EARLY LOOK AT A UNIQUE COMPANY

1.97

5.30

24

75

1

-1

-2

-0.16

0.00

0

10

13

254

2024E

nm

0.0%

0.0%

12.35

169.0%

LMIA GR

Over the last couple of years, LION E-Mobility has been transformed from a battery consulting company into a lithium-ion battery pack production company. We think that the market outlook is strong and could surprise to the upside. In particular, the market in the U.S., due to the climate package of the administration Biden, is booming. While LION E-Mobility is a small company, the successful ramp-up of the Hildburghausen (Germany) plant in Mid-23 is positive and signals operational expertise. 2024E

LION E-Mobility is a classic case of operating and financial leverage. We initiate our coverage with a target price of EUR 5.3/share and a BUY recommendation.

# **COMPELLING GROWTH DRIVERS**

LION E-Mobility operates in the fields of electrical energy storage and niche mobility providing, a lithium-ion battery system technology, while it is developing further enhanced technologies.

The total addressable market is expected by McKinsey to grow at a compound annual growth rate (CAGR) of 30% until 2040, thanks to the widespread electrification of the economy. While large OEMs like Daimler e-trucks and Volkswagen have in-house capacity, many smaller mobility companies lack expertise and financial muscle in battery production. This, in addition to the expected expansion of stationary storage, creates an opportunity for focused battery production companies like LION E-Mobility.

In our view, the supply deal with the Chinese company SVOLT should prove to be transformational and improve operational leverage vs. the previous one with Samsung SDI, providing upgraded products at more competitive costs. Another upside would be a second site in U.S., as the subsidies are very substantial, and growth above-average.

# INVESTMENT CASE AND OUTLOOK

LION E-Mobility's focus on battery pack production set it apart from others in the industry. It operates in a niche.

Chinese companies primarily focus on cell production and have shown little interest in this niche market in the Western world so far. Safety standards, tailor-made customized products, and the relatively smaller market size act as barriers to entry. We think the high interest costs and a potential Chinese battery pack presence in Europe are the main risks.

We anticipate that the company will achieve a CAGR sales c. 31% from 2023-30 and 36% in gross profits.

# SHARE PRICE PERFORMANCE (12M)



All sources unless otherwise stated: Company data, FactSet, Mirabaud Securities, All data as of 20 October 2023

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23 OCT 2023 08:13 GMT - PRODUCTION 23 OCT 2023 08:15 GMT - DISSEMINATION



LION E-MOBILITY

2021

29

-1

-2

-1

-0.12

0.00

0

9

1

-1.1

2021

nm

0.0%

0.0%

2022

54

-0

-1

-1

-0.07

0.00

0

14

7

-29.0

2022

nm

0.0%

0.0%

2023E

60

-0

-1

-2

-0.19

0.00

0

12

7

-50.8

2023E

nm

0.0%

0.0%

**INDUSTRIALS** 

BUY

**KEY DATA** 

Ticker

Revenues

EBITDA

Net profit

EPS (EUR)

DPS (EUR)

Shareholders' equity

Net debt / EBITDA (x)

VALUATION (x)

EBIT

FCF

P/E

FCF vield

Dividend yield

Net debt

Share Price (EUR)

Target Price (EUR)

Upside / Downside

Market Cap (EUR m)

Shares Outstanding (m)

FINANCIALS (EUR m)



Fiscal Year ending December 31

## CALENDAR



OPERATING RESULT BREAKDOWN BY MARKET



Canada Europe ex Germany Germany USA

VALUATION (x)	FY 2021	FY 2022	FY 2023E	FY 2024E	FY 2025E
P/E	nm	nm	nm	nm	nm
P / E adjusted	nm	nm	nm	nm	nm
Dividend yield	0.0%	0.0%	0.0%	0.0%	0.0%
INCOME STATEMENT (EUR m)	FY 2021	FY 2022	FY 2023E	FY 2024E	FY 2025E
Revenue	29	54	60	75	146
Gross profit	3	8	8	11	22
EBITDA	-1	-0	-0	1	3
EBIT	-2	-1	-1	-1	1
Pre-tax profit	-2	-1	-2	-2	-0
Income taxes	0	-0	0	0	0
Net income	-1	-1	-2	-2	-0
	0.12	0.07	0.10	0.16	0.02
Adjusted EDS (ELID)	-0.12	-0.07	-0.19	-0.10	-0.02
Adjusted EPS (EUR)	-0.12	-0.07	-0.19	-0.10	-0.02
Fully diluted EPS (EUR)	-0.12	-0.07	-0.19	-0.16	-0.02
DPS (EUR)	0.00	0.00	0.00	0.00	0.00
Payout ratio	0.00	0.00	0.00	0.00	0.00
Margins					
Gross profit	10.4%	13.9%	13.9%	14.4%	15.1%
EBITDA	-4.3%	-0.4%	-0.2%	0.7%	1.8%
EBIT	-5.8%	-1.1%	-2.2%	-0.9%	1.0%
Pre-tax profit	-5.3%	-1.2%	-3.9%	-2.6%	-0.2%
Tax rate	23.5%	24.6%	0.0%	0.0%	15.0%
Net income	-4.0%	-1.5%	-3.9%	-2.6%	-0.1%
Growth rates					
Revenue	67.7%	87.5%	11.0%	25.0%	94.3%
EBITDA	-43.4%	80.6%	40.2%	461.1%	412.8%
EBIT	-57.9%	63.5%	-112.1%	50.1%	324.7%
Net income	-11.2%	29.8%	-187.9%	15.9%	90.0%
EPS	-11.2%	43.0%	-187.9%	15.9%	90.0%
	EV 2021	EV 2022	EV 2023E	EV 2024E	EV 2025E
Non-current assets	11	15	15	10	20 20
	7	15	10	19	20
Current liabilities	1	5	10	12	21
Long term liabilities	0	ງ ງ	0	1	15
Long-term liabilities	0	ے 14	10	10	10
Shareholders equity	9	14	12	10	10
Net debt	1	7	7	13	16
Net debt / EBITDA (x)	-1.1	-29.0	-50.8	25.4	6.0
CASH FLOW (EUR m)	FY 2021	FY 2022	FY 2023E	FY 2024E	FY 2025E
Net income	-1	-1	-2	-2	-0
Depreciation & amortisation	0	0	1	1	1
Other operating cash flow	0	0	0	0	0
Change in working capital	1	-7	3	0	-2
Cash flow from operating activities	0	-8	1	-1	-1
Capex	0	-3	-2	-5	-2
Cash flow from investing activities	-0	-3	-2	-5	-2
Cash flow from financing activities	0 2	10	<u>د</u>	15	17
Change in cash	2	_1	9 Q	۰. ۵	14
	2	- 1	5	5	14
FCF	0	0	0	0	0
FCF/sales	0.0%	0.0%	0.0%	0.0%	0.0%

