INTESA SANPAOLO

Equity

MID CORPORATE

Initiation of Coverage

ErreDue

Blowing Clean 'Air' into Energy Markets

ErreDue's vertically-integrated platform covers R&D, production and commercialisation of onsite generation/treatment solutions for technical gases (clean hydrogen, nitrogen and oxygen). Thanks to its multi-decade expertise in electrolytic hydrogen generation, ErreDue looks well set to contribute to the energy transition process with new larger size hydrogen electrolysers (from 1MW up to 5MW), already at an advanced stage of development, to be applied to green mobility and power-to-gas systems. We see ErreDue's core revenues growing at a 41% CAGR in 2021A-25E, led by the ramp-up of the hydrogen electrolysers business with a transformational capacity scale-up, translating into EBITDA and net income CAGRs of 44% and 51%, respectively, in the period. The low capital-intensive nature of the business, a prudent trade working capital management and solid operating cash flows should support a lean balance sheet and a net cash position improvement over our forecast period.

Positives

We think the key drivers of Erredue's investment case are: 1) as a technological developer and manufacturer of low/mid-sized electrolysers with a multi-year expertise, ErreDue looks well set to exploit the rising opportunity coming from the high expected growth of clean hydrogen demand, acting as an enabler in the green transition; 2) the R&D-driven business model and difficult-to-replicate technological know-how represent a competitive advantage vs. peers; 3) its vertically-integrated model translates into a short supply chain and supports margin retention while also allowing the company to offer customisation opportunities for clients; and 4) an already profitable platform ready to exploit the benefits of the hydrogen economy.

Risks

We see some potential business risks/negatives for ErreDue, including: 1) an execution risk on the delivery of the electrolysers as scheduled, related to the planned manufacturing scale-up, plants technological reliability and R&D development; 2) despite the company's R&D-driven know-how and multi-year experience, we believe that competition will intensify given the material investments likely to be channelled into hydrogen; 3) ErreDue's current local-based approach (commercialisation solely in Italy) needs to evolve, in our view, to a more international and suitable-sized platform in order to adequately surf the green transition wave; and 4) inflation risk in terms of soaring installation costs, potentially impacting electrolysers' demand, and/or failure to pass through this impact to clients.

Valuation

We value ErreDue using DCF and multiples methodologies (2023E EV/sales and EV/EBITDA). We initiate coverage of the stock with **a target price of EUR 14.3/share**, calculated as the average from each valuation approach, applying a 20% discount to reflect the stock's relatively low capitalisation. **We initiate our coverage on ErreDue with a BUY rating**.

12 January 2023: 15:15 CET
Date and time of production

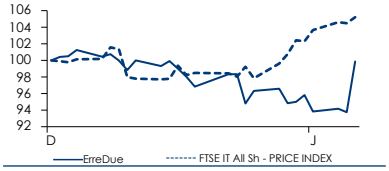
BUY

Target Price: EUR 14.3

Italy/Capital Goods

EGM

Price Performance (RIC: RDUE.MI, BB: RDUE IM)



ErreDue - Key Data

Price date (market close)	09/01/2023
Target price (EUR)	14.3
Target upside (%)	26.55
Market price (EUR)	11.30
Market cap (EUR M)	70.63
52Wk range (EUR)	NA/NA

Price performance %	1M	3M	12M
Absolute	-7.0	NA	NA
Rel. to FTSE IT All Sh	-11.0	NA	NA

Y/E Dec (EUR M)	FY21A	FY22E	FY23E
Revenues	12.31	13.92	18.94
EBITDA	4.36	4.64	6.98
EBIT	3.08	3.19	4.95
Net income	2.25	2.75	4.19
EPS (EUR)	0.45	0.44	0.67
Net debt/-cash	-3.99	-19.30	-7.85
Adj P/E (x)	NA	25.7	16.8
EV/EBITDA (x)	NA	11.1	9.0
EV/EBIT (x)	NA	16.1	12.7
Div ord yield (%)	NA	2.4	0.8

Source: Company data, FactSet and Intesa Sanpaolo Research estimates

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See page 51 for full disclosure and analyst certification
Intesa Sanpaolo is Specialist to ErreDue

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IMI CORPORATE & INVESTMENT BANKING

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Investment Case

Founded in 2000, ErreDue covers R&D, production and commercialisation of onsite generation/treatment solutions for technical gases (clean hydrogen, nitrogen and oxygen). Thanks to its expertise in electrolytic hydrogen generation, the company traditionally operates in the market as a developer and manufacturer of alkaline electrolysers plants, and since 2016 it expanded its technology know-how to PEM cells. ErreDue is now set to contribute to the energy transition process with new larger size hydrogen generators (from 1MW up to 5MW), at an advanced development stage (final testing should have been completed by YE22), to be applied to green mobility (small hydrogen refuelling stations), power-to-gas and synthetic methane systems. Starting from 2023, Erredue is ready to scale-up its unique technological platform to capture the expected growth of specific market segments linked to the energy transition. Moreover, the company has planned the construction of a new large plant, to be commissioned by end-2023, that will lead it to have dedicated capacity for MW-sized electrolysers for hydrogen production of at least 60MW/year (from the current 8MW/year).

ErreDue's core revenues amounted to EUR 11.1M in 2021A, twice as much as the 2016 level, growing at a 14.1% 2019-21 CAGR. EBITDA and EBIT were respectively equal to EUR 4.4M and EUR 3.1M, increasing at a CAGR over the 2019-2021 period of 31% and 35%, with the EBITDA margin showing an upwards trend, reaching around 40% in 2021, reflecting the higher volumes and positive operating leverage effect. Net income in 2021 stood at EUR 2.3M, benefitting from the solid operating performance, tax incentives and grants for R&D investments. Lastly, at end-2021, ErreDue had a net cash position of EUR 4M, improving from the EUR 0.7M reported at YE20, after a EUR 0.4M dividend distribution.

Positives

Operating in a fast-growing industry

With the hydrogen market expected to play a pivotal role in the energy transition process, progressively positioning more decisively within the global energy mix thanks to new cleaner solutions for the decarbonisation of hard-to-abate, automotive, transport and energy sectors, we believe ErreDue is well-positioned to reap the benefits from this fast-growing industry. As a technological developer and manufacturer of low/mid-sized electrolysers, ErreDue is set to exploit the rising opportunity coming from clean hydrogen demand's high-growth, acting as an enabler in the transition towards a greener economy, leveraging on its multi-year experience and difficult-to-replicate technology.

A R&D-driven business model, providing competitive advantages vs. newcomers

ErreDue considers itself at the forefront in the innovation and development of the electrolysis process for the production of hydrogen since its foundation: as such, ErreDue can rely on a competitive advantage vs. new market entrants provided by its in-depth knowledge of the alkaline technology and gas production/treatment solutions. This approach has allowed ErreDue to internally develop proprietary technologies over the years, among which we highlight the recent development (2016) of the Polymer Electrolyte Membrane (PEM) water electrolysis process that led to hard-to-replicate results in terms of plants' operating and cost efficiencies, and ultimately to margins' retention amid pre-competitive research costs and customers recognising ErreDue's added value.

Onsite technical gases' generation still an unexplored solution by customers offering advantages vs. gas cylinders

Demand for technical gases, such as hydrogen, nitrogen and oxygen, has been mainly fulfilled in the past years by gas cylinders' suppliers on the back of the market requiring more standard products as well as due to technological limits. Onsite generators have been recently gaining momentum amid clients demanding tailor-made and flexible solutions, and onsite production being safer, cheaper and more environmentally friendly for users, while guaranteeing independence from suppliers.

Electrolysers' supply shortage

As of 2021, global hydrogen demand totalled 94M tonne (source: IEA): 62% of the total was met by production from unabated fossil fuels with natural gas without CCUS (Carbon Capture, Utilisation and Storage), 19% from coal and 18% from hydrogen derived as a by-product of industrial processes (i.e. refineries). Blue hydrogen or rather fossil fuel-based hydrogen with CCUS solutions amounted to 0.7%, whereas Green hydrogen produced via electrolysis accounted for 0.04% of total hydrogen production mix in 2021. The rationale underlying the still poor electrolysis' acceptance lies on both the demand and supply side: fossil fuel-based hydrogen has been more convenient in terms of costs and in the absence of climate change policies, whereas suppliers lacked game-changing technological improvements and appropriate production capacity. As of today, while cost constraints and environmental awareness have been respectively easing due to high and increasing natural gas prices, suppliers are struggling to build capacity and scale up technology. In our view, the expected electrolysers' supply shortage constitutes a positive element for ErreDue in terms of addressable market and pricing power.

Vertical integration translating into a short supply chain and margins' retention, as well as providing flexibility in customisation to pursue market opportunities

ErreDue operates through a vertically-integrated business model according to which every technologic component is designed, produced and assembled in-house, with raw materials and few other components representing the sole items needed to be procured outside. This organisation allows ErreDue to fully cover the entire production process, enabling margins' retention across the production/assembly phases, while having a low dependence on critical suppliers and potential to meet clients' specific demand needs. With an eye to forecasted production and to avoid volatility in margins due to raw materials' price swings, ErreDue builds up inventories on a preventive basis for at least several months and up to one year, leveraging on its strong balance sheet. According to the company, 94% of purchases come from Italian suppliers, making the supply chain short and resilient.

A solid profitability track-record

Unlike some peers that compete in the same market of onsite hydrogen-nitrogen-oxygen generators, ErreDue can boast a solid track-record when it comes to financials. Revenues have been organically growing at a 15% CAGR in the last five-years from EUR 5.5M in 2016A to EUR 11.1M in 2021A, with EBITDA recording margins well-above 30% on average in the same period, already net of R&D expenses. Over 2019-21, EBITDA, EBIT and net income reported a compounded growth of 31%, 35% and 33%, respectively, with ErreDue posting a net income just above EUR 1M in 2019-2020 (15% margin on core revenues) and equal to EUR 2.3M in 2021 (20% margin on core revenues).

Unlevered balance sheet and a cautious working capital management

ErreDue can rely on a solid balance sheet, underpinned by the low-capital intensive nature of its activity and prudent management of the trade working capital, which envisages new orders to be paid 30-50% in advance. This practice allows ErreDue to preventively build inventories both aimed at serving after-sales activities and demand for new plants. We see ErreDue remaining net cash positive over the forecast period, despite transformational capex related to the new plant.

Negatives/Key risks

Execution and R&D risks

We identify an execution risk linked to the delivery of electrolysers as scheduled, which is also strictly related to the expected manufacturing capacity scale-up, plants' technological reliability and R&D development. Delays in delivering orders and issues in the electrolysers' operations could negatively affect the company's activity in terms of weakening future demand for its own products, whereas a potential slowdown in the technological improvement could lead to installation costs lowering more slowly than expected, potentially depressing the new orders' intake.

Competition is toughening

Despite technological/R&D driven know-how and a multi-year experience of the sector providing an advantage on the market, we believe that competition will likely intensify on the back of the sound investments expected to be channelled into hydrogen. We would not rule out that some players also adopt aggressive commercial strategies leading to pricing pressure in the electrolysers manufacturing market, particularly as regards the large-sized companies. Moreover, the mature alkaline process, with relatively simple manufacturing and low capital costs, may allow new entrants to carry out Manufacturing and EPC services, therefore crowding the competitive arena. In this context, ErreDue needs to pursue growth opportunities and potential industrial collaborations, as well as continue to differentiate its product offering, to build synergies and improve its competitiveness, also from a technological standpoint, to stand out in the crowd.

Local-based approach needed to evolve to a more international and right-sized platform

Currently, ErreDue carries out its commercialisation activity solely from Italy. Foreign expansion and an improved marketing effort in the future are a must, in our view, in order to exploit the advantages of the onsite generation and, more importantly, to surf the green transition wave, according to which hydrogen is seen as a critical enabler to achieve a Net-Zero economy. We think management is well aware of what ErreDue needs to do to play a role in the new hydrogen economy, as outlined in their medium-long term strategy. The recent listing should also allow ErreDue to accelerate its expansion strategy, boosting new branch openings in key geographies, starting first with Europe for which the company already holds the needed certifications. This strategy also requires ErreDue to scale up its platform from a workforce standpoint in terms of heads and technical/commercial expertise.

Absence of patents

We believe that the absence of patents could lead ErreDue's trade secrets to be copied or replicated by competitors, either by direct players or by those operating in the hydrogen/nitrogen/oxygen value chains. While we believe that data collection from internally-performed R&D and plants' testing, together with fully vertically-integrated production represent a competitive advantage, combined with the entry-barrier from the high-technological degree of the business, ErreDue's added value could be at risk if the proprietary solutions become available and potentially reproduced by other players. We nevertheless acknowledge that patents could lead to financial resources being allocated to face legal disputes, ultimately translating into a potential significant additional cost item. However, the company does not exclude to patent specific breakthrough components, e.g. new PEM catalysers, in the future.

Inflation risk

Despite a strong pricing power, supported by the decarbonisation trend and short manufacturing supply, and due to ErreDue's vertical integration, with a low dependence on external suppliers, we see a prolonged inflationary environment potentially resulting in increasing raw materials costs, especially for high precious materials' prices (for PEM), whether commodities or key-components for the electrolysers' manufacturing. Assuming the higher expenses to be reverted downstream, electrolysers' installation costs could remain at high levels or even increasing, rather than becoming more cost-competitive. This could result in operators adopting more low-carbon solutions rather than green ones. On the other hand, any failure to pass through the inflationary effect to clients would hurt profit margins and cash flows, in our view.

Geopolitical risk

While as of 2022 ErreDue should have no exposure to the Russia-Ukraine markets, after having suspended deliveries to these countries due to the conflict, we note that geopolitical tensions in Europe and at the global level further escalating from the current balance, would likely make investors more averse to risk, thus causing a shift towards low-risk securities/bonds. With the short-term energy environment appearing fluid, on the back of gas flows' interruption from Russia to Europe, we see the risk of renewables being required in the short-term to satisfy electricity demand first, saturating clean electricity production that could otherwise be employed in powering green hydrogen facilities. Conversely, in the longer term, the growing need for new green/low-CO2 emitting energy solutions, could drive upwards investments on the green hydrogen value chain, with ErreDue likely benefitting from a hydrogen-based economy.

Power price dynamics

As electricity is one of the key drivers for the hydrogen production through electrolysis, we believe that a long-lasting scenario of high-power prices, exacerbated by inflated gas prices, would be discouraging for the onsite industrial generators market. This would reflect operators potentially being reluctant to internalise volatile and high utilities costs for gases generation, and postponing Final Investment Decisions (FID) amid electrolysers' and gas generators' investments' IRRs squeezing.

Policy makers' behaviour

We highlight that possible changes in policies' direction, even if highly remote in our view, aimed at supporting/preferring alternative energy sources to green hydrogen, in the near and long term, could affect its growth potential, therefore impacting industry players, including electrolysers' manufacturers, such as ErreDue.

Credit risk

The company may suffer from economic losses related to counterparties and clients' possible default, insolvency conditions or failure to meet their financial commitments.

Interest rates risk

Central banks (FED, BoE and ECB) adopting more restrictive policies amid a persistent strong inflationary environment, translating into additional interest rates' hikes, could lead to a further reduction in projects' IRRs, thus resulting in a lower economic attractiveness of green hydrogen. We also highlight the potential shift from equities to bonds on the back of increasing interest rates, affecting listed companies in general terms. As far as ErreDue is concerned, we do not see a major company-specific risk relating to financing activities and cost of debt, since the company, due to the nature of its activity, is seen as having an unlevered balance sheet over the forecast period.

Valuation

We value ErreDue using DCF and multiples-based methodologies (EV/sales and EV/EBITDA). **We derived a target price on ErreDue of EUR 14.3/share** from the average of the equity values returned by each valuation approach, applying a 20% discount to reflect the stock's relatively low capitalisation. **We initiate coverage on ErreDue with a BUY rating.**

BUY rating; EUR 14.3/sh

ErreDue – Target price calculation

	EUR M	EUR/share
DCF-based 2023E-2030E	117.3	18.8
EV/Sales 2023E Multiple	137.6	22.0
EV/EBITDA 2023E Multiple	79.6	12.7
Average	**111.5**	**17.8**
Discount (%)	20	20
Target Price	**89.2**	**14.3**

Source: Intesa Sanpaolo Research estimates

ErreDue – Implied multiples @ target price

(x)	2023E	2024E	2025E
EV/Sales	6.3	3.9	2.4
EV/EBITDA	15.4	9.3	5.8
P/E	21.3	13.5	7.6

Source: Intesa Sanpaolo Research estimates

ErreDue - Exit multiples analysis (EUR M)

		Exit Multiple @ 2030E			
WACC (%)	12.1				
Discount rate (x)	2.64	EV/SALES	EV/EBITDA	EV/EBIT	P/E
ErreDue EV	70.6	**1.9**	**4.8**	**5.4**	**-**
ErreDue Equity Value	89.2	**-**	**-**	**-**	**8.9**
Sales 2030E	97.3				
EBITDA 2030E	38.9				
EBIT 2030E	34.6				
Net Income 2030E	26.5				

Source: Intesa Sanpaolo Research estimates

DCF valuation

In our DCF valuation, we calculate ErreDue's enterprise and equity value range using a three-stage DCF model, according to which: 1) we determine the net present value of the net cash flows over the forecast period (2023E-27E); 2) we run a three-year DCF valuation over the 2028E-30E period, to which we applied declining, though still relatively high, EBITDA growth rates; and 3) we calculate the NPV of the terminal value derived as the average net cash flow beyond the forecast period, assuming a 2% terminal growth rate (g). By running our model, we derived an equity value per share for ErreDue of EUR 18.8/share.

We set our WACCs at 12.1% on the back of: 1) a 100% equity weighting in the company's total capital sources; 2) a risk-free rate of 3.5% as per our current equity valuation models (last periodical review on 18 November 2022); 3) an equity risk premium equal to 6.5% (as per our equity valuation models), broadly in line with the 20-year average implied in the Euro Stoxx index; and 4) a Beta calculated as the 2-year average for ErreDue's closest peers (NEL Asa, ITM Power PLC, McPhy Energy SA; Source: Bloomberg), amounting to 1.32x.

