CORRE ENERGY
(CORRE ID)

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Price (€)	**4.00**
Shares in issue (m)	68
Mkt Cap (€m)	272
Net debt (€m)	7
EV (€m)	279
BVPS (€)	19.9

Share price performance	
1m	33.3%
3m	51.5%
12m	233.3%
12 m high/low	4/1.2
Ave daily vol (30D)	21,828

Shareholders	
Bloomsbury Holding	38.7%
Lorlen Investments	25.4%
Air Corre Limited	7.4%

Next news Finals Q1

Business description

Developer of energy storage systems based on compressed air and hydrogen

MODELLING ZW1

We see the evolving European electricity market as looking increasingly attractive for storage and for long duration storage in particular. Our analysis of recent prices and estimates of near term future pricing suggests good economics for Corre Energy's initial project at Zuidwending (ZW1) in the Netherlands.

Recent pricing shows strong energy arbitrage spreads

By using hourly pricing data from the Dutch market, we can examine the potential economics of Corre's ZW1 project as the market evolves. By constructing price duration graphs for recent years, we can estimate average prices for discharging and costs for charging and thus reflect the key energy arbitrage economics of a storage project.

2021 a good and possibly low guide to pricing

We see the 2021 market as indicative of pricing in the near term future as gas prices fall back from the extremes of 2022 but remain high thanks to more reliance in Europe on LNG. Despite showing strong project returns based on this pricing, the growth of renewables could see further improvements in the price spread with charging costs becoming even lower.

Offtake agreement retains upside exposure

The offtake agreement with Eneco protects ZW1 at a basic level of return in a low pricing environment but still gives Corre exposure to upside. If we see 2021 economics as illustrative of the long duration storage market, we can see ZW1 generating a strong double digit project IRR under the agreement with downside protection.

€,000 Dec	2021a	2022e	2023e	2024e	2025e	2026e
Sales	5	0	0	50,000	5,082	57,540
EBITDA	-6,628	-12,008	-11,309	13,187	-11,859	35,616
PBT	-7,600	-24,824	-12,297	12,194	-12,814	34,634
EPS	-0.1	-0.3	-0.2	0.1	-0.1	0.2
CFPS	-0.2	-0.1	-0.2	0.0	-0.6	0.1
DPS	0.0	0.0	0.0	0.0	0.0	0.0
Net Debt (Cash)	-1,650	7,388	19,649	-74,079	-5,581	-32,638
Debt/EBITDA	0.2	-0.6	-1.7	-5.6	0.5	-0.9
P/E	-43.5	-11.9	-24.0	53.2	-37.5	18.7
EV/EBITDA	-40.7	-23.2	-25.8	15.0	-22.4	6.7
EV/sales	na	na	na	5.4	53.1	4.7
FCF yield	-5.8%	-2.2%	-3.8%	-1.1%	-14.0%	1.6%
Div yield	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

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PROJECT ECONOMICS

Corre Energy's offtake agreement with Eneco looks set to support the development of the Zuidwending (ZW1) project and deliver attractive economics to Corre and to any funding partners. In this note we examine the likely economics had the project run in recent years. We think we can read forward from this recent past to show that the project can deliver even stronger returns as renewable penetration grows with planned developments of offshore wind projects in the North Sea.