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#### SUMMARY

We recommend buying the battery pack manufacturer LION E-Mobility because of the compelling operational earnings opportunities. Batteries are key components of the energy transformation.

While there is no single solution for the climate crisis, batteries play a crucial role in the energy transition – enabling the electrification of vehicles as well as the storage of energy to support electricity grids and the use of renewables.

Climate change is a major concern worldwide that has motivated the transformation of the energy sector to swiftly reduce the greenhouse emissions that cause it. The 2015 Paris Agreement on Climate Change, the firstever universal legally binding global climate change agreement, established the goal of limiting the increase of global temperatures to a maximum of 2 degrees Celsius and pursuing efforts to limit such increase to 1.5 degrees Celsius.

LION E-Mobility has only one plant in Europe. A U.S.-based production should be in the cards due to the quickly growing demand in the U.S. coupled with the USD 369bn Inflation Reduction Act, which, among others, aims to significantly fund investments into the U.S. energy infrastructure, including the whole EV value chain.

Depending on the development of its customer base, we see a high likelihood of LION building a U.S.-based greenfield battery pack production site, which would cost around USD 30mn-80mn. The conditions in the U.S. are so attractive due to the Biden climate package, and growth, because of the support of electrification, should be very high.

Thus, we think an expansion in the U.S. with a new plant would be earnings accretive. We believe strategically, it is a must as exporting 50% of revenues is inefficient.

In the near term, we expect additional positive news flow regarding customer wins and a growing order backlog. Given the large pent-up demand, the market outlook should be strong for many years to come.

We see LION E-Mobility as a strong growth vehicle as a focused battery company. We expect a revenue growth CAGR (2023-30) of 31% and a gross profit CAGR (2024-30) of 36%. The gross profit CAGR is higher because of the increasing capacity utilization and improved operating leverage.

The forecast of the total addressable market growth of 30% is modest, in our opinion. LION E-Mobility might be able to outgrow the market.

The company has a strong track record of opening a new plant. The company achieved the transfer of production in 6 months, which compares to the normal time of 2 and more years.

We think the lack of a defined ESG policy (lack of diversity, for example) is a minor negative, which reflects, in our view, the relative youth and small size of the company. Over time, we expect a higher awareness of this issue. LION E-Mobility has no MSCI ESG rating or other ESG rating.

Due to the technological development and obsolescence trends, even independent of the lithium price development (as a key ingredient of the cell), it is reasonable to assume a slightly decreasing price. Newer batteries (like the solid-state one developed by Toyota) will move to the foreground, and NMC batteries should eventually lose competitiveness.

Overall, despite sizeable risks, we think the growth outlook of LION E-Mobility is very significant. At the current share price level, the stock offers an attractive risk-return.

## UPSIDE AND DOWNSIDE TO THE INVESTMENT CASE

We see the following positive drivers:

- 1) Capex lower than expected to produce the Lithium Iron phosphate (LFP) batteries and a possible U.S. plant
- 2) The transaction with Chinese cell supplier SVOLT leads to a sustainably higher gross margin
- 3) Capital raise is smaller than expected
- 4) Total addressable market growth gets higher and higher.
- 5) OEM starts to outsource business
- 6) Lithium prices drop, and the company can increase the gross margin
- 7) The company can reach its revenue goal. Establishing a track record is important.
- 8) LION E-Mobility reduces the small-cap discount
- 9) Continued high order growth
- 10) LIGHT Battery is a success.
- 11) Positive success in financial refinancing policy

We see the following risks for the investment case:

- 1) Project delays
- 2) LION E-Mobility has around 10 clients; thus, this is a cluster risk. One of these clients can fail.
- 3) Its LFP development is delayed, and there is more price pressure
- 4) LIGHT Battery fails
- 5) Key shareholder or founder sell
- 6) Capital raise is higher than expected
- 7) Interest rate raise
- 8) Costs higher than expected and lower operating leverage
- 9) Outsourcing clients like Lion Electric move more towards insourcing.

#### MAIN DRIVERS OF THE INVESTMENT CASE

#### POSITIONING

LION E-Mobility is a focused independent battery pack producer and is in the middle of a battery value chain. It is a niche market company.

The large battery cell producers from China (like CATL; SVOLT), Korea, Japan are possible suppliers.

While large mobility companies like Volkswagen and Daimler e-trucks produce their own battery packs and may choose to outsource a minor amount of battery packs, especially smaller clients in the field of mobility (electric vehicles) and storage that do not produce their own packs. These smaller mobility companies and storage do not have the technical know-how and capital to produce battery packs.

