



ZOOZ

Formerly Chakratec

Enabling Ultra-Fast EV Charging Anywhere



June 2022

We develop, manufacture,
and market

**revolutionary
Power Boosters,**

Enabling EV
ultra-fast charging
Anywhere



Funding Round – March '22

- ~30M\$ investment
(with Options, can increase to ~\$50M)
- Important vote of confidence
by major firms in the Israeli market
- Will allow growth in all dimensions
of operations, and execution of
our short- & medium-term plans



יָלִין לַפִּידוֹת
ניהול קופות גמל בע"מ

MEITAV DASH.





The EV revolution is accelerating



The EV revolution is accelerating, but...

מישהו הפסיק את הזרם מכירות כלי רכב חשמליים תפסו תאוצה אדירה – אך גורם אחד מאיים לסכל את המהפכה אקונומיסט 16



נגמרה הסוללה: בעיית התשתית מסכנת את מהפכת המכוניות החשמליות

כדי להגיע לנייטרליות פחמנית, 100% מהמכוניות שיירכשו ב-2050 צריכות להיות חשמליות • אבל ככל שאלה הופכות לנפוצות, בעיות הטעינה מחמירות: פרישת תחנות הטעינה דלה ולא אחידה, ולרוב תושבי העולם אין חניה פרטית לטעון בה את המכונית

6/1/2022

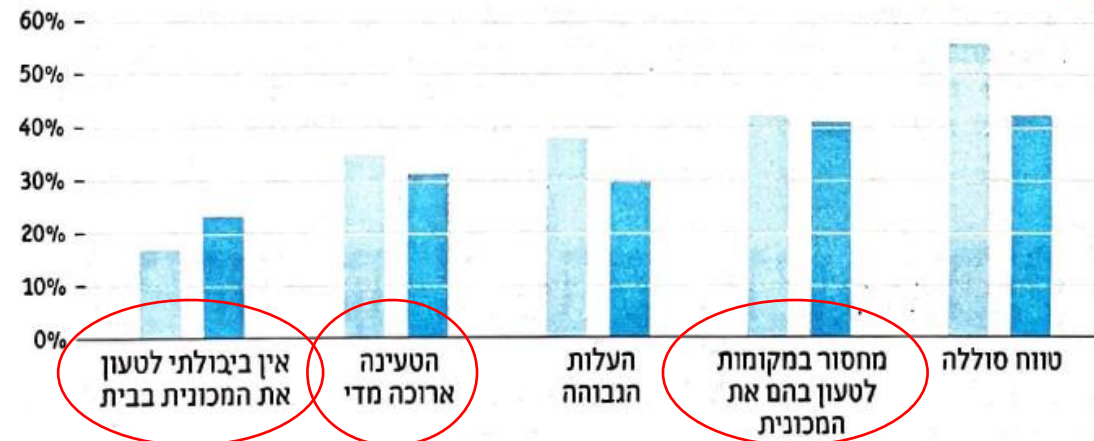
TheMarker

The Economist

המחיר הוא בכלל לא הסיפור

חמשת החששות העיקריים של צרכנים לגבי רכישת מכוניות חשמליות*

2019 2020



מקור: אליקס פרטנרס

*שיעור החשיבים שמוטרדו והבעיה

The EV revolution is accelerating, but...



עמדת טעינה של טסלה בקניון עזריאלי בתל אביב צילום: אייל סואג

זירת המריבות החדשה של נהגי ישראל — עמדות הטעינה המהירה לרכב

כלי רכב חשמליים השוהים בעמדות זמן ארוך מהדרוש, נהגים שתופסים יותר ממקום אחד ומכוניות בנזין שמנצלות את המקום לחניה — המחסור בעמדות לטעינה מהירה מתחיל לעורר תסיסה ■ בינתיים, כולם מתנערים מאחריות לאכיפה והצעת חוק בעניין תקועה בממשלה



עקוב

דניאל שמיל


08.05.2022



מיכל פרנק | מנכ"לית משרד התחבורה

"אי אפשר שכולם יטעינו את הרכב בבית"

לדברי מנכ"לית משרד התחבורה, צריך עמדות טעינה מהירות לרכבים חשמליים בדרכים ובתחנות תדלוק



**Ultra-Fast
Charging
is critical to
the transition
to EVs**

Existing Electric Grid cannot support EV Ultra-Fast Charging

THE NEED

EV owners expect a “fueling-like” ultra-fast charging

- Today – less than 15 min.
- In the future – ~5 minutes

Ultra-fast charging infrastructure is critical to enable EV mass adoption

	Charging Power	Charging Duration
Slow (AC)	4kW-22kW	2-8 hours
Fast (DC)	50kW	~ 45 minutes
Ultra-fast (today)	150kW	~ 15 minutes
Ultra-fast (future)	450kW	~ 5 minutes

THE GAP

Ultra-fast charging requires **HUGE** power capacity
But, existing distribution grid is power-constrained.

Grid upgrades are costly, complex and cannot be executed at required pace

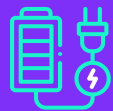
“DCFC* can draw the equivalent of a whole neighborhood’s electricity needs at once.”

“Large investments ...are required in transmission lines, substations, transformers etc.”

Forbes May 5th, 2021

Enabling Today Ultra-Fast Charging Anywhere

Using an Energy Storage System, as a **Power Booster** – to accelerate charging, even where existing grid is power-constrained



Ultrafast Charging
>200km in 15 minutes



Less waiting
in line



Vast Deployment
of Fast-chargers



Charge more
cars

The Kinetic Power Booster ZOOZTER-100



Innovative patented Flywheels technology



Sustainable-Non-chemical



High Power



High - Performance



Cost Effective



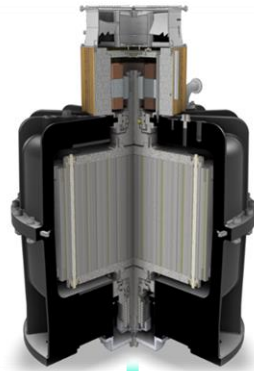
Flexible & Modular



Durable & Reliable



Safe
(CE & UL Cert.)



> Contains **8 ZOOZ V8 Flywheels**

> **Power** > 100kW (for 15 min.)

