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E-FLEET ENERGY MANAGEMENT

Software optimizing EV charging costs & enabling green charging.

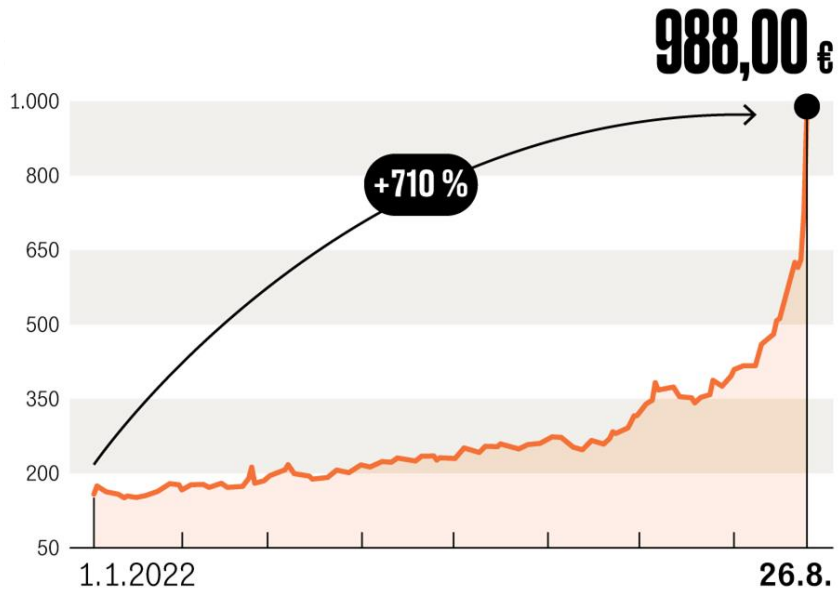
Supported by

OVERALL PROBLEM

ENERGY TRANSITION

ENERGY NEEDS TO BE SUSTAINABLE BUT FACES CHALLENGES

COST OF ELECTRICITY, Jan – Sep 2022 [in €/MWh]*



WE STRUGGLE TO KEEP COSTS LOW

1 RENEWABLES REQUIRE FLEXIBILITY & STORAGE

- Global installed capacity accelerating towards 100% renewables.
- We risk black outs. We risk to waste a massive amount of energy in peak production.
- Demand needs to occur when renewables produce energy.
- Cheap storage is required e.g. for Germany 200 GWh.

2 EVS HAVE A BIG DEMAND AND BATTERY

- EVs additions are doubling yearly. But their availability is not easily predicted and the interplay with other devices and the energy system is hard to manage.
- Charging at the wrong time intensifies the challenges.
- They come with a frequently idle battery (if all vehicles were electric the total available capacity for Germany would be 2000 GWh).

3 NOT GREEN & EXPENSIVE WITHOUT SMART CHARGING

- Optimizing for costs correlates with optimizing for green energy. When green energy is abundant prices drop and vice-versa. Regular tariffs don't reflect it yet and dynamic tariffs do but require optimization.
- Contributing to grid instability is penalized by grid operators.
- Unnecessary grid reinforcements are expensive.

Sources

*Phelix Baseload at the EEX, Bloomberg

1) BNetzA 610 Mio EUR worth of energy waste in Germany– trend increasing. 2) ELIA avoiding 600,000 tonnes CO2 in Germany and Belgium by charging EVs optimally. 3)Netzentwicklungsplan 4) EAFO and own calculations

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SUSTAINABLE MOBILITY INEFFICIENCIES

EV FLEET MANAGERS STRUGGLE TO KEEP UPTIME HIGH & CHARGE WITH LOW-COSTS (WASTING UP TO 1.5K EUR PER VEHICLE PER YEAR) & GREEN ENERGY IN THEIR COMPANY SITES AND AT PUBLIC CHARGERS

CHARGING CONTROL

Strenuous Operations

- Plugging vehicles / charging cables in and out manually is not user friendly.
- Using software tools to plan charging manually is time intensive and is not reliable.
- Managing the control manually or via extra local controllers leads to more costs.