Competitors in Western Europe seem to be either vertically integrated, which requires heavy investments and therefore are loss-making, or active in many fields, which require a big product range or are too concentrated. Many independent battery pack competitors in Europe are small competitors.

Due to the niche market nature and heavy weight of the battery packs, we think it does not make sense to import battery packs.

Calculating the share from the total addressable market: this **implies a market share of below 1%**, and **consequently**, LION E-Mobility will remain as a small player within a very fragmented market.

However, within the small & mid mobility players and a potential reference for the storage ones, the market share is significant. LION E-Mobility is in the downstream segment of the battery value chain.



#### Figure 1: Positioning within the battery value chain

Sources: Federal consortium forum advanced batteries, Mirabaud Securities

## TECHNOLOGY

LION E-Mobility started as a battery consulting company. The battery know-how is high despite the small headcount. Since Mid-23, the company produced Battery packs based on NMC (Lithium Nickel Manganese Cobalt Oxide) technology. Currently, this battery type is used in storage, but LION E-Mobility aims to develop LFP (Lithium Ferro Phosphate) battery packs soon. The former has higher energy density and shorter charging times but is more expensive, while the latter has lower energy density, requires longer charging times but is a cheaper solution and has a longer life span. Instead of the current NMC, the company in 2024 will get NMC+ (more mobility) and LFP (more storage use cases).

#### Figure 2: Difference of NMC and LFP batteries explained

#### Lithium-ion variations There are six main lithium-ion battery chemistries in use but two, differentiated by the make-up of their cathodes, are fighting it out in electric vehicles. NMC LFP Lithium, nickel, manganese and cobalt. Higher Lithium iron phosphate. Generally cheaper energy and low upfront cost but shorter life as materials are more readily available. Has cycle means it can be more expensive in the a significantly longer cycle life long run. Capable of faster charging rates. Ratio of metals used can differ substantially 130-180 90-120 Cost (\$/kWh) 230-325 120-180 Energy density (Wh/kg\*) 500-2000 Approximately 3000 Battery lifetime (charging cycles) \* Watt-hours per kilogram

There is an important cost difference between the two.

The consultant Bloomberg NEF forecasts. LFP cylindrical cells are around 30% cheaper to produce in the US than nickel manganese cobalt (NMC) cells. Moreover, although the cheaper chemistry traditionally provides less range, it may be sufficient, as most sales by 2030 are likely to focus on use cases of up to 250 miles (400 kilometres) of daily driving.

There are various battery cell chemistries used in different types of batteries. Differing features are: energy density, self-discharge, and cycle life. Energy density is defined as the amount of energy stored in each system or region of space per unit volume. Low self-discharge refers to an internal chemical reaction that reduces the stored charge of the battery. Long cycle life is related to the duration of a battery.

Sources: Rho Motion, FT, Mirabaud Securities

Figure 3: Cell chemistries for lithium explained



Sources: Microvast, Mirabaud Securities

The technological change in battery research is fast. Recently, it was reported that Toyota Motors claimed a breakthrough in solid-state batteries. The company plans to launch in 2027-2028. Solid-state batteries use a solid electrolyte instead of a liquid one. The advantages are that solid-state is not losing its storage capacity and is less hazardous. However, solid-state batteries have 2-3 higher consumption of lithium.

Another type is the vanadium flow battery. Over 30 flow battery manufacturers are in China. Given the start as a battery consulting company, we expect LION E-Mobility to be in close connection with the latest developments.

# REGULATION : E.U. CIRCULARITY & RECYCLING ISSUES. USA: BENEFITS FROM THE IRA

Under this chapter, we mainly refer to two aspects: potential battery recycling requirements and the U.S. IRA Act

Starting with the former, the E.U. parliament has become a first mover on the topic of the **circularity of the batteries**, which is going to become mandatory by 2027. Now, the Council must formally endorse this. The following points are included:

- A compulsory carbon footprint declaration and label for electric vehicles (EV) batteries, light means of transport (LMT) batteries (e.g. for electric scooters and bikes), and rechargeable industrial batteries with a capacity above 2kWh;
- A digital battery passport for LMT (light means of transport) batteries, industrial batteries with a capacity above 2 kWh, and EV batteries,
- A due diligence policy for all economic operators, except for SMEs.;
- Stricter waste collection targets: for portable batteries 45% by 2023, 63% by 2027 and 73% by 2030; for LMT batteries - 51% by 2028 and 61% by 2031
- Minimum levels of materials recovered from waste batteries: lithium 50% by 2027 and 80% by 2031; cobalt, copper, lead and nickel - 90% by 2027 and 95% by 2031
- Minimum levels of recycled content from manufacturing and consumer waste for use in new batteries: eight years after the entry into force of the regulation 16% for cobalt, 85% for lead, 6% for lithium and 6% for nickel; 13 years after the entry into force: 26% for cobalt, 85% for lead, 12% for lithium and 15% for nickel.

What are the implications on costs and profitability? It is too early to tell. The company intends to work with a waste management company. While the new regulation has a neutral impact on cost, it increases the barrier to entry.

While the **U.S. does not have this quota, it is preparing as well**. The U.S. Department of Energy announced funding of USD 192mn to expand research and development in the field of battery recycling, calling the investment "essential" to fostering a domestic supply chain of critical materials for the energy transition. Recycling funds are divided into three areas: Recycling of consumer electronics, a new R&D consortium for advanced batteries, and the continuation of a Lithium-Ion Battery Recycling Prize, which DOE launched in 2019.

