

at the heart of the energy transition

Capital Markets Day Alfen N.V.

London | May 10, 2023



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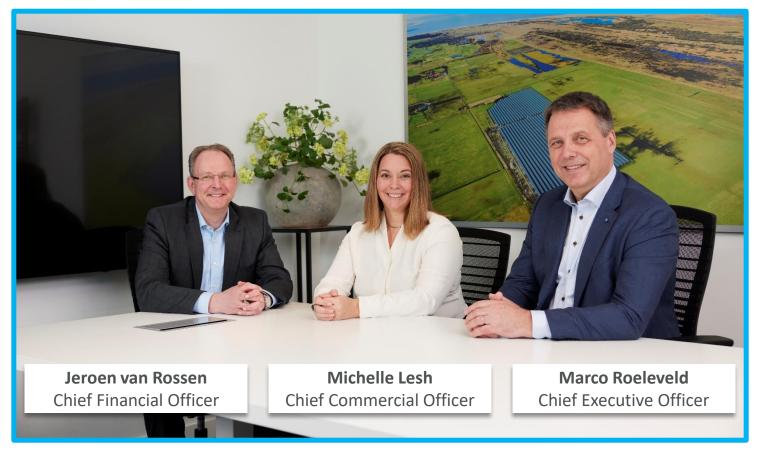
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## Today's speakers





## Agenda | Capital Markets Day

1	Group strategy	09:00 - 09:45
2	Q&A	09:45 – 10:15
3	Coffee break	10:15 – 10:30
4	Business line deep-dives + Q&A	10:30 – 12:25
5	Closing remarks	12:25 – 12:30
6	Informal lunch	





## Alfen at a glance



# Alfen is at the heart of the energy transition...

### Our vision

to build a connected, smart & sustainable energy system for future generations

### Our mission

to boost the energy transition by developing, producing, integrating and connecting high-quality energy solutions. Our solutions are innovative, reliable, secure and smart



# ... with a unique business model of 3 business lines that build on 85+ years of electricity grid expertise

### **EV charging equipment** | Since 2008

- In-house developed and produced smart chargers and maintenance offering
- Used at destinations at home, business (a.o. retail & workplaces) and public locations
- Alfen is a pure B2B player

Business lines have additional upside in **integrated solutions** 

### Smart grid solutions | Since 1937

- In-house developed and produced range of substations for grid operators
- Microgrids (incl substations) to grid connect private grids for instance at PV farms, EV fast-charging stations, horticulture and industrial companies
- Provide service & maintenance on installed substations for private entities



### **Energy storage systems** | Since 2011

- In-house developed and produced battery energy storage solutions
- Stationary and mobile batteries with integration layer of control software
- Provide long-term service & maintenance on installed systems
- Applicable for all battery use cases including energy trading, capacity markets, grid frequency control and peak shaving





# Our integrated solutions are a unique edge, where we combine technical capabilities from multiple business lines













- Energy storage system
- Smart grid solution
- Innovative black-start functionality

#### Shell fast-charging with storage

- Peak shaving with energy storage
- Grid stability with energy storage
- Smart grid solution

#### Alfen's new production facility

- Grid connection & power distribution
- 200+ charge points incl fast-charging
- Peak shaving with energy storage



# Our value proposition | We bring high-quality and comprehensive grid solutions



## We bring 85 years of grid perspective

- We solve our customers' toughest problems by helping to set the right technical requirements
- We guide strategic dialogue with our customers to advise on the energy transition



## We customise our solutions ("Power to Adapt")

- We offer a comprehensive solution portfolio
- We leverage our unique ability to provide integrated solutions
- We use modular building blocks to offer solutions in varying sizes



## We develop reliable & innovative solutions

- We leverage our technical capabilities to integrate suitable components into reliable solutions
- We pursue innovation relentlessly to serve our customers with the forefront of technology



## We build long-term customer partnerships

- We respect our customers' business model and avoid channel conflicts
- We operate EBITDA
   positive, offering our
   customers security about
   our long-term business
   continuity





# Why we are here today



# In 2022, we achieved 3 out of 4 IPO objectives

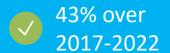
We have proven we can deliver profitable growth.

Alfen set 4 financial objectives at the time of the IPO (2018) to achieve in the mid-term

### **Financial objectives**



**Achieved value** 





15 - 20% adjusted EBITDA margin





>50% international revenue





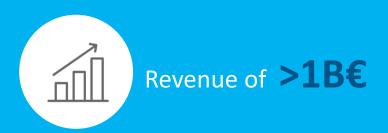
CAPEX < 3% of sales





# It's time for new objectives

Today Alfen presents its new medium-term financial objectives to achieve between 2025-2027





15 - 20% adjusted EBITDA margin

### Qualitative objectives to achieve/maintain

- Outperform the market in each of our business lines
- II Adopt SBTi-approved CO<sub>2</sub> targets
- III Maintain asset light business model
- IV Remain at technology forefront through innovation
- V Grow and educate our people





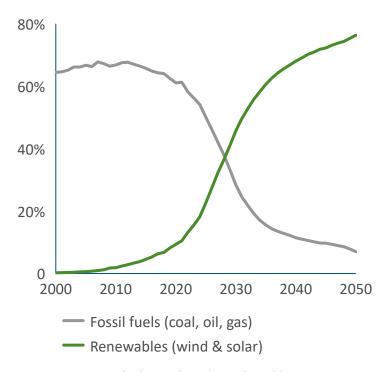
The energy transition is accelerating



# Trends | The energy transition is a multi-decade, global trend with 3 fundamental opportunities

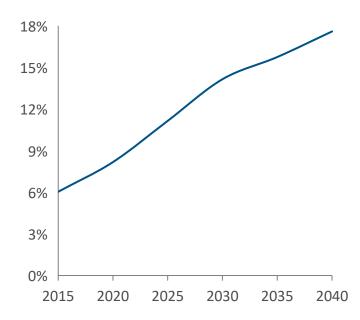


Global fuel mix of final electricity consumption<sup>1</sup>



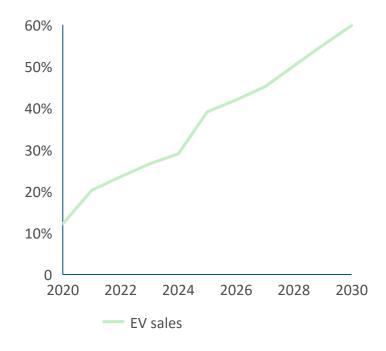


Decentralisation ratio of electricity production in Europe <sup>2</sup>





Example: EV share of total car sales in Europe<sup>3</sup>



<sup>1.</sup> New Energy Outlook 2022 based on achievable Net Zero Scenario (BNEF) 2. BNEF, where decentralisation ratio is the ratio of residential decentralised solar PV and storage to total installed generation capacity. 3. Electric Vehicle Outlook 2022 based on Economic Transition Scenario (BNEF)



# Regulation | The energy transition is a priority for the EU, reflected in stimulative policy towards 2030

EU regulatory packages bring clarity to markets on long-term trajectory towards 2030

Fit for 55	Reduce net GHG by 2030 and achieve climate neutrality by 2050
REPowerEU	Achieve 42.5% renewable energy share by 2030
EU law <sup>1</sup>	(ICE) car ban in Europe by 2035 (with exception for e-fuels)
AFIR <sup>2</sup>	Grow EV chargers at the same pace as EVs. Per BEV in a Member State, 1.3 kW power output must be provided by publicly accessible chargers by 2030
EU's Sustainable and Smart Mobility Strategy	Achieve 30M electric passenger cars and vans by 2030 (implies 27% CAGR)
Energy Performance of Buildings Directive	Minimum number of charge points set by national legislation for non-residential buildings with >20 parking spaces
Green Deal Industrial Plan	Four pillars: 1) Predictable and simplified regulatory environment 2) Speed up access to finance 3) Enhance skills 4) Trade and resilient supply chains





# Alfen's position in the energy transition



## Alfen is perfectly positioned to support these 3 opportunities in the energy transition







Decentralise electricity production



Enable the electricity grid to cope with electrification











Connect renewables to the electricity grid



Design and install microgrids at businesses locations



Design & supply secondary substations for distribution grid



Focus on smart chargers to manage peak electricity demand from renewables



Exclusive focus on smart chargers to maximize charging using solar power



Exclusive focus on smart chargers to manage electricity demand



Design & install large scale energy storage systems on electricity generation sites



Design & install (Mobile) energy storage systems on electricity demand sites (enable energy shifting)



Design & install (Mobile) energy storage systems on demand sites for congestion management (peak shaving)

## Business model | We are the only independent player active in all three business lines

Select examples of our suppliers, competitors and customers

### Strategic suppliers & partners

- Alfen sources standardised components from multiple manufacturers, selecting the most suitable components
- Component suppliers are generally product-focused rather than end-to-end solutions

#### Competitors

- Alfen is the only player active in all three business lines
- Alfen is independent from supplier base
- Alfen has no sales channel. conflicts with customers

#### Customers

- Alfen caters to a mix of B2B and B2B2C clients
- Customers include utilities, grid operators, resellers, traders, renewables EPC contractors and industrial clients

Smart grids

Energy storage

EV charging



CATI



















TESLA





northvolt





















































NEWAYS















WÄRTSILÄ FLUENCE









### We leverage many group synergies from our business lines

**Smart** EV Energy grids charging storage **Commercial synergies** Strong individual business lines that build technical trust for cross-selling & integrated solutions **Leveraged support functions** Support functions are centralised. Synergies include expertise concentration and cost savings **Deeper R&D expertise** R&D organized by expertise (mechanical/software/civil engineering & power electronics) **Production flexibility** Opportunity to rotate production personnel when required by market circumstances **Combined purchasing power** Higher purchasing power possible due to category management across business lines