POWER MANAGEMENT

Complex Fluctuations

- Grid connection power is often limited and needs to be managed.
- Participating in energy markets is not easy.
- Coordinating local energy production, building load, charging infrastructure and energy systems is hard.

DEMAND PREDICTION

Complex IT

- Gathering the vehicle's and energy demand data from different systems requires hard IT integration work.
- Building software and algorithms that consider all the complexities to process this data is hard.
- Rules of thumb predictions are suboptimal.

SYSTEMS COMMUNICATION

Silo Management

- Existing fleet & other systems don't communicate with the charging systems.
- Vehicles data is not being used for energy management.
- Vehicles OEM, chargers & charge point software don't have deep energy management capabilities.

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TECH ENABLEMENT

RIDERGY'S CLOUD ENERGY MANAGEMENT SOFTWARE REDUCES EMISSIONS

PREDICITVE

Data Driven Demand Predictions
Considering real time mobility data.
Monitor e-fleet performance via app.

RESOURCEFUL

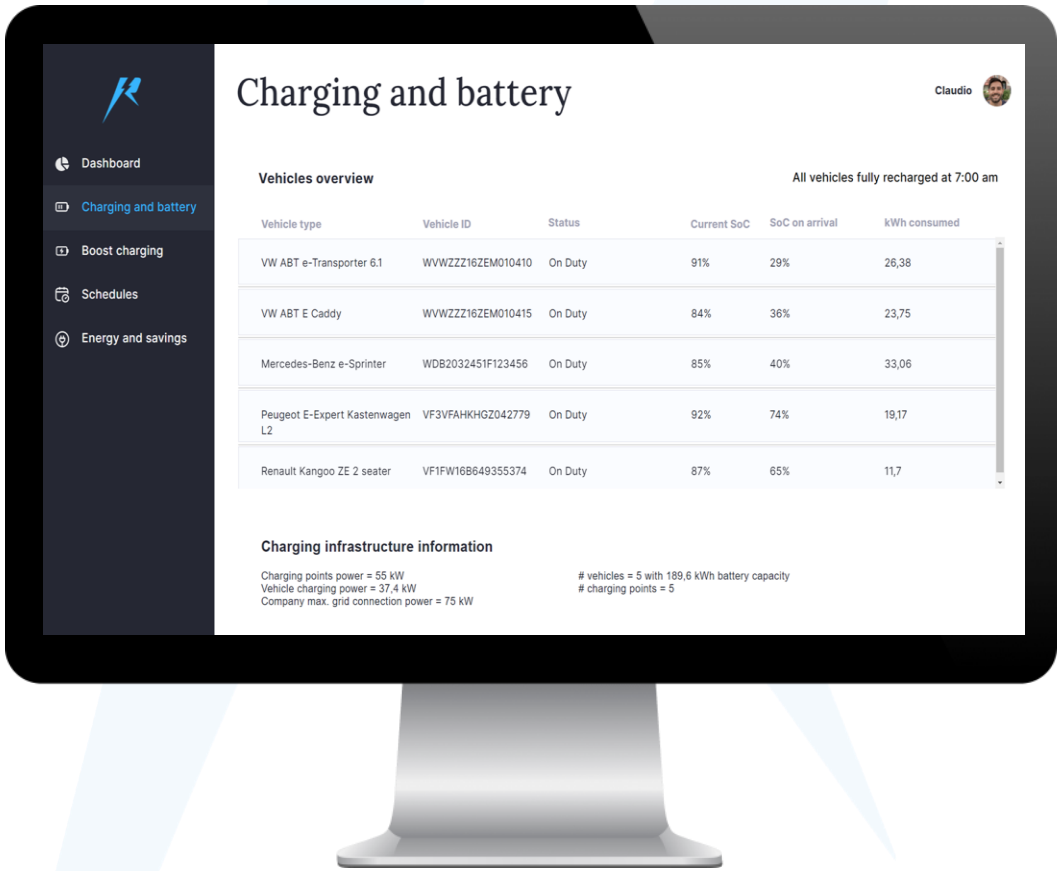
Up to 80% Lower Costs
Energy Markets, local conditions, battery lifetime.
Monitor savings via app.

