

INDUSTRIE DE NORA

UNIVERSITY OF UDINE

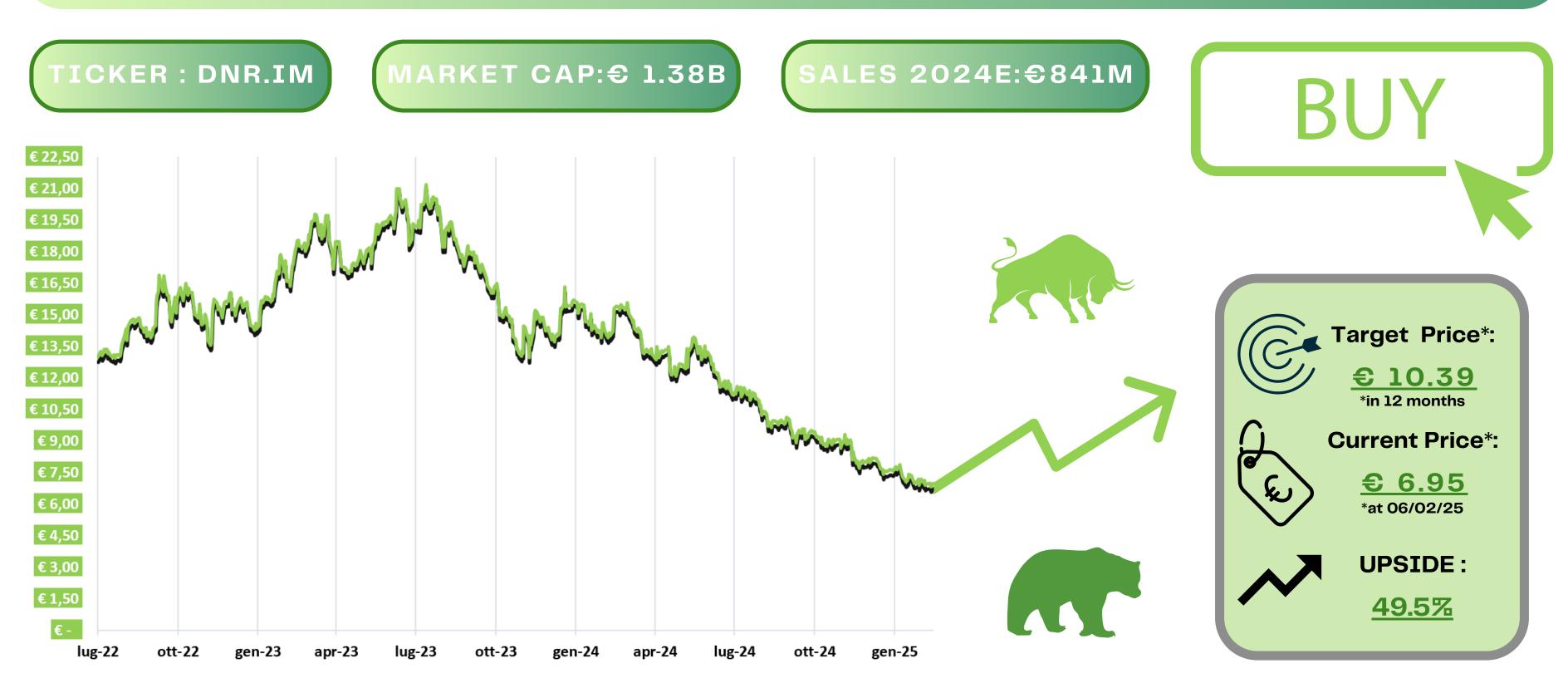


CFA INSTITUTE RESEARCH CHALLENGE



Gravagna Francesco | Perotti Riccardo | Chiosa Doara Giulia | Porrini Donatella | Casonato Stefano

OUR RECOMMENDATION



Source: team elaboration



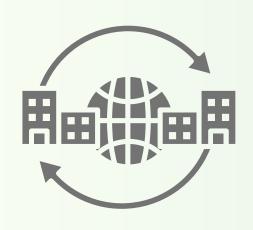


COMPANY OVERVIEW

COMPANY OVERVIEW



BUSINESS MODEL AND GOVERNANCE



B₂B

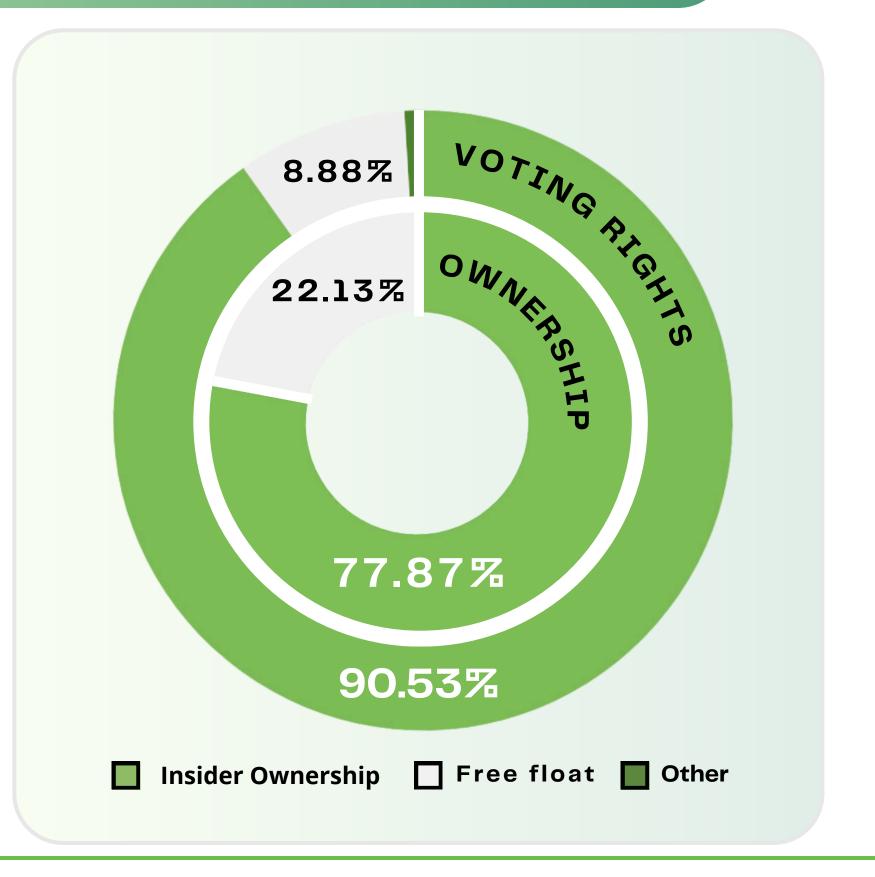
De Nora S.p.A. operates with a B2B business model, typically supplying critical components for more complex systems and building its competitive advantage on four key pillars, which are:













COMPANY OVERVIEW



ELECTRODE TECHNOLOGIES

€464M 2023 Revenue, 9.19% 2019-2023 CAGR

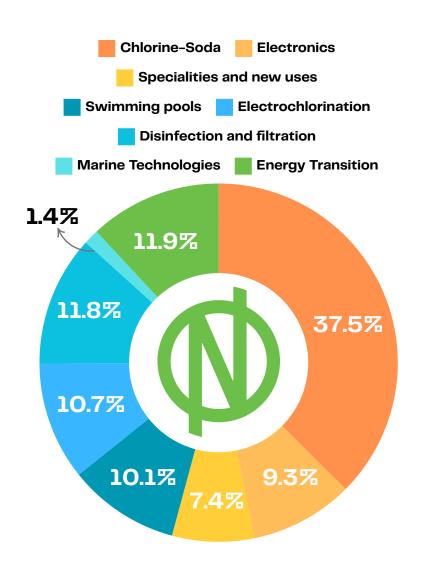
WATER TECHNOLOGIES

€289M 2023 Revenue, 7.06% 2019-2023 CAGR

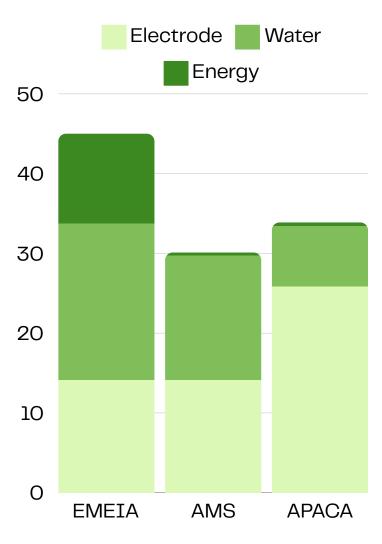
ENERGY TRANSITION

€102M 2023 Revenue, 130.18% 2020-2023 CAGR

REVENUE BY SEGMENT-SPECIFIC COMPONENT (%)



REVENUE BY GEOGRAPHICAL AREA AND BUSINESS SEGMENT (%)







INVESTMENT THESIS

INVESTMENT THESIS



BUY: 3-Main Pillars

R&D **Process**

Continuous innovation prevents obsolescence 2

M&A Strategy

Strengthens market leadership

3

GIGAFACTORY

Unlocks growth synergies

Source: team estimations



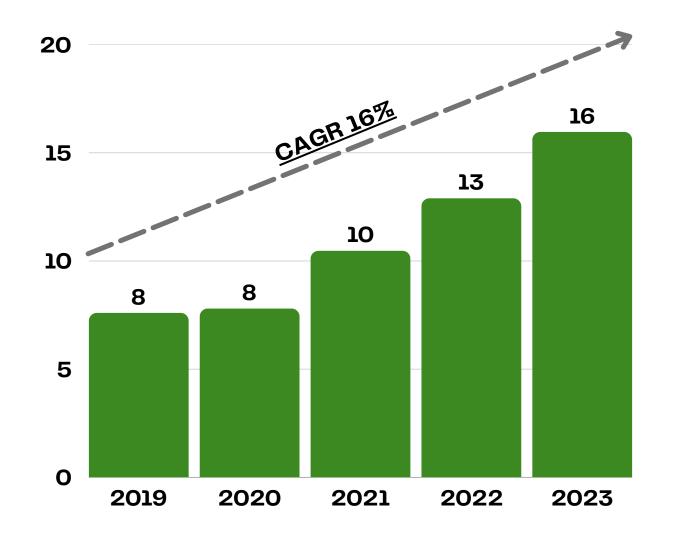
INVESTMENT THESIS (1 Pillar)



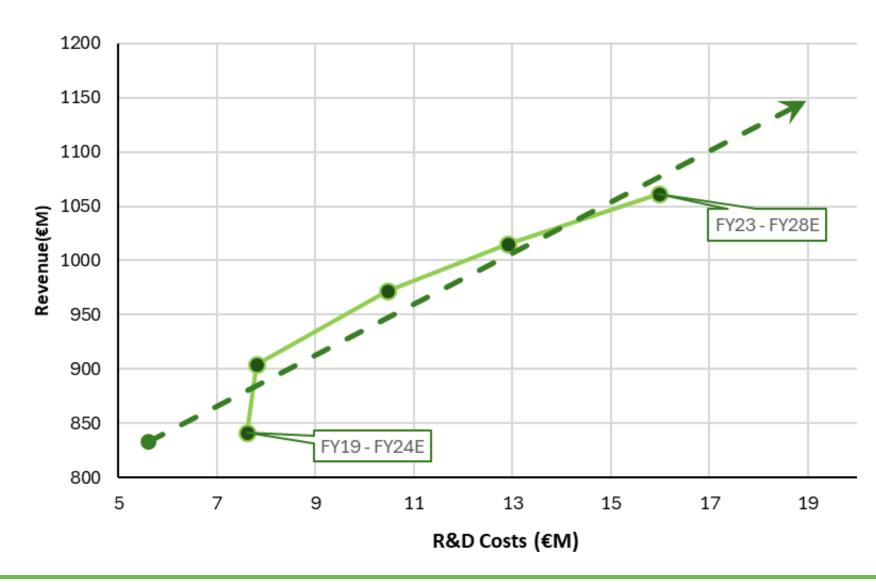
De Nora allocates approximately 2% of its annual revenue to R&D

We measured the revenue impact of transforming **R&D** expenditure into patented and market-ready products.

DE NORA'S R&D TREND (€M)



LINEAR REGRESSION (R²: 90,76%)





INVESTMENT THESIS (2 Pillar)



THYSSENKRUPP NUCERA (JV)

- ELECTRODE TECHNOLOGIES & **ENERGY TRANSITION**
- ENHANCING AND ALTERNATIVE TECHNOLOGIES FOR ENERGY TRANSITION

PERMELEC ELECTRODE LTD

- ELECTRODE TECHNOLOGIES
- EXPAND AND CONSOLIDATE IN **EXISTING MARKETS**

SEVEN TRENT WATER PURIFICATION and **OZONO ELETTRONICA INTERNAZIONALE**

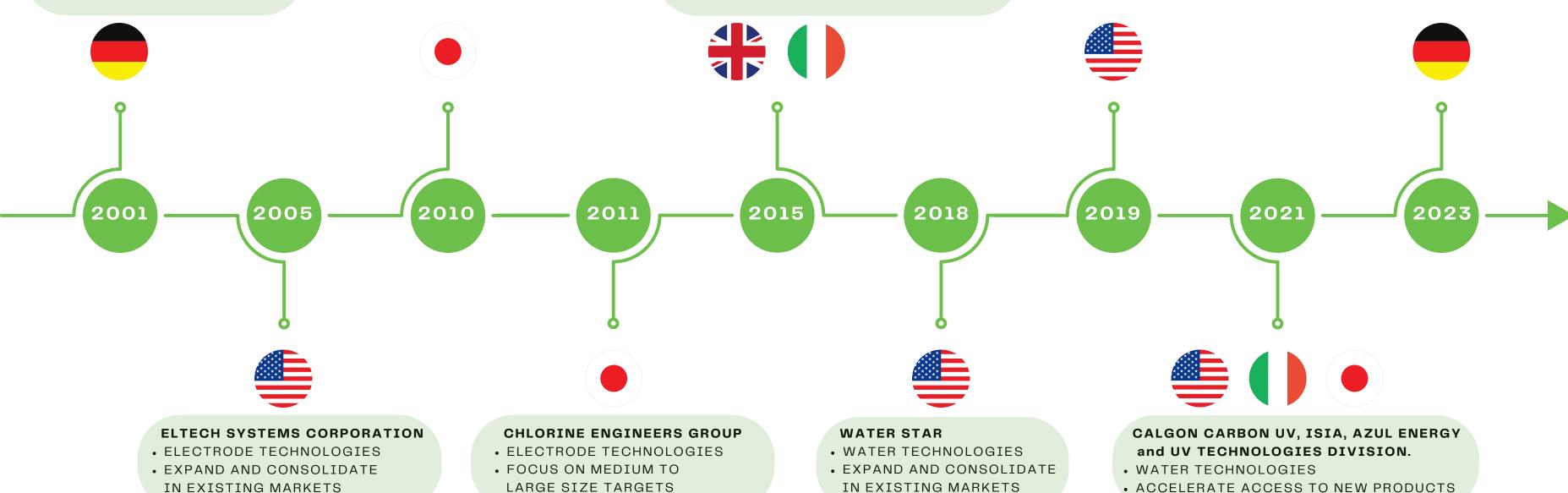
- WATER TECHNOLOGIES
- EXPAND AND CONSOLIDATE IN EXISTING MARKETS and ACCELERATE ACCESS TO **NEW PRODUCTS**