ErreDue - WACC calculation (%)

Debt	0.0
Equity	100.0
Tax Rate	23.0
Risk-free Interest rate	3.50
Beta (x, *)	1.32
Market Risk Premium	6.50
WACC	**12.09**
g	2.00

(*) 2-year Bloomberg avg. for NEL Asa, ITM Power PLC, McPhy Energy SA; Source: Intesa Sanpaolo Research estimates

ErreDue – DCF-based EV calculation

EUR M	FY 22E	FY 23E	FY 24E	FY 25E	FY 26E	FY 27E	FY 28E	FY 29E	FY 30E	TV
EBITDA	4.6	7.0	11.6	18.6	25.6	32.9	36.1	38.0	38.9	
Yearly Growth rate (%)	6	50	66	60	38	29	10	5	3	
Investments	-1.5	-16.0	-2.3	-3.5	-4.5	-5.7	-6.3	-6.6	-6.7	
D&A	-1.4	-2.0	-3.0	-3.2	-3.4	-3.7	-4.0	-4.2	-4.3	
WC change	-1.4	-1.0	-5.2	-4.5	-4.8	-4.4	-4.9	-5.1	-5.2	
Taxes	-0.4	-0.7	-2.0	-3.5	-5.1	-6.7	-7.4	-7.7	-7.9	
M&A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Net cash flow	1.3	-10.8	2.2	7.1	11.2	16.1	17.7	18.5	19.0	15.2
Cash Flow NPV	1.3	-9.7	1.7	5.0	7.1	9.1	8.9	8.3	7.6	151
Total Cash Flow NPV	38.1	**39**								
Discounted Terminal Value	60.5	**61**								
DCF-based Enterprise Value	**98.7**									

Source: Intesa Sanpaolo Research estimates

ErreDue – DCF-based equity value calculation

DCF-based valuation	EUR M	FY 23E	FY 24E	FY 25E
ErreDue EV	98.7		**Implied EV/sales (x)**	
Peripherals	0	5.8	3.6	2.2
-Net debt/+Cash (FY22E)	19.3		**Implied EV/EBITDA (x)**	
-Minorities/Funds (FY22E)	-0.7	14.1	8.5	5.3
Equity Value	117.3		**Implied P/E (x)**	
Equity Value (EUR / share)	**18.8**	42.7	28.0	17.7

Source: Intesa Sanpaolo Research estimates

Multiples' valuation

We identified some peers operating in the market as hydrogen electrolysers' manufactures and/or in the hydrogen value chain and suppliers of gas systems for our multiples-based valuation. We set end-2023E as the reference period, although we see ErreDue's growth potential accelerating beyond this year thanks to the capacity increase and consequent electrolysers' orders' ramp-up.

Adopting 2023E EV/sales (7.0x) and 2023E EV/EBITDA (8.7x) multiples in our valuation, which we think better reflect the value of both the hydrogen-related prospects and the current footprint, we derived an equity value per share of EUR 22.0/share and EUR 12.7/share for ErreDue, respectively.

ErreDue – EV/sales valuation

(x)	EV/Sales 2023E	EUR M	FY23E	FY24E	FY25E
ErreDue EV	7.0	118.9	Implied EV/sales		
Peripherals		0.0	7.0	4.3	2.7
-Net debt/+Cash (FY22E)		19.3	Implied EV/EBITDA		
-Minorities/Funds (FY22E)		-0.7	17.0	10.2	6.4
Equity value		137.6	Implied P/E		
Eq. Value (EUR/sh.)		**22.0**	50.1	32.8	20.8

Source: Intesa Sanpaolo Research estimates

ErreDue – EV/EBITDA valuation

(x)	EV/EBITDA 2023E	EUR M	FY23E	FY24E	FY25E
ErreDue EV	8.7	61.0	Implied EV/sales		
Peripherals		0.0	3.6	2.2	1.4
-Net debt/+Cash (FY22E)		19.3	Implied EV/EBITDA		
-Minorities/Funds (FY22E)		-0.7	8.7	5.2	3.3
Equity value		79.6	Implied P/E		
Eq. Value (EUR/sh.)		**12.7**	29.0	19.0	12.0

Source: Intesa Sanpaolo Research estimates

Peers' multiples comparison – 2023-25 EV/sales, EV/EBITDA and P/E (x)

(x)	Mkt price	Currency	Mkt Cap.	EV/Sales			EV/EBITDA			P/E		
Electrolysers' Manufacturers			(EUR M)	2023	2024	2025	2023	2024	2025	2023	2024	2025
ErreDue S.p.A.	11.26	EUR	70	NA	NA	NA	NA	NA	NA	NA	NA	NA
ITM Power PLC	0.98	GBP	688	11.4	6.2	3.0	NM	NM	NM	NM	NM	NM
McPhy Energy SA	13.46	EUR	380	9.6	5.3	NA	NM	NM	NM	NM	NM	NM
NEL ASA	16.29	NOK	2,344	16.0	10.1	6.2	NM	NM	258.8	NM	NM	NM
Average (ex ErreDue)				12.3	7.2	NA	NM	NM	NM	NM	NM	NM
Other Hydrogen players												
Ceres Power Holdings plc	3.56	GBP	820	11.9	13.0	NA	NM	NM	NM	NM	NM	NM
Plug Power Inc.	13.41	USD	7,717	5.2	3.6	2.4	NM	30.5	12.1	NM	NM	41.3
FuelCell Energy, Inc.	2.83	USD	1,114	6.7	5.1	3.9	NM	NM	NM	NM	NM	NM
Doosan Fuel Cell Co., Ltd.	30,100	KRW	1,664	3.2	2.2	1.4	33.8	20.8	11.6	67.9	37.8	18.2
Average (ex ErreDue)				6.7	5.9	2.6	NM	NM	NM	NM	NM	NM
Gas Systems' suppliers												
Air Liquide SA	141.28	EUR	74,613	2.8	2.6	2.4	11.2	10.3	9.5	22.4	20.4	18.6
Linde plc	316.16	EUR	148,164	4.8	4.6	4.4	14.6	13.7	13.1	24.5	22.2	20.2
Air Products and Chemicals, Inc.	310.18	USD	64,376	5.6	5.4	5.0	15.9	14.9	13.4	27.2	24.8	21.9
Nippon Sanso Holdings Corporation	1,958	JPY	6,042	1.3	1.2	1.1	7.0	6.5	5.6	11.5	10.8	9.9
Sol S.p.A.	18.18	EUR	1,714	1.3	1.2	NA	5.7	5.1	NA	12.4	11.4	NA
Average (ex ErreDue)				3.1	3.0	3.2	10.9	10.1	10.4	19.6	17.9	17.6

Priced at market close on 06/01/2023 in EUR; NM: not meaningful; NA: not available; Source: FactSet

Group Profile at a Glance

ErreDue was established in 2000, leveraging on the previous experience of Enrico D'Angelo (Executive Chairman) and his partners, who are clean hydrogen pioneers involved in the business since 1986. Traditionally, ErreDue covers R&D, production and commercialisation of onsite generation/treatment solutions for technical gases (clean hydrogen, nitrogen and oxygen) used in numerous industrial and laboratory applications, advocating the numerous benefits of onsite generation when compared to acquiring gas cylinders. Thanks to its expertise in electrolytic hydrogen generation, the company is now set to contribute to the energy transition process with new larger size generators (from 1MW up to 5MW) optimised for green mobility (small hydrogen refuelling stations), power-to-gas and synthetic methane systems.

R&D, production and commercialisation of onsite generation/treatment solutions for technical gases used in numerous industrial and laboratory applications

Its multi-decade in-depth knowledge in the field of hydrogen electrolysis has led in the past years to more than 2,000 generators and other equipment installed in over 50 different countries for more than 1,600 clients served since its foundation. As proof of its experience in the sector, in 2014, ErreDue was one of the first companies to achieve cells capable of producing hydrogen with alkaline technology at pressures up to 30bar, enabling significant energy savings during the compression phase, whereas in 2016 it developed its proprietary PEM technology for electrolysis, an alternative method to the classical alkaline one.

Multi-decade in-depth knowledge in the field of hydrogen electrolysis

ErreDue – Nitrogen, Oxygen & Hydrogen main end-markets

Source: Company data

The company traditionally operates in the market as a developer and manufacturer of alkaline electrolysers plants, and since 2016 it expanded its technology know-how also into PEM cells, first targeting laboratory applications thanks to the possibility to miniaturise the PEM generator, and after expanding the PEM offering also to small industrial generators. Currently, ErreDue has a highly-diversified product portfolio encompassing 33 product models, addressing hydrogen, but also ultra-pure nitrogen and oxygen generation plants for both industrial and laboratory applications. The fully internalised know-how and production footprint (every key component is designed and produced in-house) enables ErreDue to offer customised solutions according to the specifics required by clients, allowing for competitive differentiation.

Operating in the market as a developer and manufacturer of alkaline electrolysers plants, and since 2016 it expanded its technology know-how also into PEM cells

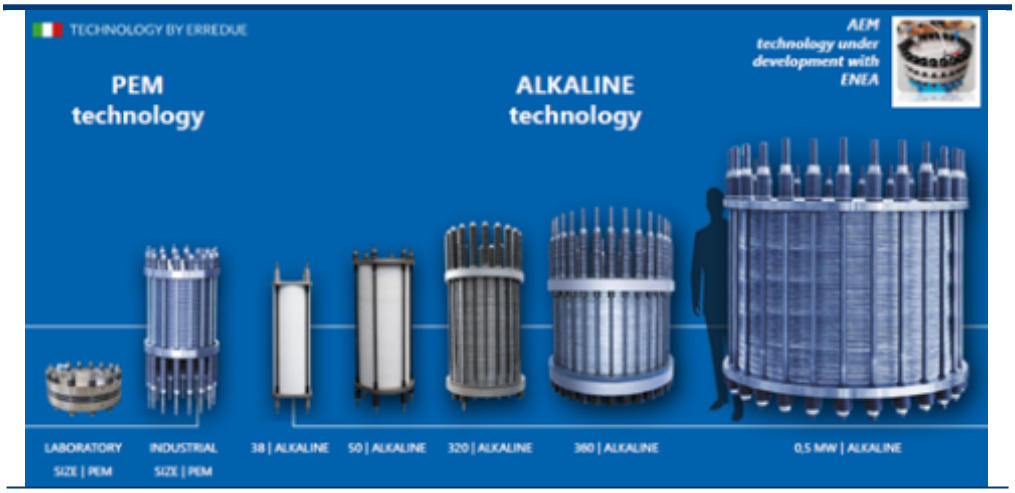
ErreDue – Generation and treatment system

Source: Company data

Starting from 2023, Erredue is ready to scale-up its unique technological platform to capture the expected growth of specific market segments linked to the energy transition. To address these new market applications, as of today, ErreDue is at an advanced stage of development of the first large-size electrolytic cell model with 0.5MW power and 105m3/h production capacity at 30bar pressure, particularly suitable for modular solutions in the 1MW-5MW range. The company should have completed testing by the end-2022 and deliver the first unit in March 2023. With respect to this new business segment, ErreDue also has a capex plan to roll out in 2023, which will increase the production capacity of MW-size plants from the current 8MW per annum to at least 60MW per annum. Management expects the new factory operations to start in 4Q23.

Plans to scale-up its technological platform to capture the expected growth of specific market segments linked to the energy transition

ErreDue – Cell models offering

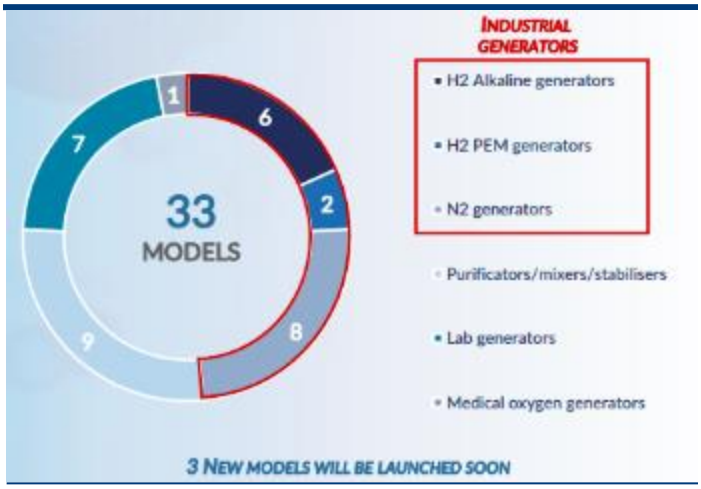


Source: Company data

From a financial standpoint, in 2021 ErreDue posted core revenues at EUR 11.1M, doubling vs. 2016 figures, growing at a 14.1% 2019-21 CAGR, and more than recovering from the 2020 slowdown attributable to the pandemic, which forced the company to halt operations for around two months. On a yoy basis, 2021 core sales growth (56%) was mainly driven by the sale of generators, with hydrogen ones contributing for EUR 2.9M in 2021 (approximately 50% of the revenues from generators), with the rest coming from the generators' rental and after-sales activities. The company's EBITDA and EBIT in 2021 were respectively equal to EUR 4.4M and EUR 3.1M, increasing at a CAGR over 2019-2021 period of 31% and 35%, respectively. The EBITDA margin showed an upwards trend, reaching around 40% by 2021, reflecting the higher volumes and positive operating leverage effect. Net income in the year stood at EUR 2.3M, benefitting from the solid operating performance, tax incentives and grants for R&D investments. Lastly, at end-2021, ErreDue had a net cash position of EUR 4M, improving from EUR 0.7M reported at YE20, after a EUR 0.4M dividend distribution.

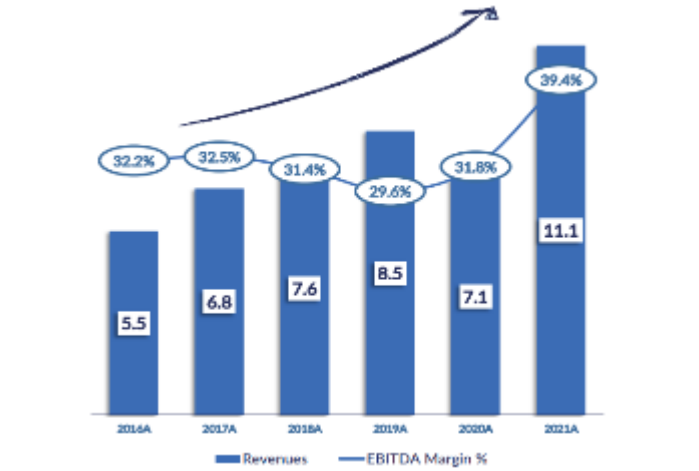
Core revenues at EUR 11.1M, twice as much as 2016 figures, growing at a 14.1% 2019-21 CAGR

ErreDue – Product models: breakdown by typology



Source: Company data

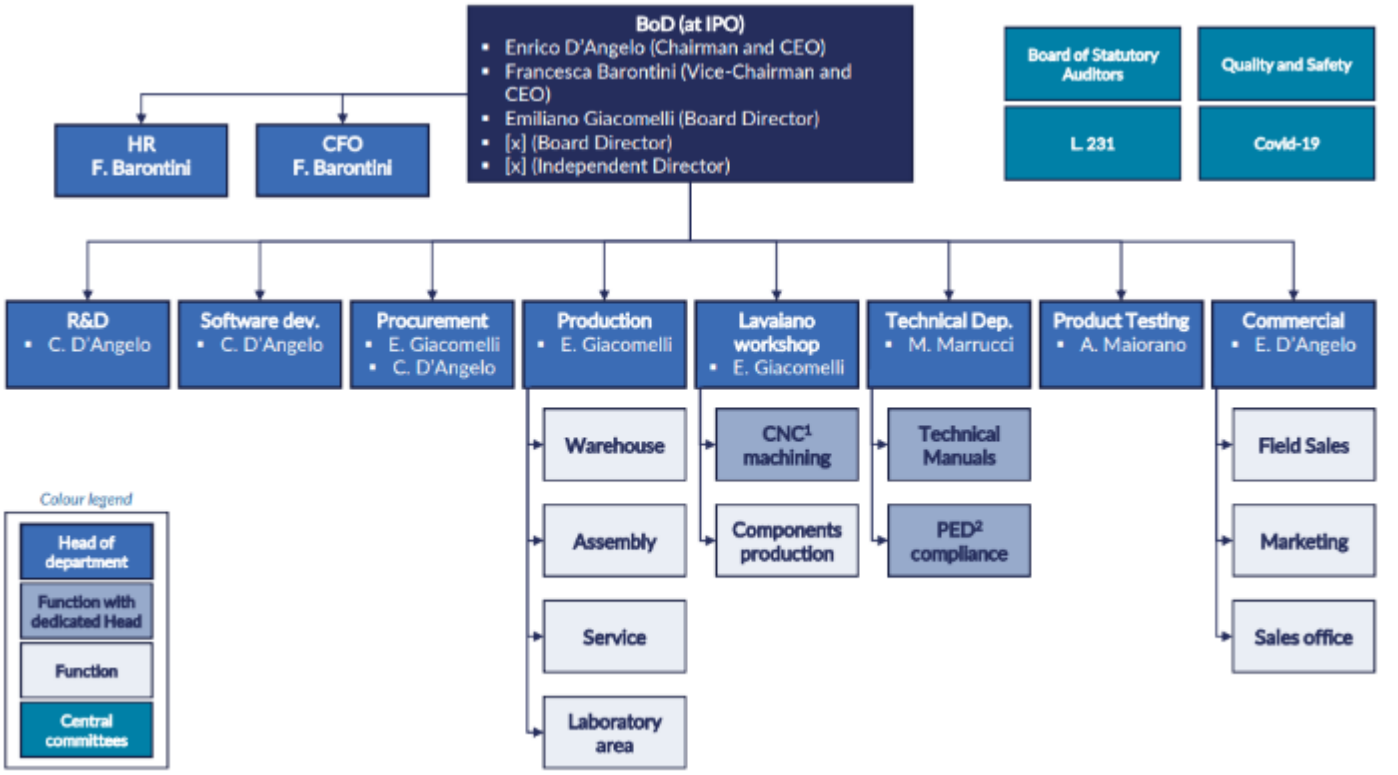
ErreDue – Revenues and EBITDA margin evolution 2016-21 (EUR M)



Source: Company data

Group Structure

ErreDue – Organisational structure



1) Computer Numerical Control machines, customised and programmed by ErreDue for its own internal production needs; 2) Pressure Equipment Directive General note: some Directors are responsible for some adjacent «micro-departments» additional to the ones represented; such departments have been merged for sake of higher clarity, but are technically separate even if managed by the same Director; Source: Company data

Strategy

For the coming years, the growth of ErreDue will be underpinned by the following strategic guidelines:

- **International expansion by opening commercial branches abroad**. Many markets are still under-penetrated with respect to onsite generators. Management plans to open commercial branches outside Italy in order to extend its presence in key foreign markets and consequently guarantee a sufficiently high service level with respect to after sales activities abroad (local maintenance staff and immediate availability of spare parts). In addition, local staff with knowledge of specific country regulations, would enable it to start offering the rental formula also abroad, thus encouraging further onsite adoption, while at the moment rentals are mainly confined to Italy. The first target countries for the opening of commercial subsidiaries would be in Europe, as current product certifications are valid. To support the above-mentioned goals, ErreDue has launched a talent programme to train selected young personnel in all the main areas (production, maintenance and sales and marketing) who will cover the future country manager roles;
- **1-5MW H_2 plants for energy transition**. On the back of growing investments in new green hydrogen applications, ErreDue intends to become a recognised reliable partner for the supply of generators from 1 to 5MW capacity, leveraging in the short-medium term its newly-developed 0.5MW alkaline cell model. These new MW-sized plants should address, in particular, power-to-gas, industrial decarbonisation and refuelling station projects for automotive and railway, for which ErreDue has already matured extensive experience, though with smaller kW-sized plants, and is now talking with players interested in the new MW-sized version. Anticipating substantial demand for these types of application, ErreDue is already expanding production capacity to at least 60MW annual production of large alkaline electrolysers for green hydrogen (from 8MW/year currently), in order to capture a portion of demand for this type of solution in the medium term;
- **Boosting onsite industrial generators' market awareness**. ErreDue should invest in marketing efforts to educate industrial clients by explaining the advantages of the company's solutions vs. traditional purchases of gas cylinders. Indeed, many clients lack the knowledge of onsite generators' capabilities. Historically, an effective marketing spearhead used by ErreDue has been the rental commercial proposition, offering clients the possibility to experience the benefits from onsite generation, not only avoiding significant investments, but also enjoying immediate operational cost savings with performances guaranteed by ErreDue, and higher safety in the premises. Combined with the participation at sector fairs, increased marketing efforts and more widespread word of mouth as a consequence of increasing onsite penetration, management believes onsite generators' volumes will keep growing solidly in the next decade;

- **Onsite medical oxygen.** In 2H22, ErreDue hired an experienced sales manager that should start the commercialisation of on-site oxygen generators for the Italian medical oxygen market, which opened up just recently as a consequence of a regulatory change, allowing medical oxygen purity to start from 93%, while before the Covid-related emergency it was set at a minimum of 98% (while ErreDue's generators can reach a maximum of 95% oxygen purity), forcing healthcare facilities to mainly use gas cylinders. The company already obtained the CE medical device certification for the generators customised for the medical end-market and it is expected to get the medical certification for the necessary building system to be linked to generators. Revenues of this business line should start materialising in 2023 with commercialisation starting from private clinics (around 590 in Italy, according to management), which traditionally are more cost-sensitive and show higher flexibility/rapidity in decision-making;
- **PEM MW-sized hydrogen generators**. In the medium-long term, ErreDue plans to replicate a large plant for PEM-based MW-sized generators, to be offered alongside alkaline. Management's view is that in the short-medium term alkaline will be more suitable to address demand for 1-5MW plants: alkaline production costs and selling prices are currently significantly lower than PEM, being a mature technology with performance levels widely backed by data (e.g. electrolytic cell lifetime, maintenance frequency) providing a greater visibility on project economics. For the medium-long term, management believes PEM will have a much more central role given its promising operating performance levels in terms of energy consumption and there is room for cost reductions linked to lower use of rare earth metals. ErreDue already possesses all the technology to build PEM MW cells, but management believes that further performance testing and advancements will be necessary to justify the significantly higher selling price. Meanwhile, the R&D department is working on high power converters to raise performance further and is rapidly developing ever larger PEM cells for industrial applications, which constantly provide data on performances. Given all this, within a few years, the strategy encompasses also the scale-up of MW PEM production with a dedicated large factory, while a plant for PEM generators addressing the onsite laboratory and small industrial end-markets will be dedicated after the 2023 transformational capex plan.