> **Energy** – 25kWh (at 100kW)

> **Footprint** ~half parking space

> **Weight** – ~9 Tons



Enables Ultra-Fast Charging, even at power-limited grid

The ZOOZTER-100 at ZOOZ new premises



Complementary Services

Turnkey **Fast-Charging Solution**

- Based on KPB100 product
- **Inc. ZOOZ micro-grid Power Management SW (EMS)**
- Complementary HW, SW & Services (by partners)
- White label/ Co-branding

Professional Services – **lifetime support**

- 'Make-ready' support
- Installation support
- Relocation support
- Technical support
- O&M Support
- Professional O&M
- Extended warranty



Enabling **Today** Ultra-Fast Charging **Anywhere**



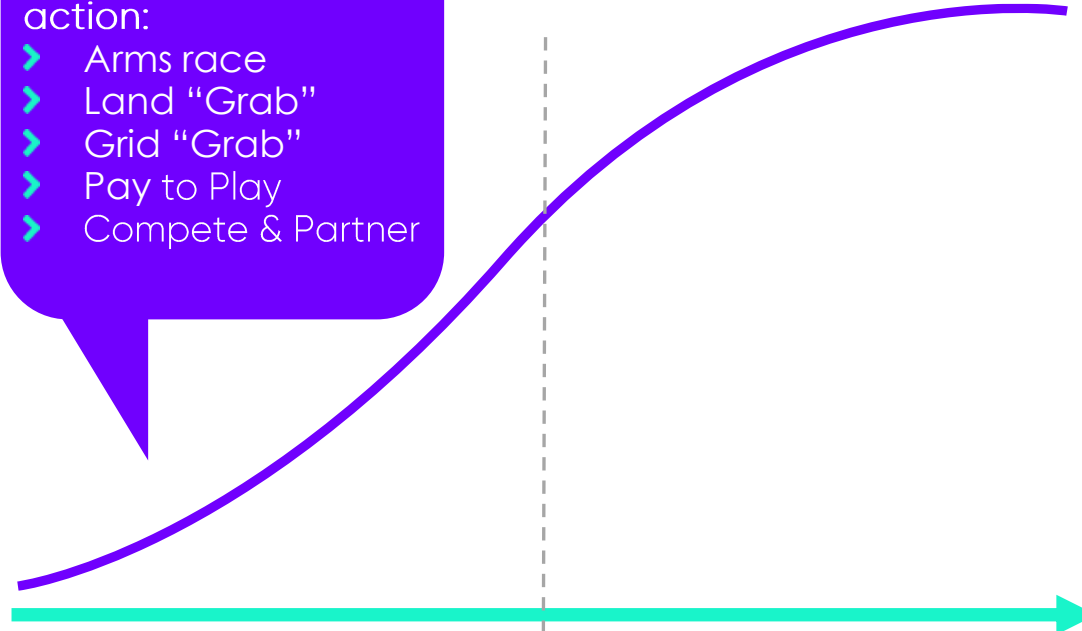
Charging Infrastructure – a fast moving market

Market trends repeated in recent industry conferences



Market dynamics in action:

- Arms race
- Land "Grab"
- Grid "Grab"
- Pay to Play
- Compete & Partner



2020

Early days

- Low penetration
- Locations Cherry picking
- Install where grid is strong
- Govt grants
- Longer payback period

2030

Mass Deployment

- High penetration
- Wide coverage
- Install everywhere
- Free market
- Short payback period

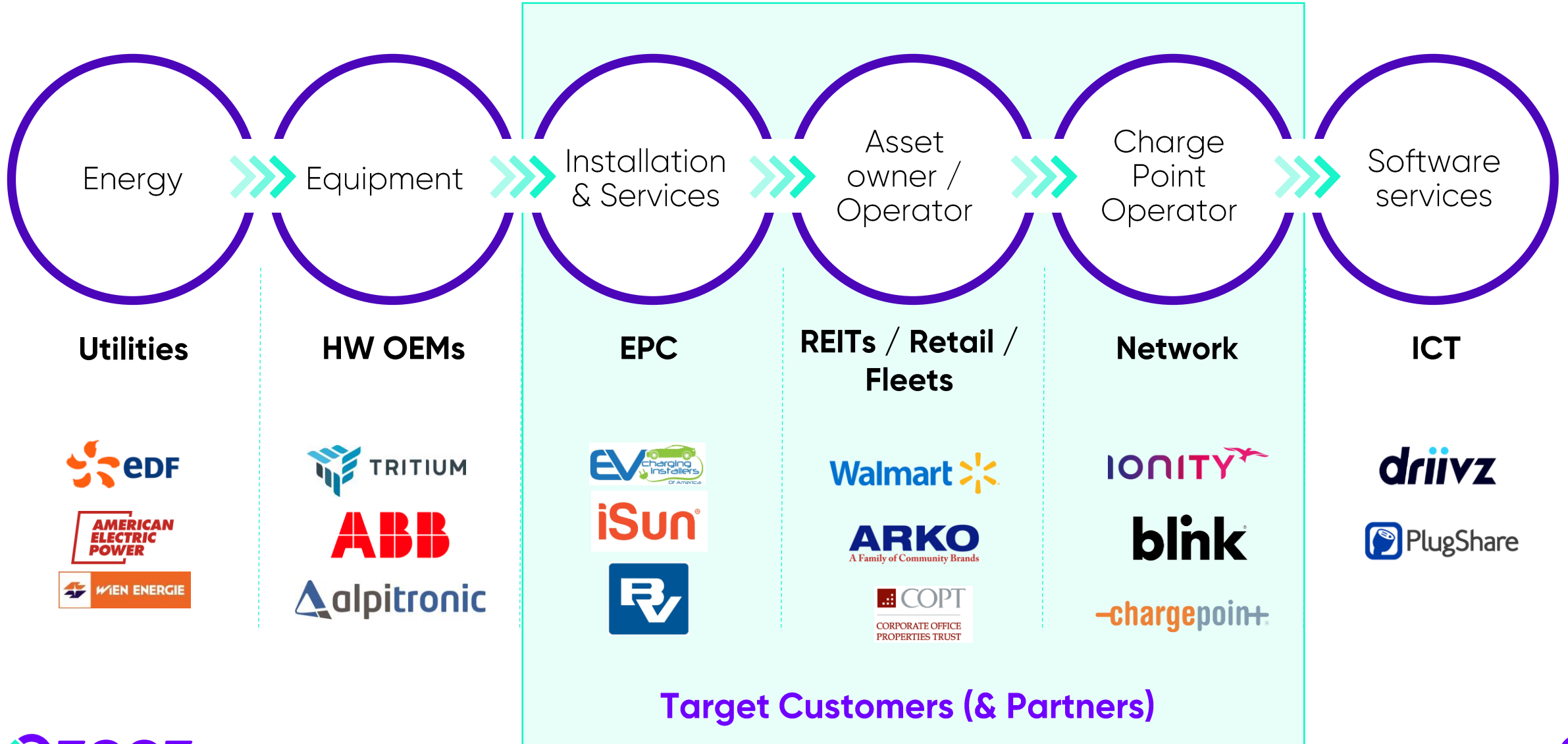
McKinsey
&Company
June 21st 2021

”

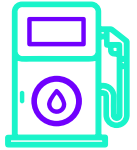
“Market leaders in DC fast charging can create stickiness by leveraging their know-how for brands, enabling software, and a seamless customer experience.”