Moving to the **topic of the Inflation Reduction Act (IRA)**, **regionally**, **the U.S. is the place to be.** This Climate Package of the administration Biden announced in 2022 makes the single largest investment in climate and energy in American history, enabling America to tackle the climate crisis, advancing environmental justice, and securing America's position as a world leader in domestic clean energy manufacturing. These are the goals of the Biden administration. This should put the U. S. on a pathway to achieving its climate goals, including a net-zero economy by 2050.

In sum, the IRA entails an investment of USD 369bn over the next 10 years to fight the ongoing climate crisis and the U.S. energy infrastructure. This includes tax credits, research loans, and grants to increase domestic manufacturing capacity for wind turbines, solar panels, batteries, electric vehicles and other essential components of clean energy production and storage. USD 72bn in tax credits, loans, and grants are geared toward the EV value chain. These huge government incentives should last until 2032.

Automakers have already committed USD 32.5bn to manufacture batteries in the U.S. McKinsey expects the part value of the U.S. battery value chain to go up to 5x until 2030 (from approx. USD 12bn to USD 61bn), these developments might prove them conservative soon. Because of the IRA, Bloomberg NEF increased its energy storage by 24% and according to Microvast, the cumulative capacity is predicted to reach 396 GWh.

LION E-Mobility is pretty vocal about the U.S. and upcoming need of local production in 2024, however before going into that company need at least 70mn orders from U.S. customers. The required USD 30-80mn investments for a new 2GW production site and can be split in 20% Equity and 80% IRA contribution. We believe the company will take this decision very carefully.

This investment in U.S. is massive for a company of this size, in our opinion. If you look at the Americas region, it is obvious to us that the markets also really are booming. The Americas is now the largest market globally. Now, projects can receive a 40% ITC investment tax credit if one can utilize domestically sourced materials.

For example, peer Microvast (MVST US) said both the Huzhou 3.1 and Clarkville plants, with each a capacity of 2GWh, would bring a revenue potential of USD 1bn. 1 GWh is 1 mn kWh. Thus, this means a full production of 2GWh generates a battery module tax credit of USD 20mn.



Sources: Microvast, Mirabaud Securities

The IRA will likely drive significantly lower battery costs and prices in the U.S., potentially leading to a surge in domestic ESS activity. Overall, we see a high likelihood that the company would also build up a US-based battery pack production sooner rather than later. Remember: the tax benefits are not forever (see Figure 5). After 2032, there are no benefits.

Figure 5: Even tax credits are not forever - after 32 : over

"(B) PHASE OUT PERCENTAGE.—The phase out percentage under this subparagraph is equal to—

"(i) in the case of an eligible component sold during calendar year 2030, 75 percent,

"(ii) in the case of an eligible component sold during calendar year 2031, 50 percent,

"(iii) in the case of an eligible component sold during calendar year 2032, 25 percent,

"(iv) in the case of an eligible component sold after December 31, 2032, 0 percent.

Sources: IRS, Mirabaud Securities

#### OUTLOOK TOTAL ADDRESSABLE MARKET

There are many consultants. The total addressable market is judged by LION E-Mobility like this. According to McKinsey (numbers from 2019), the total addressable market is composed of: **USD 14bn stationary storage**, **USD 77bn commercial vehicles market and USD 23bn other mobility**.

Thus, the **total addressable market for LION is USD 114bn**. We would like to add the USD 77bn commercial vehicles market, the largest percentage is served by OEM's and is mostly not part of LION's market. Only some outsourcing transactions are possible. As such, even with adjustment, the market share of LION is very small.

1 GWh batteries supply the needs of at least 13000 electric vehicles.

Figure 6: Great demand market outlook for lithium-ion batteries by McKinsey (Black: Consumer electronics, grey: Stationary storage, pick: other mobility, orange: commercial vehicles and yellow: passenger cars)



Sources: McKinsey, LION E-Mobility, Mirabaud Securities

We see further demand upside: In the federal consortium for advanced batteries, the worldwide lithium battery market was quoted to grow by a factor of 5 to 10 in the next decade. There is a considerable gap towards the goals of the Paris Climate Accord. That means that the adoption of the electrification of mobility and renewables has to accelerate, in our view. While there is a multitude of demand forecasts, and in general, they have been going up over time, the data from the supply side is more difficult to come by. All the newsflow points towards a very high investment into new capacity.







Sources: China Automotive Battery Innovation Alliance, Frost & Sullivan, CALB global offering, Sept. 22, Mirabaud Securities

Source: China Automotive Battery Innovation Alliance, Frost & Sullivan

#### LION E-MOBILITY FORECASTS 2023-32: STRONG GROWTH POTENTIAL AHEAD

As already mentioned, LION E-Mobility operates within an emerging market with very strong growth prospects. McKinsey considers a TAM (total addressable market) 2030 of 3.950 GWh (vs. 700 GWh FY22, CAGR 24%) and USD 114bn for the battery business segments where LION E-Mobility is focused (namely, mobility -commercial vehicles & others- and stationary storage) – both segments representing about 50% of the total battery market expected-. LION operates in both the European and American markets, where currently most of its clients are located.

Figure 8: Battery Packs 2030 Estimated Market. LION E-Mobility's TAM



Sources: Company data, Mirabaud Securities

Due to the fact of the early momentum in which the market is, we find it useful to enlarge our explicit estimated period to c. 10Y, instead of the traditional 4-5Y; consequently, our estimates cover the period 2023-32. During these years, we consider that LION E-Mobility will face two phases.

