



RECOMMENDATION

Buy

Beam Global (BEEM)

Upside: 73% Target price: \$18 Current price: \$10.4

STOCK MARKET Equity valuation | DCF USA | Clean Energy

Coverage initiation/Valuation report

Beam Global: Full Charge!



Revenue, 3M '23 (million USD)	13
Gross profit, 3M '23 (million USD)	0
Net profit, 3M '23 (million USD)	-3.8
Cash, 3M '23 (million USD)	1
P/E, 3M '23 (x)	_
EV/S, 3M '23 (x)	3.6x
P/B, 3M '23 (x)	6.3x
Gross margin, cash based, 3M '23 (%)	1.8%
Market cap (million USD)	138
Shares, diluted (million pcs)	13.3
Free float (%)	76%
52-week high/low (USD)	8.5-21.6
Current price (USD)	10.4
Target price (USD)	18
Upside (%)	73%



Orazbayev Daniyar (+7) 727 311 10 64 (688) | orazbayev@ffin.kz We have set our target price for Beam Global shares at \$18, implying a 73% upside from the last market price. We assign a "Buy" rating to the stock.

Possible growth catalysts. The company's financial reports for the second and third quarters, which will reveal the extent to which the company has been able to increase its gross margin, can act as potential growth catalysts in the near future. Moreover, further increases in EV ARC production and, consequently, revenue can be another significant growth catalyst. Additionally, the announcement of new contracts with customers can contribute to the company's value growth.

Beam Global's main and unique product is the EV ARC mobile charging station powered by solar panels. Production of EV ARC in the first quarter of 2023 increased by 238% YoY and 48% QoQ. Such a station offers full autonomy, allowing for installation in remote areas. EV ARC is also well-suited for consumers who do not tolerate power outages. The installation of this charging station does not require permits, engineering work, or other actions, allowing customers to use them almost immediately. EV ARC can simultaneously charge up to 6 electric vehicles and provides up to 265 e-miles of travel per day. The product is patented in the US and Europe and has no direct competitors.

The company has achieved a positive gross margin and demonstrated a revenue growth of 245% YoY and 65% QoQ in the first quarter of 2023. Revenue reached \$13 million, resulting in a current EV/S multiple of 3.6x. Margins improvement continues, reaching positive cash gross margin in the first quarter. The management forecasts an increase in gross margin by the end of 2023 due to an 8.25% price increase, decline of raw materials costs compared to 2022, and the discovery of engineering solutions that can increase the gross margin by 15 percentage points. As of the end of March 2023, the company has backlog totaling \$52 million.

The charging infrastructure market in the US is projected to grow from \$3.9 billion to \$43.5 billion, given the current weak relative metrics. In the US, the ratio of electric vehicles to charging stations is 24, which is significantly higher than the global average of 10. Furthermore, the ratio of charging capacity to the number of electric vehicles is three times lower than the global average. The number of electric vehicles sold in 2022 reached 990,000 units (+57% YoY), with electric vehicles reaching a record 7.7% share of total car sales. However, the number of charging stations in the US only grew by 12% YoY. According to Precedence Research's forecast, the global charging infrastructure market could reach \$417 billion by 2030 with an CAGR of 31.5%. Notably, there is political support for the industry, and a 5-year federal program called NEVI with a \$5 billion budget for charging stations construction. Additionally, some states have plans to ban gasoline and diesel cars by 2035.