AUTOMATED

Automatic Control
Via charging solutions or vehicles.
Manage charging processes via app.

FLEXIBLE

Flexible Integrations
To telematics, charging solutions.
Own app or inserted easily in 3rd party environments.



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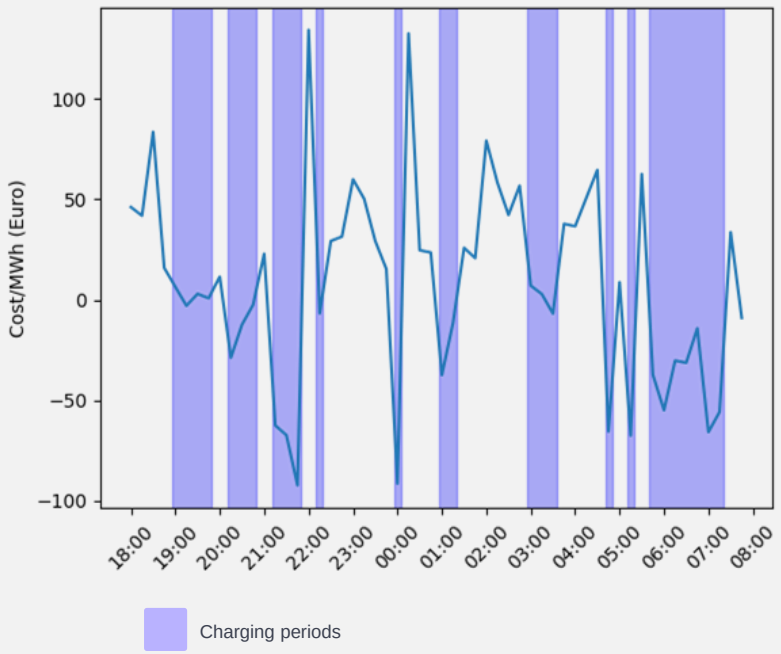
CHARGING SCHEDULE