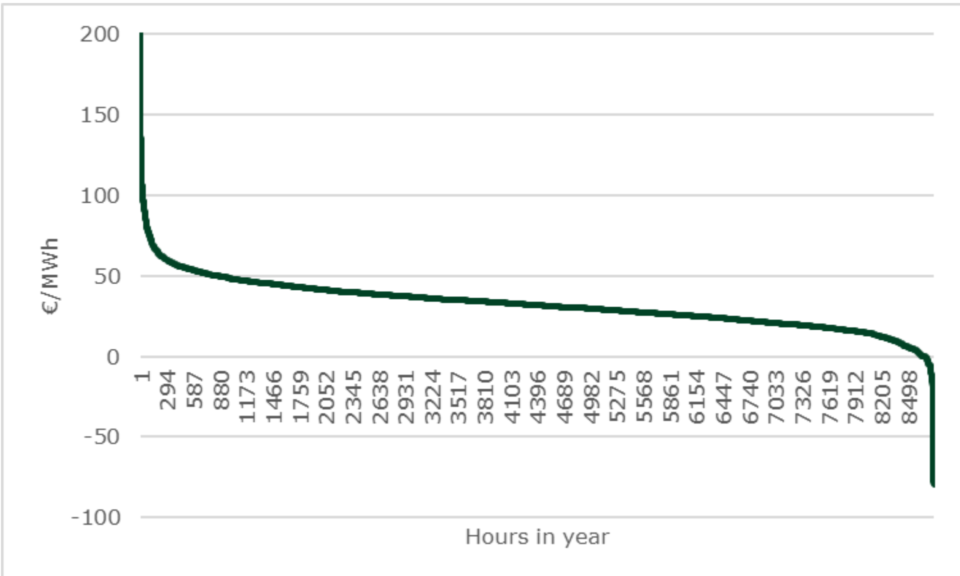
Power prices in continental Europe in 2022 were clearly exceptional. We also see them as an extreme example of the way in which power markets are likely to develop going forward with relatively high gas prices determining peak and peak load prices and higher renewables penetration keeping off peak prices low. These low off peak prices will occur more often as renewable penetration increases.

Power markets are seeing growing penetration of intermitted renewable energy in the form of wind and solar PV. At the same time gas prices have been rising and were already doing so before the Russian invasion of Ukraine. While they have already fallen back and may fall further, we think it likely that, in Europe at least, they remain higher than before 2021.

Broadly speaking, generators in electricity markets compete on the basis of their short run marginal costs. When renewables are running, they have a very low short run marginal cost. In fact, this can be negative in that they will bid down to the negative value of any subsidy they receive in order to generate the electricity on which the subsidy is paid. This results in negative pricing periods. As renewables take up more of the system, low price periods become more frequent. However, when there are not enough renewables to meet demand, more expensive fossil fuelled generation becomes price setting. With high fossil fuel prices this makes these periods very expensive.

We can look at the distribution of prices in what the power industry has historically termed a price duration curve with highest prices shown first at the left hand end and low prices at the right hand end.

Netherlands day ahead hourly prices (2020)

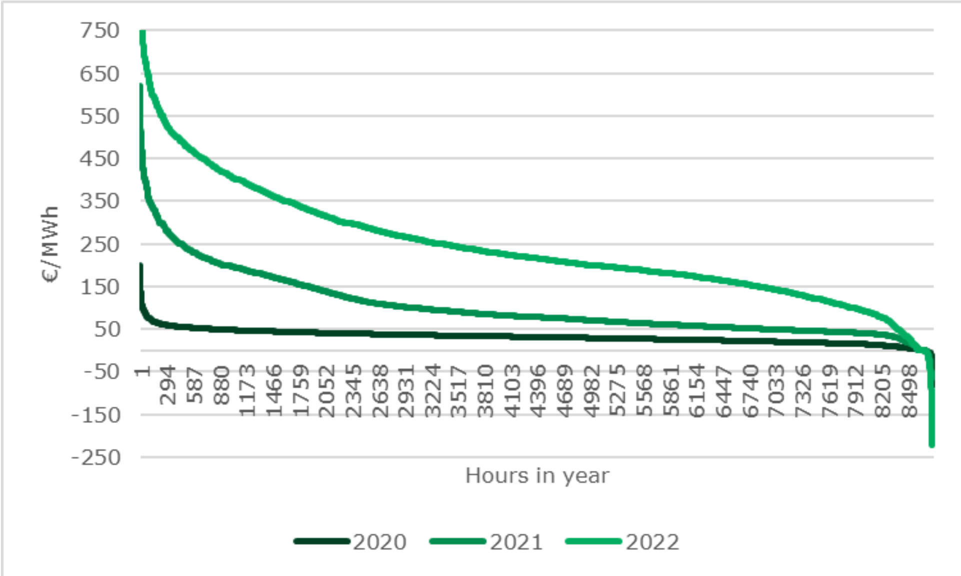


Source: Longspur Research, ENTSO-E

The experience in 2020 was unusual with exceptionally low demand due to COVID lockdowns. While this meant that there were relatively more periods when renewables were price setting, penetration rates remained low so these periods were still not particularly frequent. With lower overall demand pricing was weak across all periods.

