan SMART Charge



Reduce charging cost
with +20%



Proactive alarming
related to charging process



Live depot monitoring/
Status of chargers



CO2 Emission-
report DK



Realtime maps and range
informations



Extend battery life



Charge Scheduling



Forecast of
Remaining range



Online / Offline EV
Authentication



CO2 Optimized
Charging

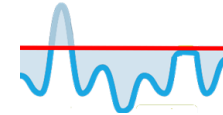


Forecast of charging time
and energy consumption

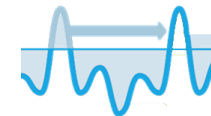


Report of electricity
consumption

ChargePlan Balance



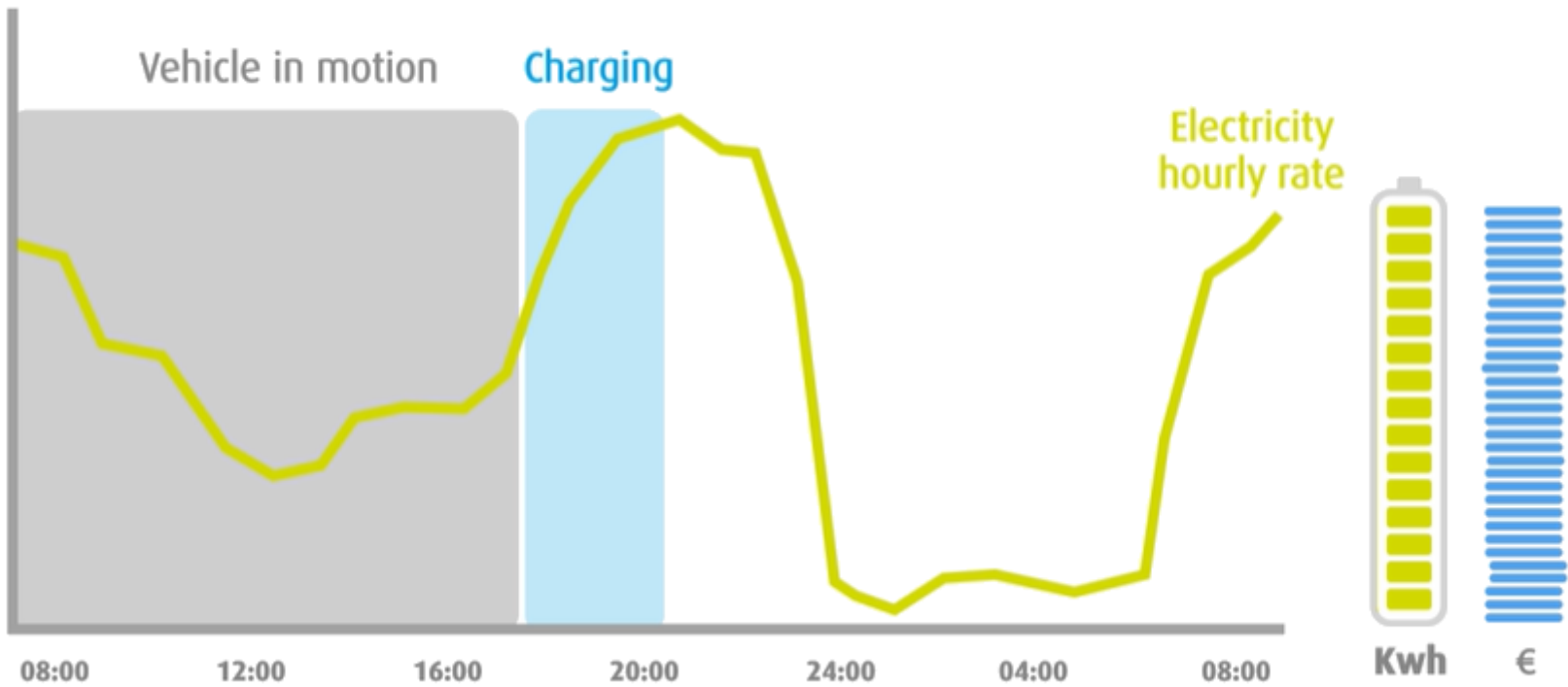
Peak Shaving



Load Shifting

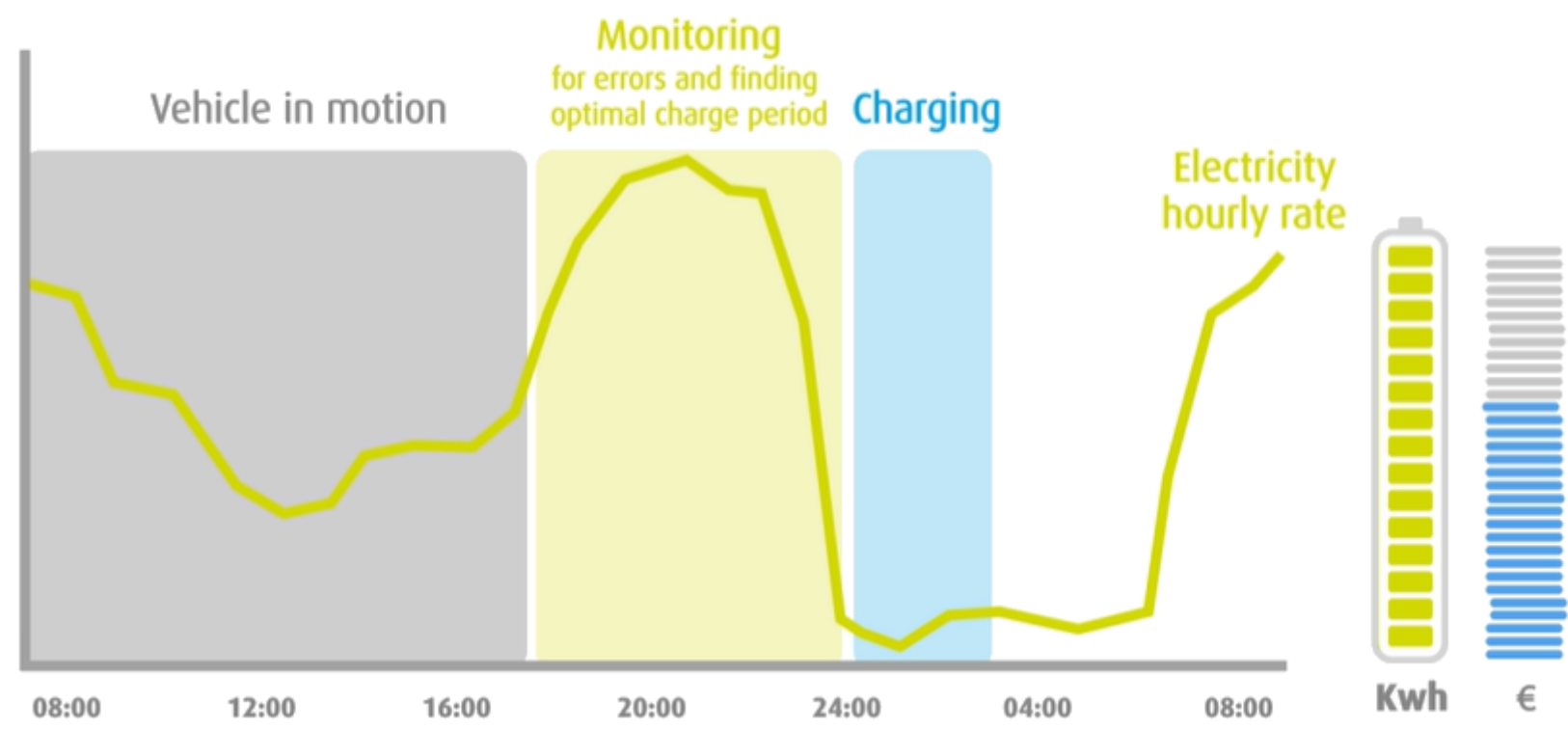
SMART Charge

CHARGING ON ARRIVAL AT DEPOT



SMART Charge

CHARGING USING CHARGEPLAN



Exploiting Price Fluctuation

EV battery capacity: 400 kWh
 Charging requirement: 280 kWh ~ SOC = 30% on arrival at depot
 Driving pattern: Monday – Friday 05:00am – 6:00pm
 Period: 1/4-2023 – 30/3-202, Denmark