AI ALGORITHMS TO CHARGE AT TIMES WITH IDEAL PRICES AUTOMATICALLY

Charging at lowest spot market costs



1 Energy system

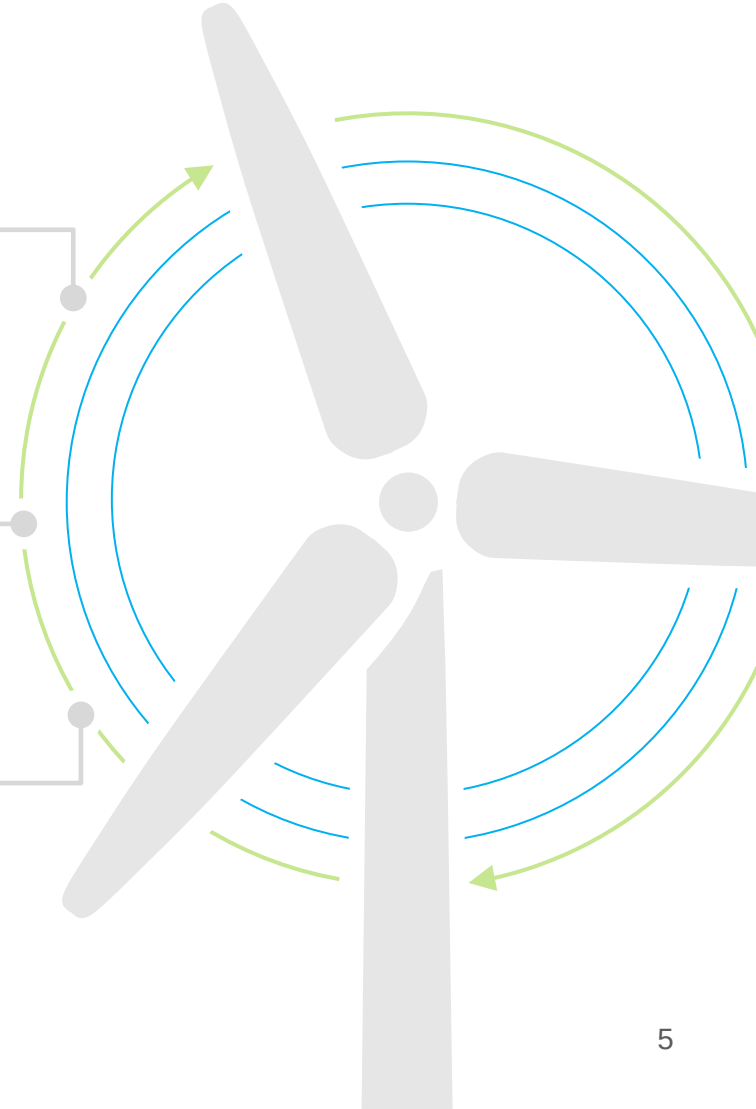
- Electricity prices change every 15 min, benefiting with spot dynamic tariff and bidirectional charging.
- Achieve reduced grid fees when reacting to congested grids.

2 Local factors

- Maximize solar generation.
- Use storage to consume later and avoid peaks.
- React on building load & limited grid.

3 Mobility data

- Optimize when to charge and where in an optimized route.
- Consider Battery data, SOC, maximize battery life.



Note about Algorithms

We work on hard multi-criteria, multi-variable & non-linear problems. Deep-learning is used for predictions and reinforcement-learning for market participation.

CONTROL

AUTOMATIC CHARGING AGNOSTIC OF VEHICLES OR CHARGERS

Vehicle

We get vehicle data via API, where difficult we use dongles / telematics provider. Control via vehicles enables the use of non connected chargers.

ISO 15118

Charging System

We can get data and control charging via chargers too.

Vehicle API / OBD Dongle

THE SYSTEM LANDSCAPE

OCPP

RiDERgy Compute Cloud

Our algorithms create charging profiles in a scalable cloud in real time. We can connect to meters, inverters, batteries, grids and power traders.

API / OCPI

Charging Station Management Software

We use our own or integrate with 3rd parties.

INTEGRATING INTO LEADING SYSTEMS

REVENUE: SAAS PER VEHICLE FOR FLEETS. B2B2B. API FIRST INTEGRATION STRATEGY WITH KEY STRATEGIC PARTNERS. COSTS: CONNECTIVITY TO CHARGER / VEHICLES & REVENUE SHARE PARTNERS.

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1 EV OEMs & FLEET MANAGEMENT SOFTWARE