2021 was a more normal year with renewable penetration as a percent of demand growing but gas prices also starting to rise leading to higher peak prices. 2022 saw high gas prices but demand had grown so renewables set prices less of the time.

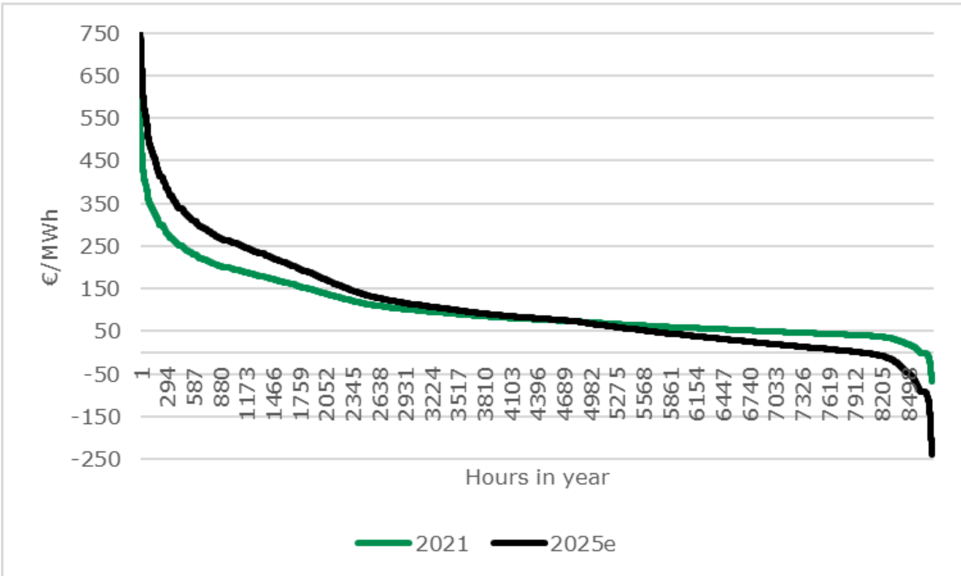
Netherlands day ahead hourly prices



Source: Longspur Research, ENTSO-E

We expect gas prices to fall back towards 2021 levels but to still remain well above 2020 levels as more reliance is placed on higher cost LNG trains as opposed to relying on pipeline gas supplied by Russia. We also expect renewable penetration to increase. The likely outcome is that high prices will drop compared with the exceptional 2022 outcome but remain above 2021 and a gradually more extended low price regime will apply at the right hand end of the curve.