Business Model

ErreDue is an Italian fully vertically-integrated company that offers tailor-made solutions for the on-site generation of technical gases used in various applications (i.e. industrial, laboratory, medical). Leveraging on +35 years' experience in clean hydrogen generation and metal-working machinery, the company has been able to innovate, design, produce and assemble - all in-house - plug&play electrolysers (clean hydrogen generators) and other ancillary machines for gas treatment (e.g. purifiers, mixers, dryers). The deep-rooted know-how of every single process and component (manufactured internally) enables the company to efficiently control costs and at the same time offer innovative solutions tailored to customer specific needs, with a fast time-to-market. ErreDue can be considered a full electrolyser supply-chain in one company and this is a key competitive advantage in terms of: 1) possibility of customisation; 2) faster time-to-market (4 months on average from order specifications to installation) of new solutions tailored to specific end-application requirements; 3) more effective R&D thanks to an all-round knowledge of the final product; and 4) more reliable after-sales services, as every component and related underlying technology is under control.

Fully vertically-integrated company that offers tailor-made solutions for onsite generation of technical gases used in various applications

ErreDue – The business model

Source: Company data

Research & Development

R&D is the beating heart of ErreDue. Indeed, management is strongly committed to the continuous research and testing of different materials (including catalysts for PEM cells), avant-garde technologies and product applications, in order to improve machinery efficiency (in particular, lower energy consumption at a given performance, as well as a higher performance in terms of gas generation productivity per machinery unit) and useful life, which in turn should release value-added in the production process for clients by reducing LCOH (levelized cost of hydrogen) and by improving operations. A tangible example is the launch in 2014 of the 30-bar pressure electrolyser that permits energy savings of up to two-thirds for subsequent gas compression. Currently, the company is testing a large alkaline electrolytic cell that, when combined with another cell (usually a generator module has two cells on-board) generates up to 210 cubic meters per hour of clean hydrogen at 30bar pressure with 1MW power. In turn, these 1MW electrolyser units can be combined with a modular scheme, and with this new cell model the company is targeting the market segment of 1-5MW capacity electrolysis plants addressing numerous, relatively small scale: 1) power-to-gas plants linked to renewable energy farms; 2) biomethane facilities in small/mid-sized municipalities from which the combination with hydrogen allows it to produce synthetic methane from by-products; 3) hydrogen refuelling stations for mobility (first of all, trucks, buses, trains and ships); and 4) decarbonisation solutions for industrial plants.

Management is strongly committed to research and testing in order to improve machinery efficiency

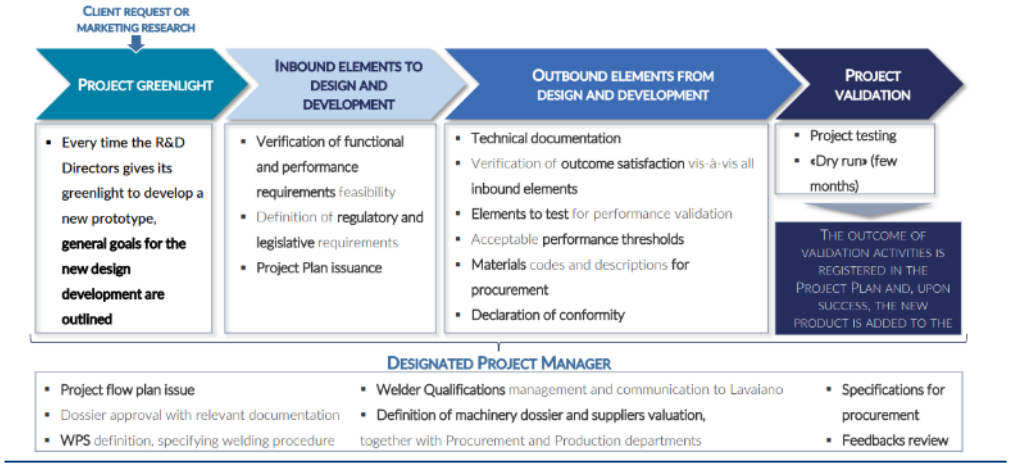
Multi-decade collaboration with ENEA and with other partners

The R&D laboratory conducts both fundamental research on new technologies and applied research for performance improvement, thanks to a pull marketing strategy, which consists of a continuous interaction with clients to improve the delivered solutions. The company boasts a multi-decade collaboration with ENEA, namely the Italian National Agency for New Technologies, Energy and Sustainable Economic Development, being its privileged partner for research on hydrogen since 2006. ENEA is considered at the forefront of innovation in hydrogen technology, and ErreDue has benefited from this collaboration in developing several technologies among which PEM (already commercialised) and AEM (under further development) electrolytic cells, as well as a state-of-the-art system for synthetic methane production. We flag that in 2022 ENEA was granted EUR 52M within the first tranche of the Italian IPCEI funds (source: https://www.enea.it/en/news-enea/news/energy-euro52m-to-support-industrial-hydrogen-supply-chain).

Furthermore, ErreDue collaborates with several other research partners, both public (universities, and Italy's CNR, among others) and private (engineering companies predominantly). All the described R&D activities allow the company to enter and penetrate new markets with innovative solutions optimised for each specific application, while diversifying revenue sources in terms of end-market.

Below we show a representation of the typical product development process, which has been structured in a well-defined sequence of checks and balances in order to maximise R&D effectiveness.

ErreDue - R&D steps towards a new prototype development



Source: Company data

As of today, ErreDue has a 500sqm building fully dedicated to R&D activities, adjacent to its main production site. The building is organised into two sub-areas: 1) an area dedicated to the testing of new technologies, products and design ideas; and 2) an area where it researches and develops new innovative catalysers and performs chemical analyses and experiments to test technical gas applications.

As of November 2022, the laboratory is composed of 7 resources fully dedicated to the activity: the Head of department, 3 PhDs in chemistry, 1 electronics and robotics professional, 1 mechanics and mechatronics professional and 1 bio-chemistry professional. We note that also the technical department (12 pax) is highly involved in new product development. The combination of the in-depth knowledge of the two teams of every component and process in the gas production chain allows for a better flexibility and effectiveness in R&D and testing, accelerating considerably the innovation process. We highlight that all R&D costs are expensed on the P&L during the year. In order to anticipate market trends/requests, ErreDue plans to increase its R&D spending over time, as well as to dedicate a much larger area (2,000 sqm, compared to 500sqm as of today) to R&D activities as a result of the 2023 transformational capex plan.

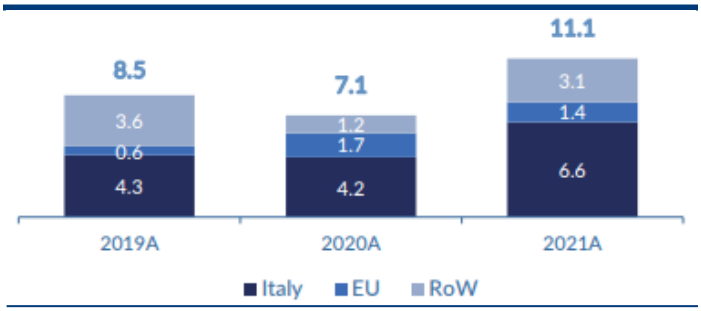
No patenting of proprietary technologies

We flag that the company has decided not to patent any of its proprietary technologies; according to management, this choice boils down essentially to the following reasons: (i) being a producer of full generators and not just of a specific component, all the proprietary hardware and software in the generator are strictly interconnected and hard to reverse engineer effectively; (ii) as the underlying technologies are quite complex and testing times to guarantee product safety are very time consuming, product imitation has been slower than the company's product innovation pace; (iii) patenting exposes publicly the proprietary designs, without being able to enforce properly legal IP protection at the worldwide level. Therefore, ErreDue strategically prefers, at the moment, to protect know-how with non-competition agreements on key personnel, who also own company shares, and by avoiding the outsourcing of all components with a relevant embedded technology.

Sales & Marketing

Since its inception, ErreDue has installed more than 2,000 generators and other machines and served more than 1,600 clients in more than 50 countries. Foreign markets accounted for 40% of FY21 revenues (49% of FY21 revenues excluding the rental business that is currently carried out only in Italy).

ErreDue – Core revenues breakdown by geography in EUR M (2019-21)



Source: Company data

ErreDue – Revenues trend and breakdown by source (EUR M)

Source: Company data

The sales team, as of 30 June 2022, was made up of 7 professionals. 5 people are specialised in industrial alkaline generators, mixers and purifiers; 2 sellers are dedicated to Northern Italy, 1 covers Central and Southern Italy, while 2 sellers are fully dedicated to exports. Traditional on-site industrial generators are in turn mainly sold directly (especially in Italy, even through word of mouth from historical clients) or through agents without area exclusivity, with agency fees linked to the final price applied.

1 seller is fully dedicated to the Laboratory business line and small PEM industrial generators, for which sales are mainly direct in Italy, while mainly through dealers/resellers abroad. We note that in 2H22 ErreDue hired an experienced Sales professional from a multinational company to oversee the commercialisation of the new medical oxygen on-site generators business in Italy.

Even if ErreDue has a significant amount of exports, which increases to 82% of revenues (as of 2021) when considering only the hydrogen business, we note that as of today the company has no sales offices outside of Italy. Opening new commercial branches abroad is therefore a central part of the future strategy to guarantee client proximity and smooth after-sales activity, providing additional tailwinds to exports.

As mentioned in the R&D paragraph, ErreDue is often contacted by clients who need tailor-made solutions or seek to upgrade already-installed plants. The production model is exclusively make-to-order, thus no finished product inventory risk is born; the inventory includes those spare parts, which must always be available in order to guarantee a smooth after-sales service level. Regarding the average lead time between orders and installation, ErreDue is able to deliver in four months on average, including shipping times, with a quite rapid time-to-market considering that the plants are tailor-made to customer requests. Customers can choose among a wide variety of specifications for the machinery (e.g. inclusion or not of ancillary components, such as purifiers, mixers, driers; generation at different pressures, and so on).

Revenues model: Sales and rental

In terms of commercial proposition, which in turn impacts the revenues model, ErreDue proposes both the sale of the machinery and the rental option (the latter being currently available substantially only in Italy). In more detail:

- **Sale**: A transaction where ErreDue asks for an advanced payment when the order is formalised, usually at 30% of the contract value for relatively standard products, and up to 50% if customised to specific client needs (in rare cases, also 100% down payment from clients abroad);
- **Rental:** Generators are internally built and kept on the balance sheet by ErreDue which retains the property of the asset, and rented out to the client who pays regular instalments. Rental contracts are 100% inflation-indexed and they have an average maturity of 65 months, and they are silently renewed at expiry unless explicitly notified of termination. According to management, there are cases in which machines are rented by the same client for more than 15 years (with terms renewed already twice), while in some other cases after a few years of rental clients ask to buy the machine deeming the investment more convenient than the rental. From an accounting standpoint, the asset for rental is depreciated by ErreDue over 7 years, but its useful life can reach up to 20 years.

  Thus, after full amortisation of the asset, the generated income is all Earnings Before Taxes or, if sold instead of rented out again, it will lead to capital gains. Management estimates that on average, at the end of the 6 years of rental contract, the value of the machine is still around 60% of the initial value of construction. In terms of cash-flow, the average payback time on the investment on internal construction costs is 2.6 years. The rental option is chosen mainly by new customers who want to try for the first time the onsite gas generation (that is still relatively unknown) without incurring an initial significant capex and without bearing ownership risk for an asset that they are not familiar with. The rental business revenues were approx. EUR 2M in FY21. The model should allow the company to generate increasing recurring revenues overtime.

Pricing

The pricing of on-site generators is defined by ErreDue so that it is always a win-win with the customer, who is going to experience economic savings while also benefiting from the numerous advantages of on-site, higher safety and independence above all, when compared to the purchase of gas cylinders. In the case of a generators' sale, the pricing is set so that the sum of the asset amortisation and of the electricity cost to operate the generator is lower than the cost of purchase of the gas cylinders. In the case of generators' rental, the pricing is set so that the sum of the rental instalment and of electricity costs is lower than the cost of the purchase of the gas cylinders. The order is taken by ErreDue if such a level of pricing guarantees a sufficiently high marginality to justify the filling of the production slot.

Participation in several B2B exhibitions

To increase its visibility, ErreDue participates in several B2B exhibitions as shown below. The goal is to present its unique offering not only to potential customers of specific industries, but also to agents and dealers working within the same industries.

ErreDue – Exhibitions' participations

Source: Company data

Limited client concentration

Regarding client concentration, the first client in 2021 made an order of EUR 533,339, which represented around 4.8% of total revenues, while the top 20 customers accounted for 39% (EUR 4.3M). Again in 2021, 53% of revenues were sales to historical customers, while the remaining 47% were generated from new customers. Please note that the customer ranking by size varies from year to year, thus there is no significant amount of revenues linked to one specific customer.

ErreDue – Revenues breakdown by top 20 customers (2021)

Customers	2021 Sales (EUR)	Incidence on revenues	Country	End-market	Gas type
Customer 1	533,339	4.8%	Rep. of Uzbekistan	Steel	H2
Customer 2	423,303	3.8%	Italy	Oil & gas	N2
Customer 3	317,959	2.9%	Netherlands	Automotive	H2
TOP 3	*1,274,601*	*11.5%*			
Customer 4	279,000	2.5%	Italy	Copper working	H2
Customer 5	261,883	2.4%	United States	Steel	H2
Customer 6	242,910	2.2%	Russia	Steel	H2
Customer 7	231,280	2.1%	Costa Rica	Steel	H2
Customer 8	190,548	1.7%	Italy	Steel	H2
Customer 9	182,835	1.7%	Italy	University	H2
Customer 10	158,906	1.4%	Ukraine	Steel	H2
TOP 10	*2,821,963*	*25.5%*			
Customer 11	156,066	1.4%	Italy	Laser cutting	N2
Customer 12	154,265	1.4%	Italy	Laser cutting	N2
Customer 13	151,890	1.4%	Italy	Chemicals	N2
Customer 14	151,610	1.4%	Italy	Laser cutting	N2
Customer 15	151,500	1.4%	Bosnia - Herzegovina	Laser cutting	N2
Customer 16	149,105	1.3%	Belgium	Research centre	H2
Customer 17	148,828	1.3%	Italy	Utilities / Power	H2
Customer 18	145,000	1.3%	Portugal	Automotive components	N2
Customer 19	140,660	1.3%	Switzerland	Laser cutting	N2
Customer 20	140,000	1.3%	Italy	Oil & gas	N2
TOP 20	*4,310,887*	*39.0%*			

Source: Company data

Procurement and Production

Procurement

Considering that ErreDue does not produce to feed finished products inventory (only components for the after-market are made-to-stock for a better service level), the procurement activity mainly involves the purchase of raw materials and a few other components. Around 94% of purchases are from domestic suppliers, while only 6% are coming from abroad, thus translating into a short and resilient supply chain, which is very fragmented (no critical supplier), according to management.

Despite the presence of a head of procurement to whom all buyers must refer for negotiations, the purchasing strategy combines specific purchases made by each department manager who knows exactly what is needed (models and quality) with bulk purchases related to assembly and process components. In order to fix raw material prices, some purchase contracts are signed at the beginning of the year, covering necessities up to 1 year. Furthermore, when there is an opportunity to obtain discounts, the company can buy significant volumes paying spot, given that there is no issue of materials' obsolescence.

Production

Regarding the production processes, we note that all design and production know-how is internal. Indeed, the company is able to produce customised projects, with electrolysers and other generators coming in different sizes, productivity level in terms of m3/h of gas production, level of gas pressure at generation (up to 30 bar), and level of gas purity, as well as the possibility to add specific accessories and features for plant optimisation, in a relatively short time, while maintaining high quality and safety standards. The production headcount is equal to 41 (as of 30 June 2022 – representing 50% of the total workforce).

Electrolysers generators are mainly made of five key parts:

- **Electrolytic cell**: the heart of the machine, ErreDue developed 7 cell models (5 alkaline and 2 PEM) for different equipment models optimised for various end-applications. The alkaline cells feature polymeric components then stacked together, produced with proprietary moulds, designed in-house. PEM cells feature membranes that are catalysed with internally researched and produced catalysers;
- **Electric system**: Internally designed and assembled;
- **Software**: Fully internally developed, both for process control, and remote control once installed allowing for constant performance monitoring and predictive maintenance;
- **Process components**: Tanks, tubes, manifolds, generator sealing plates (both for H2 cells and N2 generators); produced internally in the Lavaiano "workshop" plant;
- **Metal shell**: Component without any specific know-how, whose production is generally outsourced to clients in the metal cutting and treatment business renting ErreDue generators.