## Commercial synergy | Our segments buy from multiple business lines



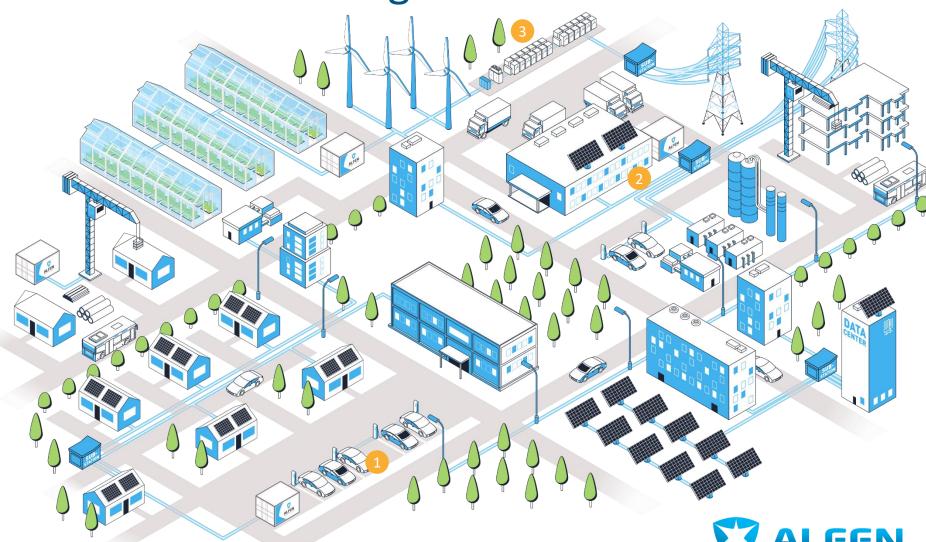
integrated solutions opportunities with customers



# Our solutions come together in integrated solutions, as the energy transition unfolds due to grid constraints

## **Examples of integrated solutions**

- 1 Charging plaza (EV charging with energy storage on site)
- 2 Microgrid at business location with energy storage on site, transformer substation and grid connection
- 3 Co-location of renewable generation with large scale energy storage





# Customers appreciate our grid expertise, technical capabilities and flexibility

#### Customer testimonials

### Smart grid solutions

'Alfen has sound knowledge and is an electrical technical partner.' Specialist in electrical total solutions

'Quality, development and support are good. Alfen knows the Dutch market and it is the best choice in the Netherlands.' German supplier of PV equipment

'There is a great deal of knowledge within the company, so an appropriate technical solution can always be provided.' Developer and EPC of solar PV projects

### EV charging equipment

'70 percent of the customers who call in reference to the budget model charger end up leaving with the Alfen solution purely because of the technical capabilities of the product.'

#### Contract manager, large international utility

'It is easy to build a charger that can only communicate with your own platform, that is what many EV chargers do. This keeps the clients tied to that platform. Alfen manufactures charging infrastructure as a service and therefore design and develops its chargers to be able to communicate with any platform that follows the standards.

#### COO, Full&fast

'The on-site service that Alfen offers was a big benefit for us. The wider services around the charger will keep the costs down and lower the total costs of ownership.'

#### **Product owner, Nordic EV CPO**

'In the Dutch and Belgian markets, Alfen is an established name. We can see that customers find it a stable solution. The quality and reliability of the products that Alfen can provide is very important to us.' Vendor manager, other large international utility

### **Energy storage systems**

'When we started our company, we did market research and came to the conclusion that Alfen was the most reliable party for us because it could scale with our ambitions. Alfen distinguishes itself by providing high quality products and high production numbers in their manufacturing process that is top of the market.'

#### CEO, Greener

'We work with Alfen because they have a lot of expertise. The know well how to deal with network companies and the requirements of the network operators.'

#### **CEO, SemperPower**

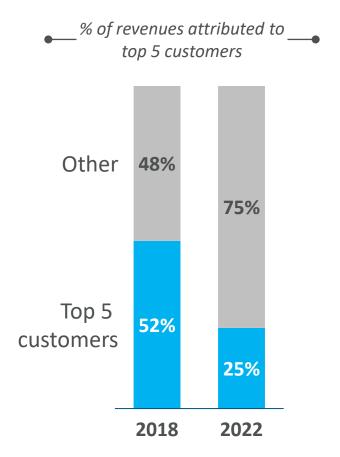
'We negotiated with a few manufacturers, but we chose Alfen because of its customisation and flexibility. Alfen offers a good range of products and services. We needed a product for many use cases and Alfen was ready for it.'

**Development manager, EPV** 

## Alfen has a loyal customer base that has diversified since our IPO in 2018

## Loyal % of top 50 customers within each business line that ordered in past 6 months 98% **\*\*\*** 84% 86%

### **Diversified**



No customer accounted for more than 10% of revenue in 2022, making Alfen's business model more robust



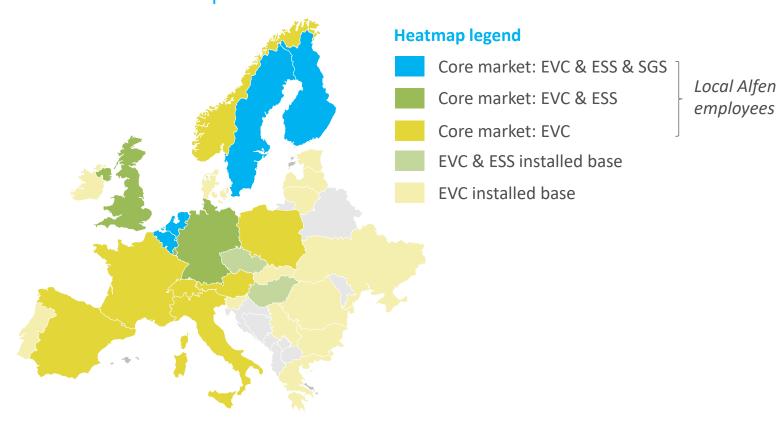


# Setting the stage for future growth

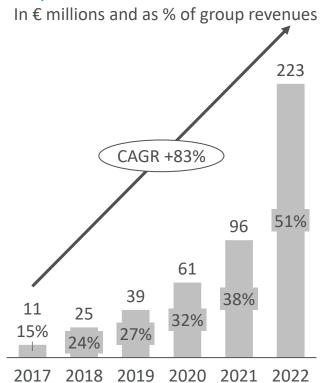


## Alfen is exposed to a variety of growing markets across Europe and internationalises at high pace

Alfen has local sales presence in 13 European countries with its solutions installed in 30+ European countries

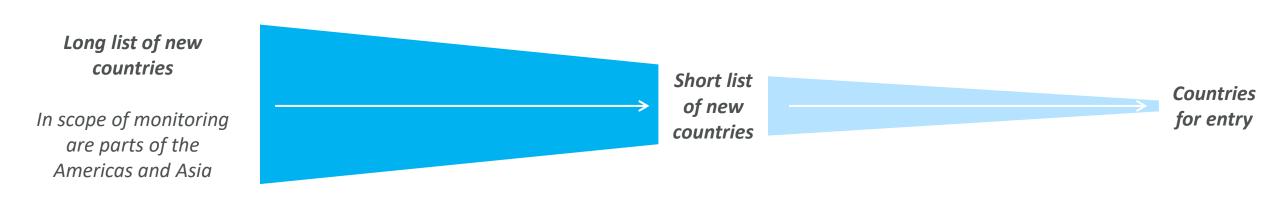


## Growing international revenues beyond the NL





# Focus remains on Europe, but new country monitoring in place to selectively pursue entry in the medium term



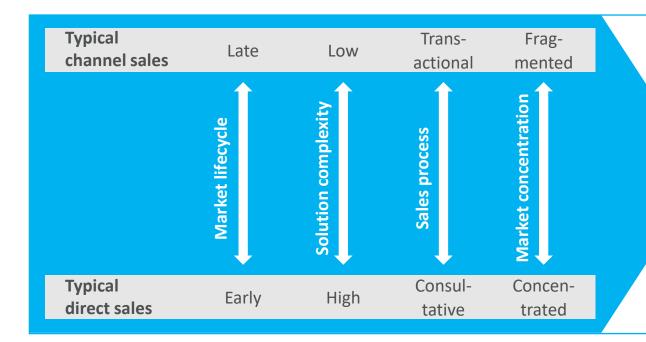
01 Market size and maturity

02 Government policy

03 Product-market fit



# Our go-to-market strategy is scalable, product/market focused, and tuned to the complexity of the solution



### Serve through partner channels:

EV charging & Energy storage (mobile)

- Fragmented end customers
- Lower solution complexity
- Early in market life cycle

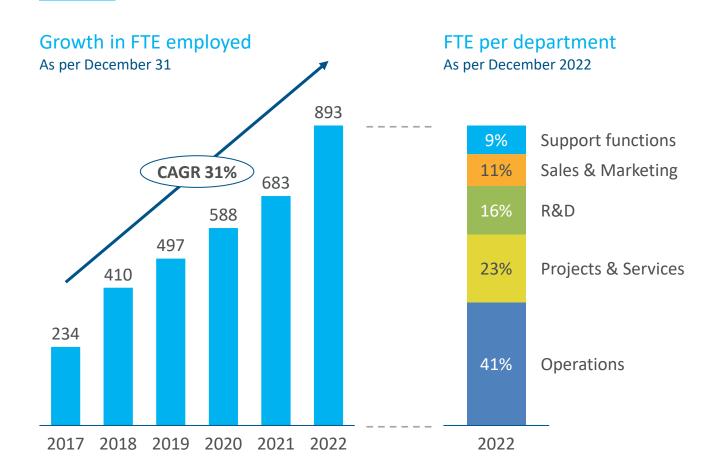
### **Serve directly:**

Smart grid solutions & Energy storage (stationary)

- Concentrated end customers
- Higher solution complexity
- Consultative sales process



## Our strong track record of attracting and retaining talent sets us up for continued growth



## Why do employees choose Alfen? Why do they stay?

- Meaningful work at the heart of the energy transition
- Many opportunities for professional growth within a growing company
- Hands-on culture with a bias for action
- Increased media coverage since IPO has strengthened Alfen's employer brand



23.6

employer Net Promoter Score (vs 5.5 of benchmark)<sup>1</sup>



<sup>1.</sup> Score based on employee survey in November 2022. eNPS score is calculated based on the question: "How likely is it that you would recommend Alfen as an employer to others?". People that indicate 9 or 10 are promoters. People that indicate 7 or 8 are passives. People that indicate 1 until 6 are detractors. The eNPS is determined by subtracting the % of detractors from the % of promoters. The benchmark score was 5.5 in the Netherlands.