Beam Global: Financials

2021	2022	3M22	3M23	Balance sheet, thousand USD	2021	2022	3M22	3M23
9.002	21.995	3.770	13.020	Cash	21.949	1.681	19.176	99
•								6,88
								2,83
				· ·				12,74
				•				23,45
								1,71
		_						1,47
		(2.278)	(3.830)		_,			4,600
		-			359			9,67
		(2,278)		-		62	62	6
						37,730	46,510	40,98
(0.74)	(1.99)	(0.24)	(0.38)					7,080
(0.74)	(1.99)	(0.24)	(0.38)		727	1,687	1,113	2,578
				Contingent consideration	_	6,776	876	6,77
2021	2022	3M22	3M23	Other current liabilities	661	1,844	2,103	1,49
45%	144%	175%	245%	Current liabilities	2,955	13,172	6,128	17,93
_	-	-		Operating lease	1,607	1,070	1,537	924
_	-	-	_	Other non-current liabilities	118	281	497	27!
-	-	-	_	Liabilities, total	4,680	14,523	8,162	19,130
-	-	-	_					
-11%	-8%	-8%	0%	Equity	25,978	23,207	38,348	21,852
-67%	-50%	-53%	-24%	Liabilities and equity	30,658	37,730	46,510	40,982
-73%	-90%	-60%	-30%					
-73%	-89%	-60%	-29%	Element-by-element ROIC	2021	2022	3M22	3M2
-73%	-90%	-60%	-30%	•	_	_		-
				ICTO, x	-	_	_	
				AICTO, x	-	-	-	
2021	2022	3M22	3M23	ROIC, %	-	-	-	
(6,408)	(18,114)	(1,907)	(619)	Cost/Revenue, %	111%	108%	108%	100%
93	1,104	187	332	% when the control of	63%	82%	52%	30%
				WCTO, x	-	-	-	
				FATO, x	-	-	-	
(498)	(872)	(131)	(314)					
2,236	(342)	88	258	Liquidity and capital structure	2021	2022	3M22	3M2
				EBIT/Interest payments, x	-	-	-	
(4,754)	(20,268)	(2,773)	(691)	Current liquidity, x	4.7x	0.1x	2.3x	0.1
26,703	21,949	26,703	1,681	Debt/Total capitalization, %	-	-	-	
21,949	1,681	19,176	990	Debt/Assets, %	-	-	-	
				Debt/Cash, x	-	-	-	
2024	2022	28422	28422		- 0E0/	630/	- 0.07	E20
								53%
				ASSEIS/Equity, X	1.ZX	1.0X	1.2X	1.9
				Multipliore	2021	2022	20/122	28424
				•				3M23
					03.2	7.4	36.0	6.3
					20.7	44	9.0	3.0
					20.7	7.7	5.0	0.1
					10.2	12	9.0	3.0
0.33	1.33	0.00	1.70	L V / O, A	10.3	4.3	5.0	3.0
1,800	10,067	4,282	(233)					
	9,002 (9,974) (972) (5,627) (6,599) 5 (1) (6,596) (0.74) (0.74) 2021 45%	9,002 21,995 (9,974) (23,662) (972) (1,667) (5,627) (18,049) (6,599) (19,716) 5 37 (1) (1) (6,595) (19,680) (1) (2) (6,596) (19,682) (0,74) (1,99) (0,74) (1,99) (0,74) (1,99) 2021 2022 45% 144%	9,002 21,995 3,770 (9,974) (23,662) (4,075) (972) (1,667) (305) (5,627) (18,049) (1,975) (6,599) (19,716) (2,280) 5 37 2 (1) (1) (1) - (6,595) (19,680) (2,278) (1) (2) - (6,596) (19,682) (2,278) (0,74) (1,99) (0,24) (0,74) (1,99) (0,24) (0,74) (1,99) (0,24) (0,74) (1,99) (0,24) 2021 2022 3M22 45% 144% 175%	9,002 21,995 3,770 13,020 (9,974) (23,662) (4,075) (13,015) (972) (1,667) (305) 5 (5,627) (18,049) (1,975) (3,846) (6,599) (19,716) (2,280) (3,841) 5 37 2 11 (1) (1)	9,002 21,995 3,770 13,020 (9,974) (23,662) (4,075) (13,015) (972) (1,667) (305) (5,627) (18,049) (1,975) (3,846) (6,599) (19,716) (2,280) (3,841) (6,599) (19,716) (2,280) (3,841) (6,595) (19,680) (2,278) (3,830) (1) (1) (2) (6,596) (19,682) (2,278) (3,831) (6,596) (19,682) (2,278) (3,831) (6,596) (19,682) (2,278) (3,831) (6,596) (19,682) (2,278) (3,831) (6,596) (19,682) (2,278) (3,831) (7,74) (1,99) (0,24) (0,38) (0,74) (1,99) (0,24) (0,38) (0,74) (1,99) (0,24) (0,38) (0,74) (1,99) (0,24) (0,38) (0,74) (1,99) (0,24) (0,38) (0,74) (1,99) (0,24) (0,38) (0,74) (1,99) (0,24) (0,38) (0,74) (1,99) (0,24) (0,38) (0,74) (1,99) (0,24) (0,38) (0,74) (1,99) (0,24) (0,38) (0,74) (1,99) (0,24) (0,38) (0,74) (1,99) (0,24) (0,38) (0,74) (1,99) (0,24) (0,38) (0,74) (1,99) (0,24) (0,38) (0,74) (1,99) (0,24) (0,38) (0,74) (1,99) (0,24) (0,38) (0,74) (1,99) (0,24) (0,38) (0,74) (1,99) (0,24) (0,38) (0,74) (1,99) (0,24) (0,38) (0,74) (1,99) (0,24) (0,38) (0,74) (1,99) (0,24) (0,38) (0,74) (1,99) (0,24) (0,38) (0,74) (1,99) (0,24) (0,38) (0,74) (1,99) (0,24) (0,38) (0,74) (1,99) (0,24) (0,38) (0,74) (1,99) (0,24) (0,38) (0,74) (1,99) (0,24) (0,38) (0,74) (1,99) (0,24) (0,38) (0,74) (1,99) (0,24) (0,38) (0,74) (1,99) (0,24) (0,38) (0,74) (1,99) (0,24) (0,38) (0,74) (1,99) (0,24) (0,38) (0,74) (1,99) (0,24) (0,38) (0,74) (1,99) (0,24) (0,38) (0,74) (1,99) (0,24) (0,38) (0,74) (1,99) (0,24) (0,38) (0,74) (1,99) (0,24) (0,38) (0,74) (1,99) (0,24) (0,38) (0,74) (1,99) (0,24) (0,38) (0,74) (1,99) (0,24) (0,38) (0,74) (1,99) (0,24) (0,38) (0,74) (1,99) (0,24) (0,38) (0,74) (1,99) (0,24) (0,38) (0,74) (1,99) (0,24) (0,38) (0,74) (1,99) (0,24) (0,38) (0,74) (1,99) (0,24) (0,38) (0,74) (1,99) (0,24) (0,38) (0,74) (1,99) (0,74) (1,99) (0,74) (1,99) (0,74) (1,99) (0,74) (1,99) (0,74) (1,99) (0,74) (1,99) (0,74) (1,99) (0,74) (1,99) (0,74) (1,99)	9,002 21,995 3,770 13,020 Cash 21,949 (9,974) (23,662) (4,075) (13,015) Accounts receivable 3,827 (9,972) (18,049) (1,975) (3,946) inventory 1,611 (6,599) (19,716) (2,280) (3,841) Current assets 27,567 (11) (1) Operating lease 2,030 (6,595) (19,680) (2,278) (3,831) Court of sasets 52 (6,596) (19,682) (2,278) (3,831) Cuther assets 5,28 (1,199) (0,24) (0,38) Accounts payable 1,567 Accounts payable Accounts payable Accounts payable Accounts payable Accounts payable Accounts payable Accounts payable	9,002	9,002

2



Contents

Beam Global: Financials	2
Beam Global: Portfolio Manager's Summary	4
Beam Global: History and General Information	9
Operating Activities	11
The Electric Vehicle Charging Infrastructure Industry	15
Beam Global: Financial Analysis	20
Beam Global Valuation Model	23
Potential Risks for the Valuation Model	26



Beam Global: Portfolio Manager's Summary

Investment Summary. Beam Global is a company that offers a unique patented product for electric vehicle charging called EV ARC, which is also environmentally friendly, making it attractive to ESG investors. The company has received a significant number of orders and is rapidly increasing its revenue. Currently, EV ARC production has significant growth potential without requiring significant capital expenditures. The company intends to increase its gross margin in the coming years, which could act as a catalyst for stock price growth. The electric vehicle charging infrastructure market is experiencing significant growth and is expected to continue expanding. In the United States, the charging infrastructure market lags behind electric vehicle sales in all relative parameters compared to global and European figures. As a result, the federal government and state governments in the US are launching various programs to stimulate the construction of charging stations.

Target price of 1 common share – \$18. We have set our target price at \$18 per share, which implies a 73% potential upside from the current market price. This target price is the result of modeling our assumptions within a discounted cash flow (DCF) framework.

Possible growth catalysts. The company's financial reports for the second and third quarters, which will reveal the extent to which the company has been able to increase its gross margin, can act as potential growth catalysts in the near future. The financial reports are expected to be released around August and November, approximately between the 10th and 15th of those months. Moreover, further increases in EV ARC production and, consequently, revenue can be another significant growth catalyst. Additionally, the announcement of new contracts with customers can contribute to the company's value growth.

Key DCF Modeling Points. The key element in the valuation is the forecast for the production of the company's main product, EV ARC. Considering that the company has significant production capacity growth potential under current conditions, we conservatively assume that Beam will gradually increase production to maximum levels by 2032. Another important factor for valuation is the forecast for gross margin and operating expenses, which have not yet reached the target level. Capital expenditures are based on historical expenditure-to-revenue ratios and do not require one-time increases due to the fact that the current facility is enough to reach forecast production. Additionally, we have conservatively calculated working capital, which historically remains at a high level, thereby increasing the time to receive cash flows. The valuation of the recently acquired Amiga was conservatively estimated at 50% of the purchase price.