MIOX, NEPTUNE

- WATER TECHNOLOGIES
- ACCELERATE ACCESS TO NEW PRODUCTS

SHOTEC GMBH

- WATER TECHNOLOGIES
- FOCUS ON MEDIUM TO LARGE SIZE TARGETS





INVESTMENT THESIS (3 Pillar)



GIGAFACTORY

(Cernusco sul Naviglio)



The construction of this plant would generate revenue synergies through:

Large-scale production with a capacity of up to 2 **GW** and the company has already secured 1.5 GW of green hydrogen projects

Circular economy oriented approach reduces operating costs through recycles waste and reducing dependence on external resources

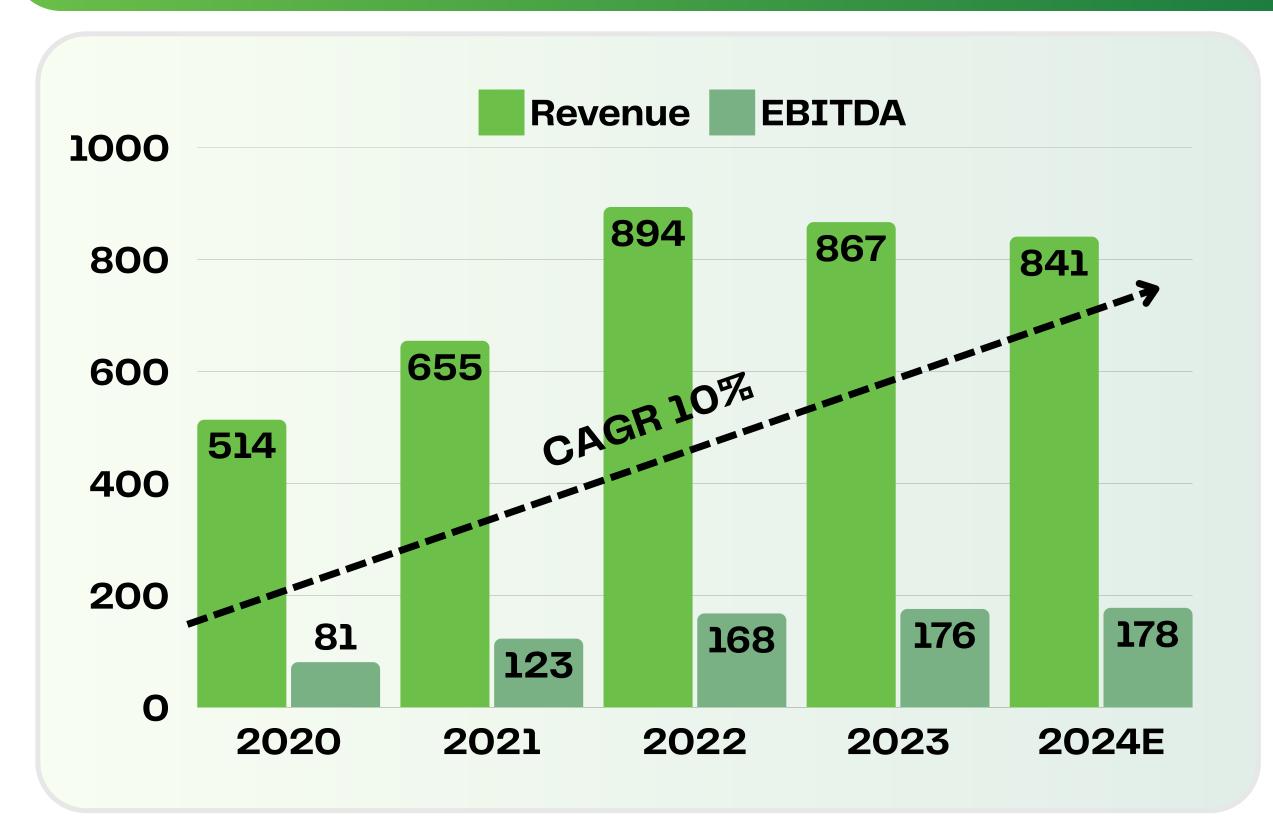




FINANCIALS

COMPANY PERFORMANCE





2024E REVENUES €841M

CAGR (PAST 5Y) 10%

2024E EBITDAm
21%



FUTURE SALES DRIVERS





"Glocal" Approach

Its global network of production plants leverages local expertise and centers of excellence

2

Innovation

Continuous innovation ensures no product obsolescence,maintaining competitive positioning.

3

Partner of choice

De Nora strengthens longterm customer loyalty while offering excellent after-sales support. 4

Partnership

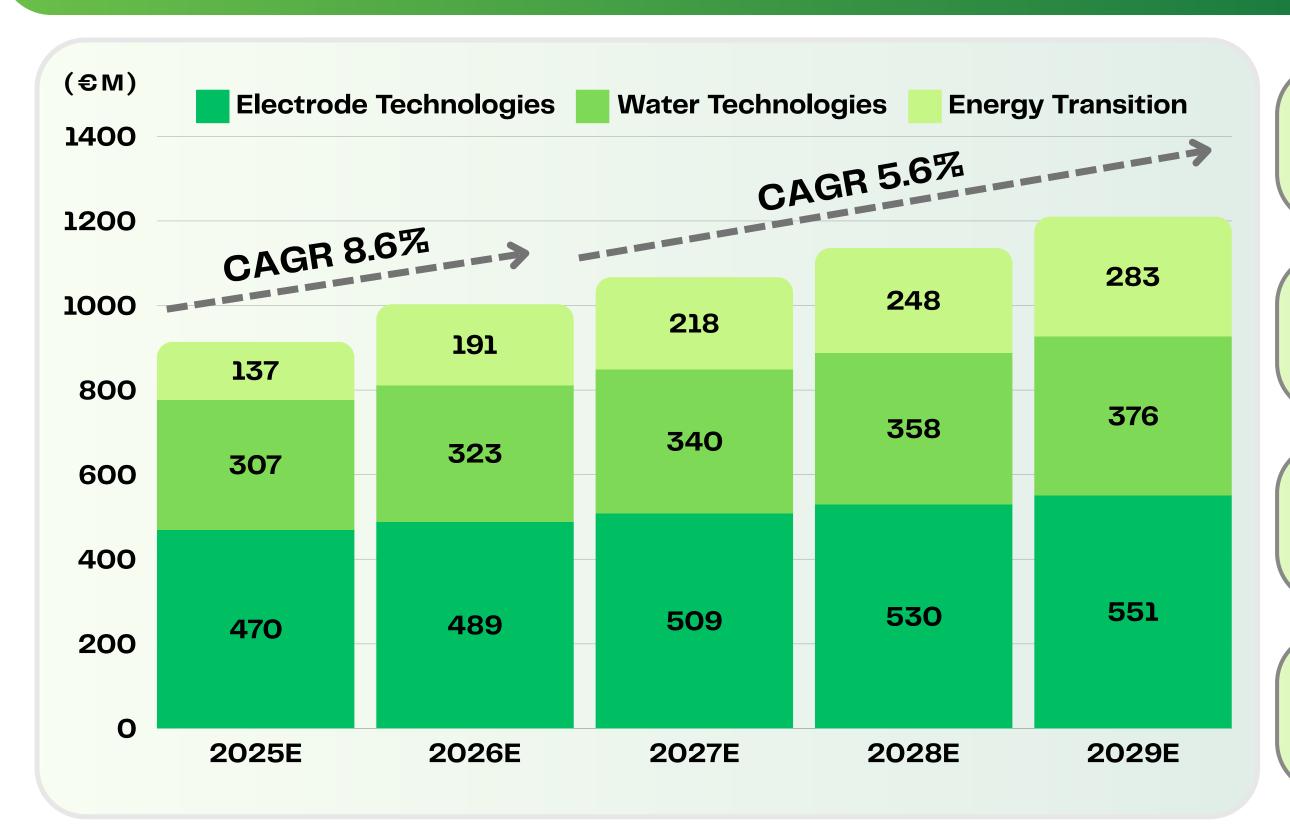
The company aims to meet the growing demandfor green hydrogen through strategic investments, supporting partner expansion in key regions.





FORCASTED REVENUE BY SEGMENT





CAGR 2024E-2029E Electrode Technologies 4.1%

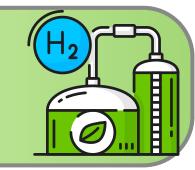
CAGR 2024E-2029E Water Technologies 5.2%