# New production facility – operational in Q1 2024 – sets the next stage for our growth story



# Increasing production capacity in Almere (NL) with purchase of additional facility per June 1, 2023



Existing industrial building at Damsluisweg 70, Almere (on same industrial premise as other Alfen buildings)

Significant floor space:

- 2350 m<sup>2</sup> production
- 13000 m<sup>2</sup> warehouse
- 1600 m<sup>2</sup> offices

Lowers warehousing costs at other locations

Environmental permits in place for expanding the production of mobile Energy Storage Systems



# Our production facilities, centrally located in Almere (NL), provide ample capacity for further growth

#### **Under construction** | Hefbrugweg 79

- 20,000 m<sup>2</sup> production hall + 4200 m<sup>2</sup> offices
- Expected delivery early 2024

#### **EV Charging |** Hefbrugweg 85

- 5300 m<sup>2</sup> production hall + 1500 m<sup>2</sup> offices
- ~15 flow production lines
- Some lines are semi-automated

### **HQ & Smart grids |** Hefbrugweg 28+ Vlotbrugweg 24

- 3900 m<sup>2</sup> production hall + 2400 m<sup>2</sup> offices
- Flow production system with 3 lines
- SGS facilities in Belgium (~430 m² office space) and Finland (~4750 m² production and office space)



= 100 meters

#### **Commercial functions** | Bolderweg 2

 3000 m2 office space (Mac3Park) for several Sales & Marketing functions among others

#### **Energy Storage |** Hefbrugweg 6

- 2350 m<sup>2</sup> production hall + 1000 m<sup>2</sup> offices
- 11000 m<sup>2</sup> outside area to assemble energy storage systems



Production capacity can breathe with demand through:

- Add flexible labour
- Additional production lines
- More automation
- Operational excellence
- Additional/second shift

Source: Google Maps



# Walk the talk | Sustainability at the core of our business and delivering results

ESG examples below: more in Annual Report 2022

Our solutions have a positive sustainable impact on society

Our vision

a "sustainable energy system"

Our mission

"to boost the energy transition"

We run our business with ESG at the forefront

Decreased CO2 emissions by 28% (2019-2022) in scope 1 & 2 despite tripling revenues in this time period

Alfen Academy educates new technical personnel (~60 students enrolled, awarded 150 diplomas since start)

Expanded Supervisory Board with 4<sup>th</sup> member and will formalise an audit and remuneration/ nomination committee in 2023



99%

of revenue aligned with EU Taxonomy



20.3

rating with Sustainalytics (top 12% in Electrical Equipment industry globally)

# Strategic program in place to implement Corporate Sustainability Reporting Directive (CSRD)

24 material ESG topics determined for Alfen based on double materiality assessment (initial assessment)



#### **Environmental**

- E1-1 | Transition plan for climate change mitigation
- **E1-2** | Policies related to climate change mitigation and adaptation
- E1-3 | Actions and resources in relation to climate change policies
- **E1-4** | Targets related to climate change mitigation and adaptation
- E1-5 | Energy consumption and mix
- E1-6 | Gross Scopes 1, 2, 3 and Total GHG emissions
- E1-7 | GHG removals and GHG mitigation projects financed through carbon credits
- E1-8 | Internal carbon pricing
- E1-9 | Potential financial effects from physical and transition risks and potential climate-related opportunities



Process pending to set SBTi-approved targets

### Social

- **\$1-1** | Policies related to own workforce
- S1-2 | Processes for engaging with own workers and workers' representatives about impacts
- **S1-3** | Processes to remediate negative impacts and channels for own workers to raise concerns
- S1-4 | Taking action on impacts on own workforce, and approaches to mitigating risks and pursuing opportunities related to own workforce, and effectiveness of those
- S1-5 | Targets related to managing negative impacts, advancing positive impacts, and managing risks and opportunities
- **S1-6** | Characteristics of the undertaking's employees
- S1-7 | Characteristics of non-employee workers in own workforce
- **\$1-8** | Collective bargaining coverage and social dialogue
- **\$1-9** | Diversity indicators
- **\$1-10** | Adequate wages
- **\$1-11** | Social protection
- S1-14 | Health and safety indicators
- S1-17 | Incidents, complaints, human rights and incidents

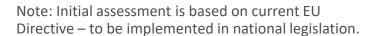
### **Governance**

- G1-3 | Prevention and detection of corruption or bribery
- G1-4 | Confirmed incidents of corruption or bribery

## Our next steps to implement CSRD

- Setting clear sustainability goals and targets
- Developing a plan of action
- Communicating and reporting on sustainability efforts

Applicable as from financial year 2024





## Profitable growth



## Market and solution expansion drives our topline growth



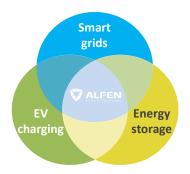
### Market growth

- Benefit from strong market growth trends for smart grids, charge points and energy storage
- Aim to grow market share across geographies



### Internationalisation

- Internationalise across
   Europe by expanding our local sales presence
- Two drivers: establish new B2B partnerships across Europe and grow internationally with existing B2B partners



### Integrated solutions

- Leverage our unique position of having 3 energy transition-oriented business lines
- As the energy transition progresses, grid congestion increases the need for integrated solutions



## Solution portfolio additions

 Expand our portfolio by selectively adding new solutions (e.g. walk-in substation)



## Several programs in place to propel steep revenue growth and improve efficiency

#### **Examples of programs**

#### Supplier Management

- Develop category strategies further
- Improve integral supplier capacity alignment to secure future supplies
- Drive competitive component pricing further

#### **Customer Experience**

- Develop customer-facing IT tools further (portals, applications, etc)
- Improve the customer journey
- Make service easier and faster through process automation and strategic cooperation with service partners

#### **Operational Excellence**

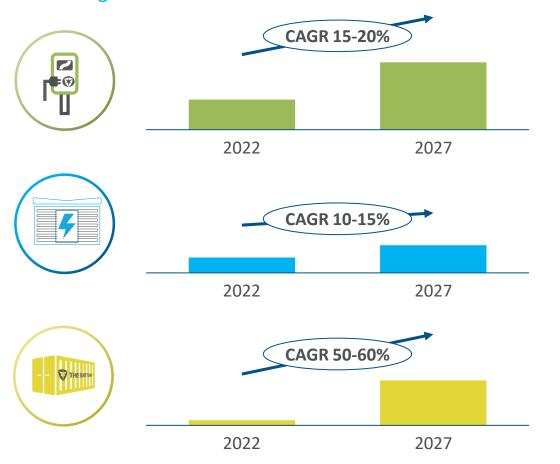
- Smart Grid Solutions: optimised lay-out of new production facility
- EV charging: implementation of manufacturing execution systems (MES)
- Focus on master data management

### IT infrastructure & applications

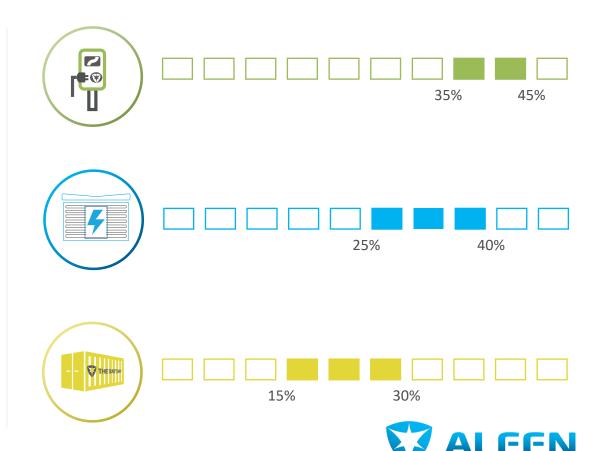
- Build a secured (by design) & scalable IT infrastructure
- Build a digital platform for secured, scalable, rapid development and deployment of digital solutions
- Further automate business process steps, building interfaces with partners/customers
- Fortify information (cyber) security across Alfen's digital ecosystem

# Mid-term financial objectives take into account varying growth rates and gross margins per business line

Market volume CAGR for 2022 – 2027 continue to be double digit for our markets<sup>1</sup>



#### Gross margins vary by business line



# It's time for new objectives

Today Alfen presents its new medium-term financial objectives to achieve between 2025-2027





15 - 20% adjusted EBITDA margin

#### Qualitative objectives to achieve/maintain

- Outperform the market in each of our business lines
- II Adopt SBTi-approved CO₂ targets
- III Maintain asset light business model
- IV Remain at technology forefront through innovation
- V Grow and educate our people



### Our objectives are full of ambition given the broader market context



#### Market context for our revenue objective

In mid-term, our objective is to grow revenues to at least 1 billion EUR by 2025-2027, which is lower than the previous revenue objective of >40% CAGR because:

- (1) Market for EV charging is maturing, hence growth rates of >100% are no longer realistic. This is a normal phenomenon in the adoption of new technologies (scurve)
- (2) To combine growth with profitability, we shift from market expansion in EV charging throughout Europe towards increasing market shares within existing markets. That is beneficial for profitability, but lowers the revenue growth rate.