Revenue Forecast. Revenue assumptions were based on the projected increase in EV ARC production from the current run-rate level of 608 units (Q1 figure multiplied by 4) to 4,583 units by 2032. The average selling price, which is \$71,000, is projected to increase to \$76,000 in 2023 and then remain at the same level. The 8.25% price increase has already been announced by the company's management due to high demand and the rising cost of certain components. As a result, the revenue is projected to reach \$368 million by 2032, which represents only 0.8% of the estimated share of the US market valued at \$43.5



billion.

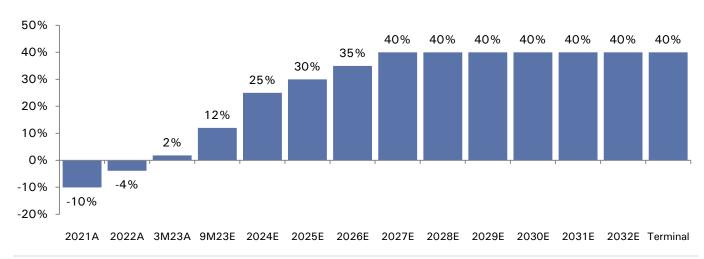
Production and market data	2020A	2021A	2022A	3M23A	9M23E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E	Termin
EV ARC production, units	115	119	244	152	473	906	1,269	1,713	2,312	3,006	3,607	3,968	4,365	4,583	4,81
growth rates, %		3%	105%	238%	94%	92%	40%	35%	35%	30%	20%	10%	10%	5%	5
Manufacturing capacity, units			412		596	1,177	1,560	2,340	3,120	3,900	4,680	4,680	4,680	4,680	4,68
Production in % of capacity			59%		79%	77%	81%	73%	74%	77%	77%	85%	93%	98%	103
Average selling price, thousand USD			71	71	76	76	76	76	76	76	76	76	76	76	5 7
growth rates, %					8%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0
JS charging infrastructure market, nillion USD			3,920	1,247	3,740	6,342	8,068	10,262	13,053	16,604	21,120	26,865	34,172	43,467	47,81
growth rates, %			0%	27%	27%	27%	27%	27%	27%	27%	27%	27%	27%	27%	10
Revenue model, million USD	2020A	2021A	2022A	3M23A	9M23E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E	Termir
Revenue by products															
EV ARC			17	11	36	69	97	131	177	229	275	303	333	350) 3(
Battery packs			5.2	1.8	5.8	8.5	9.4	10.3	11.3	12.5	13.7	15.1	16.6	18.3	20
otal revenue	6.2	9	22	13	42	78	106	141	188	242	289	318	350	368	3
growth rates, %		45%	144%	245%	150%	41%	37%	33%	33%	29%	19%	10%	10%	5%	

Based on company data and Freedom Finance Global PLC estimations

Gross margin. The gross margin is calculated on a cash basis, excluding non-cash expenses related to the acquisition of All Cell. However, we consider non-cash employee share-based compensation, as it ultimately affects the share price through dilution. For the remaining 9 months of 2023, we conservatively expect a cash gross margin of 12%, with further growth to 25% in 2024 and 40% in 2027. The margin growth in the coming years is based on several factors: lower raw material and material costs compared to 2022 figures, an 8.25% increase in the price of EV ARC, and the discovery of engineering solutions in EV ARC that will increase the gross margin by 15 percentage points. On the other hand, leading competitors already have gross margins of 25-30%, and it is unlikely that they have reached their target levels. In contrast, Beam has a target gross margin of 50%.



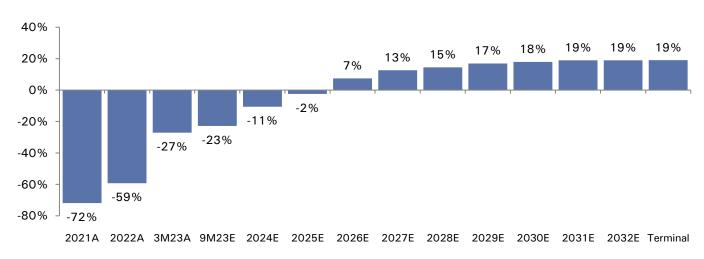
Graph 1. Forecast of gross margin of Beam Global



Freedom Finance Global PLC estimations

EBITDA margin. Despite the company's progress towards gross profitability, according to our forecasts, there is still a journey ahead to achieve positive operating income, as operating expenses accounted for 55% of revenue in the previous year. Although this ratio has decreased to 29% in the first quarter, we conservatively estimate that operating expenses as a percentage of revenue will be 35% for the remaining three quarters of 2023. Furthermore, this ratio is projected to decrease to 21% by 2031. As a result, the EBITDA margin will increase from the current - 27% to 7% in 2026 and to 19% by 2031.

Graph 2. Forecast of EBITDA margin



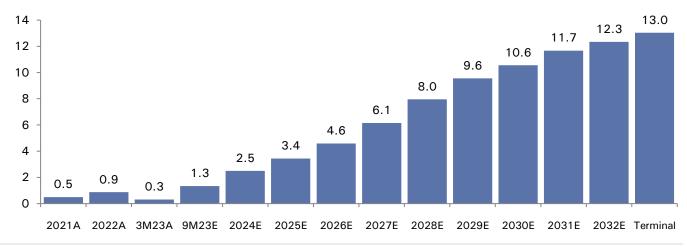
Freedom Finance Global PLC estimations

Capital expenditures forecast. Considering that the current facility allows the company to achieve its production targets without significant investments, we have calculated capital expenditures based on historical indicators. Previously, the company increased its production and spent 4% of revenue in 2022 and 2.4% in the first quarter of 2023 for capital expenditures. For the forecast period, we have estimated that the company will allocate 3.3% of revenue towards capital expenditures.



Therefore, capital expenditures will increase from last year's \$0.9 million to \$13 million. Depreciation and amortization of fixed assets occur at an average annual rate of 41% of their initial cost, calculated based on historical data.

Graph 3. Capital expenditures forecast, million USD



Freedom Finance Global PLC estimations

Weighted Average Cost of Capital (WACC). The weighted average cost of capital for 2023 is projected to be 10.6%. The risk-free rate of 3.7% is based on the yield of 10-year US government bonds, and the equity risk premium of 5.3% is derived from Damodaran's data. Additionally, a beta of 1.3 was determined based on the historical stock prices of the Beam. We anticipate a reduction in the risk-free rate to 2.2% due to a decline in US government bond yields. As a result, the WACC is expected to decrease to 9.1% by 2026. Considering that the company has no debt, the cost of equity is equal to the WACC.