Expected price evolution



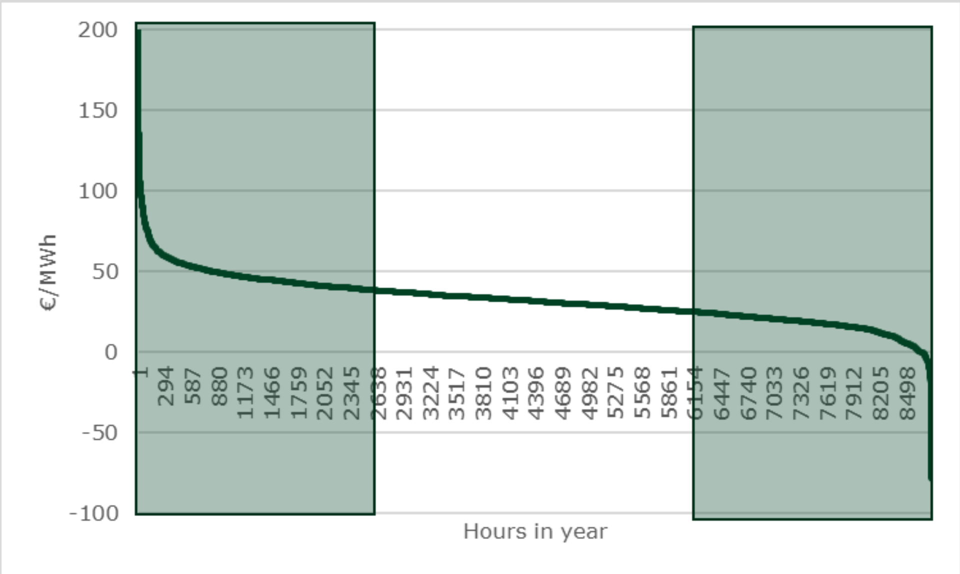
Source: Longspur Research, ENTSO-E

WHAT DOES THIS MEAN FOR ZW1?

Without any offtake agreement if ZW1 was to run as a merchant storage project the economics could be quite attractive.

We have built a model of annual cash flows at ZW1. Looking at the price duration curves we can estimate the average charging cost and discharging price assuming a 30% utilisation. We have based this on 8 hours of storage duration with one cycle a day, scaled back for forecasting errors. The resulting average spread will then be the difference between the average prices in the two green boxes below.

Calculating the storage spread



Source: Longspur Research, ENTSO-E

We have shown the top and bottom 30% of prices in the table below. 2020 shows low spreads based on low gas prices. 2021 starts to reflect higher gas prices to deliver a spread of €154/MWh, with a charging cost of €42/MWh and a discharging price of over €195/MWh. 2022 sees the spread rise to €291/MWh as high gas prices drive peak power prices.

Storage spreads

€/MWh	**High 30%**	**Low 30%**	**Spread**
2020	49	16	33
2021	195	42	154
2022	402	111	291

Source: Longspur Research, ENTSO-E

Both 2020 with its low demand and 2022 with high gas prices were exceptional but 2021 could represent a sensible base case going forward. Given our expectations of how the market will evolve, 2021 could even look quite conservative given it assumes that charging costs stay on the high side when they are likely to fall as renewable penetration grows more significant. In our view 2020 represents a useful low stress case and 2022 is a potential high case.

Our analysis is based only on the ability to trade the hourly day ahead prices. In reality ZW1 will be able to trade intra day pricing and balancing markets which could add up to 20% to 30% additional margin.

We have also assumed ancillary services revenue at €25/MWh per annum. This will be driven largely by flexible gas and oil fired open cycle or reciprocating engines and so will reflect fossil fuel prices. As a result, projects may see better ancillary services revenue in the base and higher cases than show in our project models.

We have modelled ZW1 using the average pricing data for 2020, 2021 and 2022 and we could see these as low (stress), base and high cases. These economics are likely to improve over time as gas prices remain relatively high and growing renewables means more low priced periods reducing the average charging cost. Higher renewables also means more weather driven volatility increasing demand for ancillary services and keeping these prices high.

Even without these increases, project returns look attractive with EBITDA of €50m, €162m and €305m for the low, base and high cases respectively. The IRRs are 8%, 26% and 48% respectively. Even on the 2020 stress case, we see this consistent with a WACC based on 50% gearing.