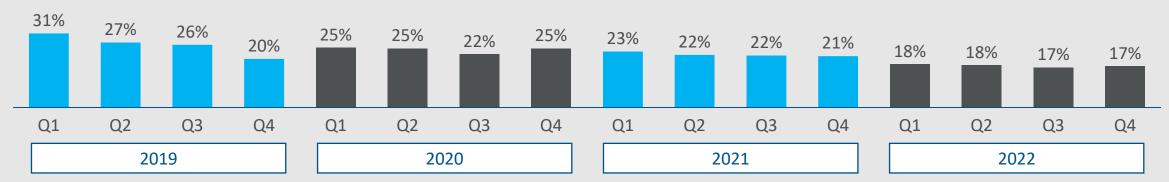
#### Market context for our adjusted EBITDA margin objective

In mid-term, our objective is to maintain our profitability in the range of 15-20%, while:

- (1) The business with the lowest gross margin (energy storage systems) is expected to grow the fastest (implying continued operational leverage throughout Alfen)
- (2) Listed peers in both EV charging and Energy Storage are performing in the range -/- 60% to +6% EBITDA margin in 2022. Most peers are EBITDA negative

# We continue to see leverage in coming years as a trend, but deleverage can also occur in certain quarters





#### Leverage areas and potential for further operational leverage

- Indirect labour costs
  - E.g. support function personnel

+ + +

- Other OPEX
  - E.g. marketing spend, IT spend, building costs
- + + +

- Direct labour costs
  - E.g. production & warehousing personnel



#### Drivers in coming years (= opportunities for leverage)

- > Grow volume, especially in EV charging and Energy Storage
- > Improve productivity, e.g. automation and maturing business processes
- Organize for synergies, e.g. central support functions



# Capital allocation strategy | FCF to be primarily spent on growing the business further

Free cash flow (FCF): Alfen continues its financial strategy of profitable growth in combination with an asset light business model. We balance growth with generating FCF. When supply chain pressures ease, our business model should result in FCF.

**Capital allocation:** Alfen will use FCF for growth; no dividend payout expected in the medium-term.

Working capital: At 31 December 2022, working capital amounted to €87.6m (versus €23.8m at 31 December 2021), mainly related to Alfen's successful measures to mitigate supply chain pressures with higher inventory levels. Working capital also increased due to strategic down payments for batteries, inverters, containers and electrical components. Working capital has not increased due to trade receivables & payables.

- EV charging: when supply chain normalizes, lower inventory levels expected
- Smart Grids Solution: at a representative level
- Energy Storage Solutions requires more working capital structurally, but 2022 step-up was relatively large. Going forward, more continuous flow in projects for TheBattery Elements expected.

**M&A:** Alfen continues its focus on organic growth, given the opportunities in our markets. Alfen does not exclude M&A when synergetic targets are identified, but will not actively pursue a buy-and-build strategy.



### Key takeaways





1	Group strategy	09:00 – 09:45
2	Q&A	09:45 – 10:15
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6	Informal lunch	



1	Group strategy 09		
2	Q&A		
3	Coffee break		
4	Business line deep-dives + Q&A	10:30 – 12:25	
	4.1 EV Charging Equipment + Q&A	10:30 – 11:10	
	4.2 Smart Grid Solutions + Q&A	11:10 - 11:40	
	4.3 Energy Storage Systems + Q&A	11:40 – 12:10	
	4.4 Integrated Solutions + Q&A	12:10 – 12:25	
5	Closing remarks	12:25 – 12:30	
6	Informal lunch		



### Key areas of focus in this EV charging section

1

Market outlook & growth drivers

2

Alfen's comprehensive solution portfolio

3

Go-to-market

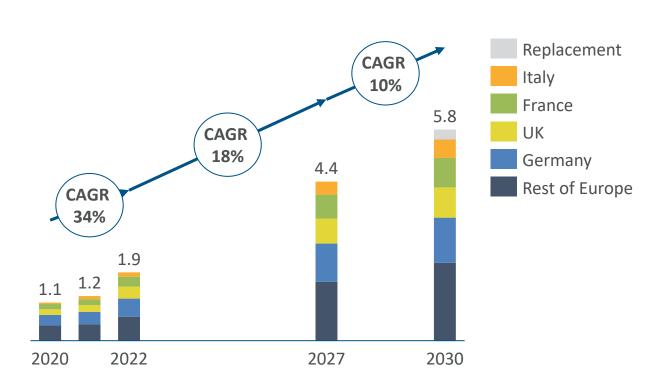
4

Alfen's strong position in the market



# Independent market research expects strong double digit growth for charge points in Europe until end of this decade

EV charge points added per year to base in Europe in millions<sup>1</sup>



#### Market growth drivers



#### **Decarbonization**

Goal for individuals and businesses



#### Approaching cost parity with ICE

EV less costly already in several use cases



#### **Government incentives**

Subsidies and regulatory measures



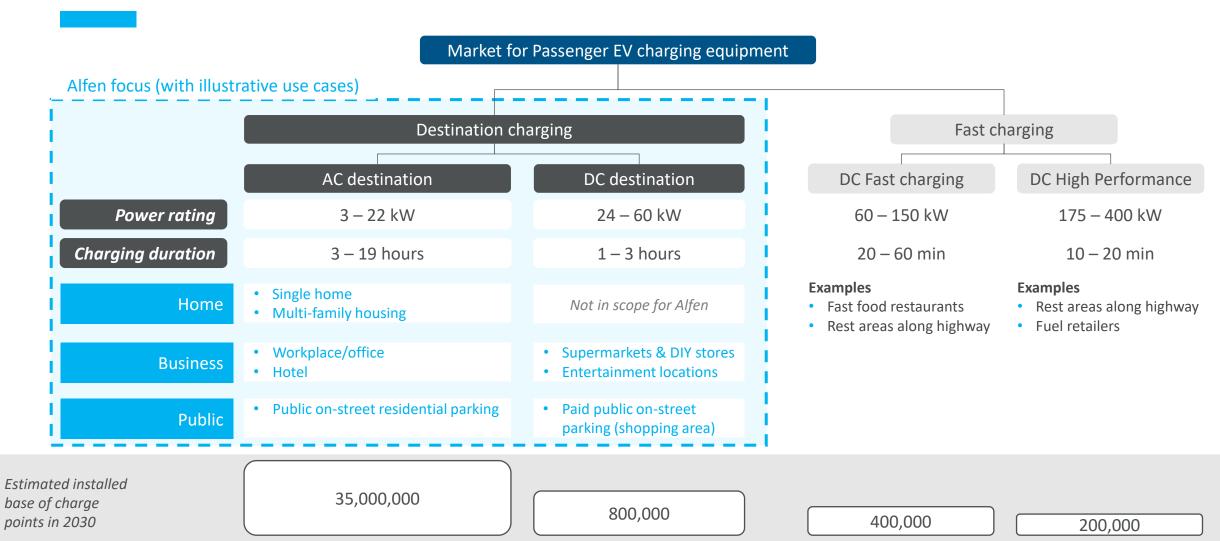
#### **Increased variety of EVs**

Car OEMs set higher ambitions and bring more affordable models to the market

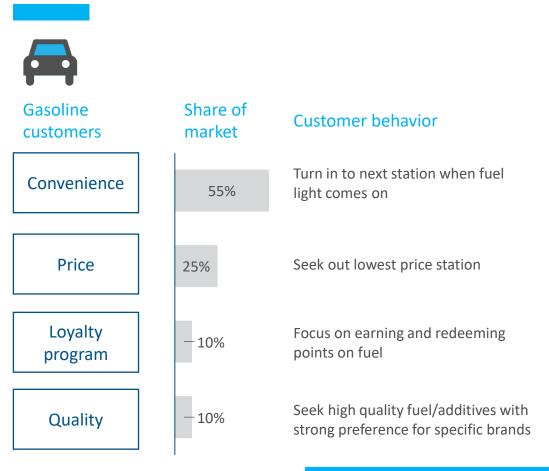




# Alfen focuses on destination charging; historically AC destination and per 2023 H2 also DC



# Based on known charging behavior for gasoline fueling, destination charging is expected to dominate vs fast charging





#### Analogy for EV charging customers

Charge car when it is parked at destination (no time wasted) and at next fast-charging station on long-distance trips

Search for lowest price per kWh destination charging, as price is substantially higher at fast charger

Focus on earning and redeeming points on a charge with partner installers

Pay extra/sacrifice time for green electricity

#### **Implication**

Predominantly destination charging

Favours destination charging

Can be destination or fast charging

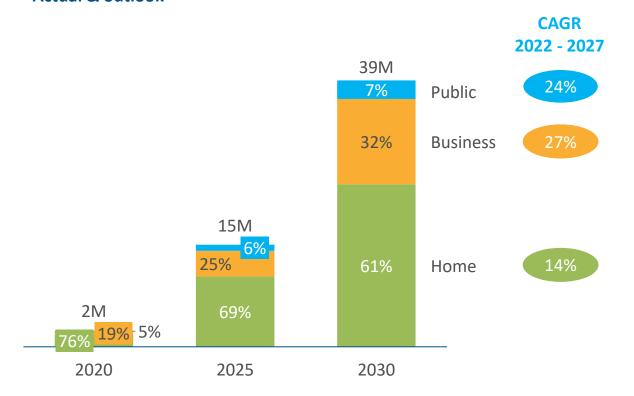
Can be destination or fast charging

**Conclusion**: Gasoline customer behavior fits best with destination charging. Market outlook: ~98% of chargers will be destination chargers



# Home segment is expected to remain dominant, but business and public will likely grow in relative size

### Distribution of charge points by location segment in Europe Actual & outlook



#### Insights

- Home segment declines in relative share. Decreasing share of new EV buyers have access to home charging. More EV drivers will live in shared multi-dwelling buildings (>50% of Europe's population currently live in multi-dwelling buildings).
- Consequently, business and public segment will grow in relative share. Business will grow in particular, as cars are parked at businesses during the daytime when solar power installations generate most electricity.