“

A new Value-Chain is evolving



Infrastructure Disruption



Gas Stations Centralized Approach

- 100% refueling in public stations
- 'Few' 'big' gas stations, serving 100s vehicles a day
- Fast Refueling (5-10 min.) everywhere
- Amenities added around the station Text 16pt

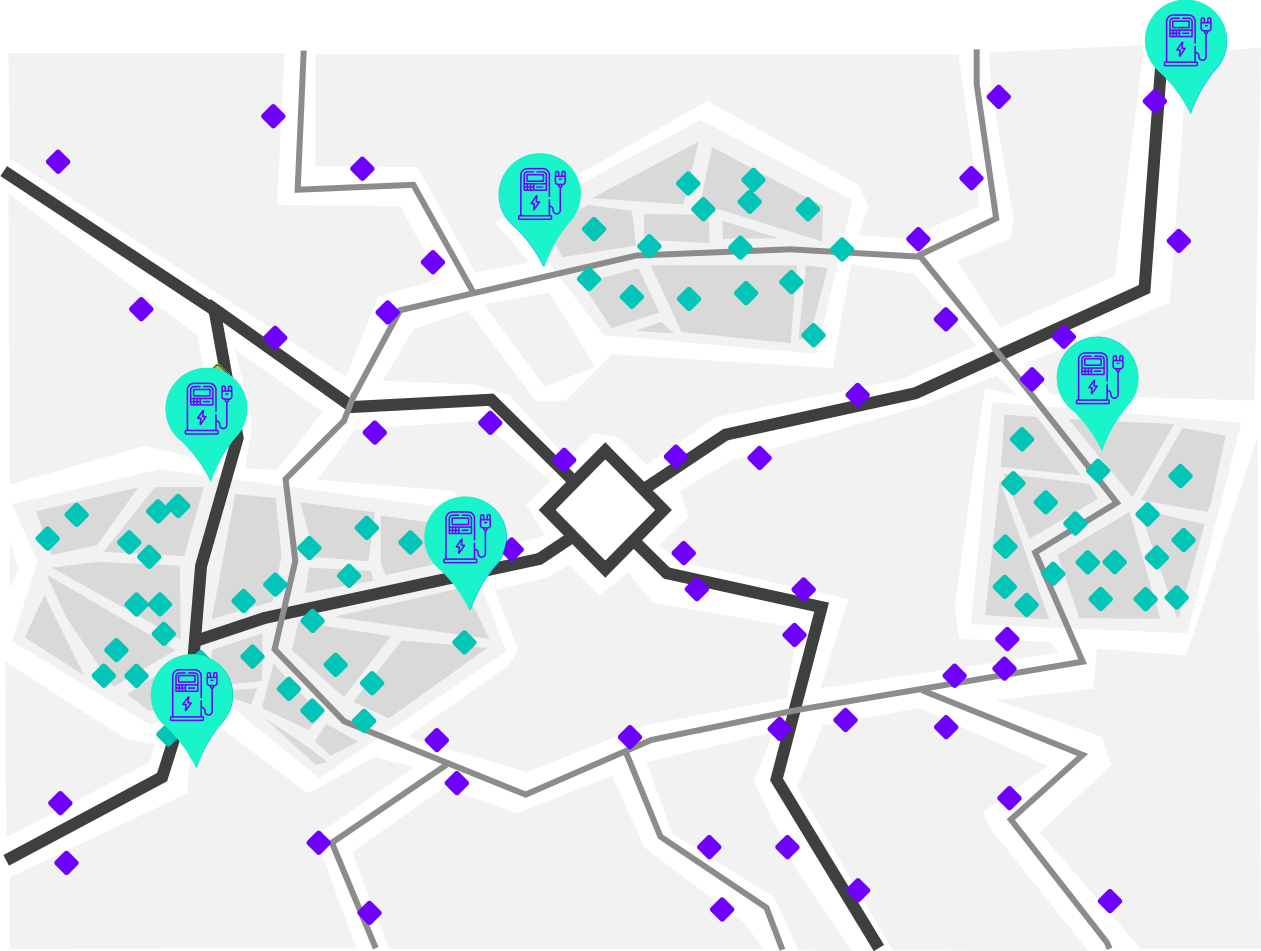


Fast Charging Distributed Approach

- 20%-40% charging in public chargers
- 'Many' 'small' Stations – 10s EVs/day/charger*
- Fast Charging is rare & not trivial
- chargers ARE the amenity



Future vast deployment of Fast-Charging (FC) infrastructure – A mix of FC Hubs & Distributed (small) Fast Charging sites



A Mixed-solution Infrastructure



Fast Charging Hubs
"gas-stations-like" – multiple FC ports, Located where the grid is powerful