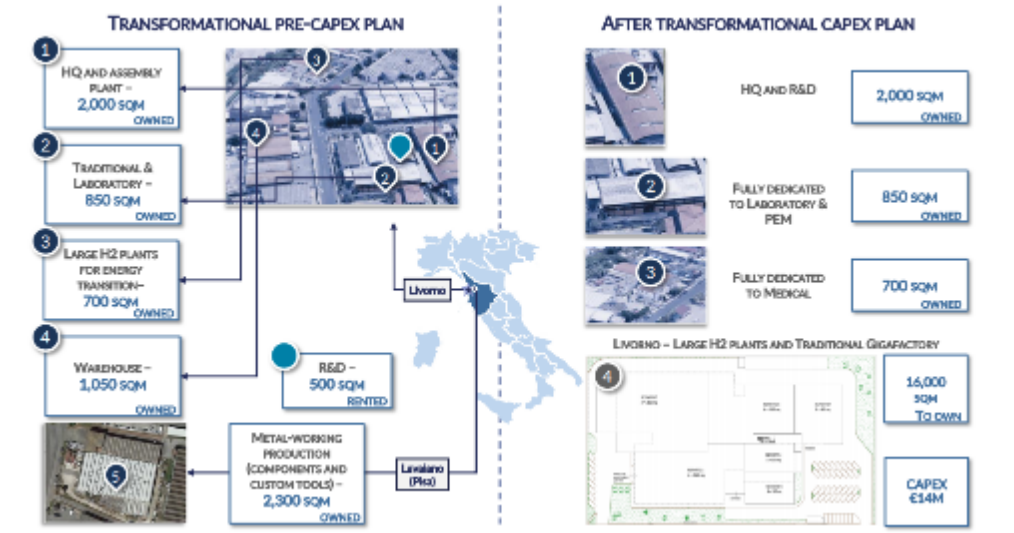
Production footprint

ErreDue currently operates five production sites, all located nearby the Livorno area: 1) HQ and assembly plant of 2,000 sqm; 2) a plant dedicated to traditional & laboratory generators; 3) a 700 sqm plant dedicated to MW-sized H2 electrolysers, with a capacity of 8MW/year worth of machineries; 4) a 1,050 sqm warehouse; and 5) a metal-working production plant in Lavaiano, which supplies all the other assembly plants with internally-produced components.

ErreDue has already closed a binding offer for the purchase of a large plant on a 16,000 sqm area, and outlined a redevelopment project with a prime engineering company to build a state-of-the-art plant which: (i) unifies components production (currently made in the Lavaiano plant 25km away from the Livorno assembly plants) with alkaline electrolysers and ancillary gas treatment equipment for industrial applications, and with the central warehouse; (ii) dedicates 4,000 sqm to the new MW-sized alkaline electrolysers business line, increasing the related capacity from 8MW per annum to at least 60MW per annum. This expansionary capex plan should cost around EUR 14M, all to be borne in 2023, of which a EUR 2.8M purchase price for the property and the remainder for the plant redevelopment and production equipment. The new plant is expected to become operational in 4Q23.

As a result of this transformational capex, we highlight also that the Lavaiano plant is expected to be dismissed, and that the PEM-based machinery (currently addressing the laboratory and small industrial end-markets) and on-site medical oxygen generators (starting commercialisation in the Italian market in 2023) will each have their own dedicated facilities.

ErreDue – Production footprint



Source: Company data

Certifications

External product certifications are seen as a competitive advantage in this specific sector as they provide evidence of high quality and safety standards. ErreDue holds and maintains 23 key certifications, among which the Atex (given to equipment that has gone through rigorous testing outlined by European Union directives and proved safe to use in specific environments with explosive atmospheres). Here below we outline the most important ones:

ErreDue – Products' certifications

CE-PED CERTIFICATIONS (since 2002-2003)

- **PASCAL**
  - ALL SERIES AND STANDARD PRODUCTION MODELS - B+C (+D) modules
  - SYSTEMS - B + D module
  - SPECIAL TANKS – G module (e.g. SAPIO)
- **TUV RHEINLAND**
  - NITROGEN TANKS 3-5000LT4 / 46BAR G Module - B+F module
  - SYSTEMS – G module
- **ICIM (replacing PASCAL since 2018)**
  - ALL SERIES AND STANDARD PRODUCTION MODELS, B+D modules (process quality)
  - SYSTEMS - B+D module
  - NEW PRODUCT EXTENSIONS UPGRADES TO PS=30BAR PRESSURE –B module
  - SPECIAL DEVICES: e.g. DPH900 PS=37BAR – B module

GOST CERTIFICATION (since 2007)

- ALL MODELS: GN10-1.200; H01-H10; GNLAB T2-8; GO6-90; DPH/DPM12-300

NAVAL CERTIFICATION (since 2009)

- **BUREAU VERITAS**
  - N2 MODELS: IGS300-1200 ; IGS2500-3800

ATEX (since 2013-2014)

- MERCURY G13-G16 (TUV RHEINLAND)
- CELL Mod.160 (TUV RHEINLAND)
- ALL MERCURY MODELS (ERREDUE SELF-CERTIFICATION)
- ALL CELL MODELS (ERREDUE SELF-CERTIFICATION)

Not easy to find ATEX-certified electrolytic cells

MOCA – «Materiali Oggetti a Contatto Alimenti» (since 2020)

- N2/O2 GENERATORS FOR FOOD: REGISTRATION AT THE LOCAL SUAP

ICIM – MEDICAL 2021

- OXYGEN CONCENTRATORS 93: OXYLIFE SERIES CO3-6-9
- MEDICAL DEVICE CERTIFICATION OF COMFORMITY TO 93/42/CEE DIRECTIVE

TUV & BUREAU VERITAS - WELDING

- WPS and QUALIFICATION OF WELDERS, subject to periodic renewal and adjustments

Note: Modules G and F always require a review and verification from the notified body; Source: Company data

After-sale services

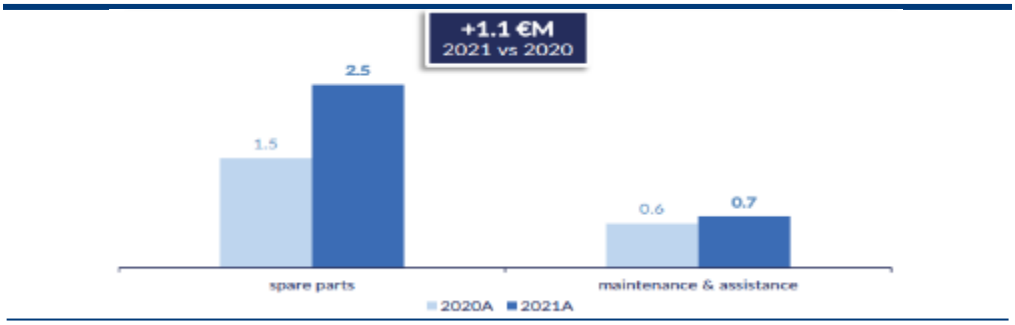
Maintenance and spare-parts replacement are a captive business for ErreDue, increasing with the installed base of ErreDue's plants around the world. More than 2/3 of the EUR 3.2M revenues generated in 2021 from maintenance and spare parts related to clean hydrogen generation equipment, as electrolytic cells are the most expensive spare-part to replace, and they last around 40,000 hours of use, vs. a useful life of the electrolyser estimated between 15 and 20 years, according to management.

Taking care of clients is a sine qua non for ErreDue, and after-sales services are a key ingredient for customer satisfaction. In fact, Erredue's gas generation and treatment solutions are a critical part of a wider production facility. Unexpected downtime or malfunctioning of the generator would cause interruptions/disruptions of the whole plant. This is why guaranteeing an ordinate and timely maintenance has always been a paramount priority for ErreDue, boosting its reputation as a highly reliable partner. The company ensures its high service level thanks to a remote monitoring software and a highly specialised technical department (10 maintenance technicians), which follows the customer along the journey from plant design to instalment:

- **At project completion,** ErreDue's staff instructs the customer about product functioning procedures, machinery maintenance and optimal generated gas management. Customers have the option to follow the Factory Acceptance Testing (FAT) phase directly at ErreDue's premises before instalment, to verify that newly manufactured equipment meets its intended purpose, making sure that all purchase order specifications and other requirements are met;
- **After instalment,** ErreDue's products feature a proprietary remote-control software, which allows the company to constantly monitor the performance and the state of installed generators and other machinery, allowing for timely predictive and extraordinary maintenance, avoiding unexpected production downtimes for the client. Furthermore, the company offers immediate availability of updated replacements, as software allows it to better plan for spare parts production, which is made-to-stock for a high service level. We highlight that many clients chose to sign yearly maintenance contracts, which provide further peace of mind in terms of smooth operations and cost control.

In FY21, after sales revenues generated EUR 3.2M (vs. EUR 2.1M in FY20), of which EUR 2.5M (vs. EUR 1.5M in FY20) from spare-parts and EUR 0.7M (vs. EUR 0.6M in FY20) for maintenance and assistance.

ErreDue – After-sales services revenues FY21A vs. FY20A

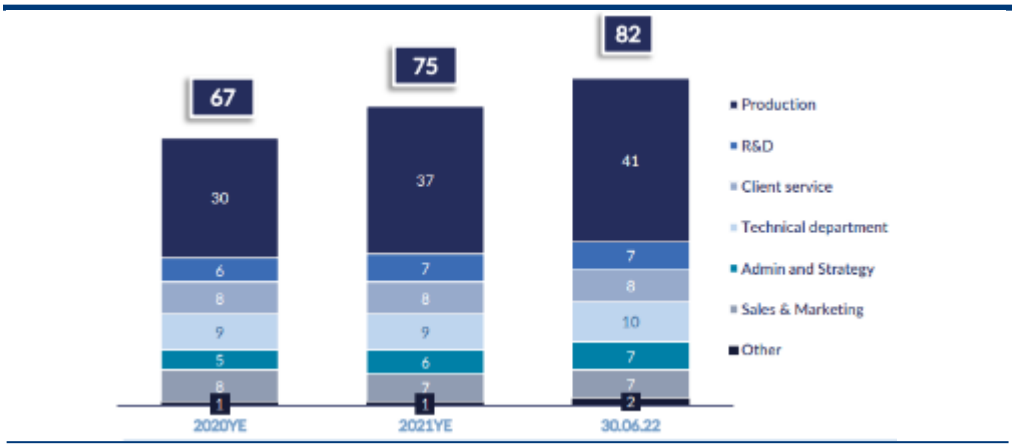


Source: Company data

Workforce structure

In terms of workforce, we highlight that ErreDue has been steadily hiring new personnel, both in direct production and in other strategic functions, anticipating volumes growth and new business lines which will start to deliver revenues in 2023 (MW-sized electrolysers and on-site medical oxygen generators). In the chart below, we outline the workforce breakdown as of 30 June 2022 compared to YE21 and YE20.

ErreDue – Workforce evolution with departments' breakdown



Source: Company data

Hiring trend continues in 2H22

The hiring trend has been continuing in 2H22, with some key additions to the R&D area (1 PhD in chemistry), in the Sales department (1 key manager who will oversee the medical oxygen generators business development) and 1 resource fully dedicated to marketing at the corporate level (new function, previously not existing).

Market Analysis

Energy transition calling

Energy transition calling

To comply with UN Sustainable Development Goals (SDGs) and a growing need to tackle climate change challenges, energy markets need to change their structure. Hydrogen and new green gases, together with renewables, are set to contribute sharply to this change in order to curb the environmental impact and empower the energy transition.

With hydrogen demand expected to expand over the next few years, with both traditional end-uses and new sectors of application driving the need for increased volumes, new/additional capacity is needed on the supply side. In a climate-friendly perspective, low-emitting and green hydrogen production needs to expand, with electrolysers and fuel-cell technologies that will prove critical in the evolution of the global energy mix.

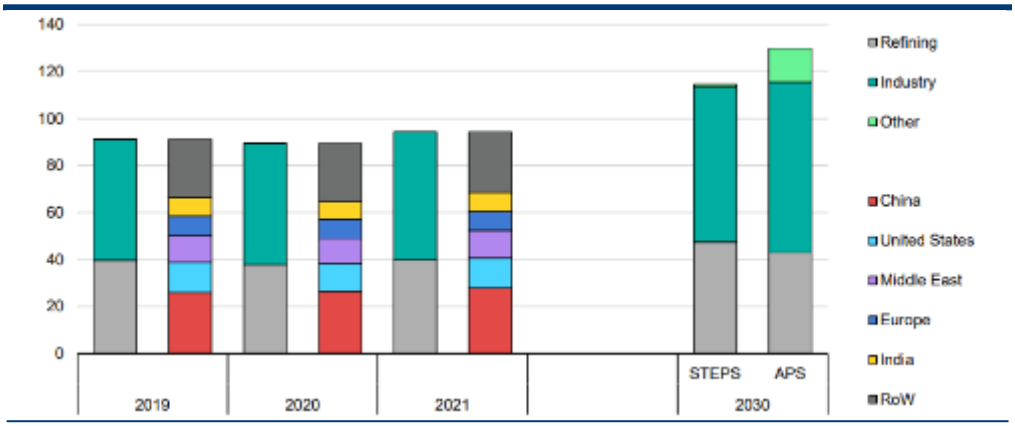
ErreDue fits well in this context, in our view, as a player covering technical gas generation for more than 35 years and as a pioneer in the development, manufacturing and commercialisation of state-of-the-art clean hydrogen solutions, the company can actively participate in the energy transition process and reap the benefits of the change. In our opinion, technology represents a competitive advantage and a barrier to enter the electrolysers' manufacturers arena, supported by the still immature state of the hydrogen market.

Hydrogen market: supply-demand balance

According to IEA, demand for hydrogen by 2030 could reach about 115M tonne, up by around 22% vs. 2021

According to International Energy Agency (IEA), "Global Hydrogen Review" 2022, global hydrogen demand was more than 94M tonnes in 2021A, up by 5% yoy, mainly driven by chemicals and refining sectors' bounce-back after the pandemic, whereas new applications, such as transportation or power generation industries accounted for less than 0.1% of total hydrogen demand in the year. Based on IEA States Policies Scenario (STEPS), which reflects sector-by-sector policies in place, demand for hydrogen by 2030 could reach about 115M tonne, up by around 22% vs. 2021 volumes, with traditional applications taking the lion's share and new uses marginally contributing to the growth. This target swiftly rises when considering the so-called APS (IEA Announced Pledges Scenario) and Net Zero scenarios: hydrogen demand in 2030 could respectively amount to 130M tonnes (+38%) and 180M tonnes (+91%), with both scenarios requiring that demand for new industries other than traditional (chemicals, refining, iron and steel) and low-CO2-emitting technologies applied in hydrogen-intensive sectors strongly kick in.

Global Hydrogen demand 2019A-21A data to 2030 estimates (Mton)



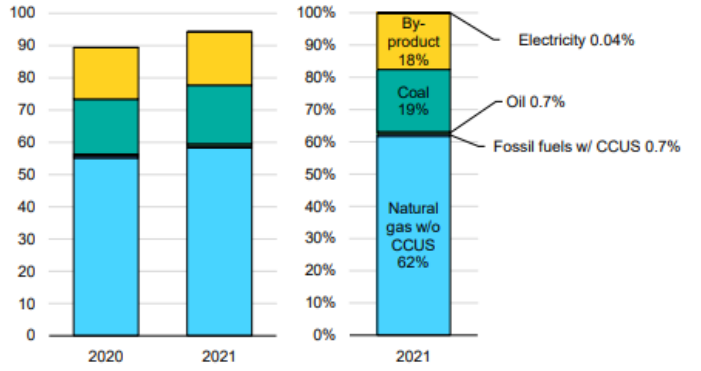
Source: IEA Global Hydrogen Review 2022

Looking at 2030, when focusing on the demand breakdown by application, refining sector hydrogen demand is expected to reach around 47M tonne under the STEPS scenario and about 43M tonne under the APS one, from 40M tonne recorded in 2021. At the same time, the industry's (mainly ammonia, methanol and iron/steel production) hydrogen demand is set to increase as well by 11M tonne by 2030 vs. 2021 volumes, reaching a total of roughly 55M tonne, according to the same source. Overall, under the APS scenario, the outlook for hydrogen demand for new technologies, namely transportation, electrification, hydrogen and hydrogen-derived/bio-fuels, and for low-emission solutions penetrating traditional sectors should amount to around 25% of total demand, or rather approximately 32-33M tonne by 2030.

Such an expected increase in demand for hydrogen is to be met by a ramp-up in production. As of 2021, out of the 94M tonne annual hydrogen production, almost the entire amount came from unabated fossil fuels with natural gas without CCUS (Carbon Capture, utilisation and storage), totalling 62% of total production, with coal amounting to 19% and hydrogen derived as a by-product at 18%. Blue hydrogen, or rather fossil fuel-based hydrogen with CCUS solutions amounted to 0.7%, whereas green hydrogen accounted for 0.04% of total hydrogen production mix in 2021.

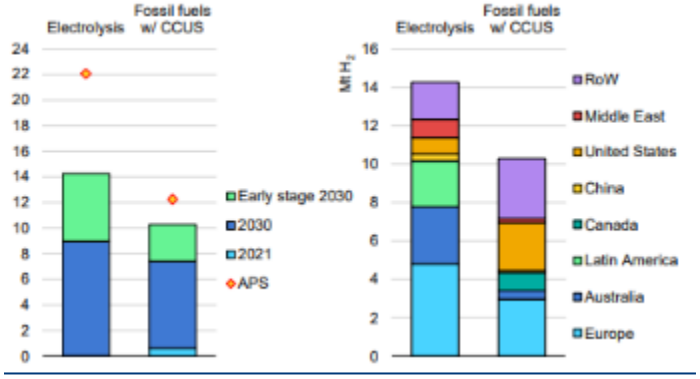
By 2030, hydrogen production from low-CO2-emitting facilities, or rather coming from water electrolysis and fossil fuels with CCUS, assuming all the projects under development would be commissioned, could reach 24M tonne, of which 14M tonne coming from the water electrolysis process and 10M tonne from Blue hydrogen. When assuming the APS as the reference scenario for hydrogen demand, the IEA estimates Green hydrogen production reaching 22M tonne by 2030, whereas Blue hydrogen could account for the remaining 12M tonne by the end of the decade.

Hydrogen production mix 2020A-21A (Mton)



Source: IEA Global Hydrogen Review 2022

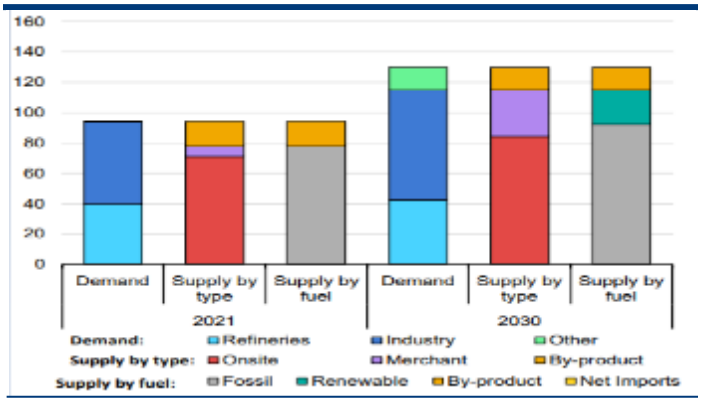
Low-emission hydrogen production (Mton) in 2020 and 2030



Notes: RoW = rest of world; APS = Announced Pledges Scenario. In the left figure, the blue columns for 2020 and 2030 refer to projects at advanced planning stages. The right figure includes both projects at advanced planning and early planning stages. Only projects with a disclosed start year for operation are included. Source: IEA Global Hydrogen Review 2022

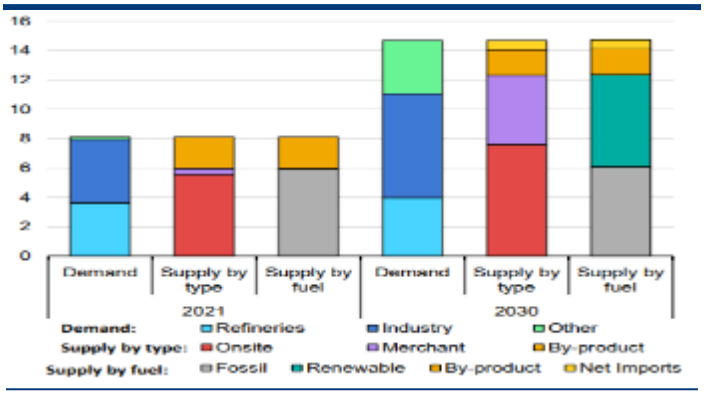
Taking the Announced Pledges Scenario as a reference, we show below the breakdown evolution of both hydrogen demand and supply (by type and feedstock) from 2021 to 2030 for the entire World and Europe. Both charts highlight how onsite production would still represent the bulk of the hydrogen supply in 2030 amid easier end-use off-take, despite the increasing share from the so-called merchant production, which would be underpinned by refineries' flexibility needs and especially ammonia, due to its pivotal role as a hydrogen carrier. When it comes to the feedstocks fuelling hydrogen production, according to IEA, Europe should see renewable-based hydrogen growing at a stronger rate than what is globally expected, this mainly supported in our view by European green policies in place fostering the energy transition much more than other macro regions. In this context, demand for new hydrogen applications, ranging from power generation to transportation, heating systems and derived fuels, consistently with EU's greenhouse gas emissions targets, should account for around 3M tonne in Europe, significantly growing vs. the 2021 recorded volumes.