Case in point: France has regulation per July 2023 that parking lots with >80 spaces must have >50% of its lots covered in solar canopies by 2028. This incentivises increased adoption of EV charge points to leverage produced electricity.

Source: Promotion of e-mobility through buildings policy - European Commission (2022); BloombergNEF (2022)



# Our offering | Alfen EV charging offers state-of-the-art chargers for the home, business and public segment

#### Home segment



Eve Single S-line (AC) 3.7-11 kW



Eve Single
Pro-line (AC)<sup>1</sup>
3.7-22 kW

#### **Business segment**



Eve Double
Pro-line (AC)<sup>2</sup>
3.7-22 kW

Coming H2 2023

DC charger 30 kW

#### Public segment



11-22 kW







#### Rationale for solution extension with the destination DC charger

- ✓ Alfen is a one-stop shop for its B2B partners in destination charging
- ✓ At locations where EV drivers reside for 0.5 2 hours, a higher power rating than AC provides value to end users and our B2B partners. Examples: supermarkets & shopping malls & visitor parking at offices
- DC is an important technology in longer term for vehicle to home/building/grid applications

#### **Current status**

- ✓ Installed chargers with selected customers for technical validation phase before broader market introduction
- ✓ Available to the market in H2 2023

Developed a 30 kW DC solution that fits well within our portfolio

**Smart charging** 

Plug & Charge

**Compact housing** 

Interoperability

Easy to install

Reliability

# Innovation philosophy | Smart charging is necessary to limit the grid investments needed for EV adoption





Back-office
mgmt. System
Payment service →
'direct payment'

Other chargers

**Smart Charging Network** 







Solar panels → 'charging on the sun' Smart meter → 'dynamic load balancing'



Electric Vehicle
ISO15188 → 'Plug &
Charge' & 'V2G'

#### Recent innovations

- Implemented the ISO 15118 standard end-to-end
- Eichrecht-compliant charger
- Integration of OCCP 2.0.1
- Matured our platform for future feature development
- Internationalised Dynamic Load Balancing functionality, e.g. direct communication with smart meter in France
- Solar charging



## Alfen software | Ensure an interoperable system that is equipped with the latest standards

### EV charging system

One physical inhouse developed system by Alfen

**Outside** the

**EV** charger

ecosystem of

hardware and

interact with

smoothly

applications that

charger needs to

Complex

#### Hardware assembly, etc. **Software** Software to make the devices and applications work, e.g. **Platform** software update, device drivers, communication infrastructure **Application** Software to control external interfaces to the charger services ISO15118 Other External NFC<sup>3</sup> tag hardware OCPP 2.0.1 Field service Back-office Customer **Auxiliary** EMS<sup>4</sup> management system<sup>5</sup> applications app app

Among others a modem, display, printed circuit board

### Our USPs on software

Leading in standard implementation: help shape new standards for smart charging and/or implement fast, e.g. OCPP & ISO15118

Interoperable systems: ensure that our charger can be connected to the broadest variety of external systems in this complex ecosystem



# Our USPs | Alfen distinguishes itself in the EV charging market with its solution offering and commercial offering

#### **SOLUTION APPROACH**

- Solutions for full breadth of destination charging
- Smart charging: charger as a platform
- Reliable: proven track-record since 2008
- ✓ Innovative: front-runner in new technology
- Scalable ecosystem (backward feature compatibility)

#### **COMMERCIAL OFFERING**

- More than EV charging: the grid perspective
- ✓ Pan-European presence
- Independent player (no channel conflict)
- Agility: quickly scaling with market
- ✓ Business continuity & long-term view



### As a pure systems specialist, Alfen has a neutral position in the value chain and can partner with a wide range of players



#### **Energy supply**

- Electricity generation, storing, managing
- Electricity retailing

#### **Equipment supply**

- Develop hardware
- Develop software
- Production
- Sell AC and DC chargers

#### Distribution

 Sell a broad range of products to a reseller (not the end customer)

### Installation & field services

- Preparation of sites
- Installation
- Service once in operation

Alfen: Remote service & maintenance in-house and on-site through field service partner network

### Ownership & operations

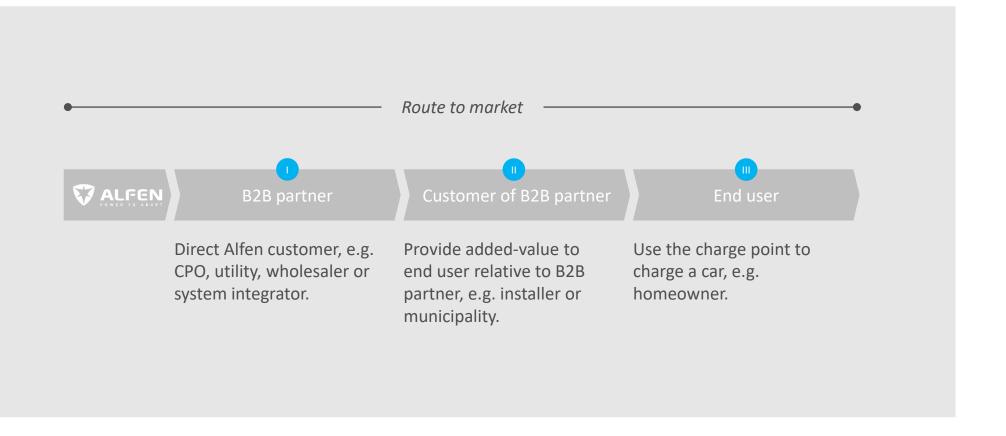
- Invest in sites
- Invest in assets
- Source electricity from utilities
- Sell to end users at a markup
- Monitor charger status
- Coordinate maintenance

#### **E-mobility services**

- Charging & other mobility services to end users (app or charge-card bases)
- Software back-end (back-office management)



## We have 3 distinct chains in our go-to-market approach



Alfen has a B2B model, but we account for the distinctive customer journey of each of these 3 chains as a charge point OEM.



## Smart charging has barriers to entry that make rapid price declines unlikely

### Three main factors keep the market away from commoditisation in coming years

- 1 Fragmented market with country-specific solution requirements
- 2 Rapid innovation for smart chargers on multiple fronts in connected ecosystem
- Dynamic regulatory environment with evolving standards & policies towards smart charging

### Europe's regulatory framework points towards smart charging<sup>1</sup>



#### **European Union**

- Alternative Fuels Infrastructure Regulation (AFIR) proposal: new publicly-accessible charging stations need to be digitally connected and capable of smart charging
- Renewable Energy Directive III: all private charging infrastructure needs to support smart charging



#### **United Kingdom**

 Smart Charge Points Regulations (per 30 June 2022): all EV chargers for home or business must support smart functionality, e.g. connectivity, off-peak charging and phased charging times



<sup>1.</sup> Next to these examples, other (market/regulatory) requirements that points towards smart charging covers the smart meter connection, payment methods, payment transparency, vehicle-to-grid communication and calibration of measurement (*Eichtrecht* in Germany).

# Case study | DATS 24 and Alfen work together to elevate the Belgian EV charging infrastructure



#### Quick intro

**Customer** Colruyt Group via

subsidiary DATS 24

**Year** 2022

**Country** Belgium





#### Challenge

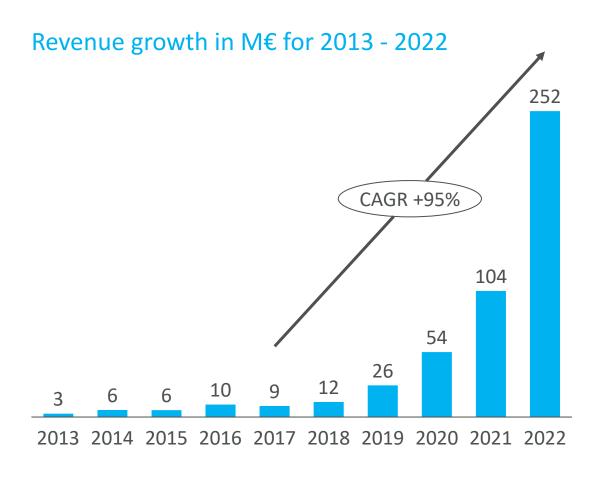
- DATS 24 needs a partner for rolling out its EV charging operations to provide infrastructure across Colruyt Group supermarkets, homes of EV driving staff and office locations
- By 2021, DATS 24 had already installed 330 Alfen charge points (type Eve Double Pro-line) at supermarkets across the country, and they tripled this capacity in 2022



#### Solution

- For its supermarkets, DATS 24 chose the Eve Double Pro-line
- DATS 24 uses Alfen's advanced and in-house developed Smart Charging Network for charging plazas. Customers can connect up to 100 charge points in a smart and flexible way (easy expansion of plaza possible over time)
- Alfen's Smart Charging Network operates as a 'social' charging network, without any hierarchy with so called 'controllers' and 'workers'. This means all charging stations align their charging speed among each other to maximally leverage grid capacity without blackouts
- The charging stations remain individually approachable and controllable. This way the customer remains in control over the network