ZW1 estimated economics based on historic pricing

€,000	2020	2021	2022
Rated power capacity (MW)	320	320	320
CAES Utilisation	30%	30%	30%
Availability	100%	100%	100%
Plant life	35	35	35
Round trip efficiency	70%	70%	70%
Tax	25%	25%	25%
Gearing	50%	50%	50%
Grant income	20%	20%	20%
CoD	6%	6%	6%
CoE	10%	10%	10%
WACC	7.3%	7.3%	7.3%
Electricity price (€/MWh)	49	195	402
ASM price (€/MWh/year)	25	25	25
CAES electricity cost (€/MWh)	16	42	111
Fixed O&M (£/MW/year)	4000	4000	4000
Variable O&M (£/MWh)	4.5	4.5	4.5
CAES system capex per kW	1,150	1,150	1,150
CAES capex	368,000	368,000	368,000
Total capex inc grants	294,400	294,400	294,400
Debt	184,000	184,000	184,000
CAES output (GWh)	841	841	841
CAES consumption (GWh)	438	438	438
Electricity revenue	41,207	163,987	338,066
ASM revenue	21,024	21,024	21,024
Total revenue	**62,231**	**185,011**	**359,090**
Electricity charging cost	7,014	18,411	48,657
O&M	5,064	5,064	5,064
Depreciation	10,514	10,514	10,514
Total cost	**22,592**	**33,989**	**64,236**
Revenue	62,231	185,011	359,090
EBITDA	50,153	161,536	305,369
EBIT	39,639	151,022	294,854
Interest	11,040	11,040	11,040
PBT	28,599	139,982	283,814
Tax	7,150	34,995	70,954
Interest tax shield	2,760	2,760	2,760
Ungeared cashflow	**40,243**	**123,781**	**231,655**
Annuity factor	12.6	12.6	12.6
PV of cashflows	507,169	1,559,950	2,919,440
Less capex = EV	212,769	1,265,550	2,625,040
Less debt = MV	**28,769**	**1,081,550**	**2,441,040**
IRR	7.8%	25.9%	48.4%

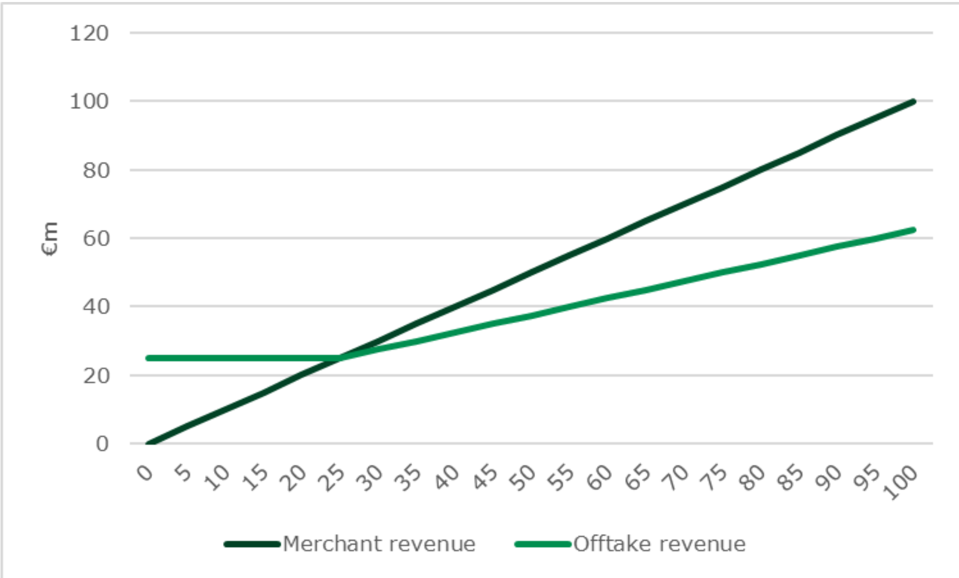
Source: Longspur Research

WITH THE OFFTAKE AGREEMENT

In 2021 Corre gave some detail of the offtake agreement that might be signed with Eneco. This has now been signed and while we do not know the outturn detail which is likely commercially sensitive to the counterparty, the outturn is unlikely to be too different from the guidance.

The deal protects downside on ZW1 by guaranteeing a material profit level. In return Corre shares around 50% of any upside above this level with Eneco. This means that Corre still sees some upside if the market remains strong as we think is likely.

Estimated impact of offtake agreement on net revenue



Source: Longspur Research, Corre Energy

Working back, we estimate that the offtake would adjust our models above by reducing the stress case discharge price from €49/MWh to €44/MWh, the base case from €195/MWh to €123/MWh and the high case from €402/MWh to €245/MWh. The EBITDA would fall to €46m, €101m and €173m respectively but the downside would be protected in each case. IRRs would be 7%, 16% and 28% respectively. Again, the stress case is acceptable especially when the offtake effectively guarantees at the profit level limiting risk.