Charger Capacity	Required Charging time	Savings ChargePlan SMART Charge
50 kWh	5 h. 36 min.	40% = 3.000 € / year
75 kWh	3 h. 44 min.	48% = 3.700 € / year
100 kWh	2 h. 48 min.	51% = 4.000 € / year

Savings over 10 Years: 30.000 – 40.000 €

SMART Charge – The Business Case

Customer and Depot

Customer Name:

Charger type:

Charger Capacity: kWh

Vehicle

Battery Capacity: kWh

SOC on arrival: 120 kWh remaining in battery on arrival

ChargePlan Smart-Charge Algoritm

Optimize for:
☒ Price ☐ CO2

Price area:

Net Supplier:

Net Supplier Product:

Arrival and Departure Time at the Depot

	Arrival time	Departure time
Monday:	17	05
Tuesday:	17	05
Wednesday:	17	05
Thursday:	17	05
Friday:	17	05
Saturday:	00	00
Sunday:	00	00

Customer and Depot

Name: Unknown

Charger Type: NA 75 kWh.

Vehicle

SOC on arrival: 30%, 120 kWh remaining in battery

Battery capacity: 420 kWh.

ChargePlan Smart-Charge Algoritm

Calculation Period: 01/04-2023 - 30/03-2024, 364 Days

Optimized for: Price

Price Area: Fyn/Jylland (DK1), Electric supplier: N1 A/S - 344, Product: Nettarif B lav time, tidsdifferentieret

Savings

	Price	CO2
Original:	60.316,74 DKK	6.323,12 kg/kWh
Smart Charge:	28.678,97 DKK	6.493,84 kg/kWh
Difference:	31.637,77 DKK (52,45%)	-170,72 kg/kWh (-2,70%)
Operational hr.:	9,95 DKK	