Global hydrogen demand by sector & hydrogen supply by type and fuel in the Announced Pledges Scenario, 2021-30 (Mtonne)



Notes: Other includes the transport, power generation and buildings sectors, and synthetic fuels. Source: IEA Global Hydrogen Review 2022

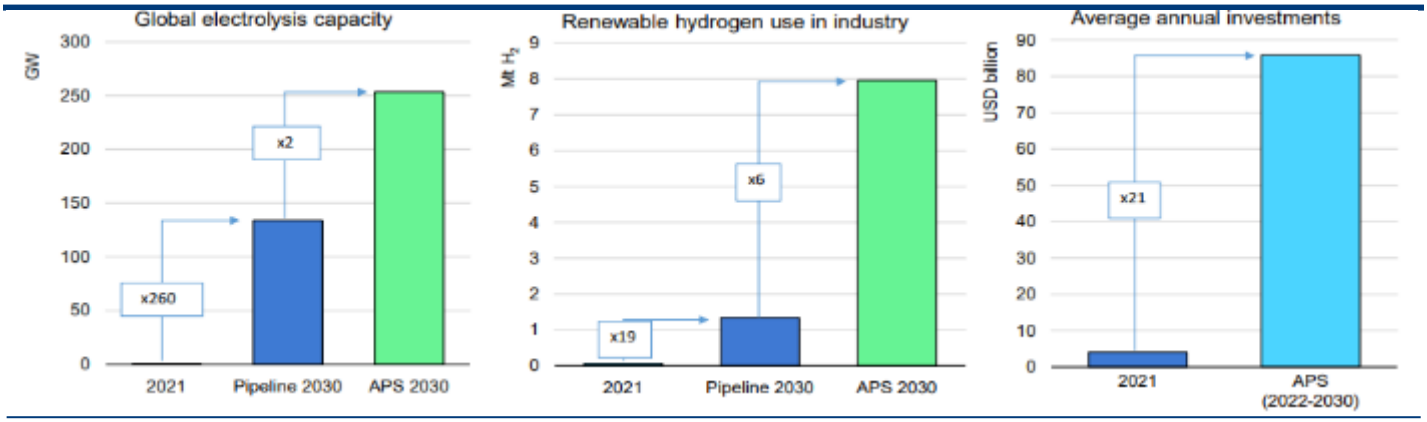
European hydrogen demand by sector & hydrogen supply by type and fuel in the Announced Pledges Scenario, 2021-30 (Mtonne)



Notes: Other includes the transport, power generation and buildings sectors, and synthetic fuels. Europe includes the EU, Albania, Belarus, Bosnia and Herzegovina, North Macedonia, Gibraltar, Iceland, Israel, Kosovo, Montenegro, Norway, Serbia, Switzerland, Republic of Moldova, Republic of Türkiye, Ukraine and UK; Source: IEA Global Hydrogen Review 2022

Globally, electrolysers' installed capacity was about 500MW in 2021, while annual investments amounted to around USD 4Bn in the year. According to the announced pipeline, global installed electrolysers' capacity should expand to around 130GW, of which only 7% are under construction or have achieved final investment decision, while meeting the APS capacity target would require an additional 120GW to be commissioned by the end of the decade. One of the limits that we detect relates to expected electrolysers' capacity under the APS needing about 400GW of additional of renewable power generation facilities, which would amount to about 7% of total photovoltaic and wind capacity globally installed by 2030, according to the same scenario, with power generation systems' needs potentially threatening those of green hydrogen. As a result, average annual investments in low-CO2-emitting hydrogen technologies should amount to more than USD 80Bn/year to comply with 2030 green-blue hydrogen demand.

Electrolysis capacity (GW), renewable hydrogen use in industry (Mtonne) and average annual investment (USD Bn) in low-emission hydrogen in the Announced Pledges Scenario, 2021 and 2030



Notes: Pipeline represents planned projects; only projects with a disclosed start year for operation are included; Projects at very early stages of development, such as those in which only a co-operation agreement among stakeholders has been announced, are not included; Source: IEA Global Hydrogen Review 2022

Europe: new green gases are the key for energy transition

REPowerEU

On 18 May 2022, in response to the Ukraine conflict the European Commission presented the REPowerEU Plan, a strategy to make Europe independent from Russian fossil fuels before 2030 as well as directed at improving the resilience of the EU-wide energy system and speeding up the energy transition. The plan, which is expected to mobilise investments for approximately EUR 300Bn between 2022 and 2030, foresees a target of hydrogen production and imports of 10Mtonne each by 2030, corresponding to around 50Bcm of natural gas. This initiative should be supported by the State's subsidies, as well as by EUR 9.3Bn coming from the Next Generation EU, for a total of approved projects for EUR 50Bn. Moreover, biomethane is set to play a key role as well in the strategy, with production targeted to ramp up to 35Bcm by 2030, almost double vs. Fit-for-55 ambitions of 18Bcm.

Although biomethane can count on an existing platform, as the technology has been already available for years, Europe aims at implementing further actions in order to support the production of biomethane from waste and residues, and to upgrade biogas to biomethane. This aspect is particularly relevant for ErreDue, as the company has already implemented hydrogen-oxygen generators allowing the production of high-quality biomethane from organic waste fermentation at high efficiency rates, with hydrogen being generated from the electricity surplus from renewables, according to a Power-to-Gas process (see the Power-to-Gas system installed in Turin for Acea).

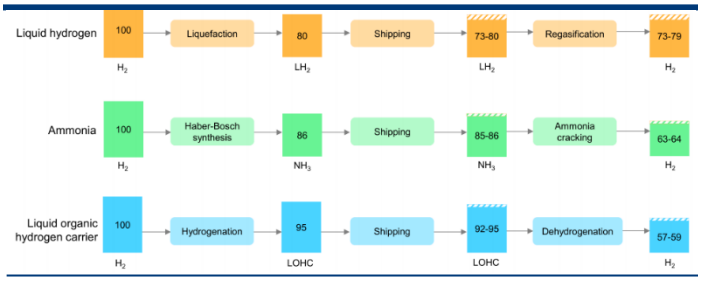
As far as hydrogen is concerned, in an effort to create a new platform fostering the creation of a new market design, the EC should establish a new "Hydrogen Accelerator", which should include: 1) a new EUR 200M financing under Horizon Europe and a swift approval of projects under the Important Projects of Common European Interest framework; 2) two new legal acts to complete the regulatory framework and speed-up the green/low-carbon hydrogen value chain's development; 3) an acceleration of work on technical hydrogen standards, from production to infrastructure and end-use appliances; and 4) the creation of Global European Hydrogen Facility and Green Hydrogen Partnerships to incentivise European and global renewable hydrogen production and trade.

In this context, electrolysers manufacturers, such as ErreDue, will be called to fulfil manufacturing capacity needs in Europe. The rationale resides in the EC ensuring a set of regulations, including faster renewables' permit procedures, making available EU programmes and funds, as well as granting affordable raw materials, so as to scale-up production capacity in Europe, being the European market in supply shortages at this time.

Use case: ammonia as preferred hydrogen carrier, driving nitrogen demand as well

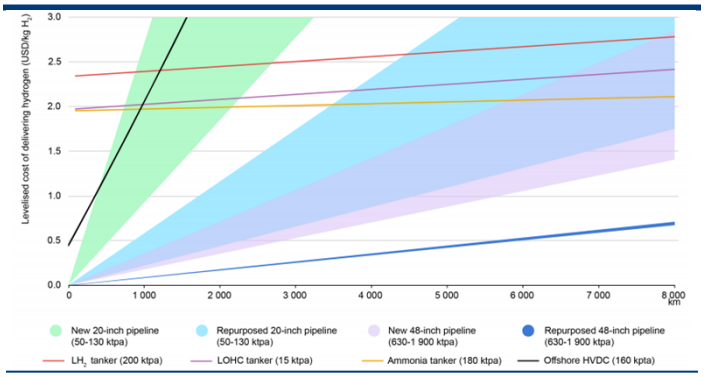
Ammonia currently offers one of the best solutions, if not the best, in terms of cost-benefit (on an energy efficiency standpoint) ratio when considering hydrogen shipping. Under the APS, given that 25% of total hydrogen demand by 2030 (and 40% in Europe) has been assumed to be met by merchant volumes (i.e. non-onsite production or as a by-product), ammonia could likely become the main hydrogen carrier, as well as being one of the largest consumers (34Mtonne out of 94Mtonne of hydrogen demand as of 2021), thanks to the relatively lower shipping costs vs. both Liquid Hydrogen (LH2) and Liquid Organic Hydrogen Carrier (LOHC), and contained energy losses during shipping. The rationale resides in the concept that the technologies associated with conversion, storage and transport are mature, despite the future need to become more flexible and larger in order to fulfil the shipping purpose.

Energy available along the conversion and transport chain in hydrogen equivalent terms, 2030



Notes: Numbers show the remaining energy content of hydrogen along the supply chain relative to a starting value of 100, assuming that all energy needs of the steps would be covered by the hydrogen or hydrogen-derived fuel. The Haber-Bosch synthesis process includes energy consumption in the air separation unit. Boil-off losses from shipping are based on a distance of 8 000 km. For LH2, dashed areas represent energy being recovered by using the boil-off gases as shipping fuel, corresponding to the upper range numbers. For NH3 and LOHC, the dashed area represents the energy requirements for one-way shipping, which are included in the lower range numbers. Source: IEA Global Hydrogen Review 2022

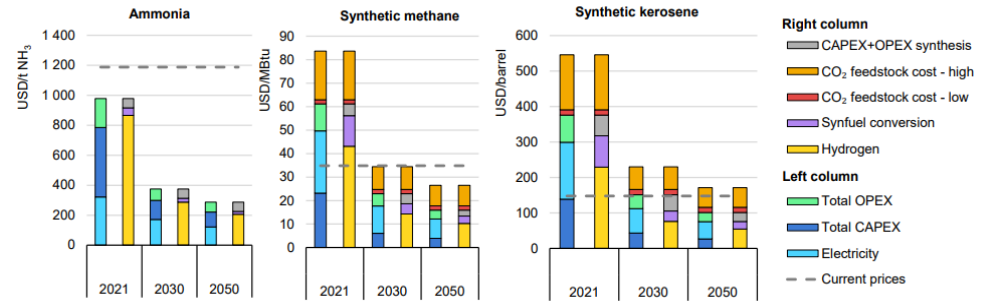
Levelised costs of delivering hydrogen by pipeline and by ship as LH2, LOHC and ammonia carriers, and electricity transmission, 2030 (USD/kg of hydrogen per km)



Notes: ktpa = kilotonnes per year; LH2 = liquefied hydrogen; LOHC = liquid organic hydrogen carrier. Includes conversion, export terminal, shipping, import terminal and reconversion costs for each carrier system (LH2, LOHC and ammonia). The import and export terminals include storage costs at the port. Pipelines refer to onshore transmission pipelines operating at ranges between 25% and 75% of their design capacity during 5 000 full load hours. Electricity transmission reflects the transmission of the electricity required to obtain 1 kg H2 in an electrolyser with a 69% efficiency located at the distance represented by the x-axis. Source: IEA Global Hydrogen Review 2022

In our view, the future expected rise in demand for ammonia for both end-uses for chemicals purposes (i.e. fertilisers) and as a hydrogen carrier would require more and more hydrogen over time, and would drive demand for nitrogen as well, being the element involved in ammonia production and utilised in the naval sector for unitankers and shipbuilding to avoid contact between flammable materials and oxygen, among other sectors of application (i.e. laser cutting, thermal treatment, oenology, pharma, jewellery). Moreover, since ammonia does not require carbon-based feedstocks in the production process, and given its economic viability based on production costs via electrolytical hydrogen (the green one), ammonia could represent also the greener solution in the path of reducing greenhouse gas emissions.

Levelised costs of ammonia (USD/tonne), synthetic methane (USD/MBtu) and synthetic kerosene (USD/barrel) for electricity-based pathways in the Net Zero Emissions by 2050 Scenario, 2021, 2030 and 2050



Notes: NH3 = ammonia; MBtu = million British thermal units. Production costs refer to the Middle East region. Current prices refer to average European prices for ammonia, natural gas and kerosene in the first seven months of 2022. The left column for each year provides a breakdown of costs for electricity, CAPEX (electrolyser synthesis plant), OPEX (electrolyser synthesis plant) and CO2 feedstock costs, whereas the right column for each year provides a breakdown of hydrogen costs, CAPEX and OPEX (synthesis plant), conversion cost and CO2 feedstock costs. Source: IEA Global Hydrogen Review 2022

Competitive Positioning

Competitive forces

Suppliers power (Low-Medium)

As a fully-integrated electrolysers supply-chain platform, relying externally only for commodities/raw materials/basic components suppliers (primarily Italian), we think ErreDue benefits from a resilient supply chain. The use of precious metals is limited in alkaline technology, making it less subject to price volatility than PEM. Overall, we believe that the possible global increase in equipment demand for electrolysers and generators' manufacturing could put a strain on product supply, resulting in suppliers increasing their bargaining power and ultimately affecting electrolysers' installation costs.

New entrants (Medium-High)

In our view, the construction of the generators, as well as the development of hydrogen production technologies, necessitate extensive and time-consuming R&D investments, as well as in-depth knowledge and experience, providing a significant barrier to entry. However, the mature alkaline process, with relatively simple manufacturing and low capital costs, may allow new entrants to carry out manufacturing and EPC services, therefore crowding the competitive arena. As of today, several small-sized players are conducting research to improve less mature hydrogen electrolytic technologies (i.e. PEM, AEM, SOEC), though commercialisation and scale-up phases are still at an early stage or have yet to be started.

Rivalry (Medium-High)

We anticipate that the competitive arena will become ever more populated in the future due to the potential of green hydrogen from an environmental, financial, and addressable market standpoint. In the short to medium term, when demand for hydrogen begins to ramp up, competition with China's low-cost manufacturers of alkaline electrolysers could represent the main threat. In this context, ErreDue must pursue growth opportunities and potential industrial collaborations, as well as continue to differentiate its product offering, to build synergies and improve its competitiveness, also from a technological standpoint.

Substitute products (Low-Medium)

Alkaline and PEM electrolysis systems are the two main alternative technologies to producing green hydrogen that are currently accessible and in commercialization. We see these two technologies sharing the future market for hydrogen production, with the alkaline process more cost-efficient and with high unit modularity, while the PEM plants offer more adaptability with RES, a small footprint, and ability to operate at high current densities. We believe that the development and implementation of new electrolyser technologies, such as AEM and SOEC can be a driver for competition in this market. As of today, ErreDue commercialises both Alkaline and PEM technologies and keeps developing AEM.

Customer power (Low)

We do not consider customers as a possible threat to manufacturers of electrolysis and generation systems, owing to the expected increase in green hydrogen demand, which is backed by climate change policies aimed at reducing CO2 emissions in both end-uses and hard-to-abate industries. As a result, we envision public support for hydrogen infrastructures in the form of grants and regulatory coverage as catalysts for the early adoption of water electrolysis technologies by customers.

Source: Intesa Sanpaolo Research elaborations

SWOT analysis

Strengths

- An electrolyser player for green hydrogen production in a high-growth industry exposed to the energy transition megatrend to Net Zero Emissions;
- PEM technology, a proprietary alternative to alkaline technology;
- A vertically-integrated business model with fully internalised and in-depth know-how in the electrolysers' development and production, enabling product customisation and solid marginality;
- Strong customer loyalty as a result of tailor-made solutions and the significant role of after-sales services;
- Expected significant growth in hydrogen demand and investments by 2050, resulting in a long-term expansion of the addressable market;
- Diversified product portfolio and geographic revenue exposure with low customer concentration;
- Solid track record of reliability and know-how in electrolysis' as well as in broader gas generation and treatment process.

Weaknesses

- Competitive cost advantage of Chinese Alkaline electrolysis systems in the short term;
- Low capital expenditure required for Alkaline technology manufacturing, allowing new potential competitors to enter into the electrolysers' industry;
- Management and workforce to be reinforced anticipating the significant medium-term scale;
- Absence of foreign commercial branches creating a bottleneck to international expansion potential and diluting margins as foreign dealers retain part of them.

Opportunities

- Green hydrogen at the heart of the EU Green Deal as a potential catalyst to give visibility to investments and projects;
- Potentially more stringent CO2 emissions targets at a local/regional level, promoting a greener economy;
- Timely scale-up of 1MW-5MW electrolysers' production for the energy transition;
- Direct partnerships with utilities and/or EPC players providing visible pipeline for 1-5 MW electrolysers to install in power-to-gas plants;
- Acceleration of fuel cell electric vehicles (FCEV) mobility roll-out, as an alternative to lithium-ion batteries electric vehicles.

Threats

- Delays in execution and roll-out of 2023 expansionary capex plan;
- Dumping/aggressive commercial strategies from competition creating excessive downwards pricing pressure in the electrolysers manufacturing market;
- Product replication risk due to the absence of patents;
- Green ammonia production as an already viable and cost-effective way to store and transport green hydrogen.

Source: Intesa Sanpaolo Research elaborations

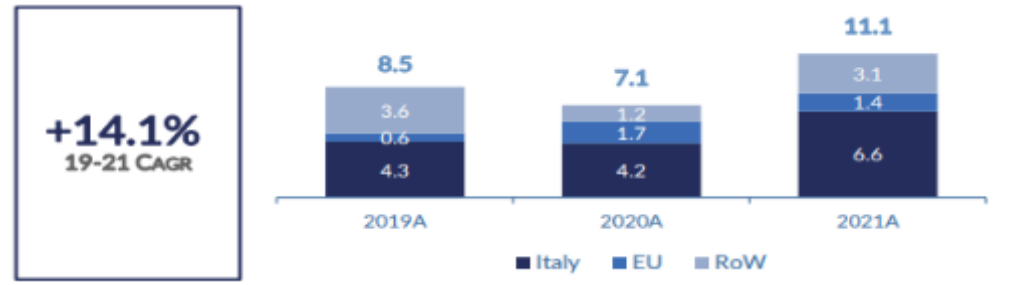
Historical Financials

Top-line analysis

Core revenues improving at a 2019-21 CAGR of 14%, with both Italy and Europe

In 2021A, ErreDue reported core revenues at EUR 11.1M, increasing by 56% yoy, more than recovering from the pandemic-related decline, when core sales declined in 2020A to EUR 7.1M after EUR 8.5M in 2019. The company benefitted from the market rebound, with core revenues improving at a 2019-21 compounded growth rate of 14%, with both Italy and Europe driving the growth (+53% and +125% in 2021 vs. 2019), while Rest of the World sales moved close to the 2019 levels. We believe supply chain disruptions forced by Covid-19 were still partially impacting non-European demand amid operators' need to shorten their procurement process.