2 CHARGER SOFTWARE & OPERATORS

3 CHARGER HARDWARE

E-FLEET & E-DRIVER

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MARKET IN 2030

WE START WITH EUROPE BUT HAVE GLOBAL AMBITIONS AND THE MARKET KEEPS ON GROWING

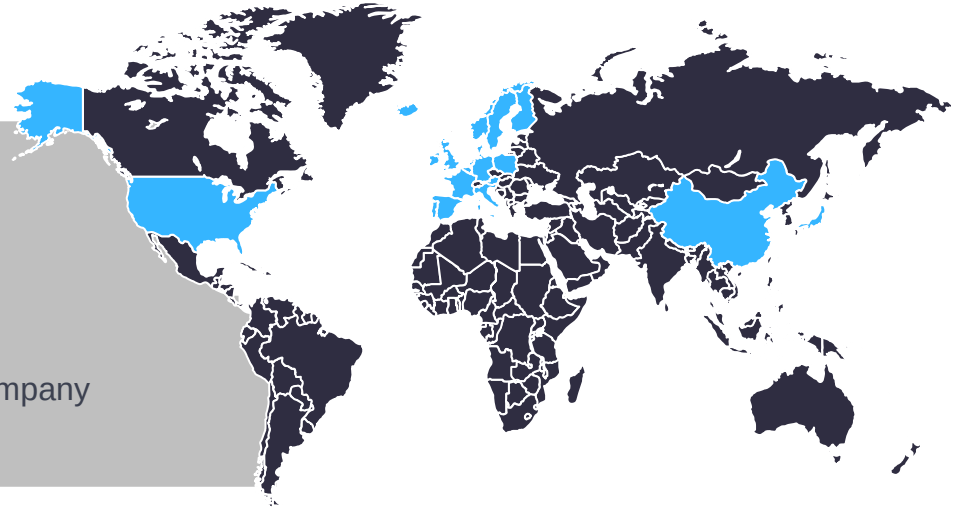
GERMANY

€123M SOM
1.8M EVs for city company fleets in Germany, 10% market share.

WORLD

€60B TAM
All vehicles

€20B SAM
142M EVs for city company fleets in the world



KEY ASSUMPTIONS

- €240 annual revenue per vehicle
- 60% Urbanization rate
- 57% Company fleets
- #EVs: 250M global, 15M Germany

Sources: Pilot projects, studies 1) BNEF EV Outlook. 2) IEA 3) Statista 4) ELIA

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BETTER PERFORMANCE

VIA AI, MOBILITY DATA AND FLEXIBLE CLOUD INTEGRATIONS AND CONTROL

OUR USPs STAND OUT …

1 LOWEST COSTS

Our data-driven, AI algorithms, no hardware approach allows us to provide the lowest costs.

2 GREENEST

We use real-time vehicle, charging infrastructure, grid and energy market data to optimize for renewable energies and grid stability on a system level.

3 FLEXIBLE

We integrate into many different systems, vehicles, charge points, fleet management systems via the cloud.

… IN A FAVOURABLE COMPETITIVE ENVIRONMENT

	RiDERgy	IO-DYNAMICS	gridX	THE MOBILITY HOUSE	coneva
FLEET FOCUS	✓	✓	✗	✗	✗
FLEXIBLE CLOUD CONTROL	✓	✗	✗	✗	✗
EASY INTEGRATIONS	✓	✗	✗	✗	✗
PRIVATE AND PUBLIC EMS	✓	✗	✗	✗	✗
PREDICTIVE AI MODELS	✓	✗	✓	✗	✗
MOBILITY DATA	✓	✓	✗	✗	✗
ENERGY MARKETS	✓	✓	✓	✓	✓
GRID STABILITY	✓	✗	✗	✓	✗

✓ Commercial ✓ Not commercial ✗ Not featured

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RIDERGY‘S IDEAL MIX

DOMAIN EXPERTISE, ENGINEERING SKILLS AND BUSINESS EXPERIENCE

Claudio Geyken
Co-Founder & CEO

- Founder experience: sustainable energy innovation CommUnity at InnoEnergy.
- Energy expert (10Y industry experience).
- 6 top Universities, engineering degrees, 9 Languages.

Aneesh Mohan
Co-Founder & Chief Data Scientist

- Coding since a teenager & 7Y professional Statistics, AI & Data science experience.
- 6Y specific EV, electrical & energy data engineering experience.
- Entrepreneurial attitude fostered at Entrepreneurs First.

Team

Frank van den Berg
Business Development Manager
Solutions provider across a broad spectrum of markets.

André Corsetti
Founders Associate
6Y Operations leader and engineering projects.