Save ROI Save details

Previous Exit

Version: 3.2 By ChargePlan

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ChargePlan

The product



Plan when to Charge

AdibusLive LIVE

Realtime

ChargePlan

Planning

Chargers

Vehicles

Charging reports

Notifications

Language

Print page

Log off

Abort impersonation

ChargePlan

Planning

Contractor

Depot

Vehicle

DR 30 038

Create schedule

Active

Selected charger

Narresundby: Port-1

Charging time

Nov 10

From: 07:00

To: 08:30

Recurrence

Weekdays

MTWTFSS

End date

no end date

Target SOC

100%

Vedligehold

Not allowed

Active

Selected charger

Narresundby: Port-1

Charging time

Dec 2

From: 23:00

To: 02:00

Recurrence

Weekdays

MTWTFSS

End date

no end date

Target SOC

100%

Vedligehold

Not allowed

Active

Selected charger

Narresundby: Port-1

Charging time

Dec 11

From: 03:00

To: 07:00

Recurrence

Weekdays

MTWTFSS

End date

no end date

Target SOC

80%

Vedligehold

Not allowed

DR 30 039

Create schedule

Active

Selected charger

Narresundby: Hegn-1

Charging time

Dec 7

From: 22:00

To: 04:00

Recurrence

Weekdays

MTWTFSS

End date

no end date

Target SOC

100%

Vedligehold

Maintenance allowed

Active

Selected charger

Narresundby: Hegn-1

Charging time

Dec 11

From: 01:00

To: 05:00

Recurrence

Weekdays

MTWTFSS

End date

no end date

Target SOC

80%

Vedligehold

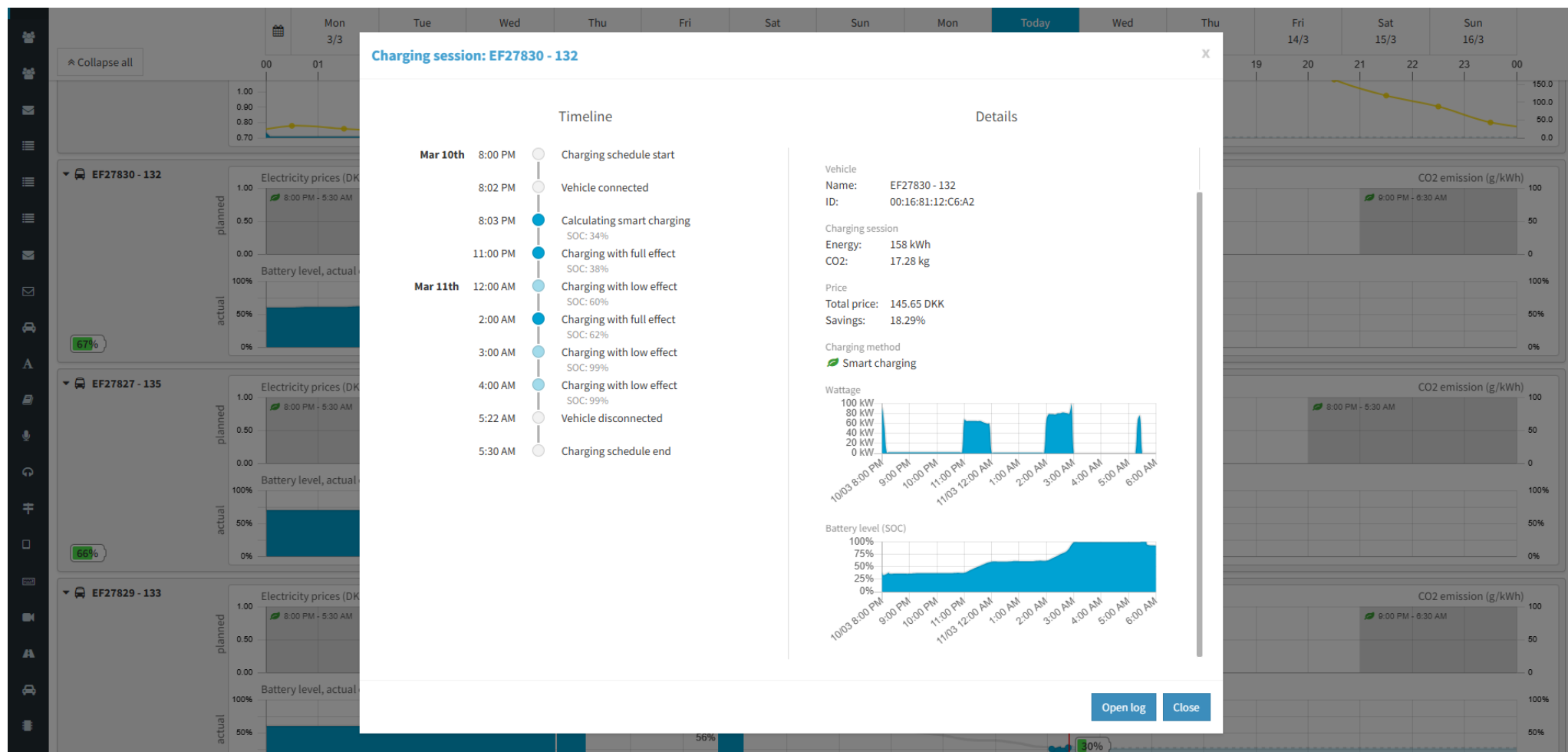
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Charger overview



Charger overview



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ChargePlan

Cases





Holstebro Turist

Bus Operator in Midtjylland, Denmark

- Realtime Fleet Planning and Monitoring
- Fleet, Employee and Charge Planning
- ChargePlan – SMART Charge
Multi site management (5 locations)

Chargers: Kempower

Vehicles: VDL Citea LE 122, 2024, Battery: 429 kWh

Driving pattern: Mon – Sat 6am – 9pm

Charging upon arrival: 6.500 € / Year / EV

ChargePlan SMART Charge: 4.400 € /Year / EV

Savings: 2.100 € / Year / EV (30%)



Marius Pedersen

Waste Management And Recycling Company

- ChargePlan – SMART Charge with B-HPC
 - Multi site management (5 locations)
 - Mixed EV fleet and charger setup

Chargers: Nerve Hyper Charger (B-HPC), Kempower

Vehicles: Mercedes eActros, Volvo FM Electric

Driving pattern: Mon – Fri 5am – 2pm

Charging upon arrival: 9.400 € / Year / EV

ChargePlan SMART Charge: 5.000 €/Year/EV

Savings: 4.400 € / Year / EV (45%)

Get in touch



Team

www.charge-plan.com/Team



Website

www.charge-plan.com

www.adibus.com



Video

www.charge-plan.com/Movie