CAGR 2024E-2026E Energy Transition 39.5%



CAGR 2026E-2029E Energy Transition



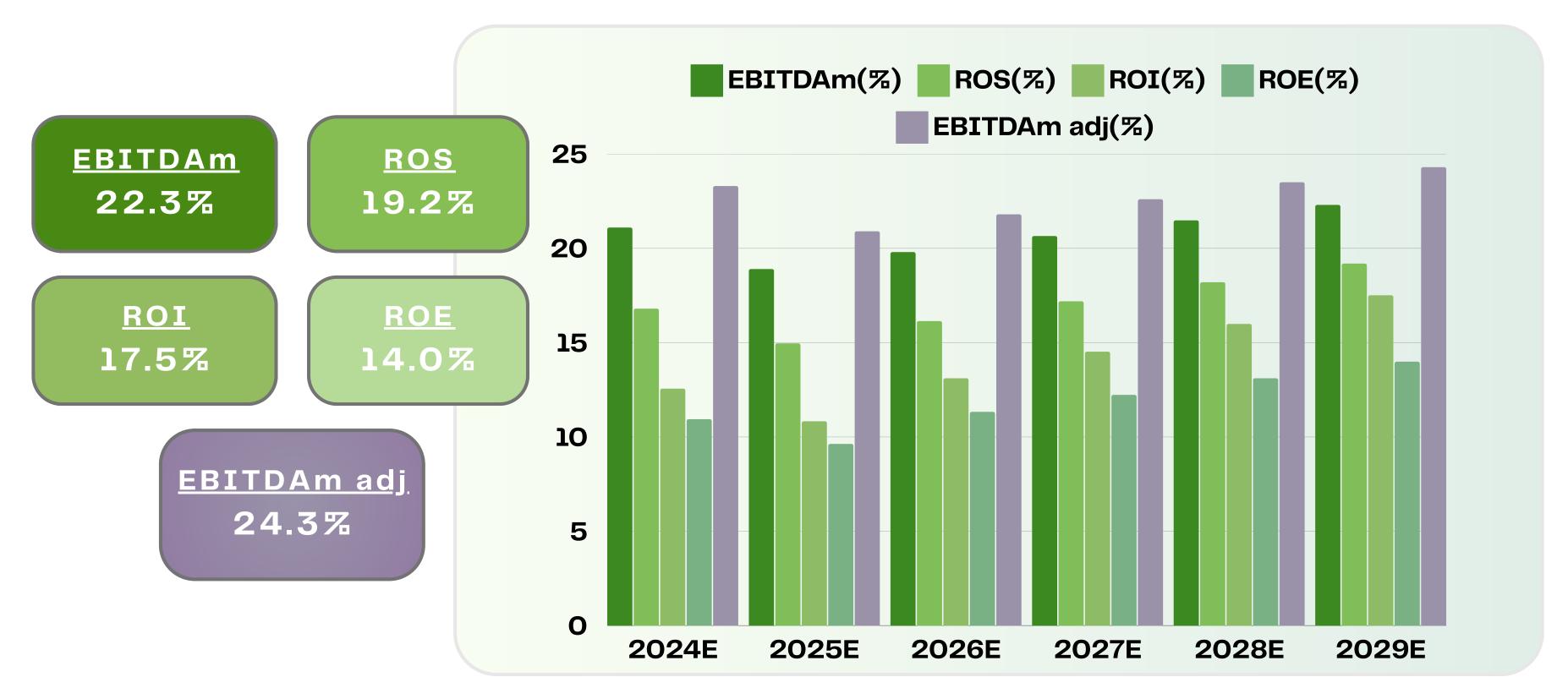
Source: Company data, team elaboration



14%

EXPECTED MARGINS



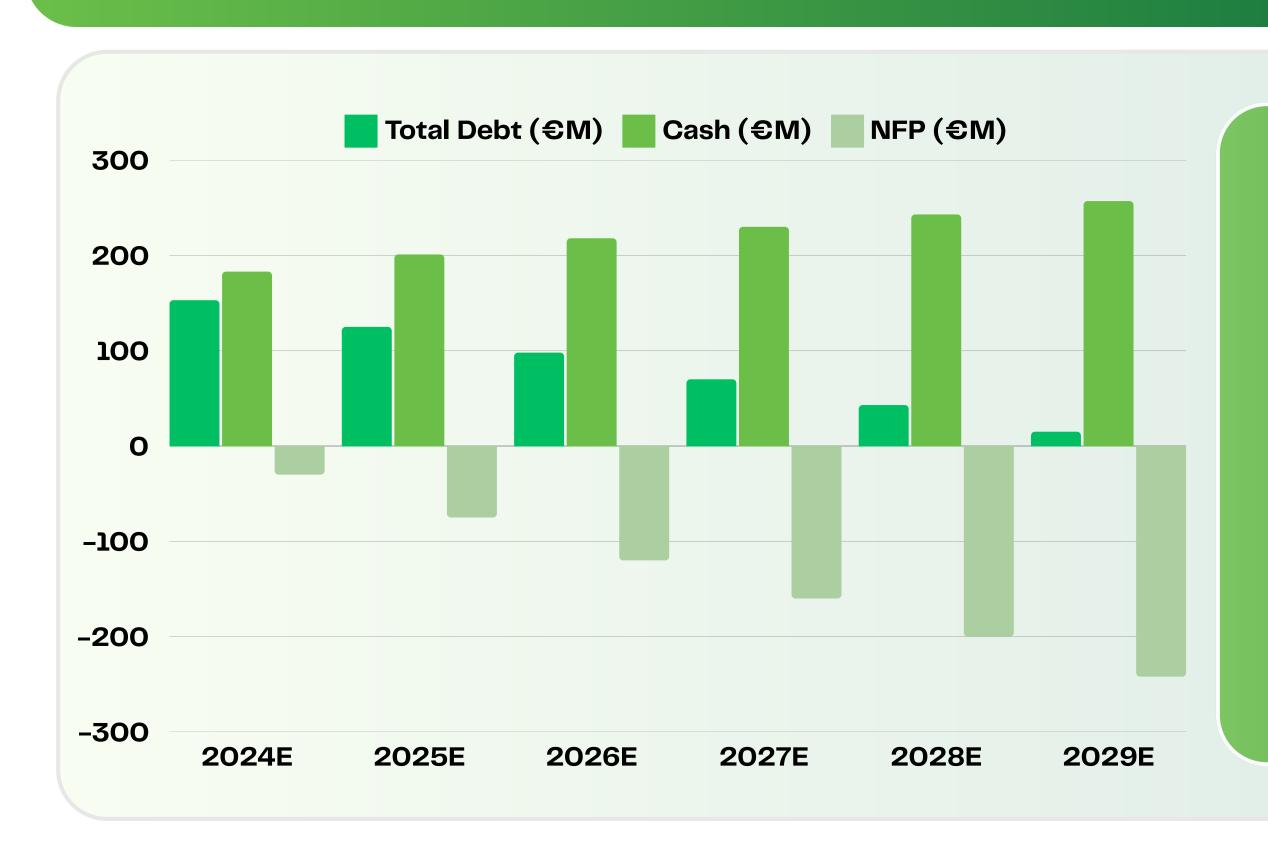


Overview Investment Thesis



LIQUIDITY AND NFP



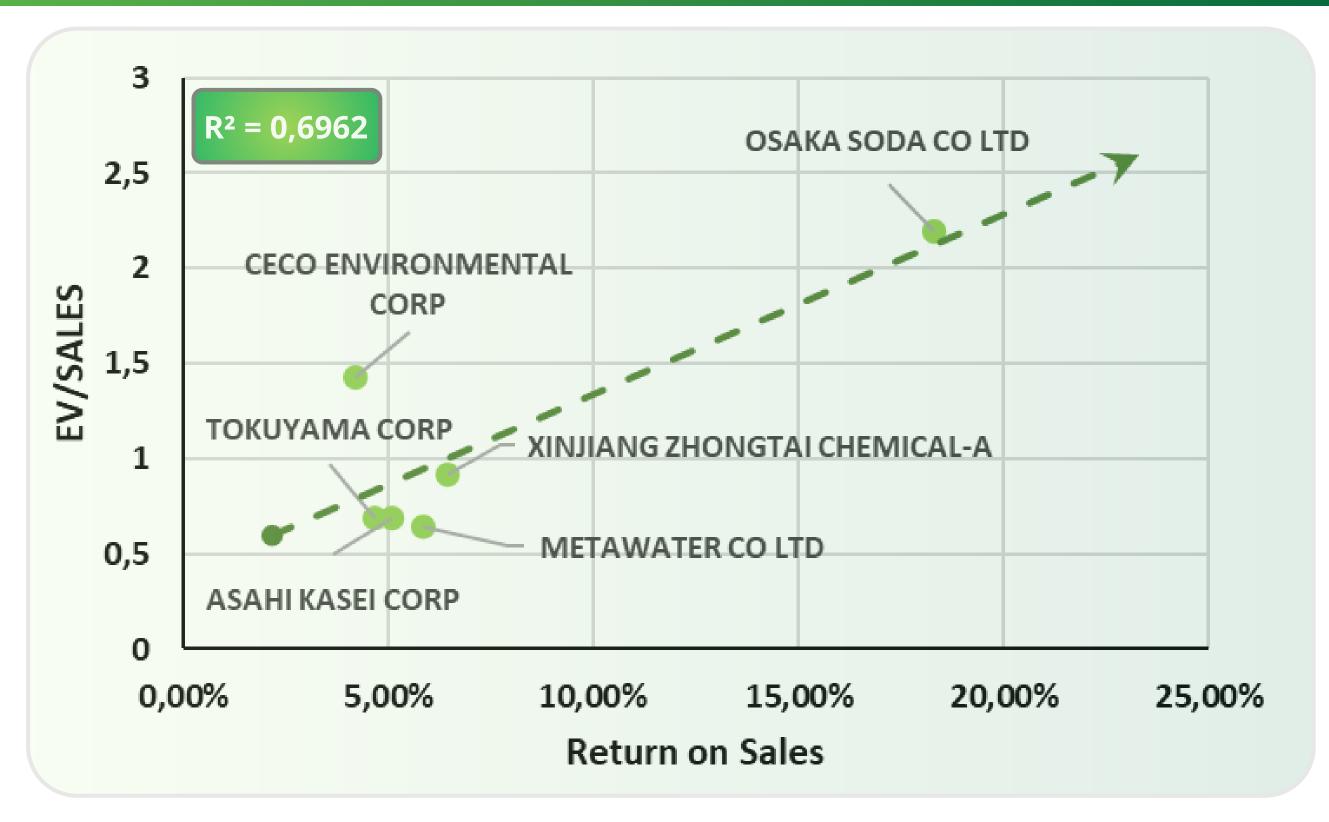


The high liquidity generated by De Nora assumes declining debts and, consequently, a negative net financial position over all forecast years.



COMPS ANALYSIS: EV/SALES





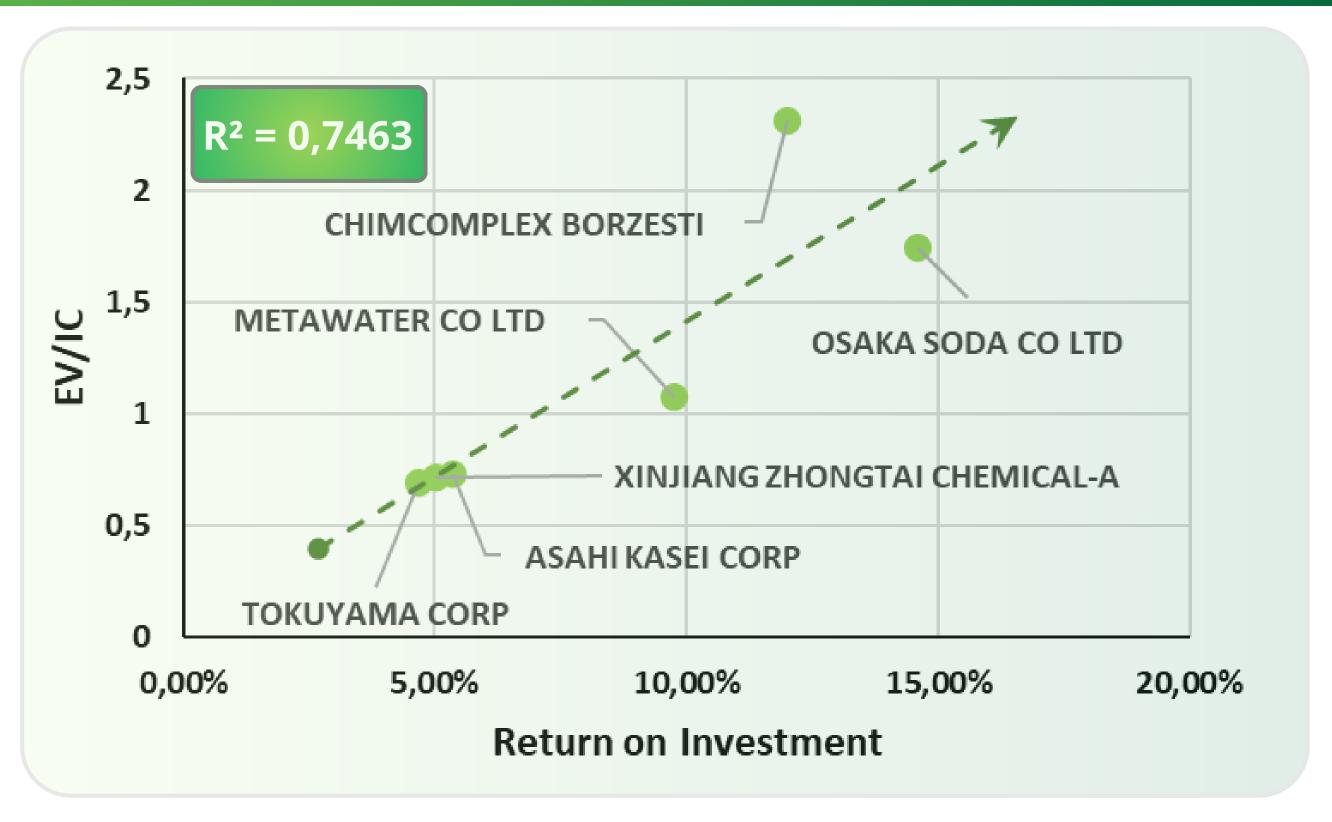
Source: Company data, team elaboration, Bloomberg

Overview



COMPS ANALYSIS: EV/IC





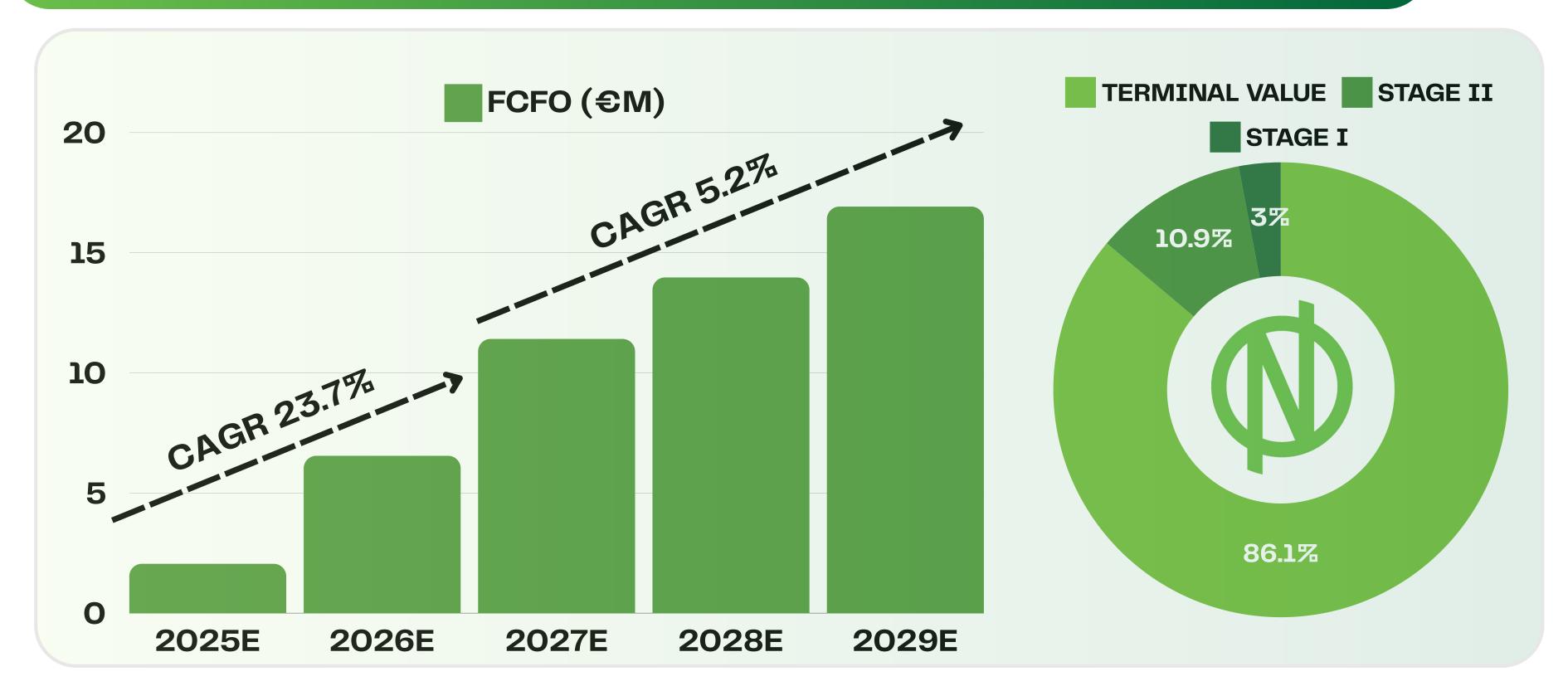
Source: Company data, team elaboration, Bloomberg

Overview



ENERGY TRANSITION: DCF





Overview Investment Thesis



CHECK: MONTE CARLO SIMULATION





Stock price valuation model based on the Discounted Cash Flow (DCF) method

WACC and the G-Rate are not constant

We ran 100,000 Monte Carlo simulations

Source: Company data, team elaboration, Bloomberg





ESG RATING METHODOLOGY



PHASE 1

$$rac{Rank\left(x
ight)-1}{n-1} imes 100$$

Percentile ranking, where each ESG metric is ranked relative to our peer group, generating a score from 0 to 100

PHASE 2

$$Znorm = \frac{Z - Zmin}{Zmax - Zmin} \times 100$$

Z-score normalization, which adjusts for variability across different ESG metrics.