Assumptions for the terminal period. In the terminal period, we assumed a 2% terminal yearly growth rate. Net reinvestment to NOPLAT in the terminal period is estimated at 27.5%, which corresponds to the average value over the previous four forecast years. Consequently, we conservatively approached the ROIC in the mature period, which amounted to 7.3%, lower than the WACC of 9.1%.

Valuation and upside calculation. The enterprise value (EV), which is the sum of the forecast (\$16 million) and terminal (\$218 million) periods, amounts to \$234 million. Considering \$1 million in cash on hand, a market value of \$2.5 million in warrants, an estimated value of \$3.4 million in options and \$4.5 million in units, a recent \$22.5 million stock offering and the Amiga acquisition at a 50% discount to valuation, Beam Global equity can be valued at \$242 million.

With 10.76 million shares outstanding plus 2.5 million new shares offered, the target stock price is \$18. The growth potential compared to the current market price of \$10.4 is 73%.

Relative valuation. Although Beam's main product has no direct competitors, we believe the company will still have to compete with other manufacturers of conventional charging stations. For comparison, we selected 21 different companies operating in the electric vehicle charging infrastructure industry in developed countries of Europe, the US, and China. Considering the company's current net profit losses, we chose to use the revenue-based multiple: EV/S, as well as forward EV/S



for 2023 and 2024. It should be noted that the projected revenue was calculated using the DCF model, so the comparative valuation also has some correlation with the DCF valuation. In the end, the average EV/S multiple amounted to \$12.4 per share. The significant difference between the two valuation methods may be attributed to the absence of internal growth factors among the peers, as well as the limitations of relative valuation using only one multiple.



Beam Global: History and General Information

About Beam Global. Beam Global is an innovative clean technology company based in San Diego, California. The company develops, manufactures, and sells products for renewable energy applications, including EV charging infrastructure, energy storage systems, energy security solutions, emergency preparedness, and outdoor advertising.

The company's main focus is on creating renewable energy products that are quickly deployable, have diverse applications, and feature attractive designs. Beam believes in the need for rapidly deployable and scalable electric vehicle charging infrastructure, and their products, such as the EV ARC and Solar Tree, meet these requirements. The company is not tied to specific electric vehicle charging equipment manufacturers as it does not sell the charging stations themselves but provides products that enable their use. Their EV ARC and Solar Tree products replace the infrastructure needed to support electric vehicle charging stations, rather than the charging stations themselves.

Beam Global was established in June 2006 as a LLC. Through a series of transactions and mergers, including a number of deals in 2010 when the existing company was acquired by an inactive public company in a transaction considered a recapitalization, the resulting company became Envision Solar International, Inc. On September 15, 2020, Envision Solar International, Inc. announced its rebranding and changed its corporate name to Beam Global (hereinafter referred to as "the Company" or "Beam"), trading on Nasdaq under the symbols BEEM and BEEMW.

On March 4, 2022, the Company acquired substantially all of the assets of All Cell Technologies, LLC ("All Cell") for 1,055,000 shares of Beam common stock plus an additional \$0.8 million in cash for net working capital. All Cell is an energy solutions and technology company based in Broadview, Illinois. Additionally, All Cell may receive additional shares of Beam common stock if the company's new energy storage division achieves certain revenue milestones. The maximum total number of shares of Beam common stock to be issued to All Cell for additional consideration does not exceed 1.8 million shares.

June 16, 2023 The Company announced the pending acquisition of Amiga, a manufacturer of streetlights. The main strategic goal of this acquisition is to scale the business in the European market. Also given Amiga's specialization, this acquisition will allow the Company to launch the new EV Standard product. Amiga was established in 1990 and is based in Serbia. This company earned revenues of more than €8.5 million in 2022 and had a positive gross margin. After the transaction Amiga will be renamed under the new brand Beam EU. The total transaction amounted to €10 million, of which €7 million will be paid in cash and another €3 million in Beam shares. There are also additional bonuses in the form of Beam shares for previous shareholders in the event that Amiga can show revenues of more than €10 million and €13.5 million in 2023 and 2024, respectively. In addition, an independent appraiser valued Amiga's real estate and equipment at €13 million.

Management, Shares, and Structure. As of May 9, 2023, the number of shares outstanding is 10,760,195, and with the recent offering the number of shares has increased by exactly 2.5 million. This gives Beam a



market capitalization of \$138 million at a price of \$10.4. However, the company has warrants, options, and restricted stock units. As of the end of March 2023, there are 624,206 warrants traded under the ticker BEEMW, with a current price of \$4.9 per share. The average exercise price of the warrants is \$9.73, and as of the end of March 2023, only 440,000 warrants are exercisable. There are also 346,758 options with an average exercise price of \$12.68 and an average remaining term of 6.88 years. In November 2022, the company's CEO received 285,000 restricted stock units. Half of them were granted unconditionally, and the other half are subject to conditions based on achieving target revenue and gross margin for the period of 2022-2024. Depending on the outcome, the number of shares to be issued under the stock units may vary from zero to 178,125 shares. In addition to all of this, as part of the recent acquisition of Amiga will also be issued shares worth 3 million euros, and additional shares may be issued if Amiga reaches its revenue targets. The CEO of the company is Desmond Wheatley, who has been with the company since 2010, serving as a CEO since 2011 and chairman of the board since 2016. Wheatley has over two decades of work experience.



Operating Activities

Company's Products. EV ARC (Electric Vehicle Autonomous Renewable Charger) is a unique charging device for electric vehicles powered by solar panels and can be placed in parking lots without occupying parking spaces. It generates and stores its own energy, supports level 1 and level 2 charging, including fast direct current charging. Due to its elevated structure, the device's electronics are protected from flooding, withstanding water levels of up to almost three meters. EV ARC does not require connection to the grid, eliminating the need for cable laying, transformer replacements, or other infrastructure modifications. The installation of EV ARC typically does not require special permits or approvals from local authorities.

In 2019, the first units of EV ARC for fast direct current charging with a power of 50 kW were deployed, providing up to 1,100 miles of range per day. There is also ongoing development of a patent for wireless charging for compatible electric vehicles. Beam Global's products also reduce greenhouse gas and CO2 emissions, which can attract corporations to sponsor the network and receive carbon offset credits generated by the EV ARC network.



Illustration 2. The company's main product - EV ARC

Company data

SolarTree is a patented solution for large-scale solar charging of electric vehicles. Solar Tree is a single-post structure with a solar tracker that combines an energy storage system, electric vehicle charging stations, and media platforms. It is suitable for charging electric buses, heavy machinery, agricultural equipment, and other types of vehicles. The new generation of Solar Tree products, called Solar Tree DCFC (DCFC - Direct Current Fast Charging), features onboard battery storage, allowing for quick deployment in remote locations without the need for grid connection. These products provide reliable backup power and can help address the problem of insufficient direct current fast charging infrastructure, especially in remote areas.