# Building on 15 years of innovation in EV charging and strong growth in recent years, substantial market share realised



2008

started in EV charging

500,000+

charge points shipped until 2022

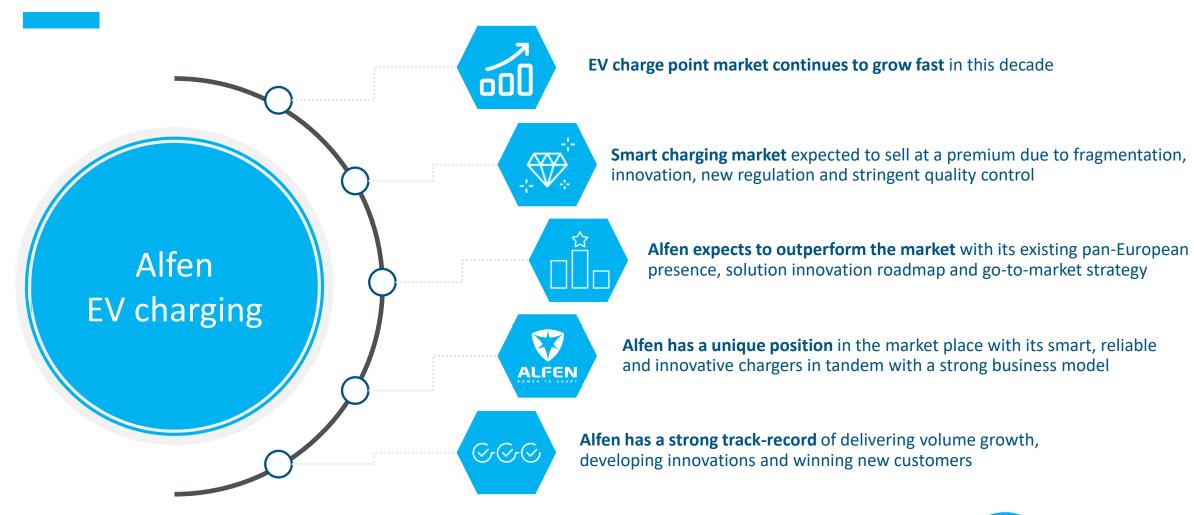
**12-14%** 

Market share in Europe in 2022<sup>1</sup>



<sup>1.</sup> Market share is based on estimated about the total European market for charge points based on Bloomberg New Energy Finance (2022) and Guidehouse (2022).

### Key takeaways on EV Charging





1	Group strategy 09:00		
2	Q&A		
3	Coffee break		
4	Business line deep-dives + Q&A		
	4.1 EV Charging Equipment + Q&A	:30 - 11:10	
	4.2 Smart Grid Solutions + Q&A 11:	:10 - 11:40	
	4.3 Energy Storage Systems + Q&A	:40 – 12:10	
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5	Closing remarks 12:	:25 – 12:30	
6	Informal lunch		



### Key areas of focus in this Smart Grids Solution section

1

Market outlook & growth drivers

2

Alfen's comprehensive solution portfolio

3

Alfen's strong position in the market



# Substation market is a long-term growth market with an expected volume growth of 10-15%

#### Outlook for installed substations per year



From 2022 to 2030, we need to add 20,000+ substations to the base (~1000 substations added in 2022)

Implied CAGR

**25**%<sup>1</sup>



In 2022, we installed 8% of the 6000 additional substations needed before 2030

12%<sup>1</sup>



from 2021 to 2024, we will grow from ~550 to ~600 substations added to the base

3%



Added **fast charging stations** in Europe to grow from ~32k in 2022 to ~64k in 2027

15%

#### Market growth drivers



#### Rising electricity demand

Strengthen distribution grid to cope with higher peak loads



#### Replacement cycle

Need to replace or refurbish aging asset base of substations



#### Roll-out of wind and solar capacity

Renewables need to be grid connected



#### **Capacity constrained grid**

Microgrids and grid intelligence needed to cope with local electricity production and bi-directional flows





# Dutch government opens route to fund grid operators if needed

- In November 2022, the Dutch government shared a framework agreement with the parliament, in which the Dutch state can inject capital into grid operators and become a shareholder
- The agreement is under approval with Supervisory Boards, Workers' Councils and the shareholders of the grid operators (provinces and municipalities)
- The first application will take place at Stedin. The Dutch government reserved funds for a capital injection of 500M euro into Stedin last September



# Dutch grid operator market is concentrated; Alfen has significant share in framework agreements

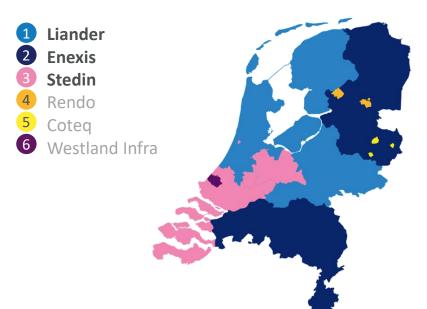


#### Grid operator market is concentrated

Distribution System Operators (DSO) are publicly owned by municipalities and provinces.

#### **Core operators:**

Three DSOs represent 95% of market



Alfen has framework agreements with each large grid operator

Grid operator	Awarded	<b>Duration</b> Initial period + option for extension	Alfen share
Liander	2022	4 years + 4 x 1 year	60%
ENEXIS NETBEHEER	2020	4 years + 2 x 2 years	100%
STEDIN	Award pending	4 years + 2 x 2 years	50%



## Electrification is driving growth in all market segments

#### **Grid operators**

- Continue to strengthen and renew the distribution grid to manage increased load from more EVs, heat pumps and electric production in businesses
- Roll-out increases gradually: paced by transmission grid upgrades, funding, supply chain and technical personnel availability

#### Renewables

- Solar project developers have significant rollout pipeline in coming years
- Trend: Grid congestion leads to SGS+ESS integrated solutions opportunities

#### Fast charging operators

• Strong growth: first rest areas at highway; now also DIY stores and supermarkets

#### Industry & installers

- Customer demand is growing, driven by solar panel installations, charging plaza introductions and changes to all-electric energy systems
- Trend: integrated projects with energy balancing and neutral behind the meter

#### Horticulture / greenhouses

- Dutch government aims to accelerate sustainable horticulture
- Sustainability through heat pumps, geothermal heat and floating solar on water basins



### Electrification is driving growth in the need for substations

#### **Drivers of electrification**

- 1 Electrification of transport, e.g. EVs
- 2 Electrification of heating, e.g. heatpumps
- 3 Electrification of industrial processes
- 4 Decentralised renewables
- 5 Technological advancement, e.g. data centers and servers
- 6 Population growth, e.g. new houses
- 7 Economic growth, e.g. new factories







#### **Substations**

that can be tailored towards customer requirements. Product lines: Compact (Diabolo, Pacto, Peperbus), Walk-in (Altro series) and In-building (Entrado) secondary transformer substation.



#### **Microgrid projects**

solutions for medium and high voltage grids in the private domain, including engineering and installation services for sub-stations, grid connections and infield cabling.



#### **Switchgear**

solutions for LV and MV, e.g. Sicuro generators switches and connection boxes.



#### **Grid automation**

Alfen Connect is a device that allows remote monitoring and control of substations. It provides real-time management functionality such as data visualisation, alarms and fire detection.



#### Service & maintenance

pro-active and reactive, for substations. Partly done remotely when Alfen Connect is installed. Multiple year contracts with yearly check-up and on-call service included.



## Our wide variety of substations and special products & services enables serving specific customer needs

Non- walk in substations









Walk in substations









Special Products and Services











## We perform all activities in the value chain, except operating the substation















#### Engineer

 Engineer standardised & customised stations and microgrid solutions

### Manufacture & assemble

- Source components such as transformers and MV switchgear, and manufacture LV switchgear inhouse
- Source prefabricated concrete housing, made according to Alfen design
- Assemble components in substations

#### Install

- Build in-field concrete foundation and subsequently install substation
- Connect in-field cables to the station
- Possibly install inter-station cable infrastructure and establish grid connection

#### Commission

 Commission and start-up substation or entire microgrid

#### Operate

 Operate the assets (out of scope)

#### Service

 Perform recurring visual inspections and potentially execute maintenance scope



## Alfen's core markets are the Netherlands, Belgium, Finland and Sweden





### Further internationalisation opportunity in smart grids is limited

- Differences country by country in the grid code and therefore in substation requirements
- High transport costs for shipment from production facility in the Netherlands or Finland due to weight and sizing of substation.
   Therefore, difficult to compete with local manufacturers
- Our internationalisation strategy for smart grid solutions: selectively follow customer to other markets in Private Networks segment



# Our USPs | Alfen distinguishes itself in the Smart Grid Solutions market with its solution approach and commercial offering

### **SOLUTION APPROACH**

- Engineering to order: in-house expertise to design & develop smart grids
- Reliability: high quality substations (stringently inhouse thermally tested)
- End-to-end solution, including grid automation services and service & maintenance
- Product safety: High safety standard of all substations

### COMMERCIAL OFFERING

- Cooperation as creative problem-solvers beyond smart grid solutions
- Ability to scale with customers: New production facility per Q1 2024
- Best-in-class account management: solution expertise, responsive, high willingness to cooperate
- (Digitally) integrated processes with customers/suppliers



### Case study | Alfen transformer substations at the heart of an innovative local energy sharing community



#### Quick intro

Meer Fresh Products, Customer

Comeco

2022 - 2023 Year

Country Belgium





### Challenge

- Meer Fresh Products has had floating solar panels installed in the water basin for its tomato crop
- Energy demand for the tomato grower is lowest in summer, leading to a power surplus during that period. For the meat processor (Comeco), 500 meters away, the opposite is true
- Hence, Comeco's interest in the solar power from the nearby tomato company



#### Solution

- Two transformer substations. In the stations, green energy from floating solar panel installations is transformed from 400V to 15kV
- Alfen also installs the electrical connection between the PV installations at Meer Fresh Products and the high-voltage installation at Comeco. This is done with high-voltage cables at 15 kV and the associated control cabling
- To support the companies, Alfen manages the communications and technical data exchange between the grid company and the customers



## Innovation philosophy | Innovate the substation to accelerate the energy transition



Make more compact

Increase power per m<sup>2</sup>, reduce spatial footprint and improve integration in surroundings



Ease of installation

Shorten substation installation time in the field and required technical knowledge



### Circularity

Increase use of recycled materials and ensure the recyclability at the substation's end of life