PHASE 3

Weighted Sub Category Score = ω_p x Percentile + ω_z x Znorm

Aggregate the scores using a weighted system, where Environmental factors account for 50% of the total score, Social for 30%, and Governance for 20%





S 19 metrics

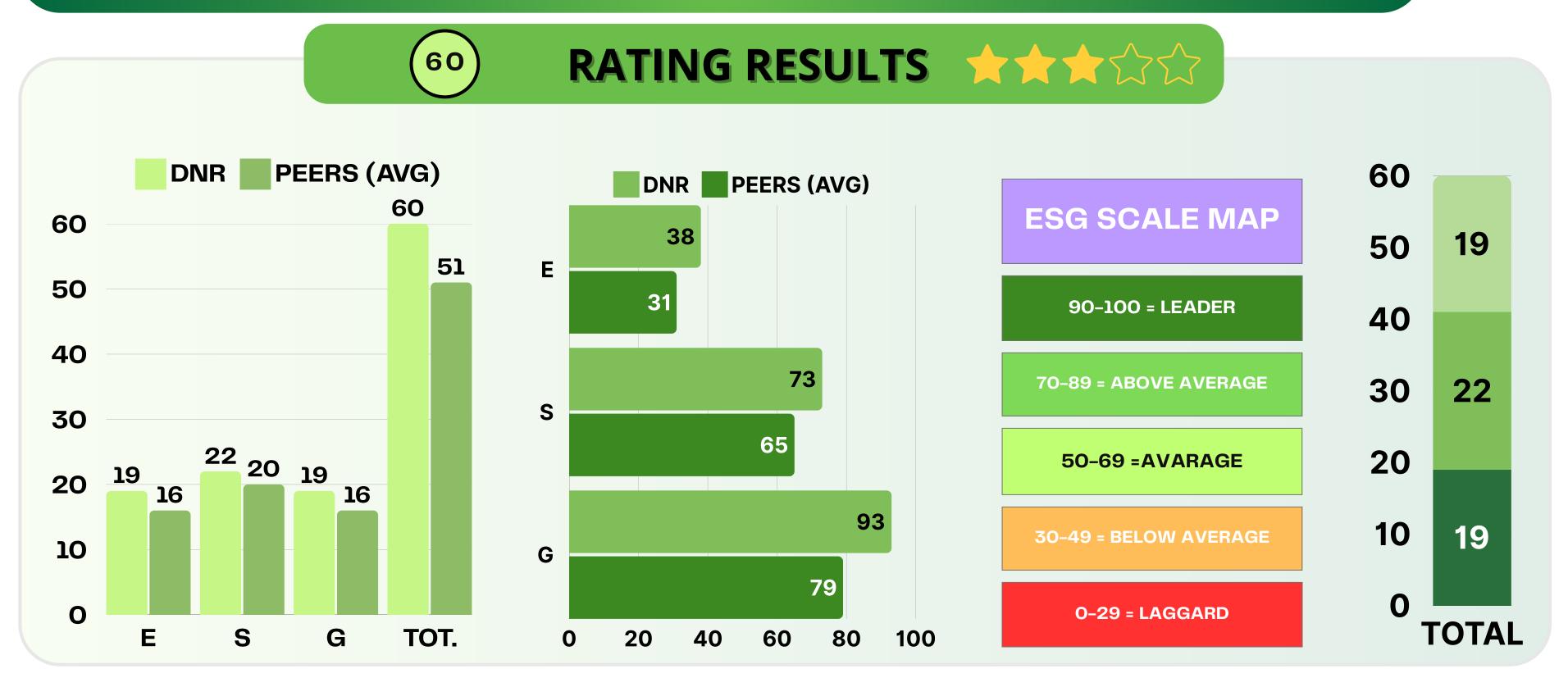
16 COMPANIES

20 metrics



ESG RATING METHODOLOGY





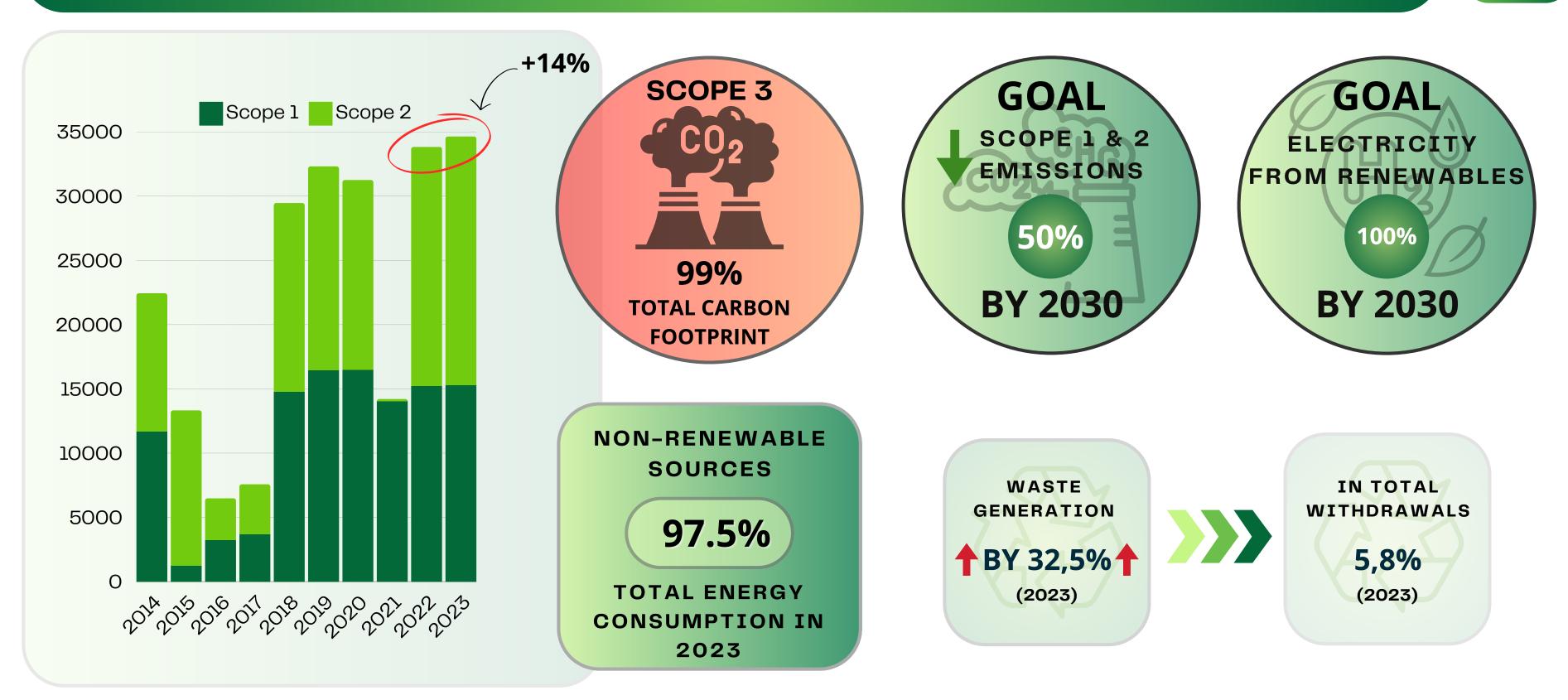
Source: Company data, team elaboration



24

ENVIROMENTAL





Source: Company data, team elaboration, Bloomberg



SOCIAL



GENDER **DIVERSITY**



VS 20% 19,7% **WOMEN IN THE** WORKFORCE 2023 vs 2022

20% 2023

EMPLOYEE HEALTH & SAFETY



RESPONSIBLE **SUPPLY CHAIN**



GOAL Certifications ISO45001 100% by 2030

945 engaged supplier 105 evaluated (17% of spend) 2023

GOAL >50% of suppliers by 2030

Source: Company data, team elaboration, Bloomberg



100%

ELIMINATION

GENDER PAY GAP

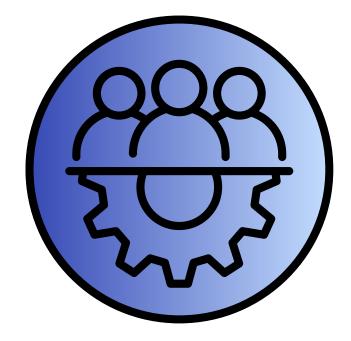
FOR NEW HIRES

2023

GOVERNANCE



QUALITY MANAGEMENT



CERTIFICATION
ISO 9001

100%
2023



ETHICS AND ANTI-CORRUPTION MEASURES



ANTICORRUPTION
90%
TRAINING SESSIONS
FOR EACH
GEOGRAPHY
2023

GOAL
100%
by 2030

ESG PERFORMANCE
TARGETS







Source: Company data, team elaboration, Bloomberg





THANKS FOR ATTENTION!



ANNEX

BUSINESS AND INVESTMENT THESIS

- 1.1 Stock Price Evolution
- 1.2 Revenue Driver
- 1.3 Cost Driver
- 1.4 Focus on R&D Regression
- 1.5 <u>Intellectual Property and</u>
 Patents

INDUSTRY OVERVIEW AND COMPETITIVE POSITION

- 2.1 **SWOT Analysis**
- 2.2 <u>Demand Drivers</u>
- 2.3 PEST Analysis
- 2.4 Porter's 5 Forces
- 2.5 Product Overview

2.6 Suppliers & Costumers

FINANCIAL ANALYSIS & VALUATION

- 3.1 <u>D&A</u>
- 3.2 EPS
- 3.3 <u>NWC</u>
- 3.4 R&D Expenses
- 3.5 Focus on Debt
- 3.6 <u>Debt & Liabilities</u>
- 3.7 DCF Three Stages
- 3.8 WACC Main Assunptions
- 3.9 Free Risk Rate
- 3.10 Beta/beta Unlevered
- 3.11 DCF Energy Transition
- **3.12 EV/SALES (ROS)**
- 3.13 <u>EV/IC (ROI)</u>

INVESTMENT RISKS

- 4.1 Market Risks
- 4.2 Financial Risks
- 4.3 Operational Risks
- 4.4 Free Float and Liquidity