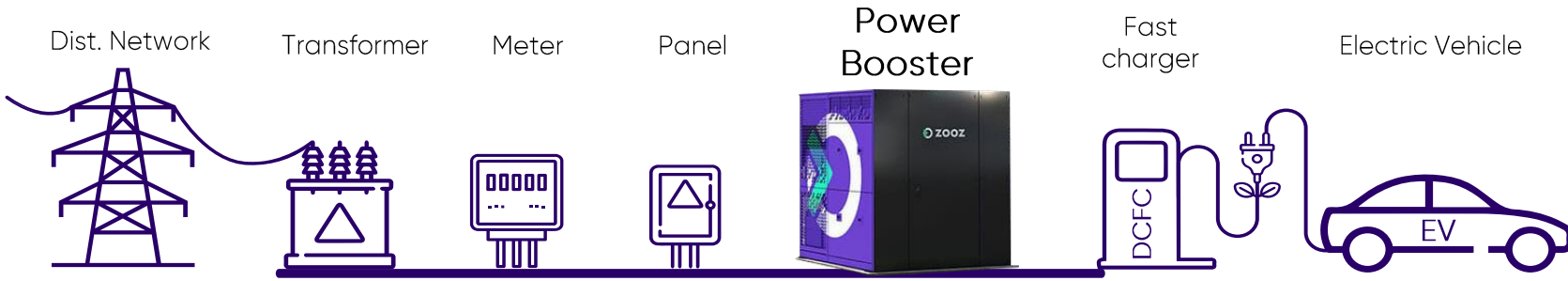
Small Distributed fast charging sites





- At destination (inside cities)
- On-the-go - every 30-50km

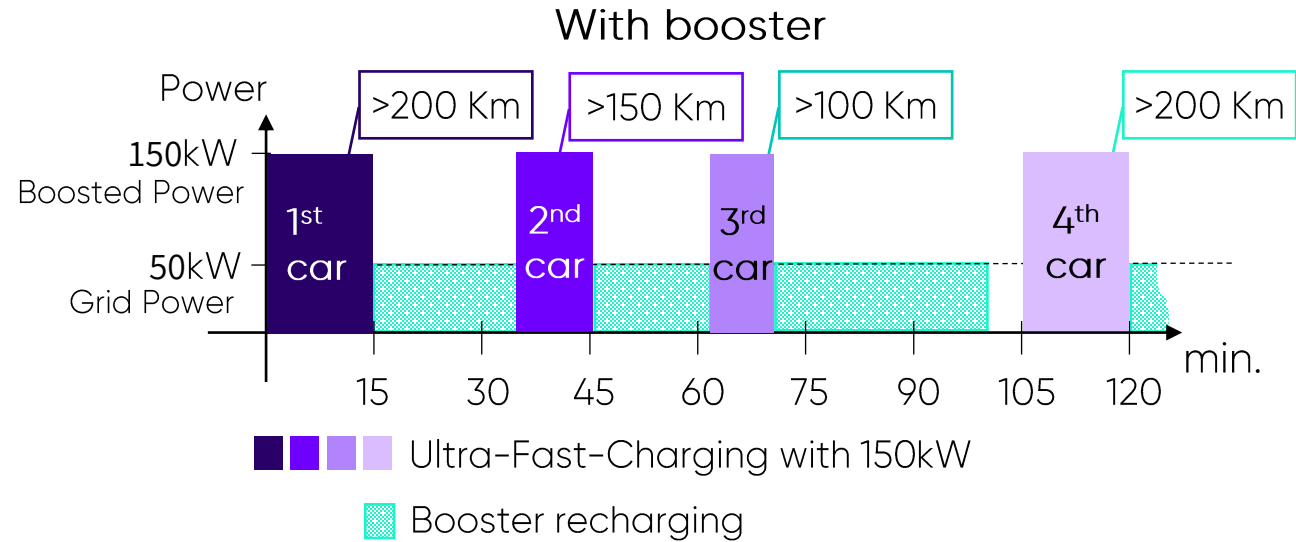
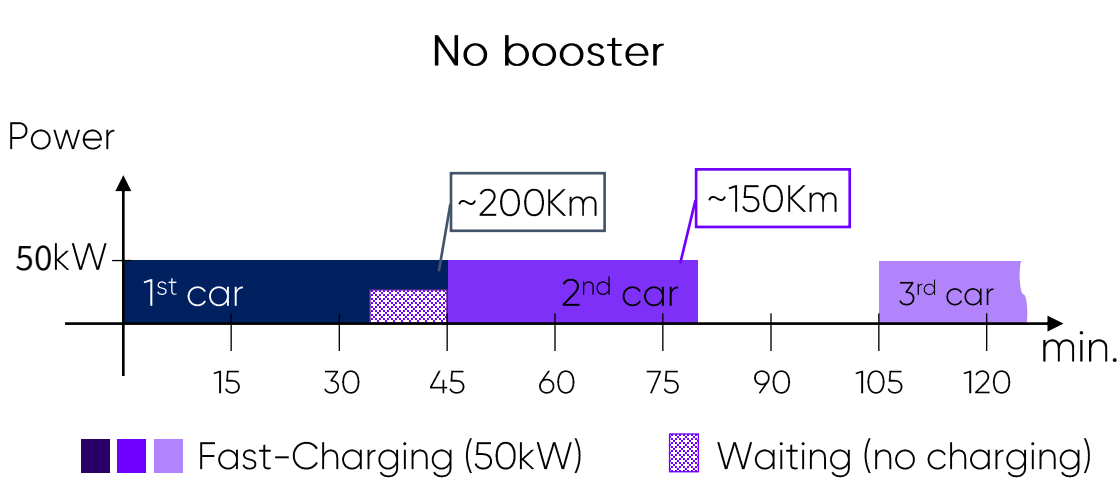
Legend

- Intercity Highway
- National roads
- Fast-Charging Hub (@ powerful grid)
- On-the-go distributed FC
- Destination distributed FC

The (simplified) Value of Power Booster – At power-limited grid location



-  EV Single charge
35kwh => 200km
-  Charging Time
< 15 minutes
-  Cost To Customer
\$0.6/kWh, ~\$0.1/km
-  Full Charge Cost ~\$21
(comparable to ICE fueling)



Faster, better & lower cost than alternatives

Accelerate Deployment



- > **Faster** alternative to grid-upgrade
- > **Safer & more flexible** alternative to Li-Batteries-ESS