Illustration 3. SolarTree photo



Company data

Beam AllCell is an energy storage technology based on flexible architecture lithium-ion and lithium iron phosphate batteries. They utilize a phase change material for efficient thermal management and ensure safety by preventing thermal runaway propagation. These batteries are ideal for applications that require high power in limited space, such as drones, underwater vehicles, medical and entertainment devices, as well as micro-mobility products. Beam is already using AllCell products in its EV ARC electric vehicle charging stations and plans to incorporate this technology into newly developed products.

Illustration 4. Beam AllCell battery products



Company data

The company's products may qualify for various tax and other incentives, which can significantly reduce the financial expenses for customers. Examples of such incentives include the Federal Investment Tax Credit for solar energy, the Section 179 accelerated depreciation rule and bonus depreciation, as well as a tax credit provided to commercial organizations for the use of electric vehicle charging stations.

EV Standard is a patented potential product that uses existing streetlights to charge electric vehicles. The product combines solar, wind energy and electricity from the streetlight grid, storing them in built-in batteries. The EV Standard can provide efficient on-street charging for electric vehicles without the need for costly construction work. This product also continues to charge even when the power grid goes down and could be in demand in cities where street parking along sidewalks dominates. This product will be developed on the basis of the recently acquired Amiga, which has experience in the production of street lights.

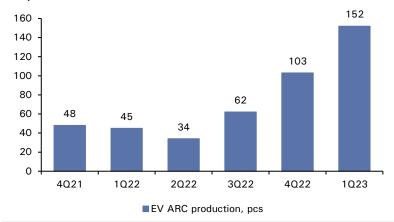
Manufacturing and transportation. The company is located in San Diego, California, in a leased facility spanning approximately 53,000 square



feet, equipped to accommodate significant growth potential. The facility houses corporate operations, sales, design, engineering, and production departments. In 2022, the company operated on a single shift, five days a week, producing around 260 units of EV ARC per year. However, with increased staffing, capital investment, and utilization of contract manufacturing, the company is capable of scaling up production to approximately 4,000-4,500 units of EV ARC per year within the current facility. As a result of acquiring AllCell in 2022, the company also leases an additional 18,000 square feet of space in Broadview, Illinois, for the production of energy storage products for both its own needs and other clients.

The company aims to reduce the cost of production by implementing process improvements and product design enhancements. Many of the company's suppliers are located nearby, which helps reduce delivery times and transportation costs. EV ARC products are delivered to the customer's location either by the company or a third-party logistics provider. Solar Tree products are sold as a kit of engineered components that are installed by third parties upon the customer's order.

Graph 4. Production volume dynamics of EV ARC from 4th quarter 2021 to 1st quarter 2023, in units



Company data, Freedom Finance Global PLC estimations

Customers. The company's customers are primarily various governmental or quasi-governmental entities. In 2022 and 2021, Beam had two major customer contracts with the State of California and the General Services Administration (GSA), which accounted for a significant portion of the company's revenue.

The contract with the California Department of General Services allows state and municipal entities in California, including cities, counties, special districts, California State Universities, school districts, and colleges, to procure EV ARC charging stations, ARC Mobility trailers, and related accessories. In June 2018, the contract was extended for four years and expanded to include more products, including EV ARC DCFC, with an estimated value of over \$20 million in California. In January 2021, the contract was extended until June 2022 and expanded for potential use by government agencies nationwide. In June 2022, a new three-year contract was signed with the State of California, which can be used by state, municipal, and local government entities nationwide. By the end of 2022, 234 EV ARC charging stations were sold under this contract, totaling \$16.4 million. Additionally, in 2022, 73 units were sold for a total of \$5.2 million.



GSA MAS (General Services Administration Multiple Award Schedule) contract. This five-year contract, effective from November 1, 2020, was awarded by the GSA after a thorough evaluation process. The contract simplifies the federal procurement process and ensures the best price. In 2022, the company sold 96 EV ARC charging stations under this contract, totaling \$7.9 million.

For the first quarter of 2023, two clients accounted for 80% (U.S. Army) and 10% of the total revenue. Overall, the concentration of customers from federal, state, and local government entities accounted for 86% in the first quarter of 2023 and 69% in the first quarter of 2022 of the revenue. In 2022, the concentration of government-related customers accounted for 62% of the revenue (87% in 2021). In 2022, 23% of the revenue came from California government entities (55% in 2021).

In the past six months, the company secured the following major contracts for EV ARC supply:

- U.S. Army (TechFlow, Inc.) 367 units of EV ARC (totaling \$29.4 million)
- U.S. Department of Veterans Affairs 140 units of EV ARC (\$11.6 million)
- City of New York 71 units of EV ARC (\$5.3 million)
- U.S. Department of Homeland Security 32 units of EV ARC (\$2.9 million)

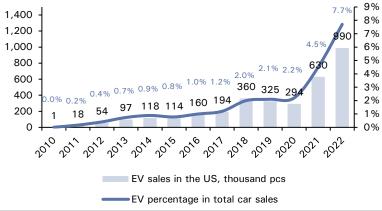
Additionally, on April 18, 2023, the company received an order from a globally recognized automobile manufacturer. However, the details of the contract are not disclosed according to its terms. On April 11, 2023, the company entered into a multimillion-dollar contract for the supply of battery modules to an undisclosed customer in the materials processing industry.



The Electric Vehicle Charging Infrastructure Industry

The electric vehicle market has shown rapid growth in recent years. The number of electric vehicle sales in the United States in 2022 reached 990,000 units (+57% YoY), accounting for 7.7% of total car sales. In 2016, electric vehicles had a mere 1% share of sales, with 160,000 units sold. The number of different electric vehicle models (including hybrids) offered by car manufacturers reached 281 units (+27% YoY) by the end of 2022. Among them, 132 models were fully electric vehicles (+39% YoY). The International Energy Agency (IEA) expects electric vehicle sales to reach 3.34 million units in 2025 and 7.76 million units in 2030.

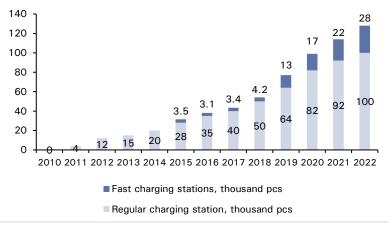
Graph 5. Sales dynamics of electric vehicles and the share of electric vehicles in total vehicle sales in the United States for 2010-2022.