ESG

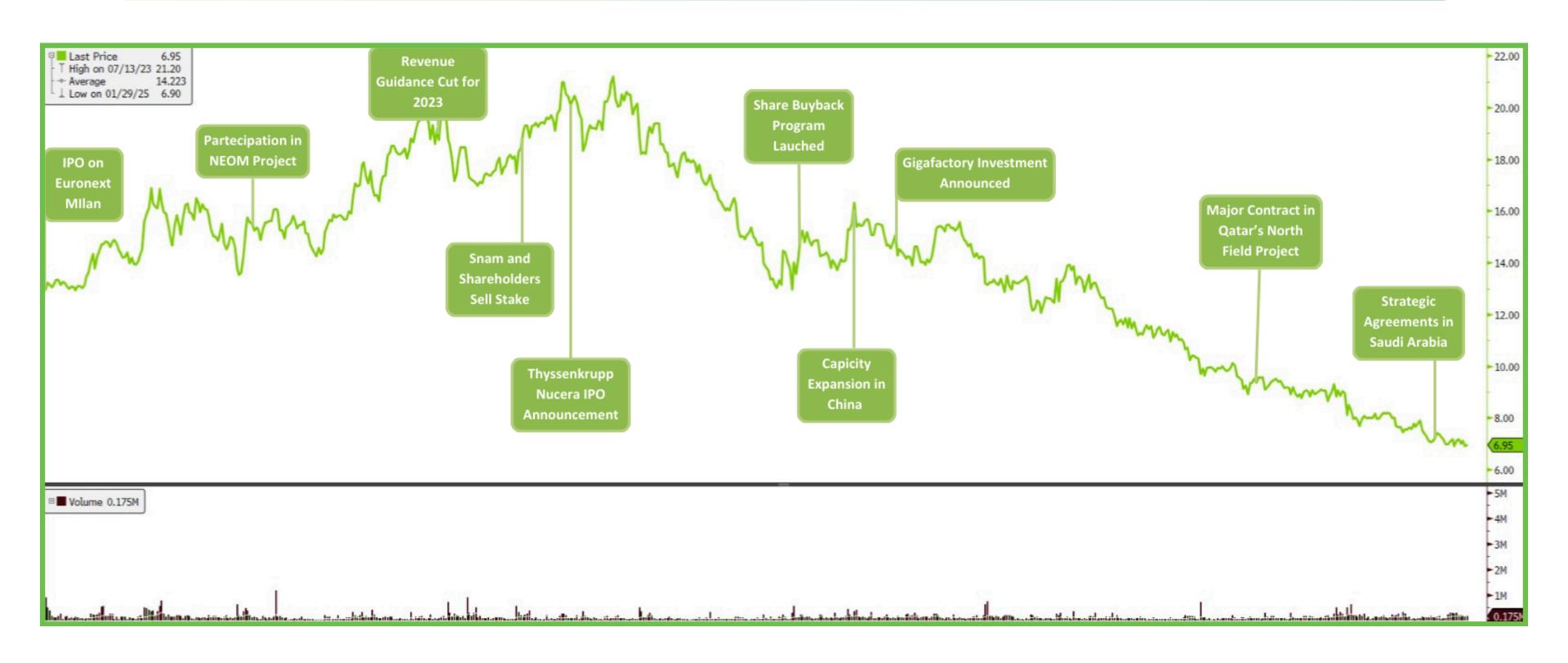
- 5.1 <u>Focus on Environmental</u>

 <u>Pillar</u>
- 5.2 <u>Selection Peers</u>





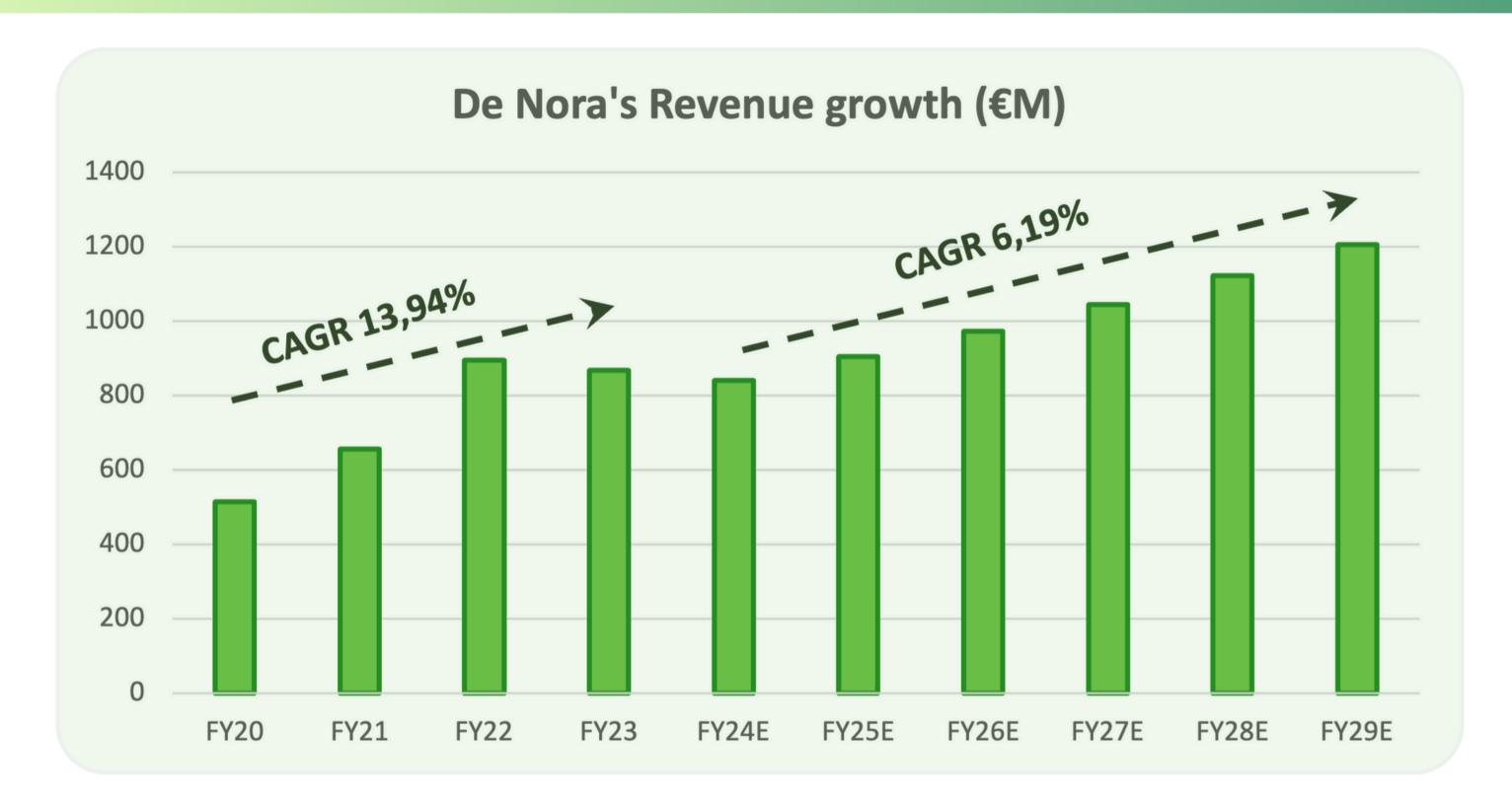
Stock Price Evolution



Source: Bloomberg, team elaboration

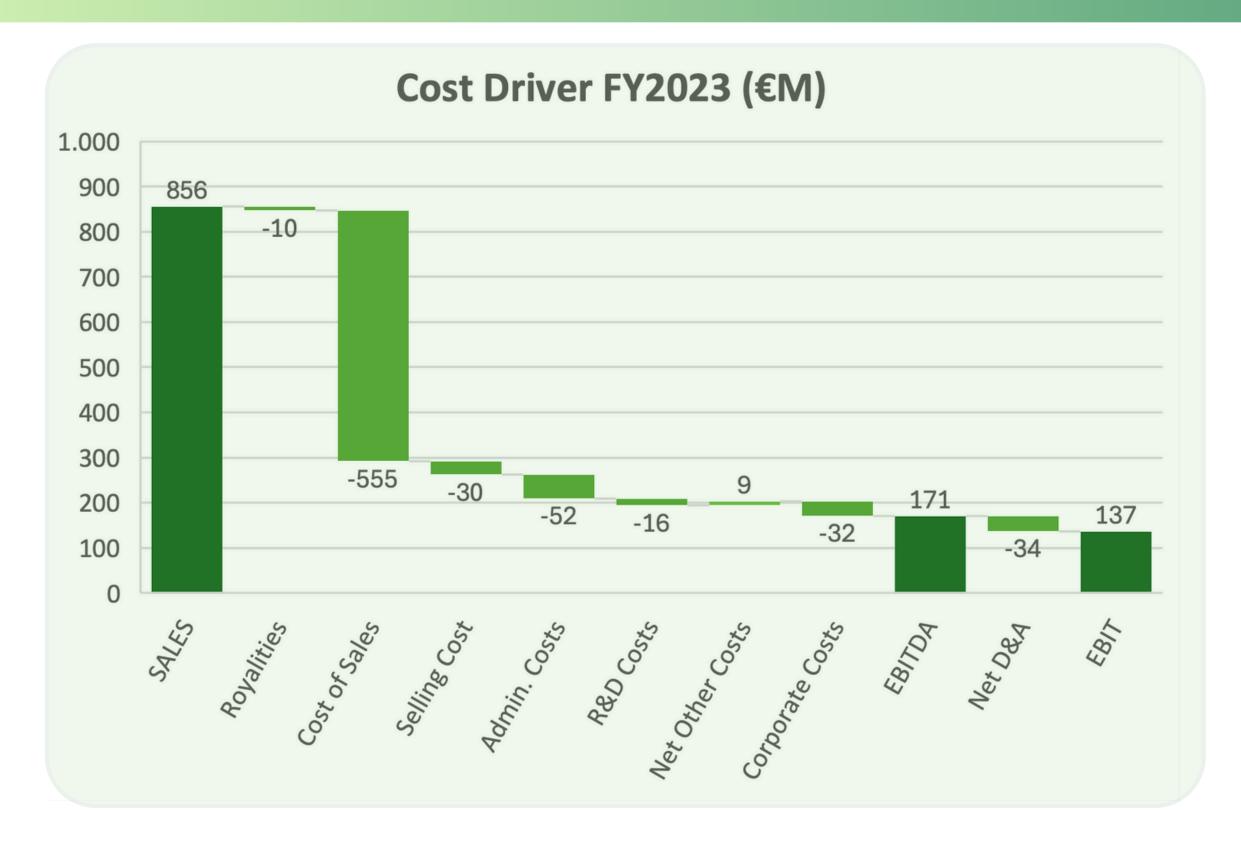


Revenue Driver



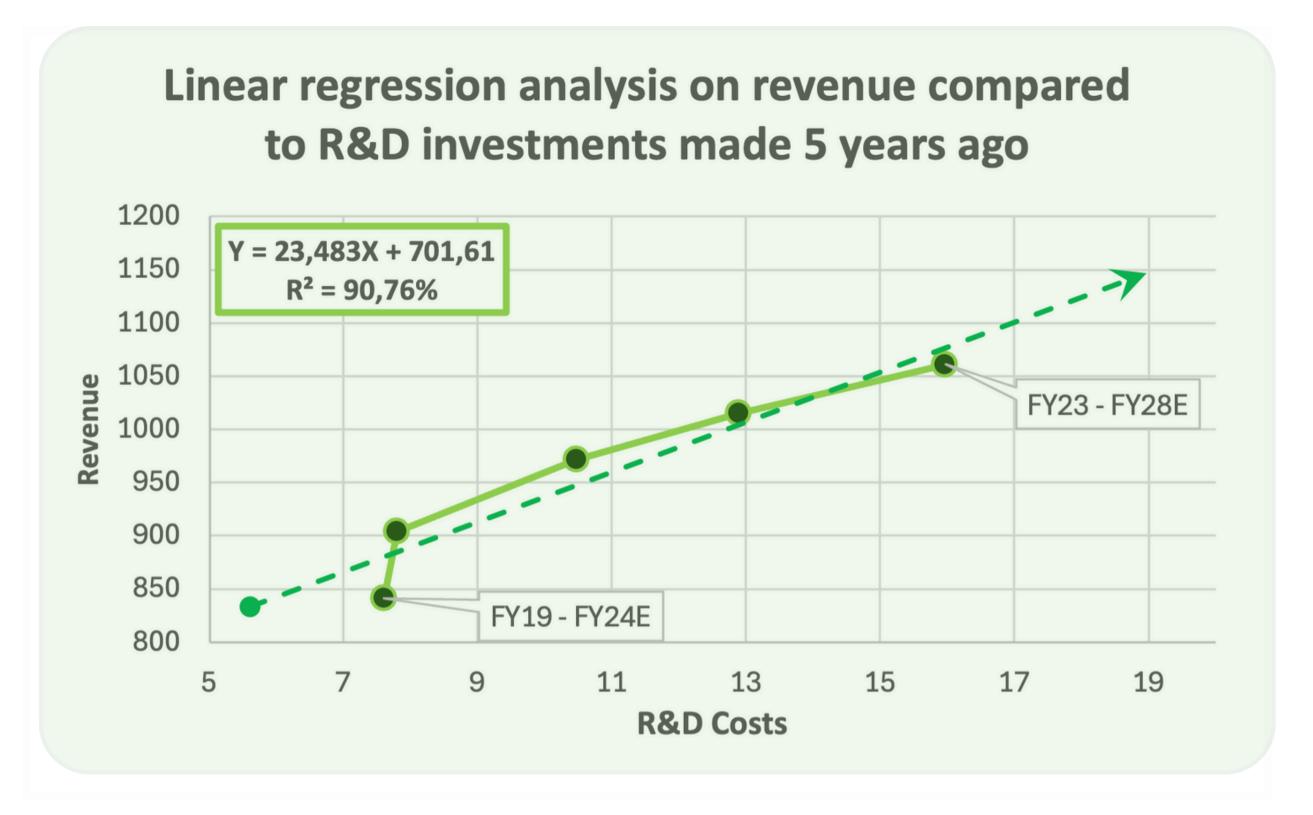


Cost Driver





Focus on R&D Regression



Source: Company data, team estimation



Intellectual Property and Patents





SWOT Analysis

STRENGTHS WEAKNESSES Leadership position in several strategic markets Highly dependent on the cost of sales and volatility of commodity prices Brand value is further strengthened by institutional support Low free float Attractive for retail and institutional. investors attentive to ESG criteria Significantly expand its turnover in Physical Risks the green hydrogen segment Funds withdrawal from the Net Growing adoption of artificial **Zero Asset Managers** intelligence in production process **OPPORTUNITIES THREATS**

Source: Team elaboration



Demand Drivers

ELECTRODE TECHNOLOGIES

Market size from aggregated revenues €55B, CAGR 5.99% 2019-2023



The growing adoption of lithium batteries for electric vehicles and energy storage systems represents a significant demand driver for De Nora's Electrode Technologies

WATER TECHNOLOGIES

Market size from aggregated revenues €36.5B, CAGR 1.81% FY19-FY23



The growing need to treat and make drinking water, both in Italy and globally, represents an important demand driver for De Nora's Water Technologies segment

ENERGY TRANSITION

Market size from aggregated revenues €2.5T, CAGR 5.88% FY19-FY23



According to the Energy Transition Commission, in order to meet the targets of the Paris Agreement, hydrogen will have to meet 15-20% of global energy demand by 2050

Source: Team elaboration



ANNEX 2.2

PEST Analysis



- Risks to green hydrogen market
- Trump's policies threaten global cooperation
- EU committed to sustainability
- Rising global competition impacts investments





- Bond yields rising, market volatility
- U.S. fiscal concerns affect global economy
- ECB ends PEPP, higher financing costs
- TPI stabilizes European bond markets





- Growing demand for sustainable solutions
- Stricter regulations boost ESG sales
- Water treatment demand rising in emerging markets





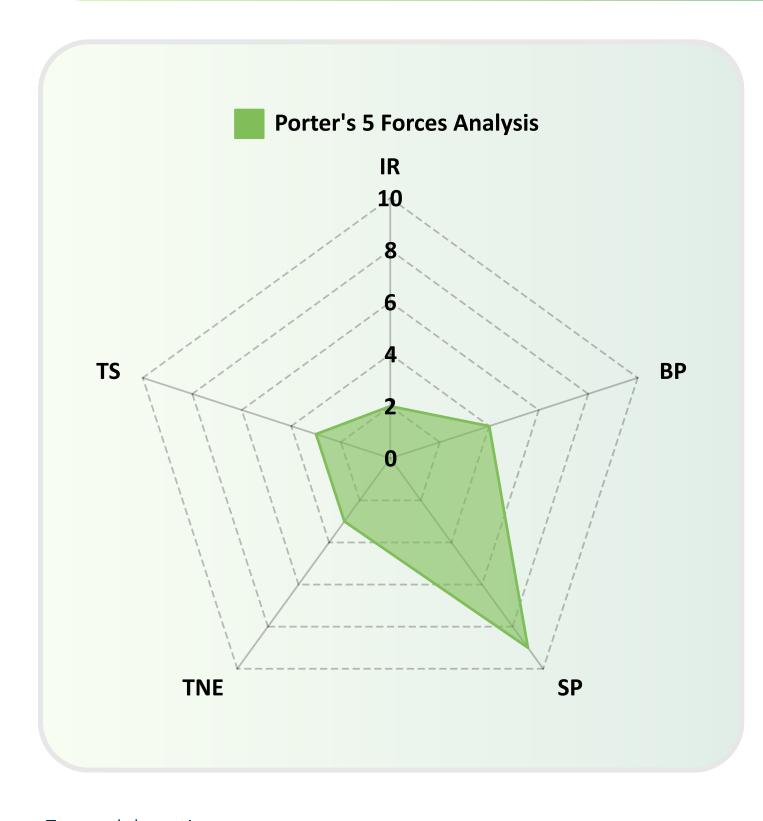
- Lean manufacturing & Industry 4.0 improve efficiency
- AI optimizes supply chain & maintenance
- Innovation drives De Nora's leadership



Source: Team elaboration



PORTER'S 5 FORCES ANALYSIS



Bargaining Power of Suppliers

Low Impact – De Nora's leadership position and in-house production of key components reduce dependence on external suppliers.

2 Threat of New Entrants

Low Threat – High R&D costs and significant fixed assets create strong entry barriers, making it difficult for new players to compete.

Threat of Substitutes

Minimal Risk – Operating in a highly specialized sector, De Nora faces limited competition from equivalent products.

4 Bargaining Power of Customers

Limited Power – Serving B2B clients in chemical, water, and energy industries, De Nora provides customized and innovative solutions that foster strong customer loyalty.

Industry Rivalry

Competitive Edge – De Nora leads the Green Hydrogen market, outperforming peers with positive EBITDA margins and consistently higher stock prices.