ErreDue – Core revenues trend (2019-21) breakdown by geographical region (EUR M)



Source: Company data

Core revenues breakdown

As for the breakdown of core revenues, hydrogen-linked sales amounted to 51% of the total in 2021, posting a 73% yoy increase in 2021 to EUR 5.6M (+28% vs. 2019), underpinned by the growing adoption of ErreDue onsite solutions by industrial clients, mainly at the European level (82% of 2021A sales related to hydrogen electrolysers were outside Italy), and favoured by reliable and state-of-the-art technological advancement, offering cost efficiency and high product quality. Other gases, namely Nitrogen and Oxygen accounting for 42% of total 2021 core revenues, showed an approximately 42% growth in 2021 vs. 2020 (+28% vs. 2019), backed by traditional applications and new ultrapure Nitrogen, whereas other products' contribution, coming from laboratory generators, purifiers, dryers and generic maintenance sales, remained broadly stable over the last three years in terms of revenues' percentage (average 7-8% in 2020-21 years).

From a source standpoint, ErreDue gains from the sale of generators for the onsite production of technical gases, as well as from the after-sales services (maintenance and spare-parts' provision) and generators' rental. In general terms, both generators' rental and after-sales' activity could be viewed as recurrent since they are respectively backed by an average 5.4-years inflation-linked rental contracts and the progressively growing installed base to customers.

Generators' rental, which reported a 2% CAGR in 2019-21, have been mainly linked to Nitrogen in the past years as this commercial format has been applied solely in Italy so far, and amounted for only 18% of hydrogen sales in 2021 (EUR 0.5M). Assuming a growing hydrogen demand in the country, as well as the potential application of the rental model abroad, this source of revenues could represent a solid, steady and visible base to rely on going forward, in our view.

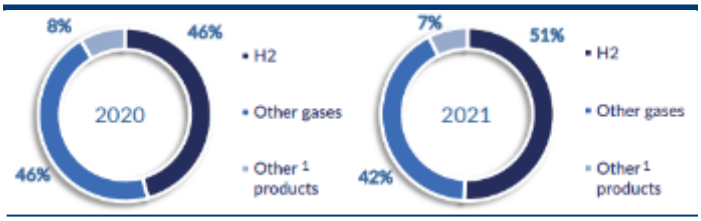
Sale of generators

Sale of generators was the main contributor to core revenues in the past years, posting EUR 5.8M in 2021, up by 87% yoy, mostly driven by both hydrogen and nitrogen generators' sales, even if revenues for larger hydrogen plants have not yet materialised (first plant is to be delivered in March 2023) and demand for new applications demanding MW-sized facilities to kick in. Laboratory applications accounted for 7% (EUR 0.4M) of the remaining sales in 2021, posting a 30% growth yoy.

After sales' services

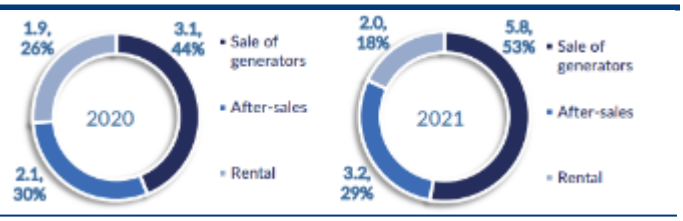
After sales' services reported a solid increase in 2021A to EUR 3.2M (+52% yoy), though still weighing an average 30% of core revenues in the 2020-21 period. The increase was due to spare-parts sales solid figures in hydrogen, with maintenance contracts further contributing. After sales' activities were strictly dependent on the evolution of generators' sales, being both spare-parts (mainly) and maintenance provision captive services amid technological constraints.

ErreDue – Core revenues (2020-21) by gas type (%)



Notes: 1. «Other» includes sale of laboratory generators, purifiers and dryers and revenues from generic maintenance; Source: Company data

ErreDue – Revenues (2020-21) by source (EUR M, %)



Notes: 1. «Other» includes sale of laboratory generators, purifiers and dryers and revenues from generic maintenance; Source: Company data

Costs structure

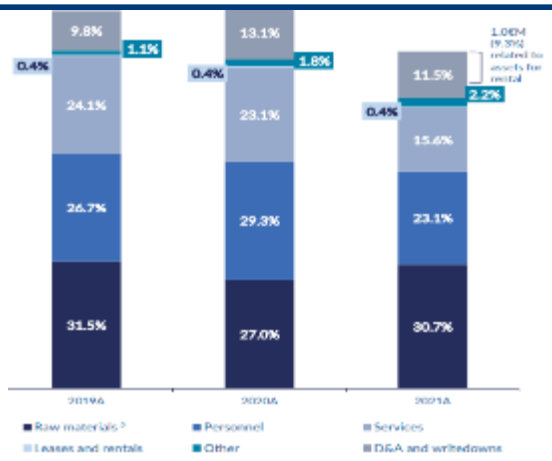
As of 2021, fixed and variable costs weighed approx. 50% each on total operating costs. Raw materials consumption costs' weighting on revenues amounted to an average 30% of the total cost base over 2019-21 years, with the materials' needs ranging from steel, iron, aluminium and polypropylene to machineries and electrical components, as well as to chemicals, derivatives and others.

Personnel expenses represented the second-largest source of costs, averaging 26% in the last three years in terms of weighting in revenues, with a peak of 29.3% reached in 2020 due to the pandemic impact, and the low point equal to 23.1% recorded in 2021, underpinned by the higher core sales. According to the company, ErreDue is technically overstaffed at this time due to management's strategy to strengthen the organisation in order to anticipate the expected strong hydrogen generators' demand, especially for the above MW-sized facilities, and to avoid turning orders down while gaining momentum on the market.

Services' weighting moved downwards from 23-24% in 2019-20 to 15.6% in 2021, attributable to operating leverage, as a significant portion of these are not linked to production volumes. Energy costs, which are usually included within services, are not so material for ErreDue, amounting to approx. 1% of total revenues, according to management. The remaining cost items (namely leases and rentals and others) account for 2-3% in total revenues, whereas D&A and write-downs, which are in any case accounted for below the EBITDA line, averaged 11.5% over 2019-21, of which the majority linked to internally built generators rented to customers.

R&D costs have not been capitalised, indeed they are all expensed in the P&L in the year in which they occur. They are split within the abovementioned cost items depending on their nature and amounted to 5-7% of core revenues of the last three years.

ErreDue – Weighting of operating costs on revenues in 2019-21 (%)



Notes: Sum of percentages in the chart does not add to (1-EBIT Margin %), as the EBIT Margin also considers the positive effect from (+/- change in finished products inventory + Internal additions to fixed assets + other revenues), which contribute to Value of Production under Italian GAAP accounting principles; (2) Raw materials incidence calculation includes also change in raw materials inventory; Source: Company data

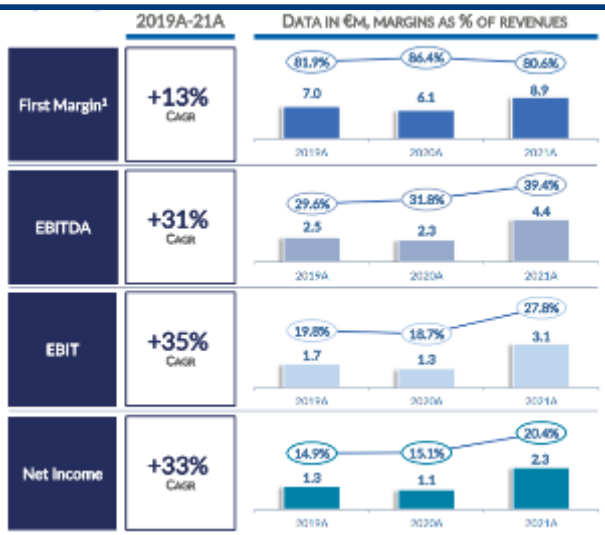
Profitability profile

In 2019-21, ErreDue reported the first margin, intended as core revenues +/- change in finished products inventory + internal additions to fixed assets + other revenues, above 80% and growing by 13% CAGR in 2019-21 to EUR 8.9M. These figures are a direct consequence of ErreDue's high value proposition, providing clients with state-of-the-art/efficient/customised/green plants, ultimately leading to solid pricing power, and of the high-degree of vertical integration, with the majority of the production process and inputs made in-house, besides from commodities, allowing the company to retain most of the supply-chain marginality.

At the EBITDA level, margins on core revenues rose from 29.6% in 2019 to 31.8% in 2020 and 39.5% in 2021, with absolute values rising at a 31% CAGR in 2019-21 to EUR 4.4M in 2021. The rationale underlying the EBITDA margin trend resides in the high operating leverage degree, allowing ErreDue to incrementally gain profits from a ramp-up in production in volumes, and as shown by the first margin trend, the company's ability to pass on to customers raw materials' inflation.

EBIT and net income margins on core revenues have experienced the same trend in the last three years, remaining broadly stable in 2020 vs. 2019 and respectively growing by 35% and 33% CAGR in 2019-21 to EUR 3.1M and EUR 2.3M. The effect is mainly explained by the EBITDA evolution, with ErreDue also benefiting at the bottom line from Industry 4.0 tax incentives, grants for R&D investments and ACE, these leading to an average tax rate over 2019-21 of approximately 23%.

ErreDue – Profitability profile over 2019-2021 years (%, EUR M)



1) (First Margin calculated as Revenues +/- change in finished products inventory + Internal additions to fixed assets + other revenues) – Cost of raw materials +/- change in raw materials inventory; Source: Company data

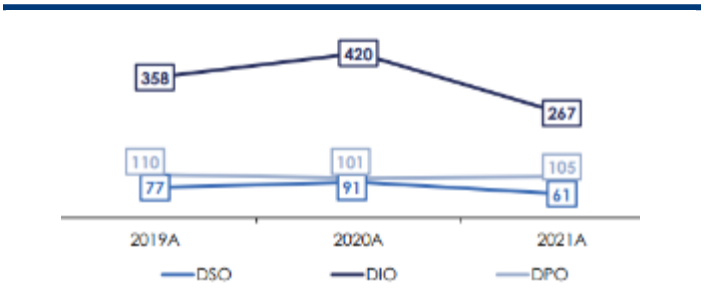
Trade working capital trend

Trade working capital showed broadly stable figures in 2019-21 in the region of EUR 3M, with a relatively-high inventories' level, as stocks are usually built on a preventive-based approach with an eye to forecasted production and in order to safeguard from marginality swings, being counterbalanced by advance payments from customers at 30-50% of the contracts' value and negative DSO-DPO spread amid healthy sale and purchasing conditions. Then, the settlement of the payment occurs at production completion or product delivery for clients abroad and with allowed delays in Italy up to 90 days. With respect to rentals, maintenance and assistance, and spare-parts activities, payments are set to be invoiced respectively at 30, 60 and 90 days.

ErreDue – Trade Working Capital trend (EUR M)

Source: Company data

ErreDue – Trade Working Capital Days trend (number of days)



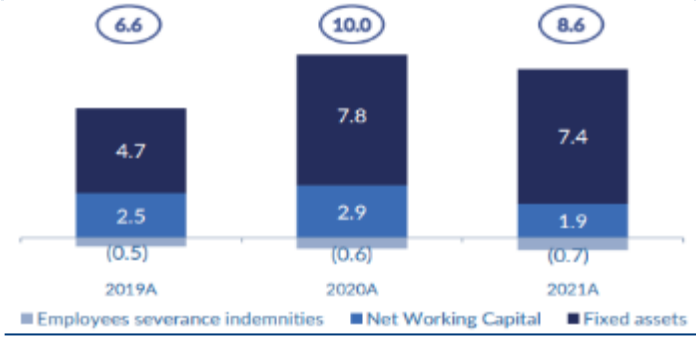
Source: Company data

Balance sheet

Besides the working capital evolution, which is largely explained by trade working capital dynamics, tangible assets are the other main contributor to the formation of net invested capital. This is due to ErreDue basically not holding any financial participation over the last three years and intangible assets close to zero level since R&D costs have been entirely expensed at P&L and there is no patenting activity (for the reasons outlined in the business model-R&D section of this report), with no possibility of reverse engineering.

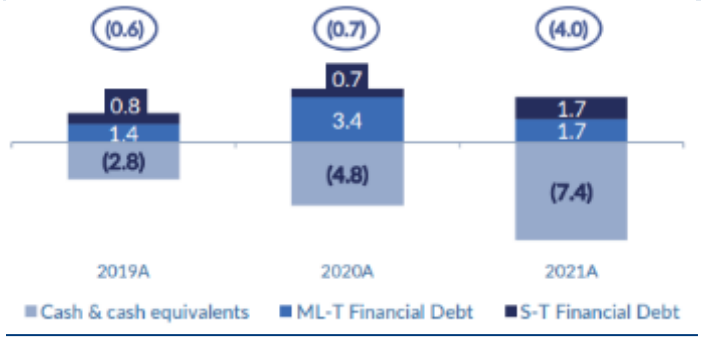
Looking at the net financial position, ErreDue has increased its net cash to EUR 4M in 2021 from EUR 0.6M and EUR 0.7M recorded at YE19 and YE20, respectively. The company benefitted from solid operating cash flows' generation, which were more than sufficient to cover annual capex of EUR 1.1M in 2020 and EUR 1.3M in 2021 (the majority of which related to new plants and machinery for rental) and stable dividends of EUR 0.4M. As of end-2021, ErreDue had EUR 7.4M of cash and equivalents on hand and EUR 3.4M of financial gross debt, of which 50% short-term and 50% medium/long-term.

ErreDue – Net invested capital breakdown (EUR M)



Source: Company data

ErreDue – Net financial position and debt profile (EUR M)



Source: Company data

1H22 results

In 1H22, ErreDue posted a strong set of results, sustained by a good product demand also thanks to incentives in some countries. In detail:

- Revenues reached EUR 6.0M, +16% yoy, fully organic, and mainly driven by volumes;
- EBITDA margin dropped by 210bps yoy to 27.6%, due to the inflationary trend of raw materials, which amounted to 44% of 1H22 revenues vs. 34% in 1H21;
- EBIT was stable at 9.4M vs. 9.3M in 1H21, while net income increased to EUR 0.68M vs. EUR 0.67M in 1H21.

ErreDue – 1H22 results

EUR M	1H21A	1H22A	yoy %
Revenues	5.2	6.0	16.4
EBITDA	1.5	1.7	8.0
EBITDA margin (%)	29.7	27.6	
EBIT	9.3	9.4	0.7
EBIT margin (%)	17.9	15.5	
Net income	0.67	0.68	1.6

A: actual; Source: Company data

Earnings Outlook

Key assumptions

Here follow our main assumptions:

- A progressive increase in the installation and sale of electrolysers for hydrogen production, underpinned by a growing adoption of onsite solutions for mobility and power-to-gas in a context of a rising penetration of hydrogen within the global energy mix, according to the decarbonization secular trend. While we do not exclude potential execution risk in delivering MW-sized plants, in our base-case scenario we assume ErreDue is able to develop and sell 1 to 5 MW alkaline plants to customers over the next years, at a 4-6 months lead time from order to installation, whereas PEM MW-generators should become reliable and ever more cost competitive by the end of the decade;
- Nitrogen and Oxygen generators' revenues improving respectively pulled by traditional industrial sectors, and by new medical applications, after a positive regulatory development in Italy, as well as thanks to laboratory solutions;
- A new manufacturing plant to start production as of beginning 2024, driving production capacity expansion and economies of scale. Additional volumes are expected to progressively benefit from the operating performance on the back of a low-to-mid weighting of fixed costs on core revenues. We assume the workforce is to grow at a slower rate than needed when compared to expected global hydrogen demand, limiting the ability to attract further orders and a further scale up the production footprint;
- Inflationary effect to be almost fully reverted onto customers by means of growing generators' selling prices, though slightly impacting inventories' build-up activity, which even net of inflation is already expected to broaden on the back of increasing generators' orders;
- After sales' services to strengthen their contribution reflecting the wider hydrogen capacity installed at customers according to a captive-based approach, for maintenance and spare-parts services' provisioning to clients;
- R&D costs are assumed in the region of 5% of annual core revenues, to be fully expensed in the P&L in their reference year, enabling to constantly develop new and possibly larger MW-sized solutions, also PEM-based, to address energy transition markets, in collaboration with prime industrial partners and ENEA;
- Growing D&A to reflect a greater number of electrolysers for hydrogen production and nitrogen generators rented by customers amid these shifting from a gas cylinders-based supply to onsite production for operating, safety and cost reasons;
- Financial charges to slightly increase on the back of increasing interest rates and a low need to issue new debt in order to support future growth;
- A normalised tax rate assumed at 23%, after tax incentives being exploited in the 2022E-23E years;
- Annual capex amounting on average to 9% of the core revenues, including internal construction of assets for rental.

Sales & costs breakdown

We forecast ErreDue's core revenues to grow at a 2021-25E CAGR of 41%, reaching EUR 44M in 2025E from EUR 11.1M reported in FY21A. Hydrogen should be the gas contributing the most to growth, moving from EUR 5.6M revenues recorded in 2021A to EUR 30M in 2025E (CAGR of 52%) and weighing about 74% of total revenues by the end of the forecast period from 51% accounted for in 2021A. Nitrogen/Oxygen related sales should more decisively take the back seat, lowering their contribution to the overall core revenues from 42% in 2021A to 29% at YE25E, though still growing at a 29% CAGR over the next years, while gas treatment products (such as purifiers, mixers and stabilisers) and generic maintenance sales should count for approx. 2-3%/year of the total core sales, benefitting from the expansion of the gas sales.

From a source standpoint, electrolysers' and overall gas generators' sales should take the lion's share of the core sales, landing at around EUR 33M sales in 2025E from EUR 5.9M recorded in 2021A, driven by the more widespread adoption of the onsite solutions for the production of hydrogen (mainly), nitrogen and oxygen. The progressive increase of the installed base at the customer, should provide support to after sales' services in the form of assistance through a proprietary software and spare parts' replacement, which we assume equalling the initial electrolyser value after 18-years of utilisation on average, if powered by a renewable source. We note that our after-sales' estimate could be conservative since electrolysers can be kept constantly running when built for specific applications. Revenues coming from generators' rental are expected to increase as well over the forecast period amid some clients leaning to prefer flexible solutions rather than buying the asset.