EIA data

The number of charging stations in the United States by the end of 2022 reached 128,000 units (\pm 12% YoY). Among them, only 28,000 have fast charging capabilities (\pm 27% YoY). According to the EIA forecast, by 2025, the total number of charging stations is expected to reach 550,000 units (including 130,000 fast charging stations), and by 2030, it is projected to reach 1.38 million units (including 380,000 fast charging stations).

Graph 6. The dynamics of the number of charging stations (regular and fast) in the United States from 2010 to 2022.



EIA data

On a global scale, the need for public charging infrastructure for electric

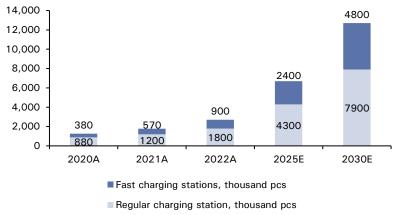


vehicles is growing. According to the International Energy Agency (IEA), by the end of 2022, there were over 2.7 million publicly accessible charging points worldwide, with approximately 900,000 installations in $2022 \ (+55\% \ YoY)$.

As for slow charging stations, the situation is as follows: in 2022, there were over 600,000 publicly accessible slow charging points installed worldwide, with 360,000 of them located in China. In Europe, there were 460,000 slow charging stations by the end of 2022 (+50% YoY). The number of slow charging points in the United States increased by 9%, which is the lowest growth rate among major markets. South Korea saw a doubling of the number of such points compared to the previous year, reaching 184,000 units.

In contrast, the number of fast charging stations worldwide only increased by 330,000 units in 2022. The majority of this growth occurred in China, which overall owns about 90% of the total number of fast charging stations. In Europe, over 70,000 fast charging stations were installed in a year, with the highest numbers in Germany (over 12,000), France (9,700), and Norway (9,000). In the United States, only 6,300 fast charging stations were installed, with approximately three-quarters owned by Tesla. As mentioned earlier, the total number of fast charging stations in the United States reached 28,000 by the end of 2022. According to the IEA, the deployment of charging stations is expected to accelerate in the coming years due to the approval of the National Electric Vehicle Charging Infrastructure Formula (NEVI) program by the U.S. government.

Graph 7. The dynamics and forecast of number of charging station (regular, fast) in the world from 2020 to 2030.



EIA data

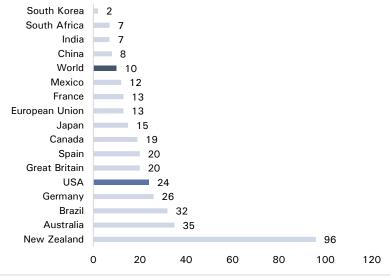
All states in the United States are participating in the program for developing charging infrastructure for electric vehicles. For the year 2023, a total of \$885 million has already been allocated to support the installation of charging stations along 122,000 km of highways. The Federal Highway Administration (FHWA) has announced new national standards for federally funded charging stations to ensure their reliability, accessibility, and compatibility. As a result of these new standards, Tesla has announced that it will open a portion of its Supercharger network (which accounts for 60% of fast charging stations in the US) and Destination Charger network for use by electric vehicle owners, not just Tesla owners.

The development of public charging infrastructure is a key factor in the widespread adoption of electric vehicles. In Norway, for example, the



ratio of electric vehicles to charging points was 1.3 in 2011, which became one of the driving factors for industry development. By the end of 2022, this ratio had grown to 25 electric vehicles per charging station. Sustainable growth in electric vehicle sales can only be achieved with accessible and convenient charging infrastructure, including both private charging at home or work and publicly available charging stations.

Graph 8. The number of electric vehicles per charging station in different countries around the world as of the end of 2022



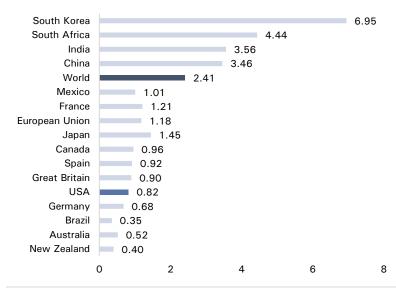
EIA data

Plug-in hybrid electric vehicles (PHEVs) are less dependent on public charging infrastructure compared to fully electric vehicles. However, policies related to ensuring an adequate number of charging points should still include and encourage public charging for PHEVs. Globally, in 2022, there were an average of around ten electric vehicles per charging point.

The total charging capacity per electric vehicle is also important, not just the number of public charging stations. Fast charging stations can serve more vehicles compared to slow chargers. Globally, the average power capacity of public charging is about 2.4 kW per electric vehicle. In the European Union, this figure is lower, at around 1.2 kW per electric vehicle. In South Korea, this figure is the highest, at 7 kW per electric vehicle, even though the majority of public charging stations (90%) are slow chargers. It's worth noting that in the United States, this figure is one of the lowest, at 0.82 kW per electric vehicle, indicating a high demand for charging stations.



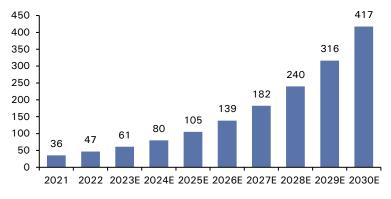
Graph 9. The charging power capacity in kilowatts per electric vehicle in different countries around the world as of the end of 2022



EIA data

According to Precedence Research, the global electric vehicle charging infrastructure market could reach \$417.35 billion by 2030. In 2022, the market volume was \$46.54 billion. The average annual forecasted growth for the period 2023-2030 is a significant 31.5%. It is worth noting that the agency's previous forecast for 2030 was \$222 billion, and in 2022, the projected market volume was \$25.56 billion.

Graph 10. The forecasted dynamics of the global electric vehicle charging infrastructure market volume for 2021-2030, in billion USD



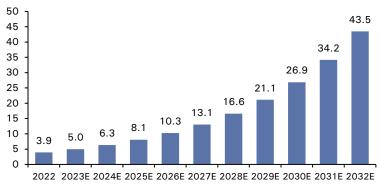
■ Global market value of charging infrastrature, billion USD

Precedence Research data

According to the June report by Brainy Insights, the electric vehicle charging infrastructure market in the United States was valued at \$3.92 billion in 2022. It is forecasted to have an average annual growth rate of 27.2% during the period 2023-2032. This means that the market volume is projected to reach \$43.46 billion by 2032.