Source: Team elaboration



Product Overview

PRODUCT	DESCRIPTION	APPLICATION
ANODES FOR CHLORINE PRODUCTION	DE NORA DEVELOPED METAL ELECTRODES COATED WITH MIXED METAL OXIDE (MMO) IN 1968, REPLACING GRAPHITE ELECTRODES. THIS TECHNOLOGY REVOLUTIONIZED CHLORINE PRODUCTION AND IS NOW THE STANDARD FOR THE CHLOR-ALKALI INDUSTRY.	CHLORINE AND CAUSTIC SODA PRODUCTION IN ELECTROCHEMICAL PLANTS, WATER TREATMENT
OXYGEN EVOLUTION ANODES	ELECTRODES WITH MIXED METAL OXIDE (MMO) COATING ENHANCE OXYGEN PRODUCTION THROUGH ELECTROLYSIS, REDUCING ENERGY CONSUMPTION AND ADDITIVES. THEY ARE USED IN ELECTROPLATING, COPPER PRODUCTION, AND PRINTED CIRCUITS, IMPROVING ELE CTRONIC DEVICES AND BATTERIES.	OXYGEN PRODUCTION IN INDUSTRIAL PLANTS AND WATER TREATMENT, OXYGEN GENERATION IN ELECTROLYSIS PROCESSES USING INORGANIC ACIDS LIKE SULFURIC ACID AND NITRIC ACID
MMO ANODES FOR CATHODIC PROTECTION	SYSTEMS FOR PROTECTING METAL STRUCTURES FROM SALT CORROSION USING ELECTRIC CURRENT.	PROTECTION OF PIPELINES, OFFSHORE STRUCTURES, STORAGE TANKS, AND REINFORCED CONCRETE STRUCTURES
HYPOCHLORITE GENERATORS	CLORTEC SYSTEMS GENERATE LOW-CONCENTRATION (0.8%) SODIUM HYPOCHLORITE ON-SITE FROM SALT, ENSURING SAFE, RELIABLE, AND COST-EFFECTIVE WATER TREATMENT, WITH UP TO 15% OPERATIONAL COST SAVINGS.	MAKING PUBLIC WATER POTABLE, WASTEWATER TREATMENT
MIOX, MIXED OXIDANT GENERATORS	DE NORA OFFERS WATER TREATMENT SOLUTIONS IN EIGHT KEY AREAS: CONTAMINANT REM OVAL, ADVANCED OXIDATION, BIOFILM CONTROL, COOLING WATER TREATMENT, DISINFECTION, OXIDATION, FILTRATION, AND INSTRUMENTATION.	WATER DRAGONFLYSYSTEM TREATMENT
ANODO DE NORA DSA	AVOID CHLORINE O DOR, EYE IRRITATION, HAIR DAMAGE, AND FADED SWIMWEAR CAUSED BY EXCESSIVE DISINFECTION BYPRODUCTS. USING SALT AND ELECTRICITY, THIS INNOVATIVE APPROACH DELIVERS THE PERFECT CHLORINE DOSAGE FOR SAFE, SIMPLE, AND COST-EFFECTIVE POOL DISINFECTION. IT ENSURES A STEADY CHLORINE SUPPLY, PREVENTING SPIKES AND ALGAE GROWTH.	POOL DISINFECTION
DRAGONFLYSYSTEM	UTILIZES ALKALINE TECHNOLOGY FOR DECENTRALIZE D GREEN HYDROGEN PRODUCTION.	SMALL-SCALE ELECTROLYZERS, MUNICIPAL WATER DISINFECTION
FUEL CELL ELECTRODES	A FUEL CELL IS AN ELECTROCHEMICAL DEVICE THAT CONVERTS THE CHEMICAL ENERGY OF A FUEL (USUALLY HYDROGEN) AND AN OXIDIZING AGENT (TYPICALLY OXYGEN) INTO ELECTRICITY THROUGH A PAIR OF REDOX REACTIONS.	BATTERIES FOR ELECTRIC VEHICLES



Suppliers & Customers

FURUYA METAL CO LTD

THYSSENKRUPP NUCERA AG & CO

DE NORA INDIA LTD

XEBEC ADSORPTION INC

NAKILAT KEPPEL OFFSHORE & MARI

SAP SE

Suppliers are sorted by the cost (COGS/CAPEX/SG&A/R&D) paid by DNR IM. Customers are sorted by the revenue DNR IM gets from the customers.

Source: Bloomberg, team elaboration



KINGDOM OF SAUDI ARABIA

GOVT OF THE HONK KONG SPECIAL

UNITED STATE OF AMERICA

MCPHY ENERGY SA

CITY OF JACKSON MS

EUROPEAN UNION

THYSSENKRUPP NUCERA AG & CO

EVN AG

WATER SUPPLIERS DEPARTEMENT

DUFERCO ENERGY SPA

SUIDO KIKO KAISHA LTD

ASAHI KASEI CORP

DE NORA INDIA LTD

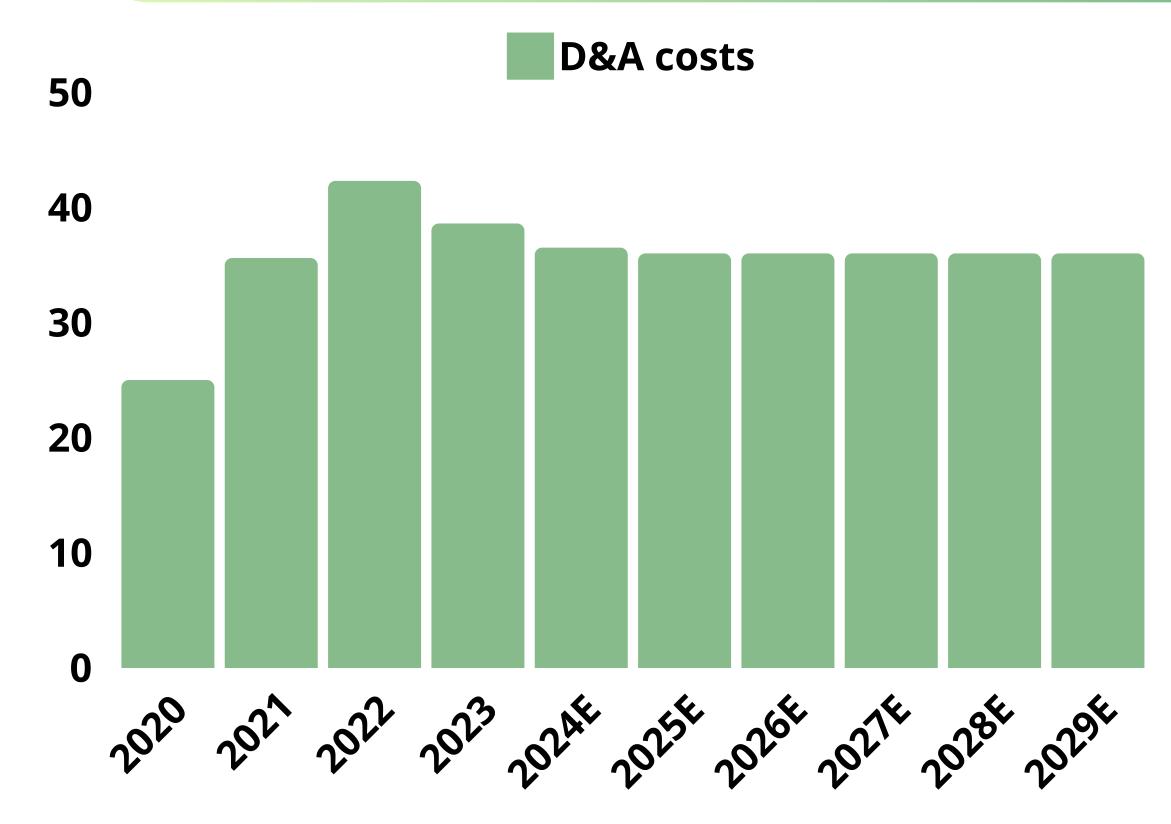
NAVIOS MARITIME HOLDINGS INC

H2U TECHNOLOGIES INC



ANNEX 2.6

D&A costs



D&A costs are constant over the explicit forecast period (2025E-2029E)

New fixed capital investment is equal to D&A costs for the period 20245E-2029E

Equality between new investment and D&A costs results in a constant trend in fixed capital



EPS



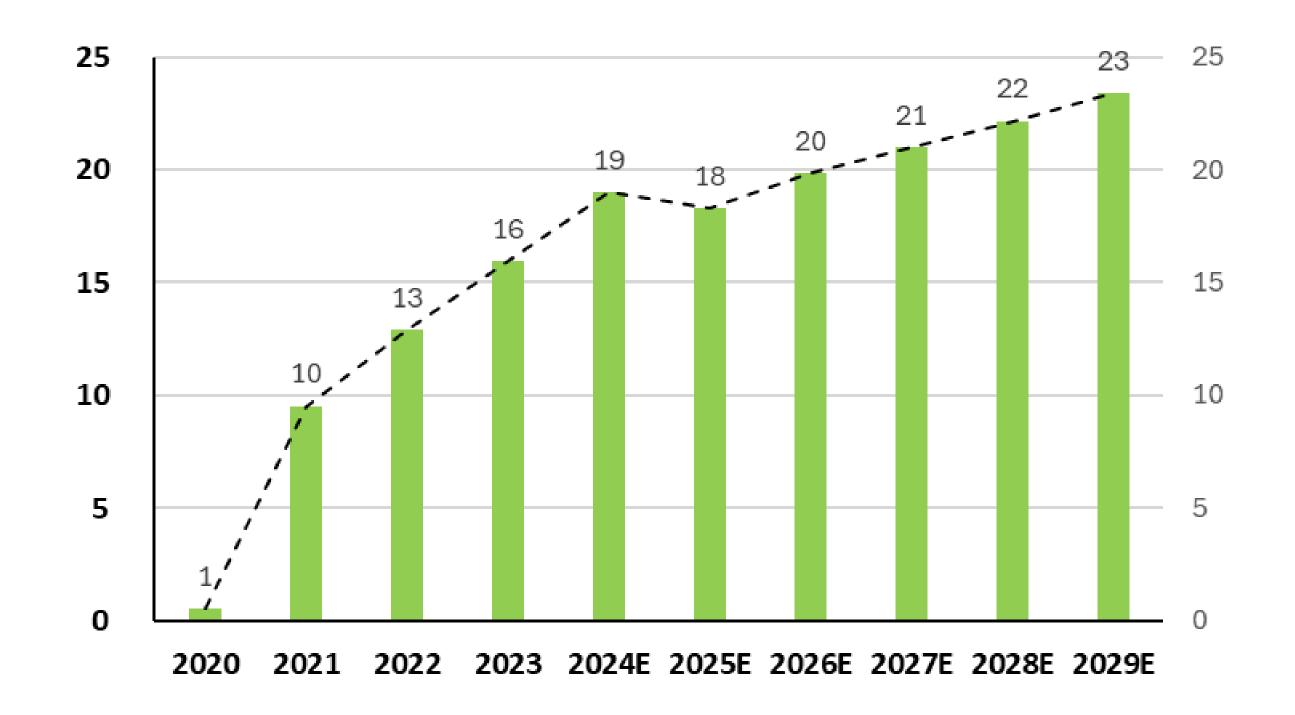


NET WORKING CAPITAL





R&D EXPENCES



R&D expenses
amount to 2% of
revenues
throughout the
forecast period



FOCUS ON DEBT

YEAR	LENDER	VALUE(€M)	DESCRIPTION
2022	BNL, Banco BPM, Intesa Sanpaolo, Mediobanca, UniCredit, Banca Popolare di Sondrio	300	Debt refinancing and working capital
2024	Fund partecipation with A2A, CDP Venture Capital, Bpifrance	140	Investment in green startups

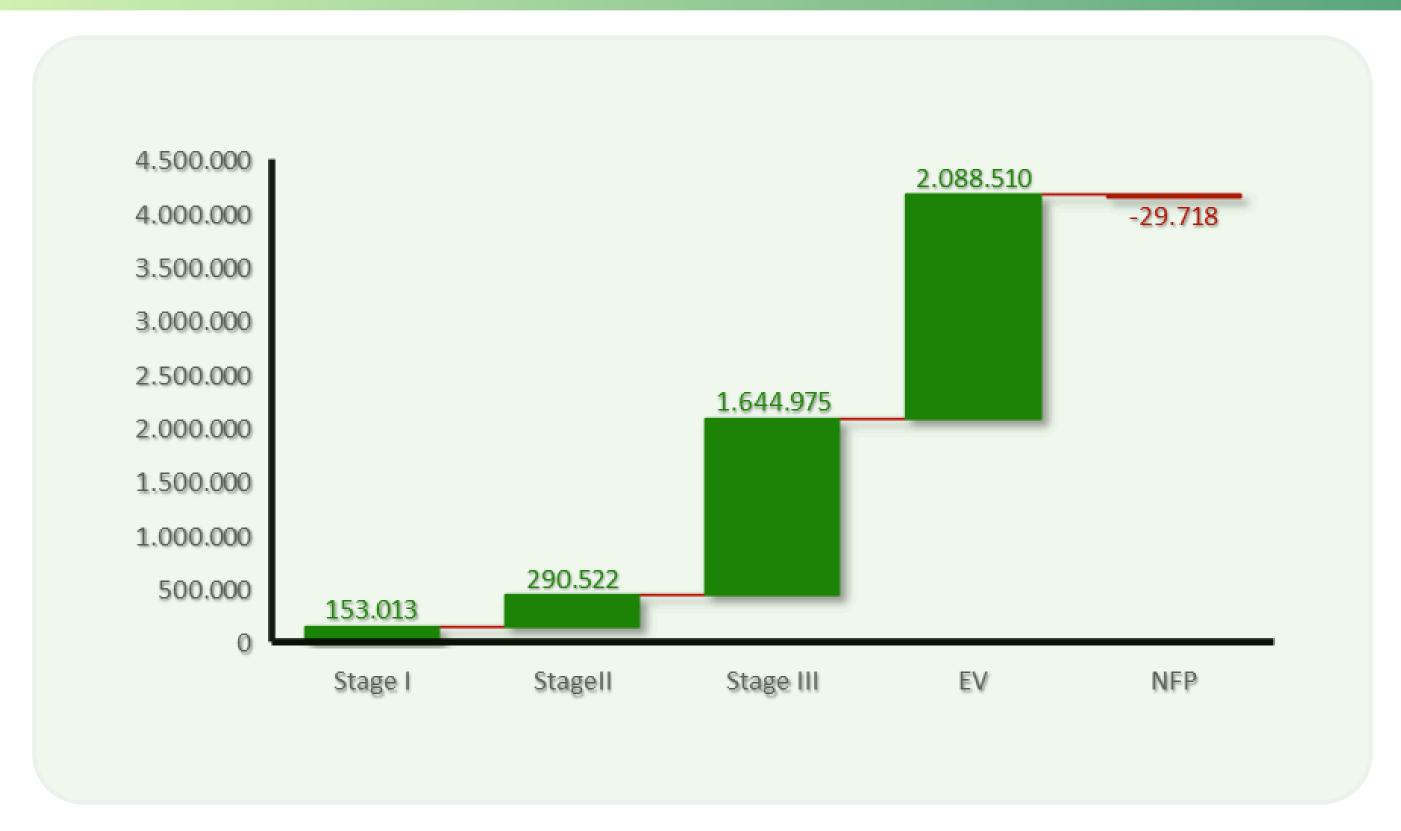


DEBT & LIABILITIES





DCF THREE STAGES





WACC

MAIN ASSUMPTIONS

Due to a negative NFP, WACC is equal to the cost of equity unlevered

$$WACC = K_0 = rf + \beta_{UL} * ERP$$

RISK FREE RATE

Geographically weighted basket, including German Bunds, U.S.Treasury Bills, and Asian bonds

4.447%

BETA

Unlevered beta, measuring systematic risk without considering the impact of the company's capital structure.