Boost Brand



- > **Better** availability and quality
- > **Innovative & sustainable**

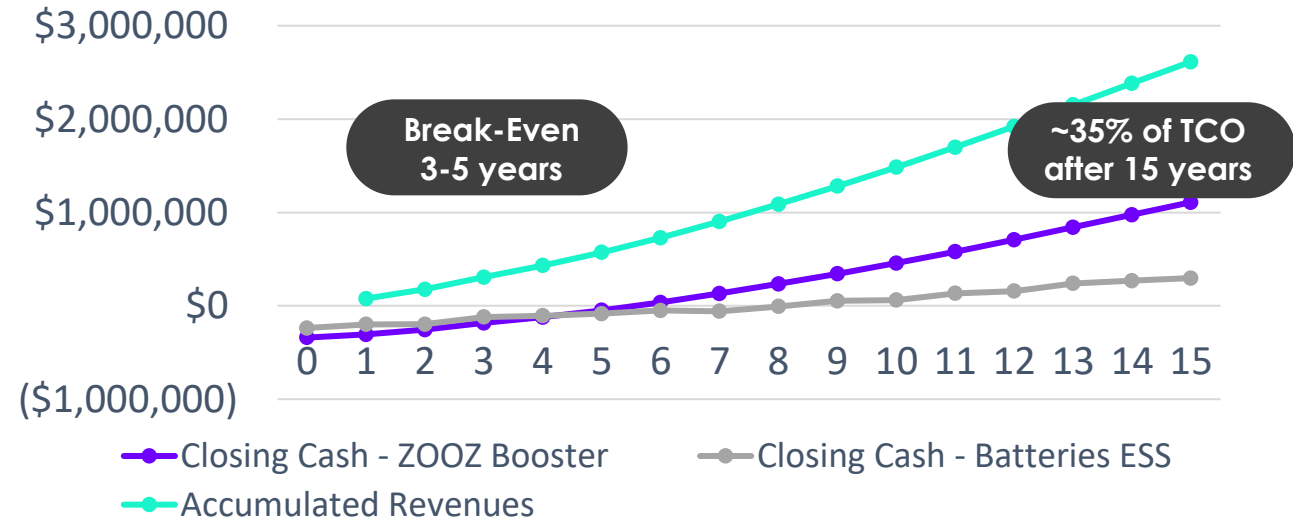
Minimize Total Cost of Ownership



- > Defer Grid investment
- > Gradually increase investment
- > Avoid batteries replacement,
- > Avoid demand charges



Ultra-fast Charging Station Cash Flow



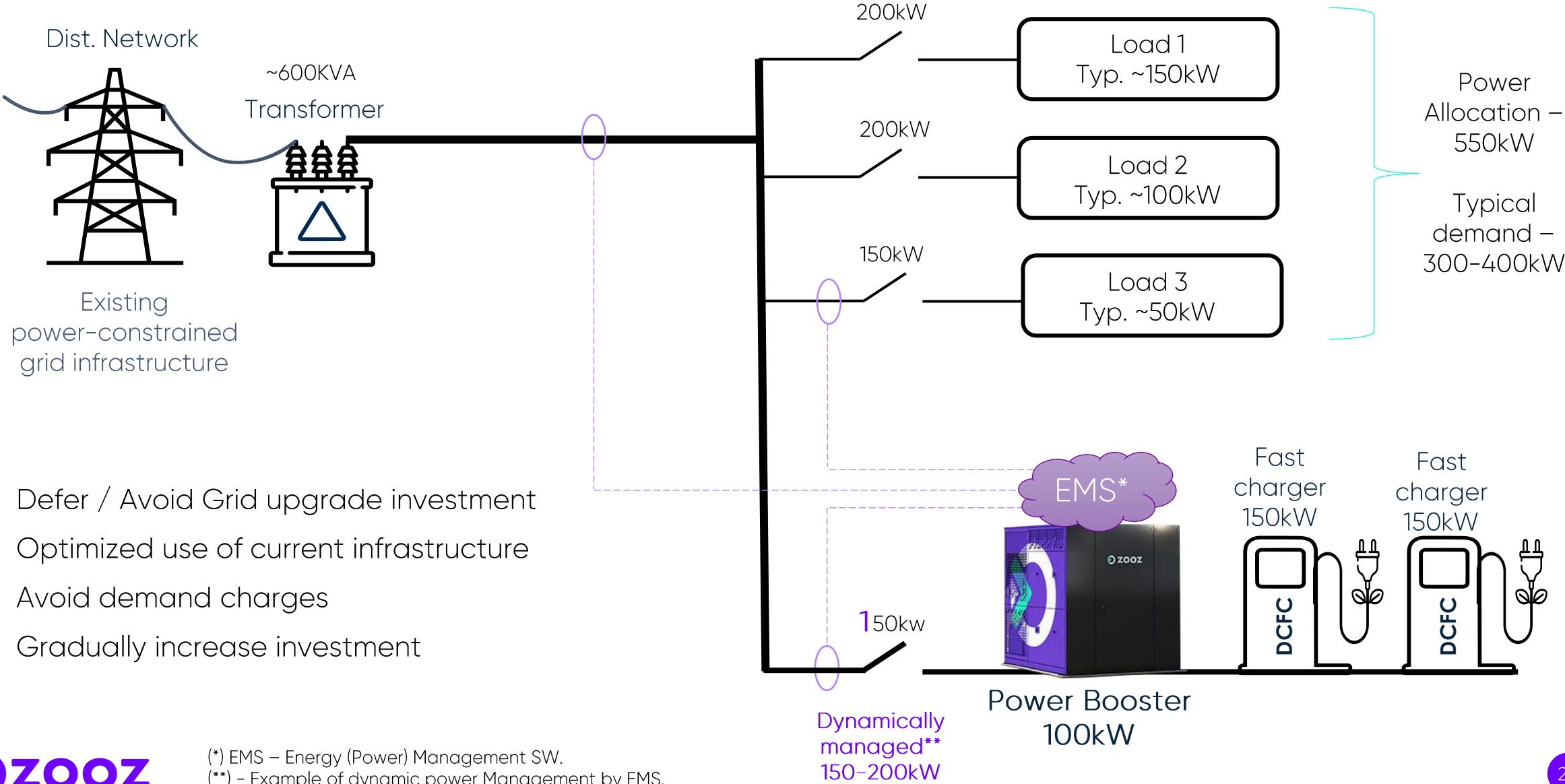
Charging Utilization Forecast



Assumptions of presented example (considering above utilization forecast example):

- Batteries lifespan of ~7,000 charging cycles
- Batteries replacement cost ~40% of the initial system cost
- Government grants cover for ~30% of ESSv

Value of Dynamic Power Management



- > Defer / Avoid Grid upgrade investment
- > Optimized use of current infrastructure
- > Avoid demand charges
- > Gradually increase investment



(*) EMS – Energy (Power) Management SW.
 (**) - Example of dynamic power Management by EMS.
 Capabilities and value dependent on specific site configuration.