The first one covers the first six years (2023-28), in which the company **will ramp up the utilisation of the recently opened new facility at Hildburghausen**, optimizing the current production line with the incorporation of three working shifts. The new facility has a 2 GWh capacity, equivalent to an annual production of 45-50k battery packs, which contrasts with the 4-6k pack range expected to be sold 2023-24, following the recent sales warning due to the financial constraints of a potential client. Currently, the company is selling the inventories acquired -at a very competitive price- from BMW (with cells provided by Samsung), so in-house production levels are currently low and will ramp up in future quarters. As the process of streamlining the current inventories is approached, utilisation of the Hildburghausen plant will ramp up towards the **run rate level of 85%, which we consider to be reached by 2028.** Additionally, during this period, we expect the LFP technology to co-exist with the upgraded NMC technology. The latter has a proven track record of 8 years among the mobility segment (c. 250k packs sold since inception, following several upgrades), while the former is seen as a more appropriate technology to tackle the storage market (although mobility clients are also demanding it) thanks to higher energy density, lower production cost, and longer life cycle. Storage clients already represent c. 50% of the revenues of LION.

Also, within this first stage, and possibly more frontloaded in time, LION E-Mobility's Board will have to decide on a second manufacturing plant in the U.S. following the experience with the Hildburghausen facility. We recall two relevant facts for this decision: 1) Currently, LION E-Mobility is more geared towards the American market than the European one as most of its clients come from there, and 2) IRA's ambitious climate and energy program phases down as years go by. As already mentioned, the new facility (either equivalent to the European one or larger) will require financial resources in the range of USD 30-80mn. Due to the high level of uncertainty, we do not include this significant investment in our projections, albeit this decision will be a game changer for the company both in operating terms and in the financial structure. It is highly probable that part of the resources required by the new asset will be in the form of equity dilutive instruments for current shareholders.

The second phase will go from 2029-32, a period in which the company will decide on incorporating a second production line into the current European facility, for which we estimate additional capex needs of EUR 15-20mn

(including robotics, construction, and employee training), which could be spread between 2Y (2029-30). This second line will be highly dependent on the results of the current testing phase on the LIGHT Battery prototype with a large OEM. As previously mentioned in the report, this initiative incorporates a new technology (immersion cooling, where market expectations point to a **TAM of EUR 3.2bn by 2032** vs. current EUR 200mn, CAGR above 30%), which allows for faster charging times while not reaching extremely high temperatures. As this will become a premium product, prices charged will be more expensive than the current NMC technology battery packs, and consequently, its target market will be mainly hypercars, sports cars and mining trucks; and, to a lesser extent, other commercial vehicles or passenger cars.

Following the scenario set, below we refer to our assumptions on which our estimated income statement is based:

- Revenues: In late September, the company adjusted the guidance from EUR 70-80mn to EUR 55mn to 65mn for 23. The reason is the bankruptcy of a potential new customer. Taking this in mind, this means a slower start-up than expected initially (CAGR 2022-24 of +18%). The current facility operating at full capacity (equivalent to c. 85% utilisation rate) will enable reaching EUR 400mn of revenues, but this figure we do not consider earlier than 2028. When considering the above TAM market of USD114bn for 2030 (which includes battery use for mobility and storage), this revenue level implies a 0.35% market share; and consequently, LION E-Mobility will remain as a small player within a very fragmented market, but a significant one among the small & mid mobility players, and a potential reference for the stationary storage ones.
- Battery module/pack pricing: With time, an emergent industry becomes a mature market and consequently, pricing experiments deflation pressures. Our estimates share this view and from the current levels of EUR 12-14k/pack, we arrive at EUR 10-9k/back by 2028. Cells, representing c. 70-80% of the total supplies, will become a commoditised product as more gigafactories are set up, and consequently, the main driver of the deflation of the assembled product. On the positive, we expected upgrades of the current battery packs thanks to technology, which will partly offset the deflationary trend mentioned. Our figures do not incorporate any LIGHT Battery deliveries, which, as explained, will be sold as a 'premium product''.
- Gross margins: Considering that around 70-80% of the total production costs come from the cells, the analysis of the main procurement cell agreements is essential to understand the potential upside of the gross margin. Currently, LION E-Mobility is reporting c. 14% gross margin and has Samsung SDI as its unique cell supplier (a legacy relationship from BMW), but from 2H24 onwards, a transformational deal is to occur with the SVOLT procurement agreement coming into force. SVOLT is a Chinese cell supplier, ranked tenth in the world, and it is meant to become the main cell provider for LION from 2025 onwards, a year in which we should consider a gross margin upgrade. SVOLT will enable LION to count on a more specific cell composition for the storage market (LPF technology) as well as an upgraded NMC technology for mobility clients (higher energy density, c. 20% more in the current NMC).

On top of this further product diversification and higher functionalities of the current one, other significant benefits for LION are: 1) cheaper supplies vs. the current procurements (c. 10% below), 2) the placement of smaller sized orders to better meet demand requirements and consequently improve working capital management and potentially 3) further additional improvements could come from the reduction of supply chain times and CO2 emissions if finally SVOLT starts production in Europe.

All in all, gross margins from FY22 could improve c. +160 pbs by 2026, and c. +400 pbs for the long run thanks to higher sales expected, which seems reasonable when considering that it will enable LION to provide final customers with an upgraded product at a more competitive price. Our estimates point to reaching 15.6% gross margin in 2026 and 18.0% five years later, in 2030.

Additionally, **SVOLT supplies can be managed with the current production lines of LION**, so the agreement will not require significant capex for module line adaptation. Not more than EUR 6mn in 2 years is estimated to be the capex needs.