Graph 11. Forecasted dynamics of the charging infrastructure market volume in the United States for 2021-2030, billion USD



■ Market value of charging infrastrature in the US, billion USD

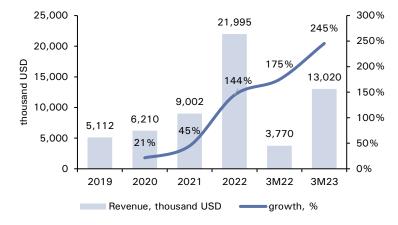
Brainy Insights data



Beam Global: Financial Analysis

Steady and significant revenue growth. The company has shown steady and significant revenue growth over the past few quarters. In the first quarter of 2023, Beam's revenue increased by 245% YoY and 65% QoQ, reaching \$13 million. In 2022, the total revenue amounted to \$22 million (+144% YoY). The main driver of revenue growth is the increased sales of their flagship product - the EV ARC. Additionally, a portion of the revenue comes from battery sales. In the first quarter of 2023, 14% of the revenue was attributed to this segment (24% in 2022).

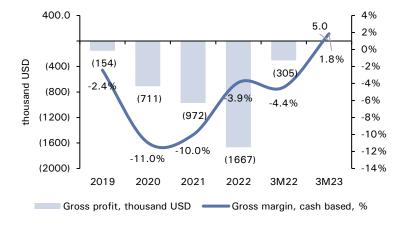
Graph 12. Company's revenue for 2019 – 1^{st} quarter 2023, in thousands of USD



Source: Company data

The company has reported its first gross profit. In the first quarter of 2023, Beam achieved its first gross profit according to GAAP standards. The gross profit amounted to \$5,000. In 2022, the company had an overall gross loss of \$1.7 million. However, if we exclude non-cash expenses related to contingent consideration resulting from the acquisition of All Cell, the gross profit in the first quarter reached \$240,000. The cash based gross margin reached 1.8%.

Graph 13. Dynamics of gross profit and cash based gross margin from 2019 to 2022, in thousands of USD

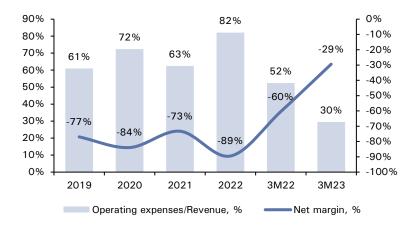


Source: Company data



The company is operating at a loss, but the margin is improving. In the first quarter of 2023, Beam reported a net loss of \$3.8 million, which is a 68% increase compared to the previous year. However, when comparing the net margin, there has been a significant improvement in 2023: from -60% to -29%. A large portion of the loss is attributed to operating expenses, which amounted to \$3.8 million in the first quarter. It should be noted that some of the operating expenses are also non-cash. Nevertheless, the ratio of operating expenses to revenue decreased from 82% in 2022 to 30% in the first quarter of 2023.

Graph 14. Dynamics of Net Margin and Operating Expenses to Revenue Ratio for 2019-2022

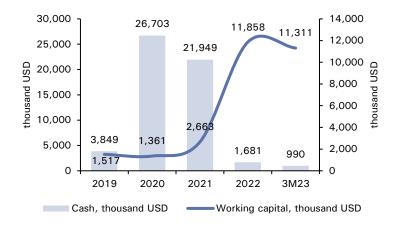


Source: Company data

Clean balance sheet. Beam has a clean balance sheet without debt. The total value of assets is \$41 million, with equity of \$22 million and total liabilities of \$19 million. The majority of liabilities are related to working capital. Current assets exceed current liabilities by \$5.3 million or 31% as of the end of March 2023. The main portion of current assets is concentrated in inventory (\$12.7 million), including raw materials and supplies (79% of total inventory). Accounts receivable amount to \$6.9 million, with 76% of it attributed to the U.S. Army. As of the end of 2022, the concentration of accounts receivable among the top three clients accounted for 30%, 15%, and 11% respectively of the total accounts receivable amount. As of the end of March 2023, the company only had \$1 million in cash. However, in March 2023, the company entered into an agreement with OCI Group for a credit line of \$100 million at an interest rate of SOFR+300 basis points with a term of 5 years. At present, the company has not yet utilized these borrowed funds, which provides confidence in its solvency.



Graph 15. Dynamics of cash on the balance sheet and working capital for 2019-2022, in thousands of USD



Source: Company data



Beam Global Valuation Model

Production and market data	2021A	2022A	3M23A	9M23E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E	Termina
EV ARC production, units	119	244	152	473	906	1,269	1,713	2,312	3,006	3,607	3,968	4,365	4,583	4,81
growth rates, %	3%				92%	40%	35%	35%	30%	20%	10%	10%	5%	59
Manufacturing capacity, units	3 / 3	412		596			2,340	3,120	3,900	4,680		4,680	4,680	4,68
Production in % of capacity		59%		79%	77%	81%	73%	74%	77%	77%	85%	93%	98%	1039
Average selling price, thousand USD		71				76	76	76	76	76		76	76	
growth rates, %		, ,	, ,	8%		0%	0%	0%	0%	0%	0%	0%	0%	09
US charging infrastructure market, million		3,920	1,247	3,740	6,342	8,068	10,262	13,053	16,604	21,120	26,865	34,172	43,467	47,81
growth rates, %		0%	27%	27%	27%	27%	27%	27%	27%	27%	27%	27%	27%	109
Revenue model, million USD	2021A	2022A	3M23A	9M23E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E	Termina
Revenue by products														
EV ARC		17	11	36	69	97	131	177	229	275	303	333	350	36
Battery packs		5.2	1.8	5.8	8.5	9.4	10.3	11.3	12.5	13.7	15.1	16.6	18.3	20.
Total revenue	9	22	13	42	78	106	141	188	242	289	318	350	368	38
growth rates, %	45%	144%	245%	150%	41%	37%	33%	33%	29%	19%	10%	10%	5%	5%
potential market share, %		0.6%	1.0%	1.1%	1.2%	1.3%	1.4%	1.4%	1.5%	1.4%	1.2%	1.0%	0.8%	0.89
Expenses model, million USD	2021A	2022A	3M23A	9M23F	2024	2025	2026	2027	2028	2029	2030	2031	2032	Termina
Cost of revenue, cash based	9.9	22.8	12.8	36.9	58.3	74.4	91.7	112.7	145.2	173.4	190.8	209.9	220.9	232.4
Gross margin, %	-10%	-4%	2%	12%	25%	30%	35%	40%	40%	40%	40%	40%	40%	40%
Operating expenses, cash based	5.6	12.2	3.8	14.6	27.6	34.5	38.8	51.4	61.7	66.8	70.2	73.7	77.3	81.:
Operating expenses/revenue, %	62%	55%	29%	35%	36%	32%	28%	27%	25%	23%	22%	21%	21%	219
Total expenses	15.5	35.0	16.5	51.5	85.9	109	130	164	207	240	261	284	298	314
Forecast period model, million USD	2021A	2022A	3M23A	9M23E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E	Termina
EBITDA	-6.5	-13.0	-3.5	-9.6	-8.2	-2.6	10.6	23.7	35.1	48.8	57.0	66	70	74
EBITDA margin	-72%	-59%	-27%	-23%	-11%	-2%	7%	13%	15%	17%	18%	19%	19%	19%
EBIT	-7.3	-14.5	-3.9	-11.0	-9.8	-5.1	7.1	19.1	29.0	40.9	47.5	55.7	58	6
EBIT margin	-81%	-66%	-30%	-26%	-13%	-5%	5%	10%	12%	14%	15%	16%	16%	169
				0	0	0.0	1.5	4.0	6.1	8.6	10.0	11.7	12.2	12.
(-) Tax on EBIT							F 6	15.1	22.9	32.3	37.5	44.0	46.0	48.
(=) NOPAT				(11.0)	(9.8)	(5.1)	5.6						40.0	
(=) NOPAT				(11.0) 7.2		(5 .1) 8.9	10.5	13.7	17.4	15.3		10.5	6.2	
(=) NOPAT					6.5						9.5			13.
(=) NOPAT (-) net reinvestments				7.2	6.5 2.5	8.9 3.4	10.5	13.7	17.4	15.3	9.5 10.6	10.5 11.7	6.2	13.0 13.0