Demand Charges Savings - Example

DEMAND CHARGE SAVINGS with ZOOZTER 100

Cars per Day	35
Average Charge	30 kWh
Efficiency	0.8
Yearl Charge Capacity	479,063 kWh

Mittelspannungsnetz - Medium Voltage Grid

	Grid only	w ZOOZTER 100	
Grid	200	100	kW
ZOOZTER 100		100	kW
Dynamic Usage			kW
Usage Time	2,395	4,791	hours
Cost € / kWh	€ 19.02	€ 139.46	€
Cost € cent / kWh	5.64	0.82	€ cent
Total Cost kW	€ 3,804	€ 13,946	
Total Cost kWh	€ 27,019	€ 3,928	
TOTAL Cost	€ 30,823	€ 17,874	
15 years cost	€ 462,347	€ 268,115	
15 years savings	€ 194,232		

Ein Unternehmen
der EnBW



Preise für die Nutzung des Stromverteilnetzes der Netze BW GmbH
Gültig ab 1. Januar 2022

Yearly Pricing

Preisblatt 1 - Entgelte für Jahresleistungspreissystem der Entnahmestellen mit registrierender Lastga

Leistungspreissystem für Entnahmestellen mit registrierender Lastgangmessung	< 2,500 Yearly usage Hours		> 2,500 Yearly usage Hours	
	Jahresleistungspreissystem			
	Jahresbenutzungsdauer $T_m < 2.500$ h/a		Jahresbenutzungsdauer $T_m \geq 2.500$ h/a	
	Leistungspreis €/kWa	Arbeitspreis Cent/kWh	Leistungspreis €/kWa	Arbeitspreis Cent/kWh
High Voltage	13,92	4,29	113,90	0,29
Umspannung Hoch-/Mittelspannung	14,07	4,34	115,40	0,29
Medium Voltage	19,02	5,64	139,46	0,82
Umspannung Mittel-/Niederspannung	19,07	5,66	140,03	0,82
Low Voltage	19,32	5,66	122,08	1,55
Entgelte zuzüglich Aufschläge gemäß § 17f EnWG (Preisblatt 8) und § 18 ABL	€cent/kW	€/kWh	€cent/kW	€/kWh

Maximize value of fleet electrification



Accelerate fleet electrification



Defer Grid upgrade investment



Minimal TCO, Avoid demand Charges



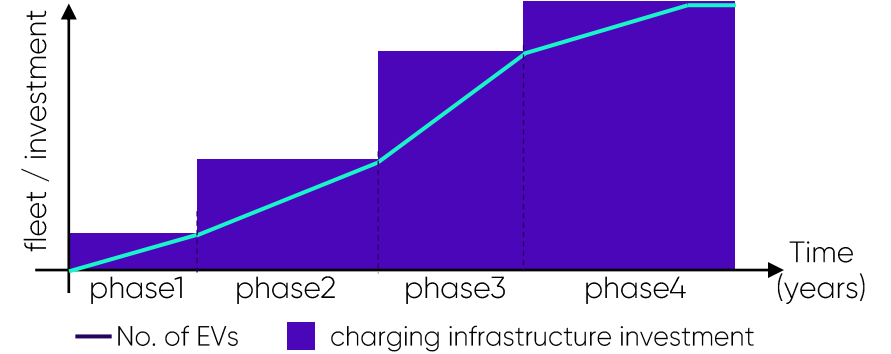
Gradually increase investment



Operational efficiency and flexibility

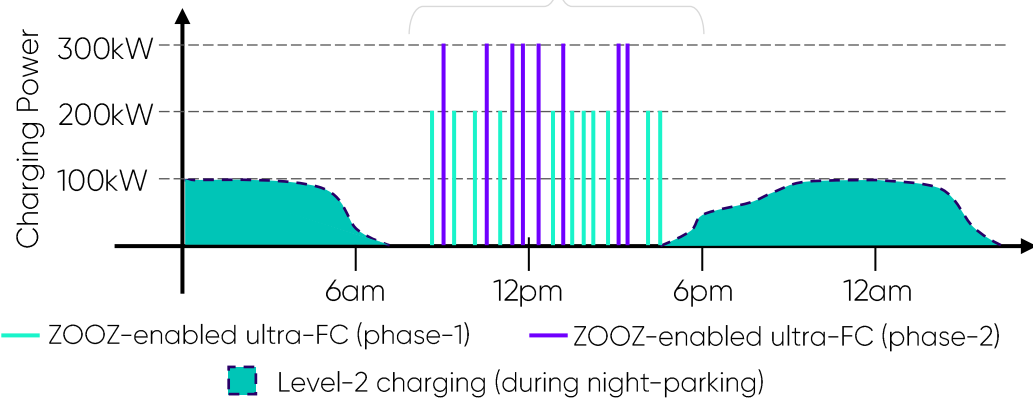


Boost brand with sustainability & innovation



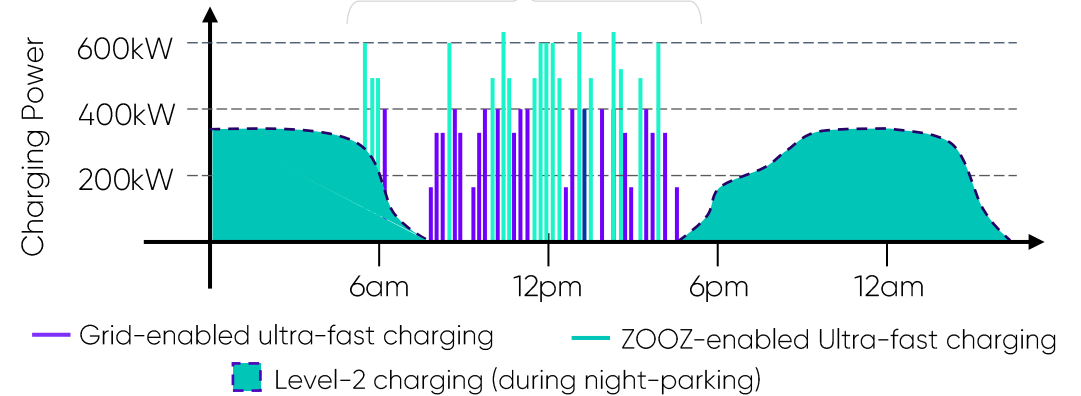
Phase1 & 2 Initiate Electrification, Defer Grid Upgrade

ZOOZter100 enables ultra-FC, 3x over grid limit, avoiding demand-charges



Phase3 & 4 Grow With Max. Flexibility & Min. OPEX

ZOOZter100 enables ultra-FC, 50% over grid limit, avoiding demand-charges



Example Configuration: Fleet < 20 Evs, Grid power – 100kW, Equipment – L2-chargers + 1DCFC + 1 ZOOZter100 (phase-1) / 2 DCFC+ 2 ZOOZter100 (Phase2)