8.0

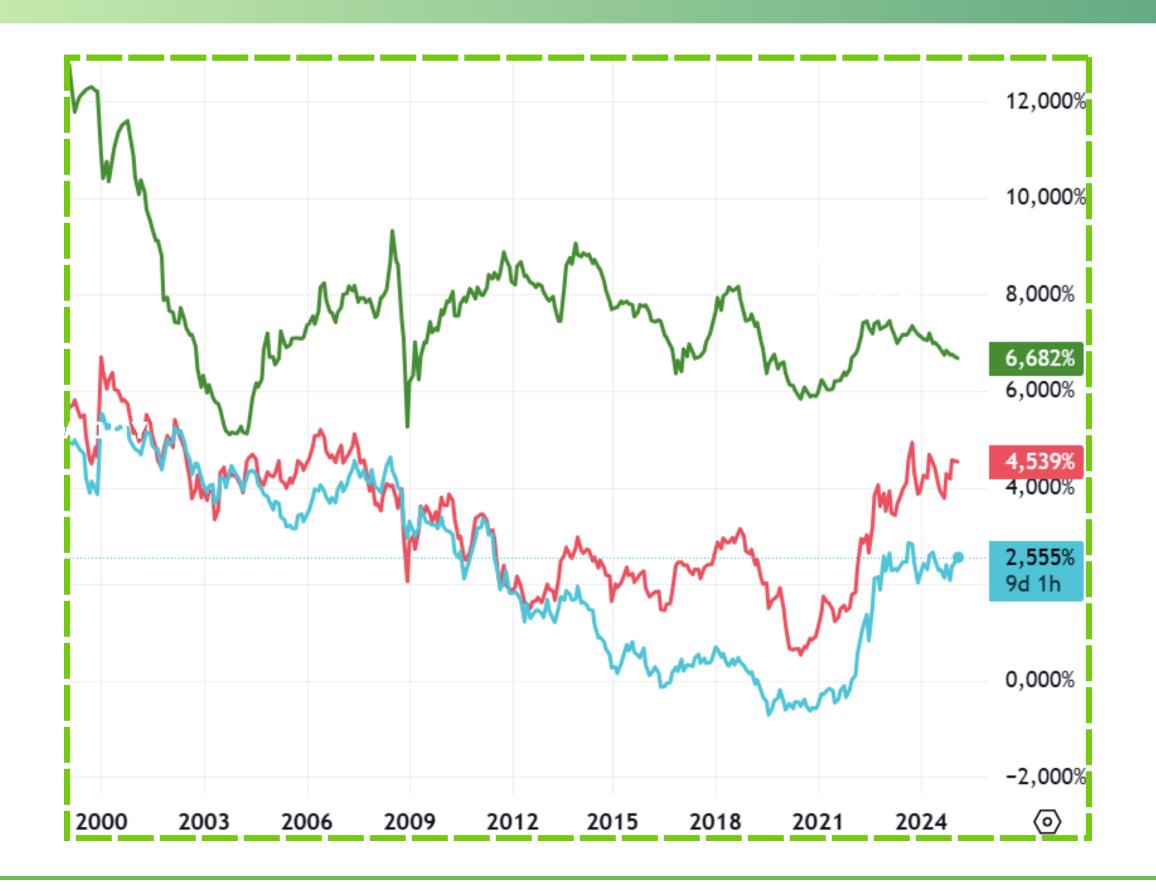
EQUITY RISK PREMIUM

Geographically weighted basket

5.38%



RISK FREE RATE



Source: TradingView



BETA & BETA UNLEVERED

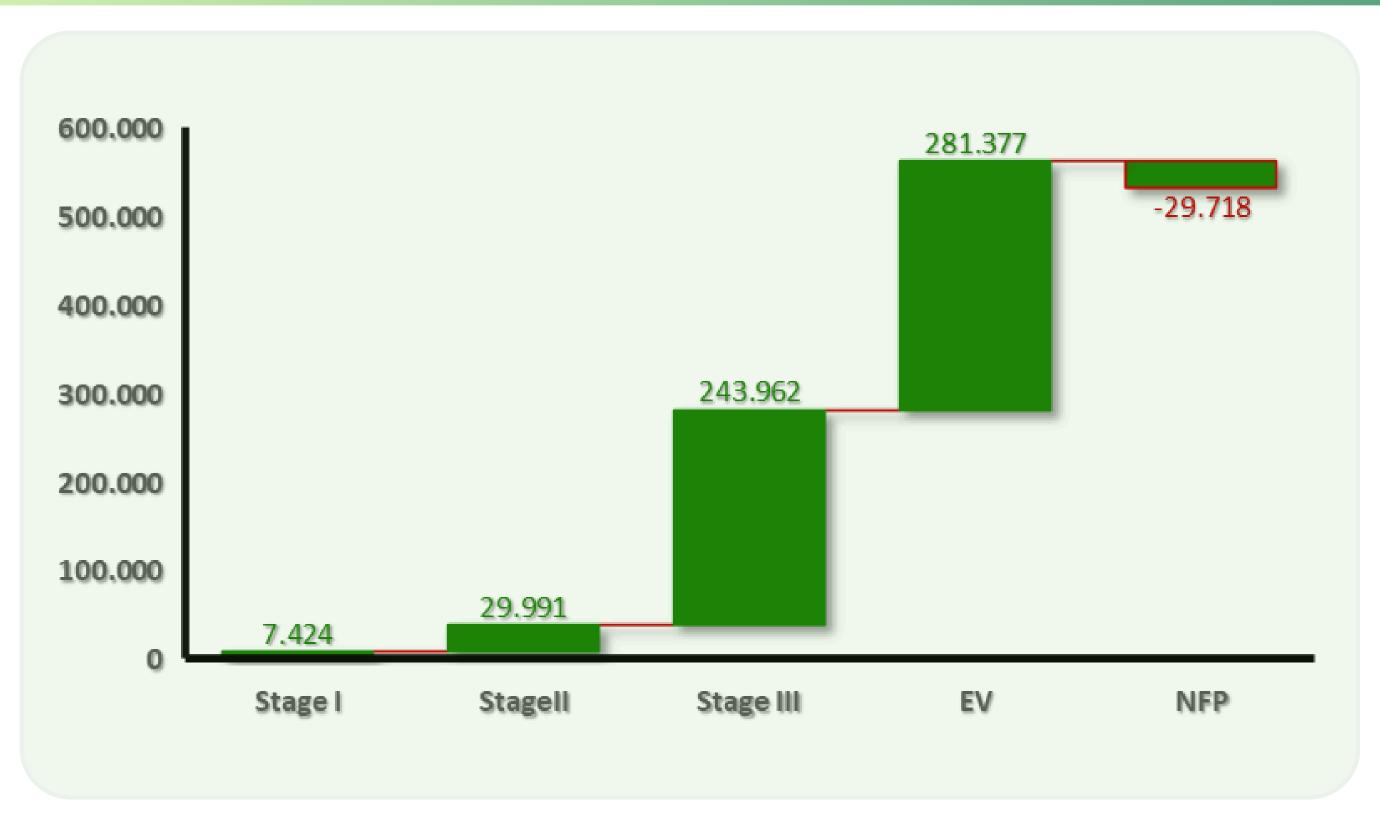
$$\beta_{UL} = \frac{\beta}{(1 + (1 - Tax \ rate) * \frac{Debt}{Equity})}$$

We used an unlevered beta as an indicator of systematic risk, which is independent of the company's debt policies

$$\beta_{UL} = \frac{0.9}{(1 + (1 - 0.24) * 0.17)} = 0.8$$



DCF ENERGY TRANSITION





EV/SALES (ROS)

COMPETITORS	SECTOR	SALES (€M)	RoS	EV/SALES
METAWATER CO LTD	WATER TECHNOLOGIES	1.057.083	5.84%	0.64x
XINJIANG ZHONGTAI CHEMICAL-A	ELECTRODE TECHNOLOGIES	4.850.065	6.45%	0.91x
TOKUYAMA CORP	ELECTRODE TECHNOLOGIES	2.183.558	4.66%	0.69x
ASAHI KASEI CORP	ELECTRODE TECHNOLOGIES	17.781.054	5.10%	0.69x
OSAKA SODA CO LTD	ELECTRODE TECHNOLOGIES	603.733	18.30%	2.19x
CECO ENVIRONMENTAL CORP	WATER TECHNOLOGIES	503.886	4.18%	1.43x

De Nora's competitors related to the Water and Electrode Technologies segments.



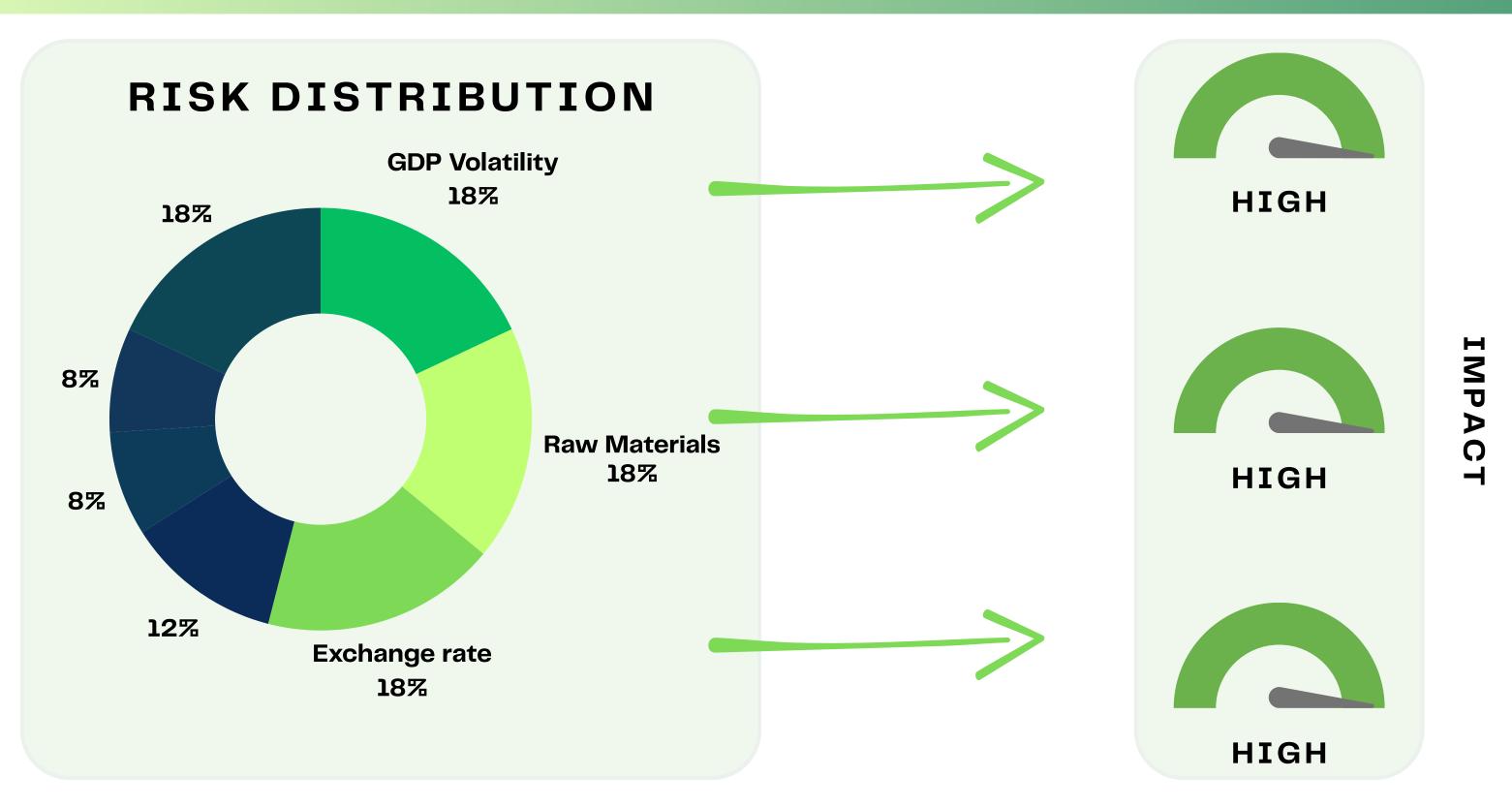
EV/IC (ROI)

COMPETITORS	SECTOR	IC (€M)	RoI	EV/IC
METAWATER CO LTD	WATER TECHNOLOGIES	632.956	9.75%	1.07x
XINJIANG ZHONGTAI CHEMICAL-A	ELECTRODE TECHNOLOGIES	6.224.066	5.03%	0.72x
TOKUYAMA CORP	ELECTRODE TECHNOLOGIES	2.171.033	4.69%	0.69x
ASAHI KASEI CORP	ELECTRODE TECHNOLOGIES	16.908.809	5.36%	0.72x
OSAKA SODA CO LTD	ELECTRODE TECHNOLOGIES	757.372	14.59%	1.75x
CHIMCOMPLEX BORZESTI	ELECTRODE TECHNOLOGIES	511.113	11.99%	2.31x

De Nora's competitors related to the Water and Electrode Technologies segments.