=) FCFF		(18.3)	(16.2)	(14.0)	(4.8)		1.4	1.4 5.5	1.4 5.5 17.0	1.4 5.5 17.0 28.0	1.4 5.5 17.0 28.0 33.5	1.4 5.5 17.0 28.0 33.5 39.8
) discount factor		0.96x	0.88x	0.80x	0.75x	0.68	Зx	8x 0.63x	8x 0.63x 0.57x	8x 0.63x 0.57x 0.53x	8x 0.63x 0.57x 0.53x 0.48x	x 0.63x 0.57x 0.53x 0.48x 0.44x
FCF		(17.6)	(14.2)	(11.3)	(3.6)	1.0		3.5	3.5 9.8	3.5 9.8 14.7	3.5 9.8 14.7 16.1	3.5 9.8 14.7 16.1 17.6
VACC calculation												
Cost of equity												
lisk-free rate	3.7%											
Narket risk premium	5.3%											
Beta	1.31											
Cost of equity	10.6%											
ost of debt												
Cost of debt (before tax)	8.0%											
ax rate	21.0%											
cost of debt (after tax)	6.3%											
apital structure	1000											
quity	100%											
Pebt (D/(D+E))	0%											
ACC	10.6%											
quity valuation of Beam Global, million SD												
=) Forecast period value	16											
=) Terminal value	218											
=) EV	234											
) Debt	0											
+) Cash	1.0											
-) Warrants	2.5											
·) Options	3.4											
-) Stock units	3.8											
+) Offering	22.5											
-) Amiga buyout (50% discount on aluation)	5.5											
=) Equity value	242											
arget price per share, USD	18											
Market price per share, USD	10.4											



Illustration 6.	Valuation model of	of Beam	Global using	the Compar	able Method

Financials, million USD	Country	Revenue, 2022AR	evenue, 2023ER	evenue, 2024E
Beam Global	USA	22	55	78
Peers	Country	EV/S, 2022A	EV/S, 2023E	EV/S, 2024E
CHARGEPOINT HOLDINGS INC	USA	6.0x	5.1x	3.4x
KEMPOWER OYJ	Finland	10.8x	6.4x	4.3x
SINENG ELECTRIC CO LTD-A	China	5.4x	2.0x	1.3x
ALFEN N.V.	Netherlands	4.1x	2.4x	1.9x
EVGO INC	USA	27.3x	8.7x	4.6x
NAAS TECHNOLOGY INC-ADR	China	1.2x		
FASTNED-CVA	Netherlands	19.4x	7.0x	4.3x
ALLEGO NV	Netherlands		4.2x	2.5x
BLINK CHARGING CO	USA	5.8x	3.0x	2.0x
SHENZHEN INCREASE TECHNOLO-A	China	7.8x		
ZAPTEC ASA	Norway	3.5x	1.8x	1.4x
CHARGE ENTERPRISES INC	USA	0.3x	0.2x	0.2x
POD POINT GROUP HOLDINGS PLC	Netherlands	0.9x	0.4x	0.3x
CTEK AB	Sweden	2.3x	1.9x	1.7x
ADS-TEC ENERGY PLC	Ireland	0.4x	2.5x	1.5x
CORNERSTONE TECHNOLOGIES HOL	Hong Kong	7.5x		
IDEAL POWER INC	USA	466.8x		
CHINA TITANS ENERGY TECHNOLO	China	1.2x		
NILAR INTERNATIONAL AB	Sweden	464.1x	6.5x	0.6x
ISUN INC	USA	0.3x	0.2x	0.2x
RENEWABLE INNOVATIONS INC	USA	61.8x		
Peers median multiples		5.6x	2.5x	1.7x
Beam Global, DCF valuation multiples		10.7x	4.3x	3.0x
Beam Global, relative value, million USD		125	140	135
Beam Global, relative value per share, USD		11.6	13.0	12.6
Beam Global, DCF value per share, USD		21.0		

Bloomberg data, Freedom Finance Global PLC estimations



Potential Risks for the Valuation Model

Operational risks. The company is required to expand the production of EV ARC to meet the growing demand. However, there is a possibility that the company may not be able to fulfill orders on time, leading to delays that significantly limit its growth. The management also notes that the production capacity of their suppliers may be limited. Thus, a portion of the operational risk is beyond the control of the company's management.

High customer concentration. The company has a high concentration of customers from the government or related sectors, which may indicate insufficient competitiveness of their product in the private sector. This can impact both the price and quality of the company's products.

Accuracy of the valuation. Negative operating margin reduces the accuracy of the estimation, especially when considering a high proportion of terminal value. Additionally, target margin targets may not be achieved, which can have a negative impact on the market value of the company.

License https://ffin.global/licence/

Freedom Finance Global PLC public company provides brokerage (agent) services in the securities market on the territory of the Astana International Financial Centre (AIFC) in the Republic of Kazakhstan. Subject to the requirements, conditions, restrictions and/or guidelines of the current legislation of the AIFC, the company is authorized to carry out the following regulated activities under License No. AFSA-A-LA-2020-0019: Dealing in Investments as Principal, Dealing in Investments as Agent, Managing Investments, Advising on Investments and Arranging Deals in Investments. The information and materials posted in this section are for reference and informational purposes, they are addressed to the customers of Freedom Finance Global PLC, and do not constitute an individual investment recommendation or an offer to invest in shares of various companies.

Holding of securities and other financial instruments is always associated with risks: their value may rise or fall. Past investment results do not guarantee future returns. In accordance with the law, the company does not guarantee and does not promise future returns on investments, does not guarantee the reliability of possible investments and the stability of the amount of possible income.