Example Configuration: Grid power – 400kW, Equipment – L2-chargers + 4-6 DCFC + 2-3 ZOOZter100



Hybrid Booster to support Charging-Hub



Hub Power consumption varies significantly

- > At different times of day/year
- > Multiple demand spikes



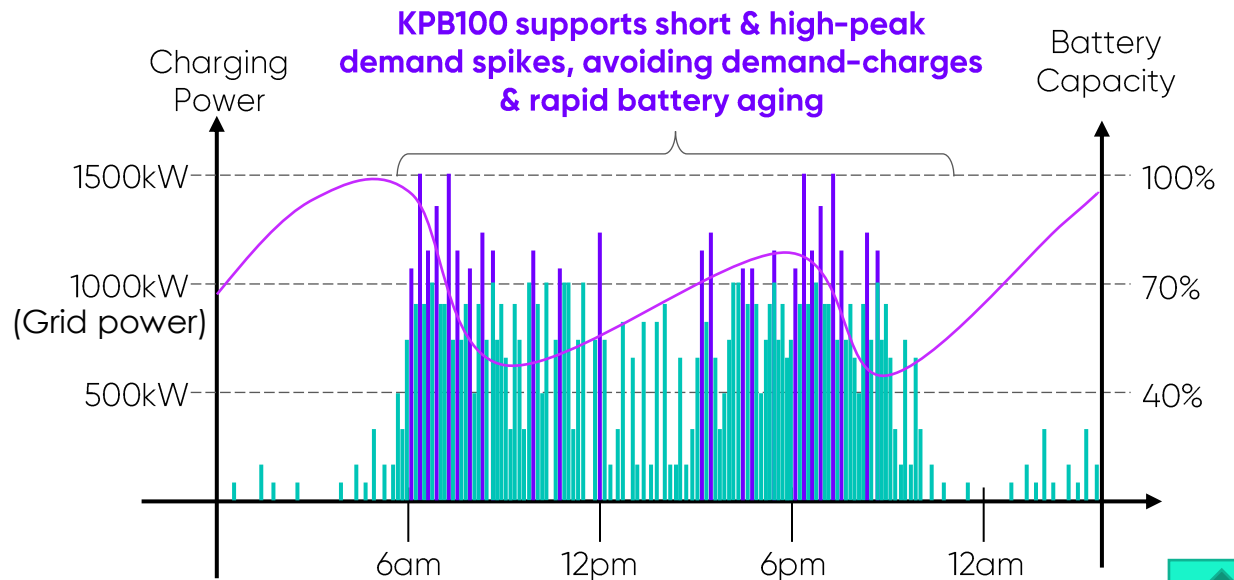
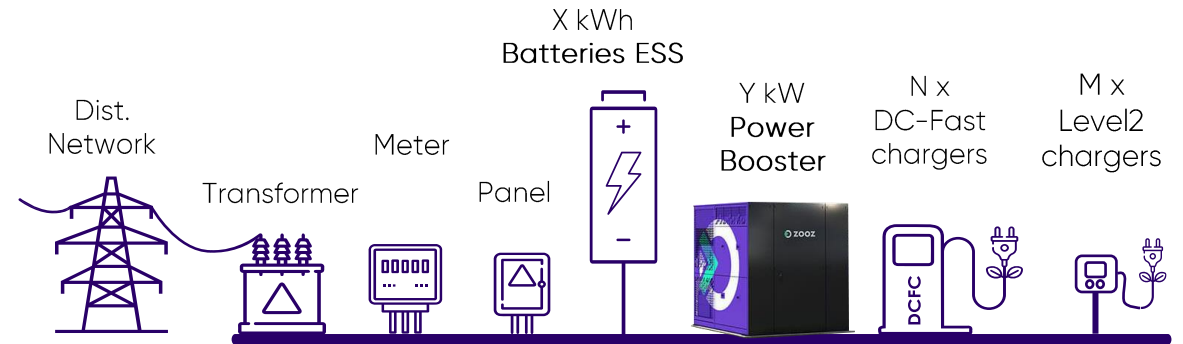
Maximizing the benefit of two technologies

- > Kinetic Power Booster (C-rate of ~5)
 - > Support frequent, short demand spikes
 - > Multiple high-rate cycles per day
- > Li-Ion Energy Storage (C-rate of ~0.5)
 - > Support grid during rush-hours' demand peak
 - > 1 full equivalent cycle per day



Hybrid Booster can reduce CAPEX & OPEX

- > Avoid / reduce demand charges
- > Reduce grid upgrade costs
- > Gradually increase CAPEX (ESS and KPB)
- > Reduce batteries replacements costs



Example configuration:

- > Grid power – 1000kW
- > Battery storage – 600kWh, C-0.5
- > Power booster – 250kW, C-5
- Power consumed from grid
- Boosted charging sessions
- Battery capacity

Customers' feedback



Initial Sales in EU/ Germany

- Contracts for 5 fast charging sites
- **Turnkey solution, based on ZOOZter100.**
- Site's build price - €500K (70% for ZOOZ)
- Operation contract for 15 years –
O&M service + 15% of operational profit.

Strategic Value:

- Penetration to DACH and other EU markets
- Validation of business model (+Grants)
- Cooperation w/ local EPC & CPO

Status:

- Expecting to finalize (soon) location contracts
- Planning to deliver systems till end of 2022*