- EBIT margins. We expect LION to become operating break even by 2025 and sustainably profitable by 2027. In the long run, a normalised operating margin can be considered in the range of 7-8%. Margins and operating leverage are key aspects of the model and the valuation. There are several reasons supporting an attractive operating leverage for LION, which can lead to substantial operating margin enhancement (from FY22 -1.1% to 7-8% in the long run). In this regard, although our explicit estimated period reaches a 7% EBIT margin by 2032, from a valuation point of view, we incorporate a sensitivity analysis. Below the main reasons supporting future operating leverage:
  - 1. **Cells 'commoditization**, the main raw material, leading to supply price deflation and consequently, improvements in gross margin.
  - 2. **Technological upgrades** that can justify higher selling prices to final clients. An example can be found on the **new purchasing agreement signed with SVOLT**.
  - 3. Scale, as it will allow a) to flourish the benefits of the high level of automation and robotics implied in the new facility, reaching higher load factors and b) stronger purchasing power when dealing with suppliers. As order intake increases, LION E-Mobility might revisit suppliers and reach better purchasing conditions. Potentially, when reaching the EUR 400mn revenue target, EBIT could be above EUR 30mn.
- Depreciation: The company has invested c. EUR 14mn in accomplishing the Hildburghausen facility and becoming a capital-intensive company. We consider a 12Y period of depreciation for the premise. Our estimates do not consider impairments or additional facilities, as already mentioned.
- Financial results: LION E-Mobility closed FY22 with a net debt c. EUR 6.9mn, after considering EUR 3mn of cash. Consequently, gross debt reached c. EUR 10m with two main instruments: 1) Shareholder loan facility with the main shareholder, Ian Mukherjee, for EUR 6mn with several conversion windows at variable prices; and 2) lease debt associated with the new facility for a total of EUR 1.45mn.

During the 1H23, LION E-Mobility has signed two additional banking facilities: 1) a banking loan from the Vienna-based Raiffeisen Bank International Bank (RIB) for EUR 10mn, 4Y tenor in equal quarterly instalments of EUR 0.65mn and starting at 2Q24, and 10% average cost of debt. The proceeds will be entrusted to finance the operating unit in line and assist in building up additional sales staff for further business expansion; and 2) an overdraft facility with a primary German bank for EUR 4.9mn, currently undrawn and more focused on working capital needs. All in all, the average cost of debt of the structures is high and c. 11%, and consequently, this has implications on the WACC used in our valuation. From this demanding financial starting point, we appreciate several areas of improvement:

- As order intake gains traction, the RIB loan could be canceled ahead of maturity (with one year of interest payment penalty) and refinanced at better conditions.
- For the following years, we progressively expect positive cash generation and, consequently, debt reduction. At the end of the estimated period, we expect the company to reach a net cash position.
   From our point of view, the cost of debt for a recognized and proven player, like LION E-Mobility, within an emergent market with high growth expectations should not be far from 6.5%, quite at a distance from the current levels.
- Affiliates contribution: LION E-Mobility holds a 30% stake in a JV with TUV SUD Battery Testing, a leading testing company in the world. The JV has developed a full testing scope (e.g. performance, abuse, environmental and crash) for battery cells, modules, systems and packs. Nonetheless, and due to the

change of business model, LION E-Mobility no longer considers this core. Consequently, we consider it leaner to exclude it from our operating projections. Current revenues reach c. EUR 12mn and EBIT c. EUR 1m.

 Tax: On a normalized basis, we consider a 20% corporate tax once net profits are reached, not before 2025. Nonetheless, the company accumulates tax credits for EUR 6.7mn, which will flourish in future years.

Considering all the above, we reach the following estimates in which the CAGR 2023-30 is very outstanding + 31% in revenues and +36% in gross profit. These are justified by the significant market growth expectations, coupled with the ramp-up of the new facility and the bounties of the operating leverage.