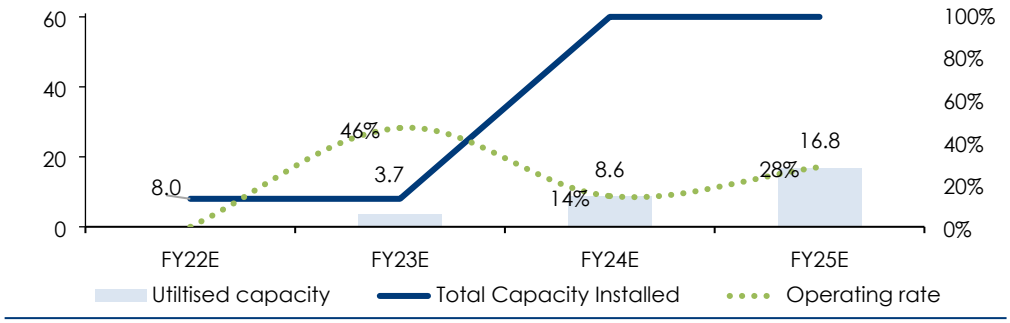
ErreDue – Core revenues breakdown in EUR M (2019A-2025E)

Core revenues by gas typology/product	2020A	2021A	2022E	2023E	2024E	2025E
Total core revenues	7.1	11.1	12.5	17.0	27.7	44.1
Nitrogen/Oxygen	3.2	4.6	5.7	7.1	10.0	12.9
Hydrogen	3.2	5.6	6.4	9.5	16.9	30.2
Other products / Generic Maintenance	0.6	0.8	0.4	0.5	0.8	1.0
% on total core revenues						
Nitrogen/Oxygen	46	42	46	42	36	29
Hydrogen	46	51	51	55	61	68
Other products / Generic Maintenance	8	7	3	3	3	2
Core revenues by source	**2020A**	**2021A**	**2022E**	**2023E**	**2024E**	**2025E**
Total core revenues	7.1	11.1	12.5	17.0	27.7	44.1
Sale of Generators	3.1	5.9	6.3	9.7	18.8	32.5
After-Sales	2.1	3.2	3.9	4.9	6.3	8.6
Generators' Rental	1.9	2	2.2	2.5	2.7	3.0
% on total core revenues						
Sale of Generators	44	53	51	57	68	74
After-Sales	30	29	31	28	22	19
Generators' Rental	26	18	18	14	10	7

A: actual; E: estimates; Source: Company data and Intesa Sanpaolo Research

Our hydrogen-based sales estimates reflect ErreDue exploiting its MW-sized manufacturing capacity as of 2023E, with operating rates assumed at 46%. After the commissioning of the new production site, which we expect to start operations as of beginning 2024E, we assume the hydrogen MW-sized operating rate to drop at approx. 14% in 2024E, due to initial orders not matching the much larger manufacturing capacity (estimated in the region of 60MW/year). Moving towards the end of the forecast period, we simulate orders gaining momentum on the back of the growing hydrogen demand worldwide and increasing competitiveness of onsite production solutions vs. gas cylinders. Overall, we estimate ErreDue delivering more than 29MW of electrolysers for hydrogen production by end-2025.

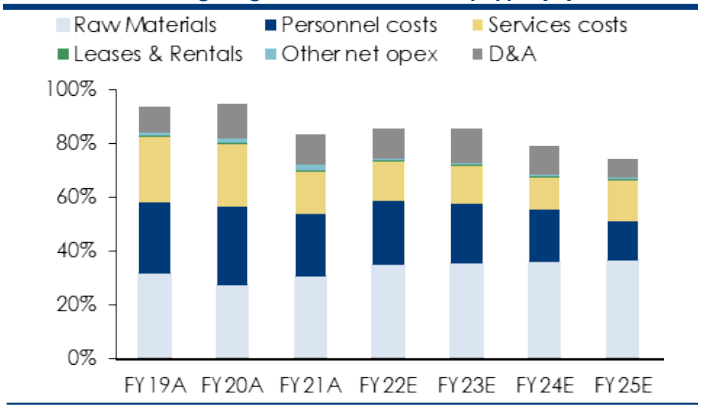
ErreDue – Hydrogen MW-sized capacity and utilisation rates (MW, %)



Source: Intesa Sanpaolo Research estimates

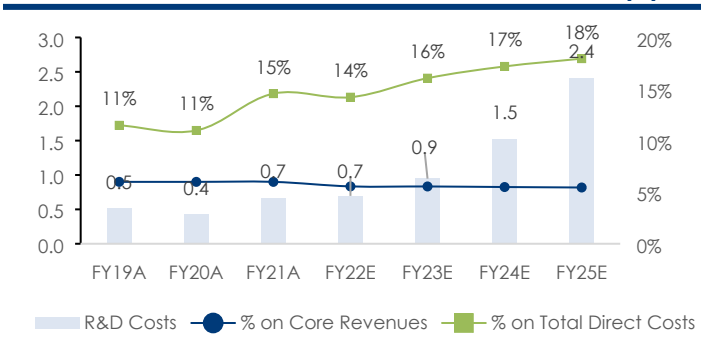
Reflecting the wider demand for electrolysers and need for ErreDue to comply with the delivery schedule, we would expect raw materials and cost of sales to slightly increase their weighting on core revenues, with the contribution margin assumed to decline from approximately 81% in 2021A to 72-73% in 2025E. At the same time, we would expect personnel and services costs, mainly, to lower their impact on the final selling price, with ErreDue reaping the benefits of a low to mid operating leverage. This effect should translate into an EBITDA margin improving up to 42% in the second part of the forecast period from 39% on average expected to be reported in 2022E-23E, also supported by some operating efficiencies assumed to be extracted thanks to the new production site.

ErreDue – Cost weighting on core revenues by type (%)



A: actual; E: estimates; Source: Company data and Intesa Sanpaolo Research

ErreDue – R&D costs on total direct costs and core revenues (%)



A: actual; E: estimates; Source: Company data and Intesa Sanpaolo Research

Bottom line and cash-flows perspective

Bottom line, we assume net income growing at an approx. 51% CAGR in 2021A-25E to EUR 12M, about 5x the figures reported in 2021A, underpinned by the positive evolution of the operating performance in a context of negligibly increasing interest rates and a stable tax rate. Despite assuming negative working capital changes on a yearly basis, mainly linked to inventories' building aimed at sustaining new orders and spare parts' replacement activity, we expect ErreDue to report positive operating cash-flows along the entire forecast period. After annual capex equal to around 9%/year on average of the core revenues, mostly linked to the generators' rental business and net of the new investment in the new large unified plant, and the dividend payment at an assumed 20% pay-out on net income, we estimate positive and growing net cash flows over the next years. These should allow

ErreDue to maintain a solid balance sheet and improve its net cash position, ultimately building financial firepower to fund potential further growth.

Condensed financials and ratios

ErreDue – P&L (2019A-2025E)

EUR M	2019A	2020A	2021A	2022E	2023E	2024E	2025E	2021A/25E CAGR %
Sales Breakdown								
Nitrogen/Oxygen	3.6	3.2	4.6	5.7	7.1	10.0	12.9	29.3
Hydrogen	4.4	3.2	5.6	6.4	9.5	16.9	30.2	52.3
Other products / Generic Maintenance	0.5	0.6	0.8	0.4	0.5	0.8	1.0	5.2
Core Revenues	**8.5**	**7.1**	**11.1**	**12.5**	**17.0**	**27.7**	**44.1**	**41.3**
Non-Core revenues	1.1	0.9	1.3	1.4	1.9	2.8	4.0	
Total Revenues	**9.6**	**8.0**	**12.3**	**13.9**	**18.9**	**30.5**	**48.1**	
Variable Costs	-2.7	-1.9	-3.4	-4.4	-6.1	-10.0	-16.1	
Contribution Margin	**7.0**	**6.1**	**8.9**	**9.5**	**12.9**	**20.5**	**32.0**	**37.6**
% of core revenues	81.9	86.4	80.6	76.2	75.6	73.9	72.5	
Direct Costs (excluding D&As)	-4.4	-3.9	-4.6	-4.9	-5.9	-8.9	-13.4	31.0
o/w R&D	-0.5	-0.4	-0.7	-0.7	-0.9	-1.5	-2.4	38.0
Non-recurring opex	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
EBITDA	**2.5**	**2.3**	**4.4**	**4.6**	**7.0**	**11.6**	**18.6**	**43.7**
% of core revenues	29.6	31.8	39.4	37.1	41.0	41.9	42.1	
D&A & Provisions	-0.8	-0.9	-1.3	-1.4	-2.0	-3.0	-3.2	
EBIT	**1.7**	**1.3**	**3.1**	**3.2**	**5.0**	**8.6**	**15.4**	**49.5**
% of core revenues	19.8	18.6	27.9	25.5	29.0	31.2	34.8	
Net financial interests on loans	-0.02	-0.02	-0.02	-0.02	-0.03	-0.03	-0.04	
Gains / (Losses) from participations	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Extraordinary Profit / (Losses)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Capital Gains(Losses) on asset disposal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Net profit before tax	**1.7**	**1.3**	**3.1**	**3.2**	**4.9**	**8.6**	**15.3**	**49.5**
Tax rate (%)	23.9	18.3	26.6	13.6	14.9	23.0	23.0	
Income Tax	-0.4	-0.2	-0.8	-0.4	-0.7	-2.0	-3.5	
Discontinued operations	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Minorities	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Group net income	**1.3**	**1.1**	**2.3**	**2.7**	**4.2**	**6.6**	**11.8**	**51.3**
Group net income (adj)	**1.3**	**1.1**	**2.3**	**2.7**	**4.2**	**6.6**	**11.8**	**51.3**

A: actual; E: estimates; Source: Company data and Intesa Sanpaolo Research

ErreDue – Balance Sheet (2019A-2025E)

EUR M	2019A	2020A	2021A	2022E	2023E	2024E	2025E
Intangible Assets	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tangible Assets	4.6	7.7	7.4	7.5	21.5	20.8	21.1
Net Financial Assets	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NWC & Other Current Assets/Liabilities	2.5	2.9	1.9	2.5	3.6	7.0	10.3
o/w net advances from/to clients/suppliers	-0.3	-0.2	-0.6	-1.4	-1.3	-3.2	-4.4
Employee Indemnities/Other Funds	-0.5	-0.6	-0.7	-0.7	-0.7	-0.7	-0.7
Net Capital Employed	**6.6**	**10.0**	**8.6**	**9.3**	**24.4**	**27.1**	**30.7**
Net Debt/(Cash)	-0.6	-0.7	-4.0	-19.3	-7.8	-10.9	-17.8
Shareholders' Capital	1.0	2.5	5.0	6.3	6.3	6.3	6.3
Net profit of the year	1.3	1.1	2.3	2.7	4.2	6.6	11.8
Reserves	4.9	7.2	5.3	19.6	21.8	25.2	30.5
Minority Interest in Equity Capital	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Coverage	**6.6**	**10.0**	**8.6**	**9.3**	**24.4**	**27.1**	**30.7**

A: actual; E: estimates; Source: Company data and Intesa Sanpaolo Research

ErreDue – Cash Flow Statement (2019A-2025E)

EUR M	2020A	2021A	2022E	2023E	2024E	2025E
Net debt/-cash at Beg. of FY	-0.6	-0.7	-4.0	-19.3	-7.8	-10.9
FFO	**2.1**	**3.6**	**4.2**	**6.2**	**9.6**	**15.0**
WC changes & other current assets/liabilities	-0.4	1.0	-0.6	-1.1	-3.4	-3.3
Operating cash flow	**1.7**	**4.6**	**3.6**	**5.1**	**6.2**	**11.7**
Investments in property, plant & intangibles	-1.1	-1.3	-1.5	-16.0	-2.3	-3.5
Disposal of properties, plants & intangible	0.0	0.3	0.0	0.0	0.0	0.0
Disposal / (Acquisitions) of participations	0.0	0.0	0.0	0.0	0.0	0.0
Other changes in the investment activities	0.0	0.0	0.0	0.0	0.0	0.0
Free cash flow	**0.6**	**3.6**	**2.1**	**-10.9**	**3.9**	**8.2**
Dividends paid by parent company	-0.4	-0.4	-1.7	-0.5	-0.8	-1.3
Net Equity Capital Changes	0.0	0.0	15.0	0.0	0.0	0.0
Net dividends from subsidiaries	0.0	0.0	0.0	0.0	0.0	0.0
Net Extra-ordinary costs	0.0	0.0	0.0	0.0	0.0	0.0
Net cash flow	**0.1**	**3.2**	**15.4**	**-11.4**	**3.1**	**6.9**
Ch. In scope of cons. & others	-0.1	0.1	-0.1	0.0	0.0	0.0
Net debt/-cash at end of FY	-0.7	-4.0	-19.3	-7.8	-10.9	-17.8

A: actual; E: estimates; Source: Company data and Intesa Sanpaolo Research

ErreDue - Profitability & Financial Ratios (2019A-25E)

%	2019A	2020A	2021A	2022E	2023E	2024E	2025E
Contribution Margin on core revenues	81.9	86.4	80.6	76.2	75.6	73.9	72.5
EBITDA Margin on core revenues	29.6	31.8	39.3	37.1	41.0	41.9	42.1
EBIT Margin on core revenues	19.8	18.7	27.8	25.5	29.0	31.2	34.8
Tax Rate	23.9	18.3	26.5	13.6	14.9	23.0	23.0
Net Income Margin on core revenues	14.9	15.1	20.4	21.9	24.6	23.9	26.7
ROCE (net of advance payments)	22.7	12.2	31.2	28.0	18.7	27.9	43.0
ROIC	25.5	13.2	35.7	34.2	20.3	31.9	50.1
ROE	17.6	9.9	17.9	9.6	13.0	17.4	44.3
EBITDA/FCF	41.7	22.2	84.7	43.1	-156.0	33.8	44.3

A: actual; E: estimates; Source: Company data and Intesa Sanpaolo Research

Appendix 1: Management

ErreDue – Management Team

	Role	Description
Enrico D'Angelo	Executive Chairman	Mr. D'Angelo founded ErreDue in 2000 elaborating its business model and in 2018 took on the CEO role. Previously he has covered key management roles in GDF S.n.c., TECNIMAT S.n.c, MEGABYTE S.p.A. and BULLERI MACCHINE S.r.l.
Francesca Barontini	Vice-Chairman, CFO and Executive Director	Following her previous experience in consultancy, in 2001 Ms. Barontini joined ErreDue in the Finance & Administration Department as well as Head of HR. After 9 years, she was nominated Sole Administrator of the BoD and in 2018 nominated Executive Director and CFO.
Emiliano Giacomelli	Chief Operating Officer	Mr. Giacomelli has previously covered leading roles as Head of Product Testing development and then Head of Production at Idroenergy. Since 2001, he is COO, supervising the Production, Procurement and Logistics Departments at ErreDue.

Source: Company data

Appendix 2: Product Offering

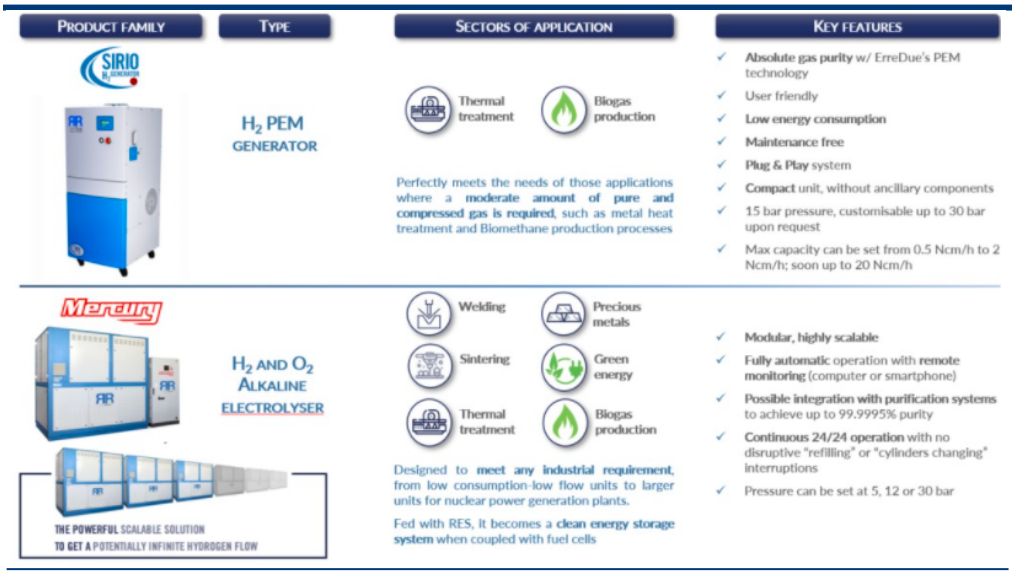
ErreDue's product offering has expanded in recent years, starting with traditional industrial generators and now including medical oxygen generators, lab generators and purifiers/mixers/stabilisers in the catalogue. The company's know-how is fully integrated: concept, design, components production and assembly is realised all in-house and able to offer tailor-made solutions to clients. In detail, ErreDue's offering can be articulated in three categories based on outputs:

Hydrogen

The main hydrogen generator offering includes:

- **H2 PEM generator**: Mainly used in the biogas production process and in metal heating treatment, the generator uses proprietary PEM technology instead of traditional alkaline. The machine can be configured according to pressure requirements from 15 up to 30 bar and allows a maximum capacity settable between 0.5nmc/h and 2nmc/h;
- **H2 and O2 Alkaline electrolyser**: Designed to meet industrial requirements in addition to biogas production and as a potential clean energy storage system. The product allows 24/24 operations and is highly scalable.

ErreDue – H2 product details



Source: Company data

Nitrogen

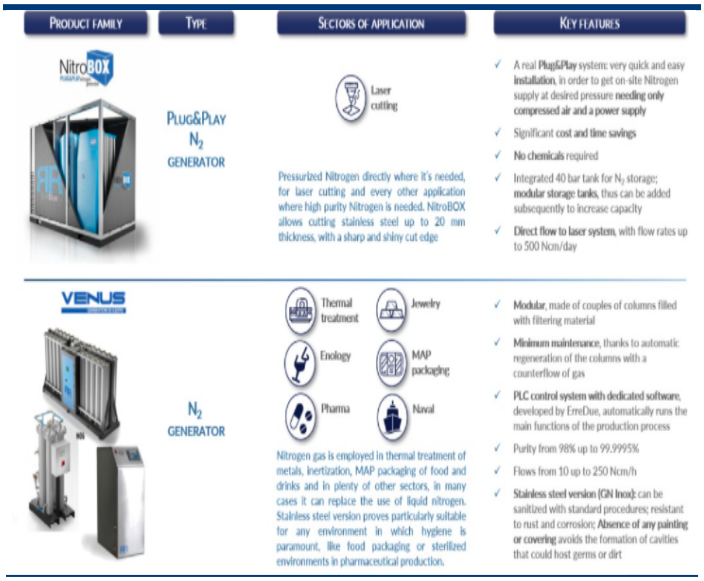
ErreDue's nitrogen generating products include:

- **Ultrapure N2 Generator**: Used in important industrial sectors, such as semiconductors production, metallurgy and especially plastics laser cutting. Thanks to modular systems, it can be expanded in capacity even after installation;
- **Plug&Play N2 Generator**: Specifically used for laser cutting, the machine generates pressurised nitrogen flows direct to laser system with flow rates up to 500nmc/day;
- **N2 Generator**: Offers a stainless-steel variant that is ideal for any setting where hygiene is critical, such as food packing or sterilised facilities in pharmaceutical manufacturing.

ErreDue – N2 product details (1/2)

Source: Company data

ErreDue – N2 product details (2/2)



Source: Company data

Oxygen and others

- **O2 Generator**: Can reach purity up to 95% and requires minimum maintenance thanks to the automatic regeneration of columns. Application fields range from water purification, fish farming to steam reforming. From 2023, generators will be adapted to the medical industry (hospitals and clinics) with the Oxylife product;
- **Gas Purifier**: Allows the reuse of gases, ensuring savings and recovery of elements that would otherwise be released into the atmosphere. It can also be integrated with any ErreDue generator;
- **Electronic Gas Mixers**: Offers the ability to mix two to three gases, choosing the concentration of the final mixture.