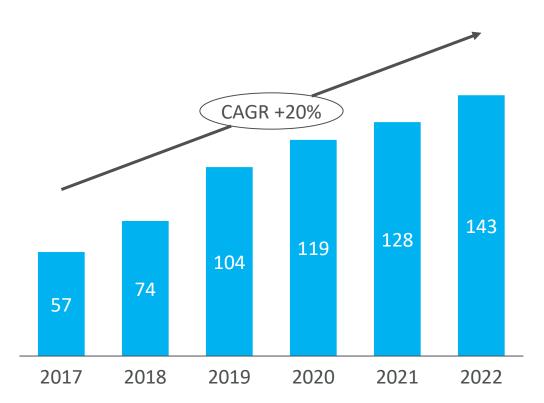
Grid

Automate
substation
response on
certain
triggers, e.g. to
avoid
transformer
overheating



## Building on strong track-record of growth in recent years and a strong market share in the Netherlands

Revenue growth in M€ for 2017-2022



48,500+

substations shipped since '60s

~70%

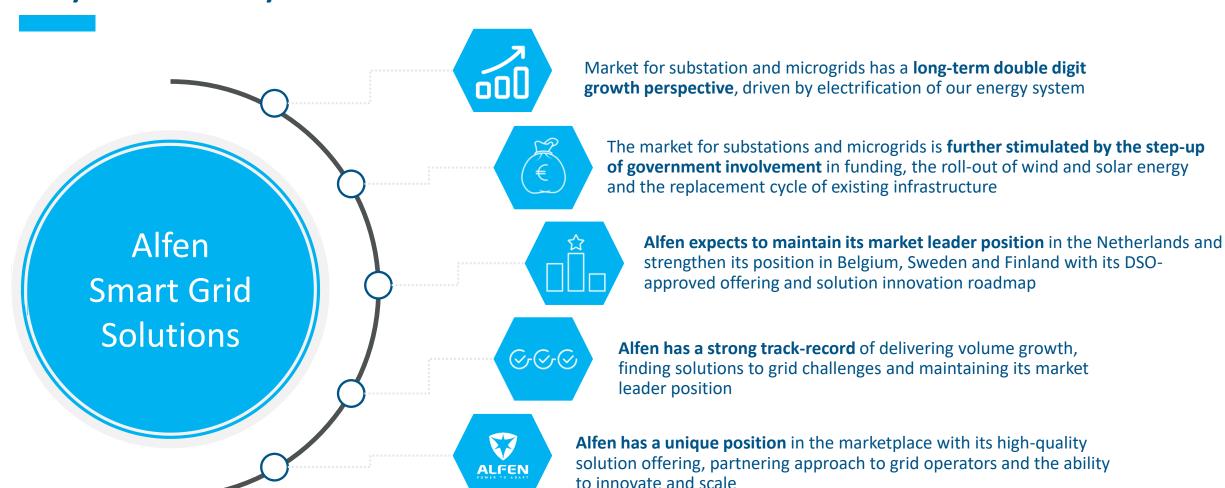
market share in NL in 2022<sup>1</sup>

- Market leader in the Netherlands in private and grid operator market
- Strong DSO-approved offering in Belgian private sector. With Synergrid<sup>2</sup>-approved walk-in station ready for expansion to grid operators (same approach in Finland & Sweden)
- Following our customers internationally (primarily related to solar PV and grid connections for EV charging hubs)

<sup>1.</sup> Alfen's analysis based on its contractual share of the supply of the number of substations to each of the three largest Dutch DSOs (which jointly compromise approximately 95% of the Dutch market for mid-voltage substations), multiplied by the relevant market share of each of these DSOs by the number of mid-voltage substations. 2. Synergrid is the Belgium federation of electricity grid operators that safeguards safety, reliability and stability of the distribution grid.



### Key takeaways on Smart Grid Solutions





### Agenda | Capital Markets Day

1	Group strategy 09	9:00 – 09:45
2	<b>Q&amp;A</b> 09	9:45 – 10:15
3	Coffee break	0:15 – 10:30
4	Business line deep-dives + Q&A	0:30 – 12:25
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	4.3 Energy Storage Systems + Q&A 11	1:40 – 12:10
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### Key areas of focus in this Energy Storage Systems section

1

Market outlook & growth drivers

2

Alfen's comprehensive solution portfolio

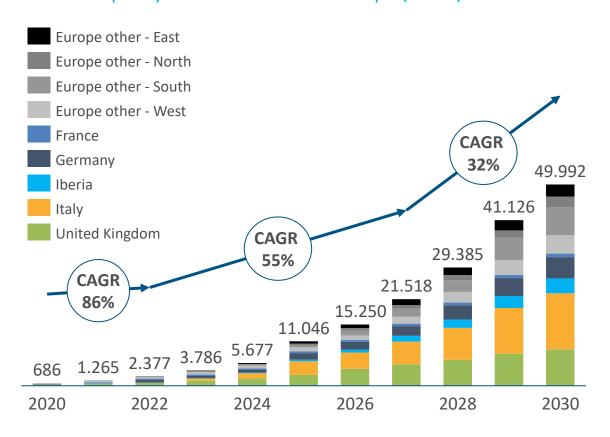
3

Alfen's strong position in the market



### Strong growth anticipated for energy storage in Europe

### Added capacity to installed base in Europe (MWh)



### Market growth drivers



More intermittent electricity generation

Wind and solar power generation requires storage buffer to offset unbalance between supply and demand.



Increasing peak loads on site lead to electricity demand beyond grid connection capacity
Electrification (e.g. more EVs) leads to higher peak demand. Peak shaving by batteries helps



Clean alternative requested for off-grid diesel gen sets

overcome grid connection constraints.

Energy storage systems are clean and quiet alternative for diesel gen sets at events or incity construction sites. Also applications in the off-shore and maritime sectors.

Source: Energy Storage Outlook 2023 H1 (BNEF). Utility & Commercial storage (excluding residential storage, excluding 'other').

## Market regulations increasingly promote deploying battery energy storage systems, but more is needed

### Favourable regulatory development in recent years



Netherlands

- Subsidy to make portfolio more sustainable
- Removed double energy transport fee
- More robust congestion management rules that allow batteries to play a role as a congestion service provider



United Kingdom

- Removed double energy transport fee
- Decreased lead time for permits
- Clear framework for grid stabilization services



**Germany** 

Subsidy for batteries in combination with solar fields



**Belgium** 

- Capacity market created with awards made to energy storage projects
- Subsidy for batteries in combination with solar fields

... yet, more fundamental changes in electricity market design needed for massscale deployment of energy storage



**Decarbonise capacity remuneration mechanisms**, e.g. through carbon cap, contract length and remuneration level



Unlock long-term revenue streams for energy storage, e.g. through access to long-term Power Purchase Agreements (PPAs)



**Establish energy storage as a new energy system pillar** to end double taxation, discriminatory grid fees, and permitting barriers



## Alfen offers energy storage solutions for commercial, industrial and utility scale applications

Residential storage

Mobile storage

Alfen's focus

Utility scale storage

#### 0 - 0.1 MWh



- Small scale storage behind the meter for residential applications such as storing solar energy
- Relatively straightforward products with limited opportunity for differentiation
- Market dominated by Tesla and other players with a consumer-focused model

#### <1MWh



- Medium scale storage for applications such as frequency control and peak shaving, as well as increased self-consumption and temporary power solutions.
- TheBattery Mobile is green alternative for diesel generators
- Batteries in a mobile 10 ft. container

#### ≥1MWh



- Large scale storage with applications such as ancillary services & energy trading
- Alfen uses modular design for >1 MWh energy storage solutions with high energy density
- Highly scalable; into hundreds of MW(h)
- End-to-end solution incl. local grid embedding and network integration





### TheBattery Elements

### **Stationary storage solutions**

- Modular design for >1 MWh energy storage solutions with high energy density
- Highly scalable; into hundreds of MW(h)
- Applications include ancillary services and energy trading
- End-to-end solution incl. local grid embedding and network integration



TheBattery Mobile

### **Mobile storage solutions**

- TheBattery Mobile is green alternative for diesel generators
- Batteries in a mobile 10 ft. container
- Compact design supplies up to 422 kWh in energy capacity and up to 300 kVA in power
- System has an external connection socket and operating panel with power locks and an HMI to connect and operate the system safely and quickly. Power range: 250kW.