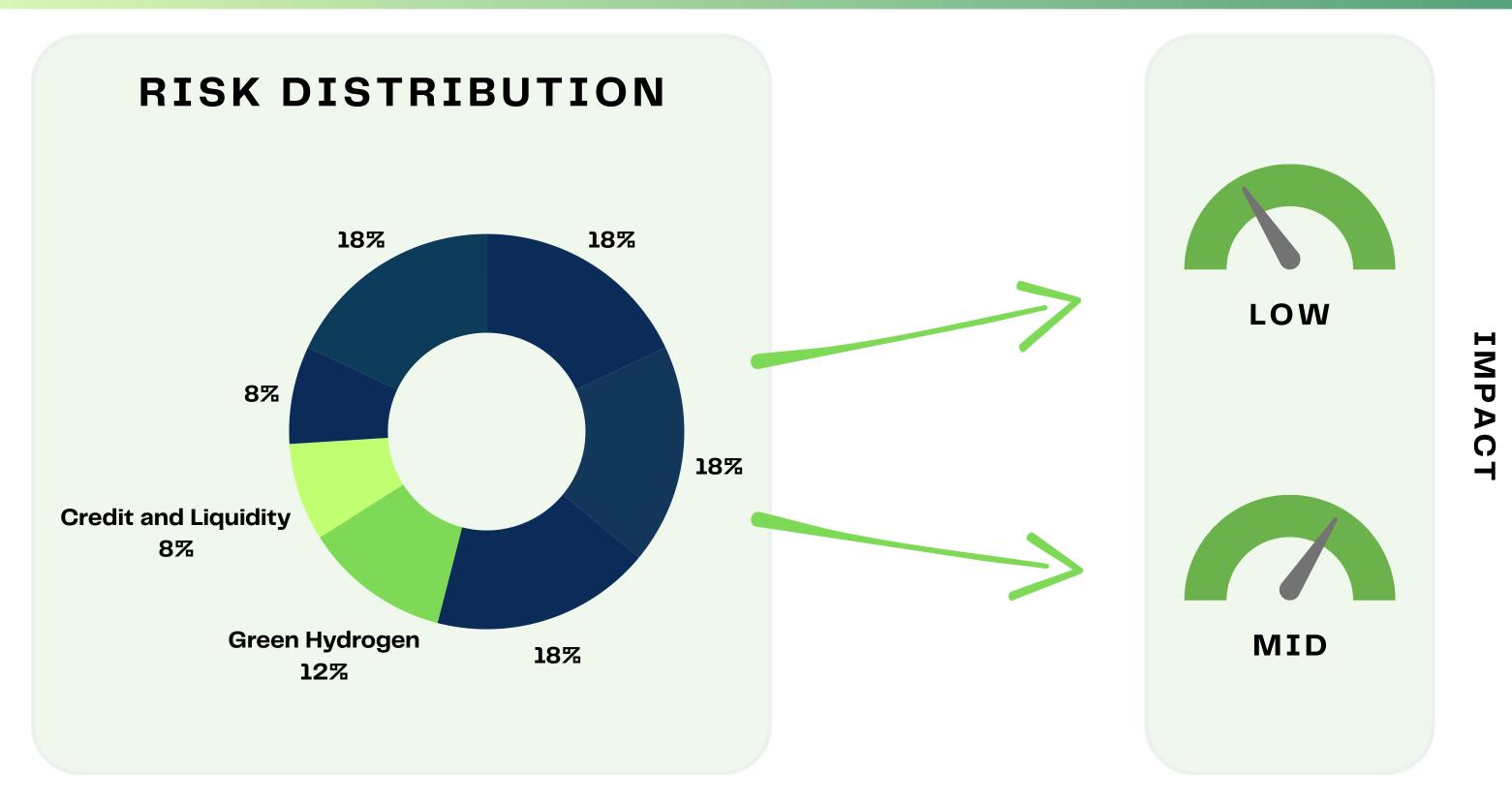


Market Risks



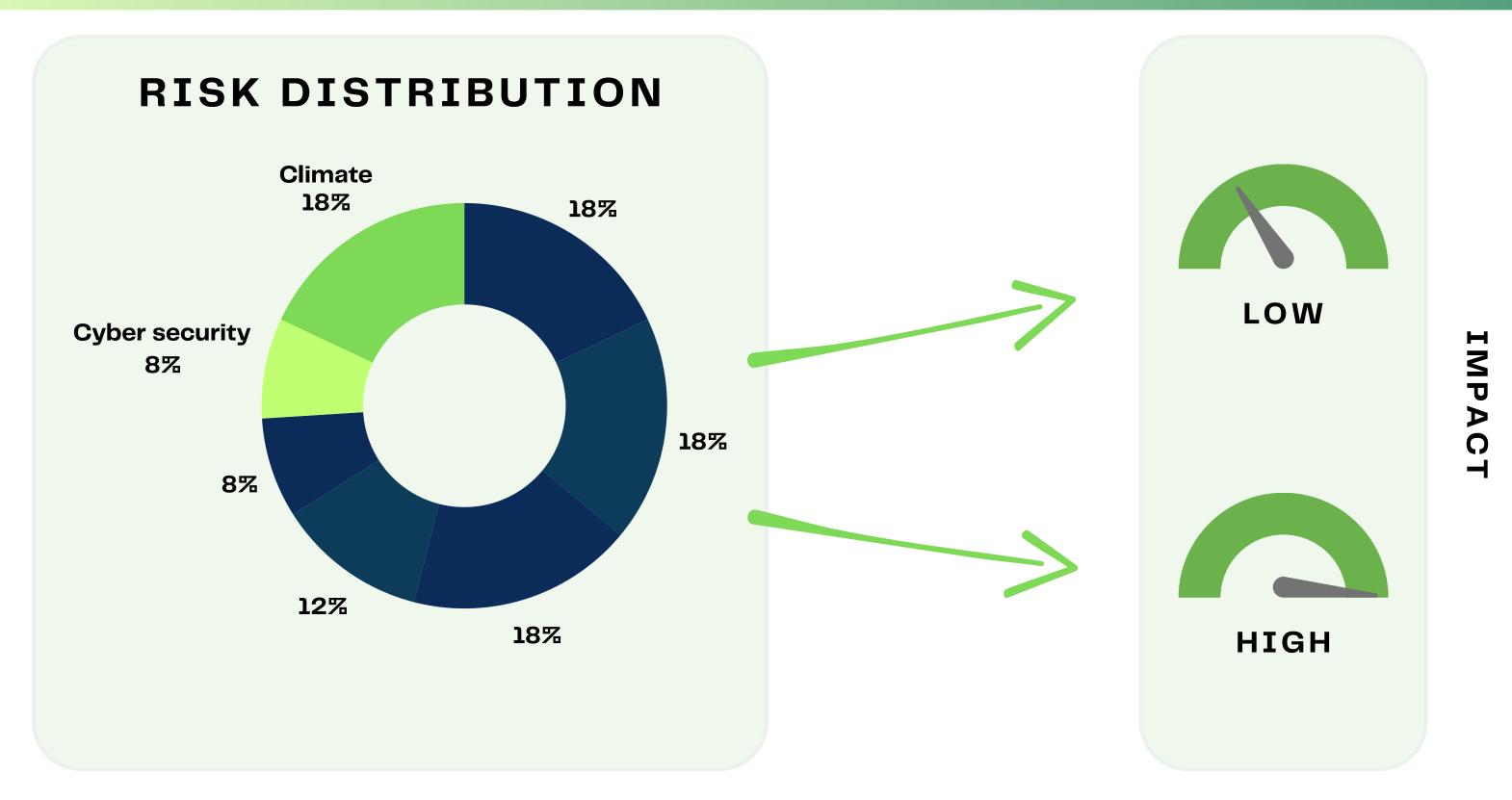


Financial Risks





Operational Risks

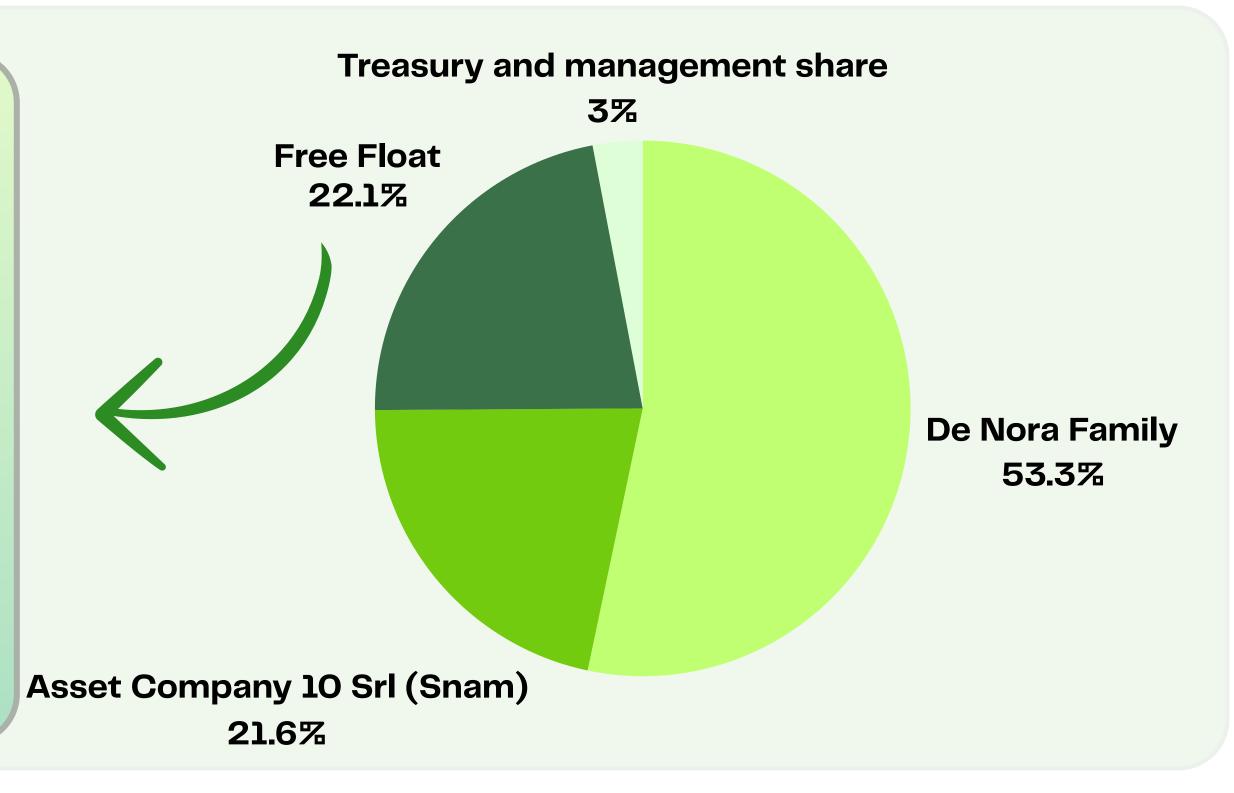


Source: Company source, Bloomberg, team elaboration



Free Float and Liquidity

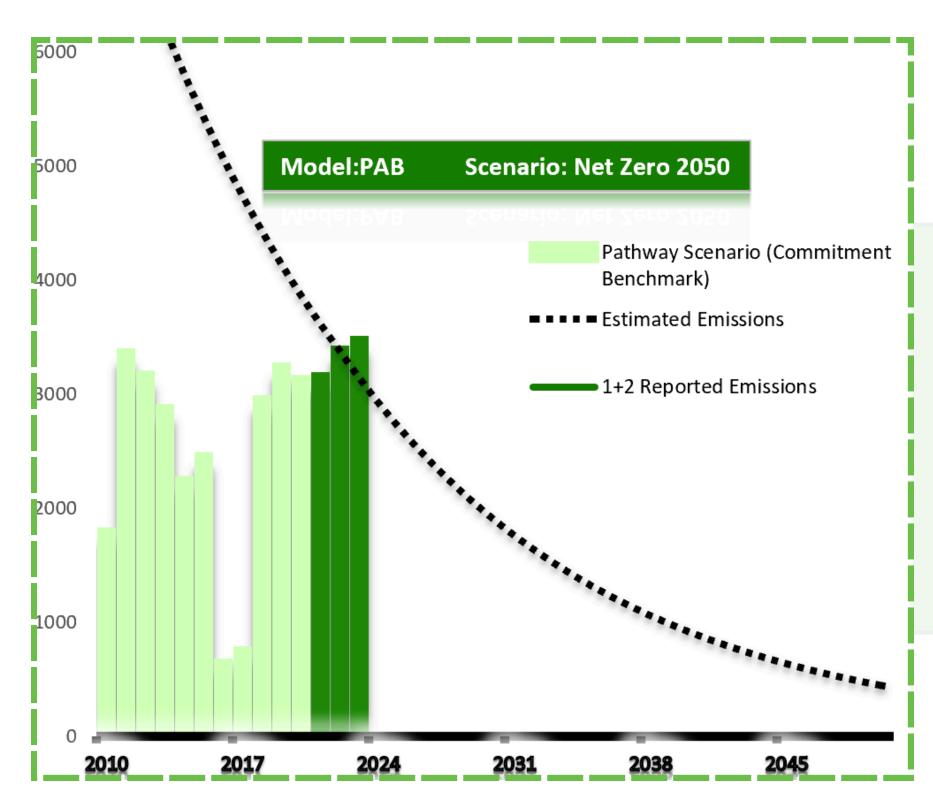
This limited portion of free float restricts an investor's ability to enter or exit the stock and potentially creates greater volatility due to the scarce availability of shares, which can amplify price fluctuations in the event of sudden increases in demand or supply.

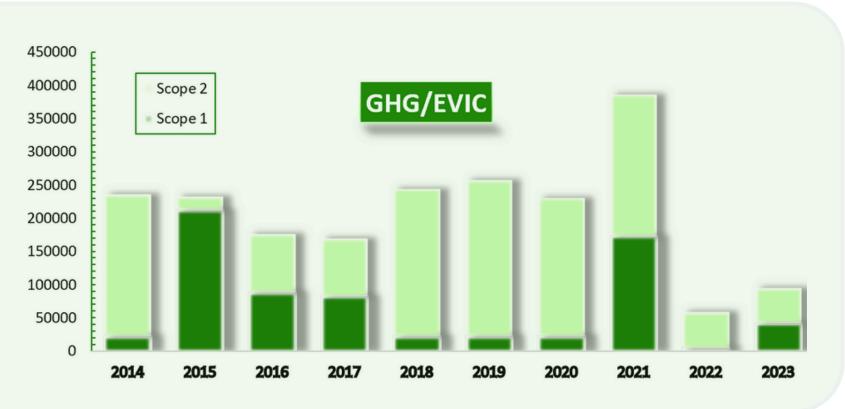


Source: Company source, team elaboration



Focus on Environmental Pillar





Source: Company source, team elaboration



SELECTION PEERS

ELECTRODE TECHNOLOGIES

XINJIANG ZHONGTAI CHEMICAL-A

CNSIG INNER MONGOLIA CHEMI-A

SIEMENS ENERGY AG

TOKUYAMA CORP

ASAHI KASEI CORP

OSAKA SODA CO LTD

KUMHO PETROCHEMICAL CO LTD

CHIMCOMPLEX BORZESTI

ENERGY TRANSITION

BALLARD POWER SYSTEMS INC

FUELCELL ENERGY INC

NEL ASA

PLUG POWER INC

BLOOM ENERGY CORP-A

DOOSAN FUEL CELL CO LTD

WATER TECHNOLOGIES

CECO ENVIRONMENTAL CORP

> METAWATER CO LTD

XYLEM INC

NOMURA MICRO SCIENCE CO LTD

Source: Company source, team elaboration





THANKS FOR ATTENTION!