Main Operating Metrics	2021	2022	2023e	2024e	2025e	2026e	2027e	2028e	2029e	2030e	2031e	2032e	CAGR (2023-30)
Battery Packs (k)	0.0	0.0	4.3	5.7	12.0	17.5	25.0	42.5	42.8	43.0	43.3	43.5	39%
ASP	0.0	0.0	14.2	13.3	12.2	11.1	10.2	9.3	9.3	9.3	9.3	9.3	-6%
Main Consolidated P&L Item	2021	2022	2023e	2024e	2025e	2026e	2027e	2028e	2029e	2030e	2031e	2032e	CAGR (2023-30
Sales	29	54	60	75	146	195	255	396	398	400	402	405	31%
Gross Profit	3	8	8	11	22	30	41	67	69	72	72	73	36%
EBITDA	-1.2	-0.2	-0.1	0.5	2.6	5.3	9.5	18.9	22.8	26.6	28.1	29.5	
DDA	-0.5	-0.4	-1.2	-1.2	-1.2	-1.2	-1.2	-1.2	-1.2	-1.2	-1.2	-1.2	
EBIT	-1.7	-0.6	-1.3	-0.7	1.5	4.1	8.4	17.7	21.6	25.5	26.9	28.4	
Net Financial Result	0.02	-0.08	-1.1	-1.3	-1.7	-1.7	-1.3	-0.5	0.1	0.1	0.1	0.1	
EBT	-1.5	-0.7	-2.4	-2.0	-0.2	2.5	7.1	17.2	21.7	25.5	27.0	28.4	
Тах	0.36	-0.16	0.00	0.00	0.04	-0.37	-1.41	-3.45	-4.34	-5.10	-5.39	-5.68	
Tax Rate	-23.5%	24.6%	0%	0%	-15%	-15%	-20%	-20%	-20%	-20%	-20%	-20%	
Net Profit	-1.2	-0.8	-2.4	-2.0	-0.2	2.1	5.7	13.8	17.4	20.4	21.6	22.7	
Main Cash Flow Items													
EBITDA	-1.2	-0.2	-0.1	0.5	2.6	5.3	9.5	18.9	22.8	26.6	28.1	29.5	
Net Financials & Tax	0.5	-0.2	-1.1	-1.3	-1.7	-2.0	-2.7	-3.9	-4.3	-5.0	-5.3	-5.6	
Other items (WCR)	1.1	-7.4	2.6	0.2	-1.9	-0.8	-0.6	-1.8	-2.0	-2.1	-2.1	-2.1	
FFO	0.4	-7.8	1.4	-0.6	-0.9	2.4	6.2	13.1	16.5	19.5	20.6	21.8	
Capex	-0.5	-2.8	-1.8	-5.3	-1.8	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
Acquisitions	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Disposals	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Dividends	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
FCF	-0.1	-10.6	-0.3	-5.8	-2.6	1.4	5.2	12.1	15.5	18.5	19.6	20.8	
Main Capital Structure Items													
Net Debt (Net cash)	1.3	6.9	7.2	13.1	15.7	14.3	9.1	-3.1	-18.6	-37.1	-56.7	-77.5	
Total Equity	9.2	14.4	12.1	10.1	9.9	12.0	17.6	31.4	48.8	69.2	90.7	113.5	
Total Capital Employed	10.5	21.3	19.3	23.1	25.6	26.2	26.7	28.3	30.2	32.1	34.0	36.0	
ND/EBITDA	n.a.	n.a.	n.a.	25.4	6.0	2.7	1.0	-0.2	-0.8	-1.4	-2.0	-2.6	
ND/Equity	0.1	0.5	0.6	1.3	1.6	1.2	0.5	-0.1	-0.4	-0.5	-0.6	-0.7	
ROCE (post tax)	-12.3%	-3.6%	-6.8%	-2.8%	4.9%	13.4%	25.1%	50.0%	57.3%	63.4%	63.3%	63.1%	
DPS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Gross Margins	10%	13.9%	13.9%	14.4%	15.1%	15.6%	16.2%	16.8%	17.4%	18.0%	18.0%	18.0%	
EBIT Margins	-5.8%	-1.1%	-2.2%	-0.9%	1.0%	2.1%	3.3%	4.5%	5.4%	6.4%	6.7%	7.0%	

Figure 9: LION E-Mobility Operating and Financial Estimates

Sources: Company data, Mirabaud Securities

Leaving aside the income statement and going into the **analysis of the operating cash flow generation**, we must consider both capex and working capital requirements.

- Capex: We distinguish three levels of cash outflows.
  - 1. **Maintenance**: From 2023, we consider some EUR 0.5-1.0mn/year as maintenance disbursements, albeit for 2023-24, this figure should be lower due to the recent investment in the new premise.
  - 2. Upgrades/Expansion of the existing facility. This comprises both the capex needed to upgrade the current NMC technology, as well as to develop the LFP one, and the potential capex required for a further expansion with a second production line.

The former is highly probable to be accomplished between 2H23-2025 following the SVOLT agreement, as the new technology is a more appropriate fit for the stationary storage market in which LION E-Mobility wants to consolidate and a more efficient solution for the niche mobility clients. On the contrary, for the latter, it is still early times. When considering amounts, the first items can reach EUR 6-7mn between 2023-25, while the latter (construction, robotics, and employee training) will not be below EUR 15mn and not earlier than 2029 when the full capacity of the current line is expected. The former is included in our estimates, while the latter, as it is very backloaded, is only considered as an optionality in our valuation.

- Expansion on a new facility: This possibility refers to the potential investment in the U.S. for USD 30-80mn. As mentioned, is still under an examination phase. Since local subsidies phase down quickly on an annual basis, we think the final decision must be made earlier than 2025.
- Working capital needs: In theory, LION E-Mobility should remain with a modest WCR figure and normally cash positive as clients either prepay orders or are invoiced within short periods of time. On top of these items are the inventories, which have not been operating under normal circumstances. These have been large due to the incorporation of BMW stocks, and it is the reason largely explaining the negative performance of the working capital registered in FY22, with a cash drain above EUR 6mn and a working capital representing c. 13% of sales. For 2023, we expect inventory levels normalization and working capital stabilisation below 5% of sales. In the mid-term, the SVOLT agreement should also bring benefits to the WCR in the form of more volume-adjusted orders to client needs instead of accumulating large quantities of inventories in the balance sheet. Following a cautious stance, we forecast a contained annual working capital deficit of c. 0.5% sales in the long run, with inventories improving from 44 days of sales FY22 to a stabilization in the range 30-35 days in the long run.

With this scenario, LION E-Mobility **will become cash-positive from 2026 onwards**, contributing to achieving debt reduction and eventually reaching a **net cash position by 2028**, which is precisely when a potential second production line could be set up, as the full capacity of the current one is expected to be reached.



Figure 10: LION E-Mobility Operating Cash Flow Charts

Sources: Company data, Mirabaud Securities

Following with the financial structure, LION E-Mobility closed FY22 with a **net debt figure of EUR 6.9mn**. Leverage and gearing ratios are currently non-representative, as the financial figures are confronted with still very modest operating figures. Financial ratios will become more meaningful by 2025-26 with **ND/EBITDA below 6x, a very competitive level for a clean tech player and by 2028, LION E-Mobility could become net cash**. Obviously, if more ambitious capex is accomplished in the period, net cash will take more time to flourish.