ZW1 estimated economics based on historic pricing with offtake

€,000	**2020**	**2021**	**2022**
Rated power capacity (MW)	320	320	320
CAES Utilisation	30%	30%	30%
Availability	100%	100%	100%
Plant life	35	35	35
Round trip efficiency	70%	70%	70%
Tax	25%	25%	25%
Gearing	50%	50%	50%
Grant income	20%	20%	20%
CoD	6%	6%	6%
CoE	10%	10%	10%
WACC	7.3%	7.3%	7.3%
Electricity price (€/MWh)	44	123	245
ASM price (€/MWh/year)	25	25	25
CAES electricity cost (€/MWh)	16	42	111
Fixed O&M (£/MW/year)	4000	4000	4000
Variable O&M (£/MWh)	4.5	4.5	4.5
CAES system capex per kW	1,150	1,150	1,150
CAES capex	368,000	368,000	368,000
Total capex inc grants	294,400	294,400	294,400
Debt	184,000	184,000	184,000
CAES output (GWh)	841	841	841
CAES consumption (GWh)	438	438	438
Electricity revenue	37,002	103,438	206,035
ASM revenue	21,024	21,024	21,024
Total revenue	**58,026**	**124,462**	**227,059**
Electricity charging cost	7,014	18,411	48,657
O&M	5,064	5,064	5,064
Depreciation	10,514	10,514	10,514
Total cost	**22,592**	**33,989**	**64,236**
Revenue	58,026	124,462	227,059
EBITDA	45,948	100,987	173,338
EBIT	35,434	90,473	162,824
Interest	11,040	11,040	11,040
PBT	24,394	79,433	151,784
Tax	6,099	19,858	37,946
Interest tax shield	2,760	2,760	2,760
Ungeared cashflow	**37,090**	**78,369**	**132,632**
Annuity factor	12.6	12.6	12.6
PV of cashflows	467,425	987,646	1,671,499
Less capex = EV	173,025	693,246	1,377,099
Less debt = MV	**-10,975**	**509,246**	**1,193,099**
IRR	7.0%	16.3%	27.7%

Source: Longspur Research

FINANCIAL MODEL

Profit and Loss Account

€,000, Dec	2021a	2022e	2023e	2024e	2025e	2026e
Turnover						
Project income	0	0	0	0	0	0
Central costs and fees	5	0	0	50,000	5,082	57,540
Other	0	0	0	0	0	0
Other	0	0	0	0	0	0
Total	5	0	0	50,000	5,082	57,540
Operating profit						
Project income	0	0	0	0	0	0
Central costs and fees	-6,643	-12,038	-12,339	12,353	-10,423	15,482
Other	0	0	0	0	0	0
Other	0	0	0	0	0	0
Operating profit	-6,643	-12,038	-12,339	12,353	-10,423	15,482
P&L Account	**2021a**	**2022e**	**2023e**	**2024e**	**2025e**	**2026e**
Turnover	5	0	0	50,000	5,082	57,540
Operating Profit	-6,643	-12,038	-12,339	12,353	-10,423	15,482
Investment income	0	0	0	-221	-2,517	19,027
Net Interest	-957	-12,786	-958	-963	-926	-954
Pre Tax Profit (UKSIP)	-7,600	-24,824	-13,297	11,169	-13,865	33,556
Goodwill amortisation	0	0	0	0	0	0
Exceptional Items	0	0	0	0	0	0
Pre Tax Profit (IFRS)	-7,600	-24,824	-13,297	11,169	-13,865	33,556
Tax	3,653	0	0	-2,882	0	-8,657
Post tax exceptionals	0	0	0	0	0	0
Minorities	0	0	0	0	0	0
Net Profit	-3,947	-24,824	-13,297	8,287	-13,865	24,898
Dividend	0	0	0	0	0	0
Retained	-3,947	-24,824	-13,297	8,287	-13,865	24,898
EBITDA	-6,628	-12,008	-12,309	12,162	-12,909	34,539
EPS (p) (UKSIP)	-0.09	-0.34	-0.18	0.07	-0.12	0.21
EPS (p) (IFRS)	-0.09	-0.34	-0.18	0.07	-0.12	0.21
FCFPS (p)	-0.23	-0.09	-0.17	-0.05	-0.57	0.06
Dividend (p)	0.00	0.00	0.00	0.00	0.00	0.00