ErreDue – O_2 and other products

Product family	Type	Sectors of application	Key features
	O_2 GENERATOR	Welding; Water purification; Steam reforming; Fish farming	✓ PSA technology to filter compressed air ✓ Modular, made of couples of columns ✓ Continuous flow, purity up to 95% ✓ Minimum ordinary maintenance, thanks to automatic regeneration of the columns with a counterflow of gas ✓ Dedicated software for functions automation and PLC control system with touchscreen display
	GAS PURIFIERS	All industrial applications with gas involved ErreDue designs and manufactures a wide range of equipment for gas purification, produced either by generators or from external sources.	✓ Allows to purify Hydrogen, Argon, Oxygen, Nitrogen, Compressed Natural Gas (CNG), and other gases ✓ Recover and to reuse process gases usually dispersed in atmosphere, with big savings and fast amortization of the machine ✓ Can be sold together or subsequently integrated with any ErreDue generator
	ELECTRONIC GAS MIXERS	All industrial applications needing gas mixtures	✓ Capable to form one or more mixtures of arbitrary rate between two or three gases ✓ From the LCD control panel the user can select the concentration of the requested mixture and get information regarding the state of ongoing process ✓ The high quality of process components (electronic flow controllers, pressure sensors, solenoid valves, flow regulators, filters, etc), provides a high level of accuracy, together with a great flexibility of use

Source: Company data

Appendix 3: Peers[1]

We highlight a sample of companies active in electrolysers for clean hydrogen.

McPhy Energy SA

McPhy Energy description

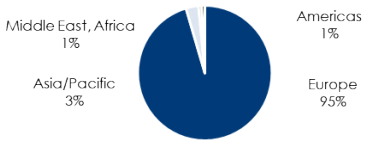
Founded by Daniel Fruchart, Pascal Mauberger and Michel Jehan in 2008 and headquartered in La Motte-Fanjas, France, McPhy Energy engages in the development and provision of hydrogen-based solutions. Its products include electrolyzers, hydrogen refuelling station, solid hydrogen storage, and integrated solutions.

McPhy Energy – Key forecasts

EUR M	2020A	2021A	2022F	2023F	2024F	2025F
Sales	14	14	15	30	61	121
EBIT	-9	-23	-30	-35	-30	-20
EBITDA	-8	-16	-28	-31	-26	-16
Pre-tax Income	-9	-24	-29	-33	-29	-19
Net Income	-9	-24	-29	-34	-29	-19

McPhy Energy – Business breakdown

McPhy Energy – Geographic breakdown



ITM Power PLC

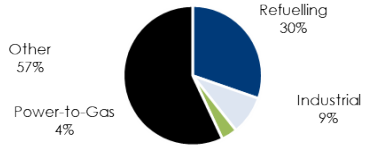
ITM Power description

Founded by Jonathan A. Lloyd, John Alan David Wreford and Donald James Highgate in June 2001 and headquartered in Sheffield, the UK, ITM Power engages in the business of hydrogen energy solutions. The firm's activities include the design, manufacture, and sale of hydrogen energy system for energy storage and clean fuel production. It also offers construction, consulting, maintenance, and other services.

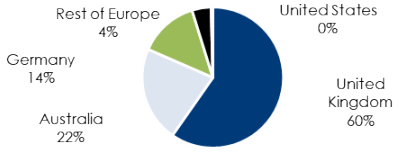
ITM Power ASA – Key forecasts

EUR M	2020A	2021A	2022F	2023F	2024F	2025F
Sales	5	7	27	44	94	200
EBIT	-30	-51	-67	-68	-59	-45
EBITDA	-27	-46	-61	-58	-44	-26
Pre-tax Income	-32	-53	-66	-67	-59	-45
Net Income	-32	-54	-66	-65	-58	-45

ITM Power – Business breakdown



ITM Power – Geographic breakdown



NEL ASA

NEL ASA description

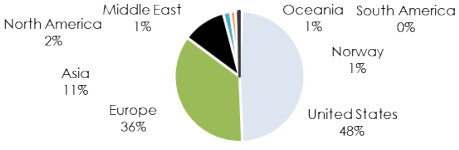
Founded by E. Lönneborg and P. Sharma in 1927 and headquartered in Oslo, Norway, NEL operates as a hydrogen company that provides solutions to produce, store and distribute hydrogen from renewable energy. Its hydrogen solutions cover the value chain from hydrogen production technologies to manufacturing of hydrogen fuelling stations. The firm operates via the following: 1) Fuelling engages in manufacturing of hydrogen fuelling stations providing fuel cell electric vehicles with the same fast fuelling and long range as conventional fossil fuel vehicles; 2) Electrolyser operates as a global supplier of hydrogen production equipment and plants based on both alkaline and PEM water electrolyser technology.

NEL ASA – Key forecasts

EUR M	2020A	2021A	2022F	2023F	2024F	2025F
Sales	64	79	80	139	227	361
EBIT	-38	-57	-84	-72	-51	-7
EBITDA	-24	-46	-69	-55	-31	9
Pre-tax Income	122	-166	-63	-71	-50	-6
Net Income	123	-164	-62	-67	-47	-5

NEL ASA – Business breakdown

NEL ASA – Geographic breakdown



[1] All tables, charts and descriptions from FactSet; priced at market close of 10/01/2023 in EUR (F: FactSet forecasts)

ErreDue – Key Data

Rating	Target price (EUR/sh)	Mkt price (EUR/sh)	Sector
BUY	Ord 14.3	Ord 11.30	Capital Goods

Values per share (EUR)	2019A	2020A	2021A	2022E	2023E	2024E
No. ordinary shares (M)	5.00	5.00	5.00	6.25	6.25	6.25
Total no. of shares (M)	5.00	5.00	5.00	6.25	6.25	6.25
Market cap (EUR M)	NA	NA	NA	70.63	70.63	70.63
Adj. EPS	0.25	0.21	0.45	0.44	0.67	1.06
BVPS	1.4	2.1	2.5	4.6	5.2	6.1
Dividend ord	0.09	0.09	0.08	0.27	0.09	0.13
Income statement (EUR M)	**2019A**	**2020A**	**2021A**	**2022E**	**2023E**	**2024E**
Revenues	9.63	8.04	12.31	13.92	18.94	30.49
EBITDA	2.52	2.25	4.36	4.64	6.98	11.63
EBIT	1.68	1.32	3.08	3.19	4.95	8.64
Pre-tax income	1.66	1.31	3.06	3.18	4.92	8.61
Net income	1.27	1.07	2.25	2.75	4.19	6.63
Adj. net income	1.27	1.07	2.25	2.75	4.19	6.63
Cash flow (EUR M)	**2019A**	**2020A**	**2021A**	**2022E**	**2023E**	**2024E**
Net income before minorities	1.3	1.1	2.3	2.7	4.2	6.6
Depreciation and provisions	-0.8	-0.9	-1.3	-1.4	-2.0	-3.0
Others/Uses of funds	0.1	0.1	0.1	0	0	0
Change in working capital	-0.3	-0.4	1.0	-0.6	-1.1	-3.4
Operating cash flow	0.2	-0.2	2.1	0.7	1.1	0.2
Capital expenditure	-0.8	-1.1	-1.3	-1.5	-16.0	-2.3
Financial investments	0	0	0	0	0	0
Acquisitions and disposals	0	0	0.3	0	0	0
Free cash flow	-0.6	-1.3	1.1	-0.8	-15.0	-2.0
Dividends	-0.4	-0.4	-0.4	-1.7	-0.5	-0.8
Equity changes & Non-op items	-0.0	-0.1	0.1	14.9	0	0
Net cash flow	-1.1	-1.8	0.7	12.4	-15.5	-2.9
Balance sheet (EUR M)	**2019A**	**2020A**	**2021A**	**2022E**	**2023E**	**2024E**
Net capital employed	6.6	10.0	8.6	9.3	24.4	27.1
of which associates	0.0	0.0	0.0	0.0	0.0	0.0
Net debt/-cash	-0.6	-0.7	-4.0	-19.3	-7.8	-10.9
Minorities	0	0	0	0	0	0
Net equity	7.2	10.7	12.6	28.6	32.3	38.1
Minorities value	0	0	0	0	0	0
Enterprise value	NA	NA	NA	51.3	62.8	59.7
Stock market ratios (x)	**2019A**	**2020A**	**2021A**	**2022E**	**2023E**	**2024E**
Adj. P/E	NA	NA	NA	25.7	16.8	10.7
P/CFPS	NA	NA	NA	16.8	11.3	7.3
P/BVPS	NA	NA	NA	2.5	2.2	1.9
Payout (%)	36	42	18	62	13	13
Dividend yield (% ord)	NA	NA	NA	2.4	0.8	1.2
FCF yield (%)	NA	NA	NA	3.0	-15.4	5.6
EV/sales	NA	NA	NA	3.7	3.3	2.0
EV/EBITDA	NA	NA	NA	11.1	9.0	5.1
EV/EBIT	NA	NA	NA	16.1	12.7	6.9
EV/CE	NA	NA	NA	5.5	2.6	2.2
D/EBITDA	Neg.	Neg.	Neg.	Neg.	Neg.	Neg.
D/EBIT	Neg.	Neg.	Neg.	Neg.	Neg.	Neg.
Profitability & financial ratios (%)	**2019A**	**2020A**	**2021A**	**2022E**	**2023E**	**2024E**
EBITDA margin	26.1	28.0	35.4	33.3	36.9	38.1
EBIT margin	17.4	16.4	25.0	22.9	26.1	28.3
Tax rate	NM	NM	NM	NM	NM	NM
Net income margin	13.2	13.3	18.3	19.7	22.1	21.7
ROCE	25.4	13.2	35.8	34.2	20.3	31.9
ROE	17.6	11.9	19.3	13.3	13.8	18.8
Interest cover	-112.0	-82.6	-205.3	-187.9	-194.1	-254.2
Debt/equity ratio	Neg.	Neg.	Neg.	Neg.	Neg.	Neg.
Growth (%)		**2020A**	**2021A**	**2022E**	**2023E**	**2024E**
Sales		-16.6	53.1	13.1	36.0	61.0
EBITDA		-10.5	93.6	6.5	50.4	66.5
EBIT		-21.3	NM	3.8	55.0	74.6
Pre-tax income		-21.6	NM	3.7	55.0	74.8
Net income		-15.8	NM	22.0	52.6	58.1
Adj. net income		-15.8	NM	22.0	52.6	58.1

NM: not meaningful; NA: not available; Neg.: negative; A: actual; E: estimates; Source: Company data and Intesa Sanpaolo Research

Company Snapshot

Company Description

ErreDue SpA engages in the research and development, manufacture, and sale of gas generation and engineering products. It offers electrolyzers for on-site generation of clean hydrogen and generators of other technical gases (nitrogen and oxygen) for various industrial applications, laboratory, medical applications and new energy transition applications such as power-to-gas, sustainable mobility (small hydrogen re-fuelling stations) and industrial de-carbonization. The company was founded by Enrico D'Angelo on February 14, 2000 and is headquartered in Livorno, Italy.

Key Risks

Company specific risks:

- Projects' and delivering execution risk;
- Competitive pressure;
- Technological reliability;

Sector generic risks:

- Slower adoption of a hydrogen-based economy:
- Inflationary effect affecting projects' profitability;

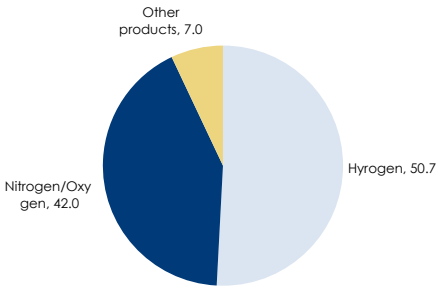
Key data

Mkt price (EUR)	11.30	Free float (%)	30.0
No. of shares	6.25	Major shr	Green H2
52Wk range (EUR)	NA/NA	(%)	56.0
Reuters	RDUE.MI	Bloomberg	RDUE IM
Performance (%)	**Absolute**		**Rel. FTSE IT All Sh**
-1M	-7.0	-1M	-11.0
-3M	NA	-3M	NA
-12M	NA	-12M	NA

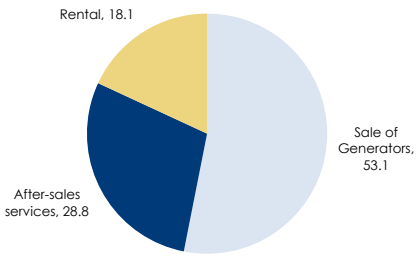
Estimates vs. consensus

EUR M (Y/E Dec)	2021A	2022E	2022C	2023E	2023C	2024E	2024C
Sales	12.31	13.92	NA	18.94	NA	30.49	NA
EBITDA	4.36	4.64	NA	6.98	NA	11.63	NA
EBIT	3.08	3.19	NA	4.95	NA	8.64	NA
Pre-tax income	3.06	3.18	NA	4.92	NA	8.61	NA
Net income	2.25	2.75	NA	4.19	NA	6.63	NA
EPS (EUR)	0.45	0.44	NA	0.67	NA	1.06	NA

Sales breakdown by gas type (%) breakdown by product



Sales breakdown by source (%) breakdown by geographic area



Source: Company data, Intesa Sanpaolo Research estimates and FactSet consensus data (priced at market close of 09/01/2023)

Our Mid Corporate Definition

Italy is characterised by a large number of non-listed and listed micro, small and medium-sized companies. Looking at the revenues of these Italian companies, around 5,000 companies eligible for listing have revenues below EUR 1,500M based on Intesa Sanpaolo elaborations. We define these companies as 'Mid Corporate'. Looking more specifically at Italian listed companies, we include in our Mid Corporate segment all STAR companies and those with a market capitalisation around EUR 1Bn.

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Valuation methodology (long-term horizon: 12M)

The Intesa Sanpaolo SpA Equity Research Department values the companies for which it assigns recommendations as follows:

We obtain a fair value using a number of valuation methodologies including: discounted cash flow method (DCF), dividend discount model (DDM), embedded value methodology, return on allocated capital, break-up value, asset-based valuation method, sum-of-the-parts, and multiples-based models (for example PE, P/BV, PCF, EV/Sales, EV/EBITDA, EV/EBIT, etc.). The financial analysts use the above valuation methods alternatively and/or jointly at their discretion. The assigned target price may differ from the fair value, as it also takes into account overall market/sector conditions, corporate/market events, and corporate specifics (ie, holding discounts) reasonably considered to be possible drivers of the company's share price performance. These factors may also be assessed using the methodologies indicated above.

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Equity Rating Key (long-term horizon: 12M)

Long-term rating	Definition
BUY	If the target price is 20% higher than the market price
ADD	If the target price is 10%-20% higher than the market price
HOLD	If the target price is 10% below or 10% above the market price
REDUCE	If the target price is 10%-20% lower than the market price
SELL	If the target price is 20% lower than the market price
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TARGET PRICE	The market price that the analyst believes the share may reach within a one-year time horizon
MARKET PRICE	Closing price on the day before the issue date of the report, as indicated on the first page, except where otherwise indicated

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Target price and market price trend (-1Y)

Initiation of coverage

Historical recommendations and target price trend (-1Y)

Initiation of coverage

Equity rating allocations (long-term horizon: 12M)

Intesa Sanpaolo Research Rating Distribution (at January 2023)

Number of companies considered: 129	BUY	ADD	HOLD	REDUCE	SELL
Total Equity Research Coverage relating to last rating (%)*	66	16	18	0	0
of which Intesa Sanpaolo's Clients (%)**	79	29	52	0	0

* Last rating refers to rating as at end of the previous quarter; ** Companies on behalf of whom Intesa Sanpaolo and the other companies of the Intesa Sanpaolo Group have provided corporate and Investment banking services in the last 12 months; percentage of clients in each rating category

Valuation methodology (short-term horizon: 3M)

Our short-term investment ideas are based on ongoing special market situations, including among others: spreads between share categories; holding companies vs. subsidiaries; stub; control chain reshuffling; stressed capital situations; potential extraordinary deals (including capital increase/delisting/extraordinary dividends); and preys and predators. Investment ideas are presented either in relative terms (e.g. spread ordinary vs. savings; holding vs. subsidiaries) or in absolute terms (e.g. preys).

The companies to which we assign short-term ratings are under regular coverage by our research analysts and, as such, are subject to fundamental analysis and long-term recommendations. The main differences attain to the time horizon considered (monthly vs. yearly) and definitions (short-term 'long/short' vs. long-term 'buy/sell'). Note that the short-term relative recommendations of these investment ideas may differ from our long-term recommendations. We monitor the monthly performance of our short-term investment ideas and follow them until their closure.

Equity rating key (short-term horizon: 3M)

Short-term rating	Definition
LONG	Stock price expected to rise or outperform within three months from the time the rating was assigned due to a specific catalyst or event
SHORT	Stock price expected to fall or underperform within three months from the time the rating was assigned due to a specific catalyst or event

Company-specific disclosures

Intesa Sanpaolo S.p.A. and the other companies belonging to the Intesa Sanpaolo Banking Group (hereafter the "Intesa Sanpaolo Banking Group") have adopted written guidelines "Organisational, Management and Control Model" pursuant to Legislative Decree 8 June 2001 no. 231 (available at the Intesa Sanpaolo website, https://group.intesasanpaolo.com/en/governance/leg-decree-231-2001) setting forth practices and procedures, in accordance with applicable regulations by the competent Italian authorities and best international practice, including those known as Information Barriers, to restrict the flow of information, namely inside and/or confidential information, to prevent the misuse of such information and to prevent any conflicts of interest arising from the many activities of the Intesa Sanpaolo Banking Group, which may adversely affect the interests of the customer in accordance with current regulations.

In particular, the description of the measures taken to manage interest and conflicts of interest – related to Articles 5 and 6 of the Commission Delegated Regulation (EU) 2016/958 of 9 March 2016 supplementing Regulation (EU) No. 596/2014 of the European Parliament and of the Council with regard to regulatory technical standards for the technical arrangements for objective presentation of investment recommendations or other information recommending or suggesting an investment strategy and for disclosure of particular interests or indications of conflicts of interest as subsequently amended and supplemented, the FINRA Rule 2241, as well as the Financial Conduct Authority Conduct of Business Sourcebook rules COBS 12.4 - between the Intesa Sanpaolo Banking Group and issuers of financial instruments, and their group companies, and referred to in research products produced by analysts at Intesa Sanpaolo S.p.A. is available in the "Rules for Research " and in the extract of the "Corporate model on the management of inside information and conflicts of interest" published on the website of Intesa Sanpaolo S.p.A.

At the Intesa Sanpaolo website, webpage https://group.intesasanpaolo.com/en/research/RegulatoryDisclosures/archive-of-intesa-sanpaolo-group-s-conflicts-of-interest you can find the archive of disclosure of interests or conflicts of interest of the Intesa Sanpaolo Banking Group in compliance with the applicable laws and regulations.

Furthermore, we disclose the following information on the Intesa Sanpaolo Banking Group's conflicts of interest.

- One or more of the companies of the Intesa Sanpaolo Banking Group plan to solicit investment banking business or intends to seek compensation from ERREDUE SPA in the next three months
- Intesa Sanpaolo acts as Specialist relative to securities issued by ERREDUE SPA
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