**Working on additional orders in
Germany, Austria & Denmark**



* Company estimation, subject to changes



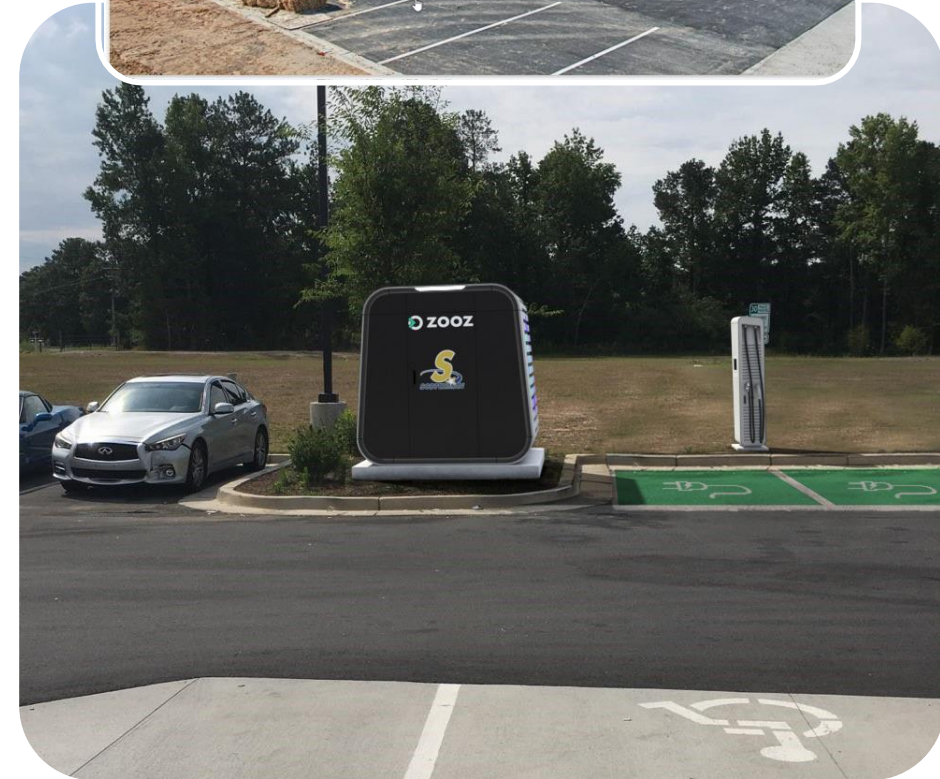
US Market Penetration

ARKO

- Pilot site – Scotchman (ARKO) Convenience store at Rockhill, SC.
- Charge-Point Operator – Selected and contracted
- Site design and county approval – in process
- Handling risk of long delivery dates for equipment (non-ZOOZ)
- Site expected to be operational in Q4, 2022 (December)*
- Planning to deliver ZOOZTER-100 system - end of Q3*

Blink

- Pilot site was planned for Miami beach, FL.
Was not approved by municipality.
- Blink team is searching for alternative sites.
- Planning to send ZOOZTER-100 system during Q4,2022*
pending Pilot site readiness.



Working on additional opportunities in the US

Israel

- Market is still at early stage
- EV penetration and grid upgrade limitation - not yet reached level to drive required investments
- Expecting a change with increasing number of EVs
- Realizing the imminent need, within 1-2 years –

It's time to ZOOZ !

Pilot with Afcon:

- Israel Innovation Authority approval – April '22
- Agreement on Pilot location – expected soon.
- Expecting the site to be operational before end 2022*.



* Company estimation, subject to changes



Additional Progress

In progress:

- Recruitment effort for Building and strengthening the team (all departments)
- Increasing Sales resources in target territories
- Building supply chain (in Israel & abroad)

Product development & certification:

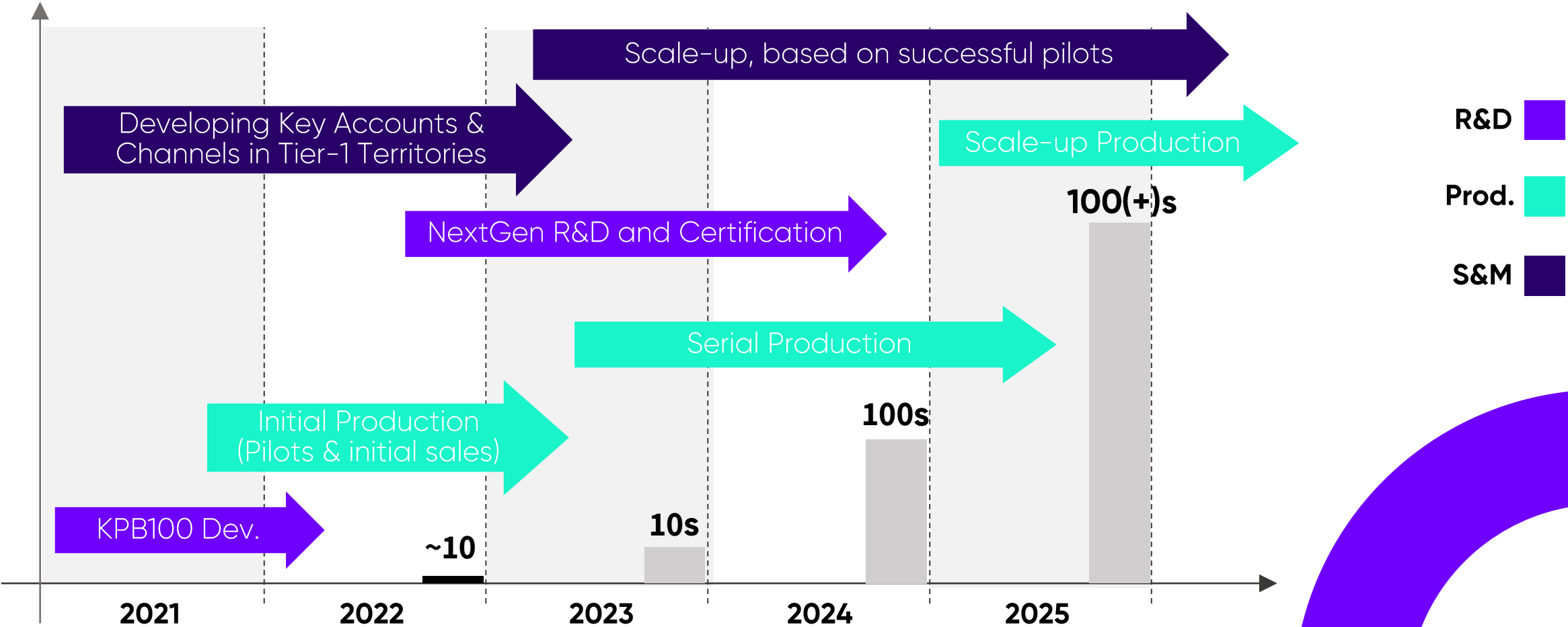
- Finalized successfully Flywheel certification
- Completed system-level on-site inspection by certification agency.
- Expecting to finalize EU certification during Q3 '22* – will allow deliveries to Customers.
- Good progress with UL certification – in line with planed US pilot installations*.



* Company estimation, subject to changes



Charging Ahead – Become a leading global supplier



Notes:

(*) Quantities refer to systems to be delivered to Customers, based on various business models, and therefore do not represent annual sales forecast.

(**) The provided information is forward looking as defined in Securities Law, section 32A. It may not be materialized as presented, as detailed in slide 2 of this presentation.



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by major firms in the Israeli market
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ניהול קופות גמל בע"מ

MEITAV DASH.



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