Emanuel Loncaric
Business Developer
3Y Business, sales and customer management experience.

Advisors

Bram Koot
IT Architect & Lead Developer @Ecorus

Sandro Iacovella
CEO @Thermovault

Inbal Cohen
Technical Product Lead, Ex-CTO in mobility

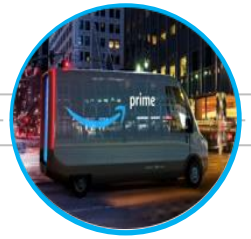
Jürgen Mayerhofer
CEO & Co-Founder @ enspired

Thomas Daiber
Ex-Hubject CEO & founder of Cosmic Cat Group

USE CASE ROADMAP

FROM PRIVATE TO PUBLIC CHARGING, INCREASING THE ENERGY VALUE

PRIVATE COMPANY CHARGING



- Utilities, Delivery, Craftsmen, Caretakers, Charge at work and home etc.
- Fleets with similar set ups: They control the electricity bill, charge points and vehicles.
- Predict when to charge based on mobility patterns and spot market.
- Considering: Local constraints such as solar, building loads.

ENERGY USE CASES

- Real time intraday trading, provide balancing services and grid congestion management.
- Battery lifetime considerations.
- Bidirectional charging.
- Develop the leading EV energy management API.

SEMI-PUBLIC CHARGING

- Enable business models between CPOs and fleets.
- Improve mobility prediction algorithms.

PUBLIC CHARGING

- Predict when and where to charge, integrating routing.
- Enable business models between CPOs and MSPs.
- Contribute to transactions between distributed energy resources (DER) e.g. solar owners and EVs.

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COMPANY ROADMAP

OUR PATH TO SCALING

	2022 – 2023 H1	2023 H2	2024	2025	2026 - 2027	…	2030
PRODUCT	MVP built	Setup scalable cloud	Energy use cases	Semi and public chargers			EVs <> Grids
OPERATIONS	Founded in 2022 Support network	5-10 FTEs			50+ FTEs		Global operations
FINANCES	€250K equity-free €50K SAFE	Achieve MRR €1.5M Seed	€10k MRR	€100k MRR €4M Series A	€1M MRR €20M Series B		€100M MRR Unicorn
MARKET	Product-market-fit 3 LOIs & pre-MRR €2M+ pipeline	1+ GTM partner	Scale w/ partnerships Expand from DE to EU		Internationalize		€60B TAM, €20B SAM Leading aggregator

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OPPORTUNITIES PIPELINE

ENGAGING DIRECTLY WITH FLEETS AND WITH PARTNERS WITH ACCESS TO FLEETS

Qualified	Proposal	Negotiation	LOI
EnBW	PIONIX		FOOZO
webfleet	VOLT Up	chargecloud	Papeterie Pierrot Presque tout pour HORECA
BVG	tap	SAP	
SMATRICS	prio	LOSCH LUXEMBOURG	Faissenden
IONIUM		SVIO LIVE LIFE ELECTRIC	
enel x			
easee			
dpd			
Hermes			
GLS			
Raben			

Full pipeline not included.

Projected AVC

Qualified	Proposal	Negotiation	LOI
16 fleets: **€4.2M** 15 multipliers: **€10M**	4 multipliers: **€500k**	1 fleet: **€1.4M** 3 multipliers: **€850k**	3 fleets: **€81k**

JOIN US REVOLUTIONIZING ENERGY MANAGEMENT FOR EVS!

Claudio Geyken

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IN SEARCH FOR:

1,5M EUR for product & business development.

- Reach 100k EUR MRR.
- Team of 5 up to 10 FTE for 2 years.
- We need to develop the product to keep up with market requirements.
- Team composition: up to 4 software engineers (1 data engineer, 2 backend engineers, 1 product manager) & 6 business people (CEO, founders associate, 1 Marketing, 3 business developers).