Source: Company data, Longspur Research estimates

KEY POINTS

- During development phase company is spending c. £12m per annum
- ZW1 comes online in 2025 with €50m project development revenue in FY 24
- Project income show in income from investments still negative in first year
- GHH1 comes online in 2026 increasing development revenue
- Project income goes positive in 2026 and PBT moves fully into the black

Balance Sheet

€,000, Dec	2021a	2022e	2023e	2024e	2025e	2026e
Fixed Asset Cost	5,266	5,266	5,266	5,266	5,266	5,266
Fixed Asset Depreciation	-5	-35	-65	-95	-125	-155
Net Fixed Assets	5,261	5,231	5,201	5,171	5,141	5,111
Goodwill	0	0	0	0	0	0
Other intangibles	717	717	717	717	717	717
Investments	0	0	0	7,136	70,832	69,503
Stock	0	0	0	0	0	0
Trade Debtors	2,582	2,647	2,713	19,219	1,671	18,917
Other Debtors	3,641	41	41	41	41	41
Trade Creditors	-823	-2,873	-2,945	-11,238	-1,671	-18,917
Other Creditors <1yr	-2,657	-2,657	-2,657	-2,657	-2,657	-2,657
Creditors >1yr	-1,845	-1,845	-1,845	-1,845	-1,845	-1,845
Provisions	0	0	0	0	0	0
Pension	0	0	0	0	0	0
Capital Employed	6,876	1,260	1,225	16,544	72,229	70,870
Cash etc	13,375	16,719	3,458	96,426	26,876	53,133
Borrowing <1yr	0	0	0	0	0	0
Borrowing >1yr	11,725	24,107	24,107	24,107	24,107	24,107
Net Borrowing	-1,650	7,388	20,649	-72,319	-2,769	-29,026
Share Capital	279	4,779	4,779	49,027	49,027	49,027
Share Premium	11,501	17,171	17,171	72,923	72,923	72,923
Retained Earnings	-3,250	-28,074	-41,370	-33,083	-46,948	-22,050
Other	-4	-4	-4	-4	-4	-4
Minority interest	0	0	0	0	0	0
Capital Employed	6,876	1,260	1,225	16,544	72,229	70,870
Net Assets	8,526	-6,128	-19,424	88,863	74,998	99,896
Total Equity	8,526	-6,128	-19,424	88,863	74,998	99,896

Source: Company data, Longspur Research estimates

Key Points

- Projects assumed to be equity accounted so fixed assets remains constant
- Investments build from FY 24 as initial projects starts to deploy
- Working capital expands with sales growth
- Cash benefits from assumed equity raise in FY 24

Cashflow

€,000, Dec	2021a	2022e	2023e	2024e	2025e	2026e
Operating profit	-6,643	-12,038	-12,339	12,353	-10,423	15,482
Depreciation	15	30	30	30	30	30
Provisions	0	0	0	0	0	0
Other	0	0	0	0	0	0
Working capital	-1,000	1,933	6	-11,095	10,863	-8,657
Operating cash flow	-7,628	-10,075	-12,303	1,288	470	6,855
Tax paid	-107	3,653	0	0	-2,882	0
Capex (less disposals)	-2,107	0	0	0	0	0
Investments	-189	0	0	-7,357	-66,212	15
Net interest	-24	-12,786	-958	-963	-926	-954
Net dividends	0	0	0	0	0	20,340
Residual cash flow	-10,055	-19,208	-13,261	-7,032	-69,549	26,257
Equity issued	10,837	10,170	0	100,000	0	0
Change in net borrowing	-1,650	9,038	13,261	-92,968	69,549	-26,257
Adjustments	868	0	0	0	0	0
Total financing	10,055	19,208	13,261	7,032	69,549	-26,257

Source: Company data, Longspur Research estimates

KEY POINTS

- Net operating outflows across period
- Project investment outflows in FY 24, 25 and 26
- First project dividend in FY 26 not enough to cover investment outflow that year
- Equity issue assumed in FY 24 to cover investment costs

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