### TheBattery connect

- Provides monitoring and control of TheBattery through Alfen Connect
- Provides real-time management functionality of the asset such as data visualisation, alarms and fire detection



### **Service & maintenance**

Alfen offers service and maintenance in Europe for installations of TheBattery



### Innovation philosophy | 5 key components



Best-in-class quality and performance

We offer the best availability, efficiency and performance



**Flexible assets** 

Customers can use our assets how they please and our systems can be easily expanded



**Connected and smart** 

Our systems can be integrated in any back-office and can optimise our customers' business models



**Autonomous operations** 

Our systems can take decisions autonomously if needed, e.g. FCR, trading

Secure systems Our systems are proven to be secure





## Our USPs | Alfen distinguishes itself in the Energy Storage market with its solution approach and commercial offering

### **SOLUTION APPROACH**

- Excellent grid integration: extensive expertise with inverters, batteries, BMS and auxiliary grid solutions
- Technology-agnostic: Independent selection of component suppliers to ensure optimal solution
- Continuous insights and remote management (Alfen Connect)
- Plug-and-play firmware for robust integration with customers' control systems

### COMMERCIAL OFFERING

- Consultative selling approach: support customer to set right technical requirements
- Competitive performance guarantees on availability& battery degradation
- End-to-end solution, a.o. project mgmt, substations, grid connection, remote monitoring & on-site service
- Business continuity & long-term view



## Case study | Transforming a former landfill into versatile provincial solar park



#### Quick intro

**Customer** Solarfields

**Year** 2023

**Country** The Netherlands,

province of Zeeland





### Challenge

Limited land available in the Netherlands for building new solar parks

Leading solar park developer Solarfields (now: "Novar") needed creative plan to build on a former landfill

Solution needs to serve many purposes:

- Deliver reliable power to neighbouring municipality
- Sell excess electricity
- Help manage the area's grid stability



#### Solution

Alfen closely coordinated with Solarfields to follow the unusual requirements associated with construction projects on landfill-designated property

Alfen installed a medium voltage station that connects the battery to the electricity grid

Alfen installed both the 5MW energy storage battery and voltage system within a month

Sufficient to power 500 homes Zeeland for a day

Our system can also quickly deliver into the grid when needed for grid stability purposes



## Alfen provides an end-to-end solution to its customer segments in many different European markets

#### Our activities in the value chain

1 Engineer

- Engineer turnkey storage solutions
- · Determine what hardware is required
- Build proprietary software to operate the system
- 2 Manufacture components
- Complete the various hardware components such as invertor and PLC
- 3 Assemble & integrate
- Assemble and integrate the building blocks into a full size storage system
- Add the software layer
- Test functionality and finalise the system, ready as turnkey solution

4 Install

- Transport system to the client's site
- Install, connect and integrate TheBattery to local grid

5 Operate

- Operate the system (out of scope)
- 6 Service & maintenance
- Monitor the storage system remotely and provide service & support
- Maintain TheBattery through regular checks

### **Customer segments**

#### **For TheBattery Elements**

- Industry
- Energy companies
- Project developers
- Flexibility service providers

#### For TheBattery Mobile

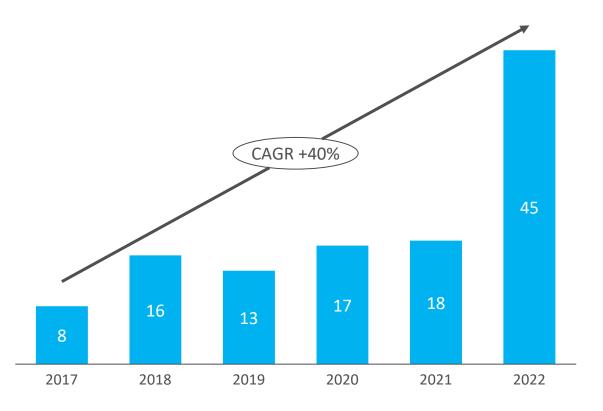
Rental

#### Core markets

- Netherlands
- Belgium
- **Finland**
- Sweden
- Germany
- United Kingdom

## Building on strong increase in momentum in 2022, which is expected to continue in coming years

Revenue growth in M€ for 2017 - 2022



2011

started in Energy Storage Systems

### 575 MWh+

in execution / commissioned until Feb 2023

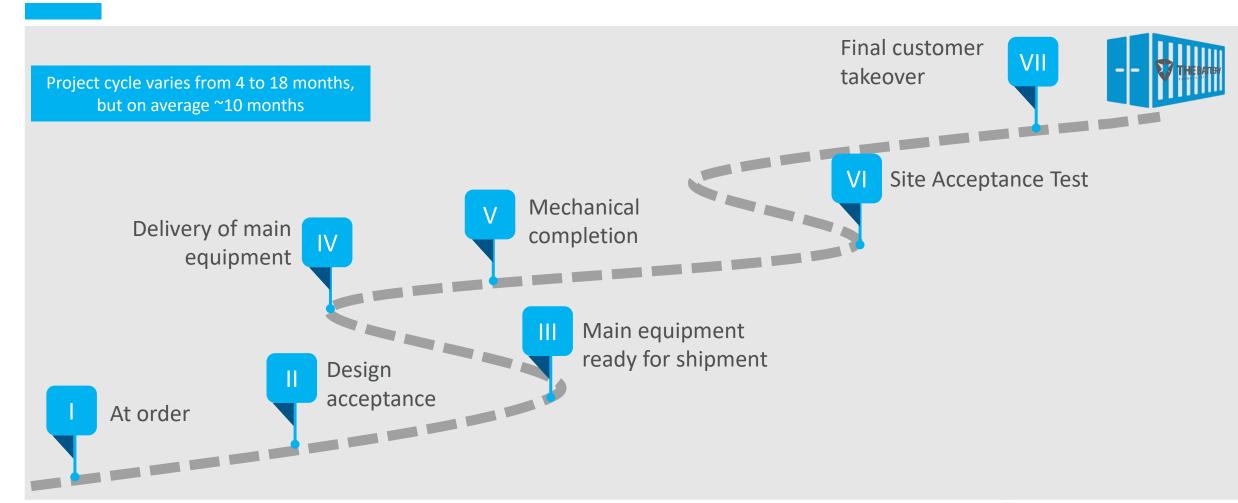
~7%

Installed systems market share in Europe in 2022 (MWh)<sup>1</sup>



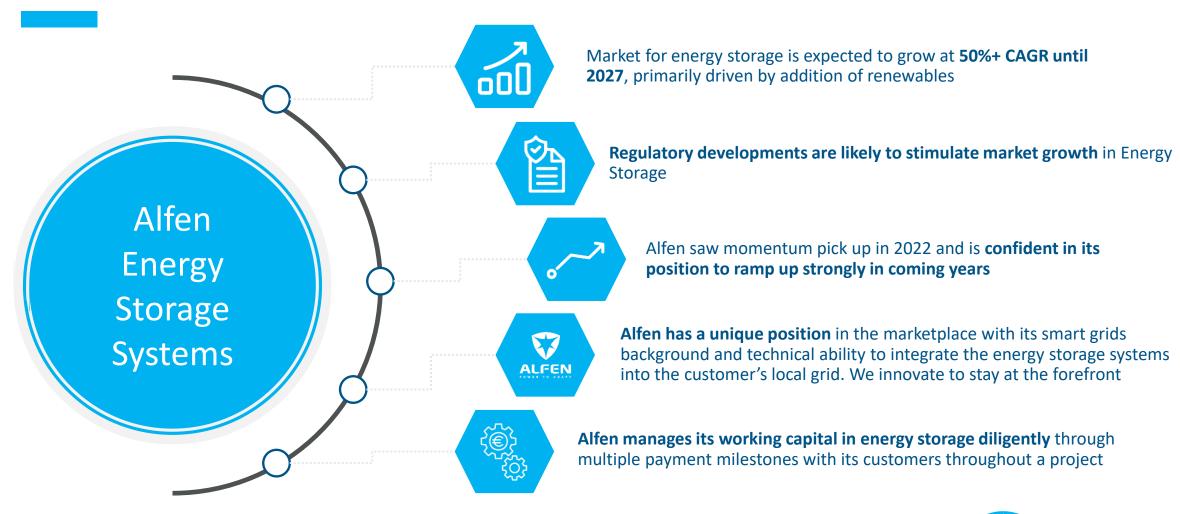
<sup>1.</sup> Market share is based on estimate about the total European market for Commercial & Industrial and Utility-applications expressed in MWh installed in 2022 based on BNEF latest outlook (H1 2023). This excludes residential storage, as Alfen does not play in that space.

## Working capital is managed through multiple payment milestones within one project





### Key takeaways on Energy Storage Systems



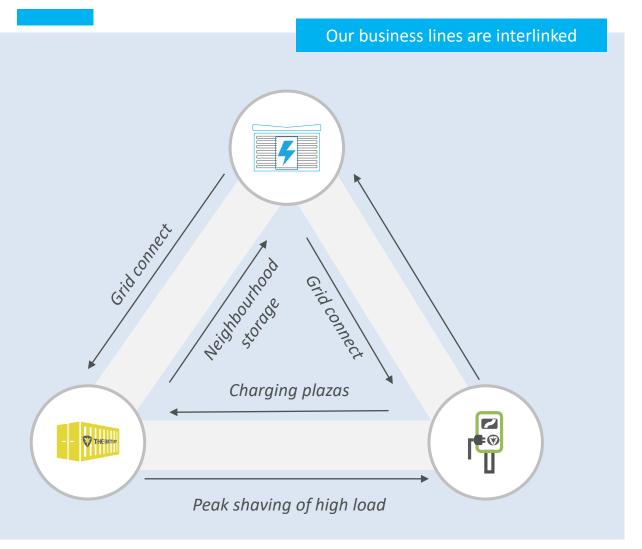


### Agenda | Capital Markets Day

1	Group strategy 09	9:00 – 09:45
2	<b>Q&amp;A</b>	9:45 – 10:15
3	Coffee break	0:15 – 10:30
4	Business line deep-dives + Q&A	0:30 – 12:25
	4.1 EV Charging Equipment + Q&A	0:30 – 11:10
	4.2 Smart Grid Solutions + Q&A	1:10 – 11:40
	4.3 Energy Storage Systems + Q&A	1:40 – 12:10
	4.4 Integrated Solutions + Q&A	2:10 – 12:25
5	Closing remarks	2:25 – 12:30
6	Informal lunch	



## Alfen's integrated solutions are an increasingly important competitive edge as the energy transition moves on



### Why they are necessary?

- Integrated solutions will help manage increased grid congestion as the energy transition unfolds
- For instance, energy storage + transformer substations can circumvent grid connection limitations in fast charging

### Why Alfen?

- A total grid perspective throughout all of our solutions
- Unique position to offer competitive integrated solutions with 3 interlinked business lines



## Case study | Unique integrated solution at Solar Park De Dijken



- Batteries charged directly from solar park and store energy
- Energy Storage Trading Hub
- Charging plaza connects up to 22 mobile energy storage systems
- Manages grid infrastructure more efficiently
- Capacity to power 4,200 homes



## Customer segments overlap across business lines, raising the potential for integrated solutions



Cross-sell & integrated solutions opportunities with customers



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### Closing remark





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