Sources: Company data, Mirabaud Securities

#### LION E-MOBILITY: VALUATION & RECOMENDATION

We initiate coverage of LION E-Mobility with a target price of **EUR 5.3/share**, which at current market prices implies more than doubling current market prices and consequently supports our BUY recommendation on the stock. Our target price comes from considering two valuation methods: DCF and multiples. In both cases, we include **our valuation of the 30% stake in the Battery Testing affiliate (TÜV SÜD)**. Valuations for this JV could reach c. EUR 12mn if applying a 10% EBIT margin and a 10x EV/EBIT multiple. Considering the 30% stake, the affiliate could explain c. 15% of current LION's market cap. Our assumptions are more cautious and based on an 8% EBIT margin and 0.75x EV/Sales & 7x EV/EBIT multiples.

#### Figure 12: LION E-Mobility Valuation Summary

-	-		
Valuation Summary	Enterprise Value	Equity Value	Target Price (EUR/sh.)
DCF Valuation	73	61	5.0
Multiple Valuation	82	70	5.7
Average	77	66	5.3

Sources: Company data, Mirabaud Securities

DCF: Our main assumptions are a 2% revenue increase from 2032 onwards, 7% EBIT margin, 0.5% sales working capital deficit, and recurrent maintenance capex of 0.2% sales for the long run. To our operating scenario, we apply a high WACC of 14.6% and a g rate of 1.5%. The former incorporates the expensive average cost of debt LION has plus a high-risk equity premium, while the latter tries to include the growth expected for the battery market worldwide as an increasing need in a decarbonized and more electrified world. All in all, we arrived at a valuation of EUR 61mn for the equity, i.e. EUR 5.0/share.

#### Figure 13: LION E- Mobility DCF Valuation Parameters

DCF Valuation	EUR m	WACC Calculation
PV of FCF	46	Risk free rate 5.00%
PV of Terminal Value	27	Equity Risk Premium 12.5%
Enterprise value	73	Beta 1.35
(-) Net Debt 24e	-13.1	Cost of Equity 21.9%
(+) Affiliates	2.2	Credit spread 5.5%
(-) Provisions	-0.9	Cost of debt 10.5%
Equity value	61	Normalised tax rate 30%
Fully Diluted Shares	12	Leverage 50%
Equity fair value	5.0	WACC 14.61%
Implied terminal EBITDA	4.0	Perpetual growth rate 1.50%

Sources: Company data, Mirabaud Securities

#### Figure 14: LION E-Mobility DCF Valuation

DCF Valuation	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Revenues	60	75	146	195	255	396	398	400	402	405	413	421	430
Var (%)		25.0%	94.3%	33.4%	30.7%	55.6%	0.4%	0.6%	0.6%	0.6%	2.0%	2.0%	2.0%
EBITDA	-0.1	0.5	2.6	5.3	10	19	23	27	28	30	30	31	31
DDA	-1.2	-1.2	-1.2	-1.2	-1.2	-1.2	-1.2	-1.2	-1.2	-1.2	-1.2	-1.2	-1.2
EBIT	-1.3	-0.7	1.5	4.1	8.4	17.7	21.6	25.5	26.9	28.4	28.9	29.5	30.1
Tax o/ EBIT	0.0	0.0	0.0	-0.4	-1.4	-3.4	-4.3	-5.1	-5.4	-5.7	-8.7	-8.8	-9.0
WCR	2.6	0.2	-1.9	-0.8	-0.6	-1.8	-2.0	-2.1	-2.1	-2.1	-2.2	-2.2	-2.2
Capex	-1.8	-5.3	-1.8	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-2.1	-2.1	-2.1
Unlevered CF	0.7	-4.5	-0.9	3.1	6.5	12.6	15.4	18.5	19.6	20.7	17.2	17.6	17.9
% Revenue	1.2%	-6.0%	-0.6%	1.6%	2.5%	3.2%	3.9%	4.6%	4.9%	5.1%	4.2%	4.2%	4.2%
Main Hypothesis													
EBIT mrg	-2.2%	-0.9%	1.0%	2.1%	3.3%	4.5%	5.4%	6.4%	6.7%	7.0%	7.0%	7.0%	7.0%
Capex/DDA	1.50	4.50	1.50	0.86	0.86	0.86	0.86	0.86	0.86	0.86	1.73	1.73	1.73
DDA/Sales	-1.9%	-1.6%	-0.8%	-0.6%	-0.5%	-0.3%	-0.3%	-0.3%	-0.3%	-0.3%	-0.3%	-0.3%	-0.3%
WCR/sales	4.4%	0.3%	-1.3%	-0.4%	-0.2%	-0.5%	-0.5%	-0.5%	-0.5%	-0.5%	-0.5%	-0.5%	-0.5%
Capex/Sales	-2.9%	-7.0%	-1.2%	-0.5%	-0.4%	-0.3%	-0.3%	-0.2%	-0.2%	-0.2%	-0.5%	-0.5%	-0.5%
Tax rate/EBIT	0.0%	0%	2%	-9%	-17%	-19%	-20%	-20%	-20%	-30%	-30%	-30%	-30%
PV Calculations													
Periods	0.0	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0
Discounted cash flows	0.7	-3.9	-0.7	2.1	3.8	6.4	6.8	7.1	6.6	6.1	4.4	3.9	3.5

Sources: Company data, Mirabaud Securities

Multiples: Although the battery business is quite emergent, already in the U.S., there are several listed
names, which we include in our comparable universe so as to extract average valuation multiples. In
particular, we use EV/Sales and EV/EBITDA as the most representative ratios since several battery

operators have not reached normalized profitability levels, so P/E ratios are currently meaningless. The **universe leads us to 1.5x and 10.7x in average terms for 2025**. As LION E-Mobility is an early comer into the battery manufacturing industry (pre-2023 LION was an asset-light battery consultancy and engineering company), it is a small player within a fragmented industry and a small cap in the listed market (EUR 26mn market cap with c. 55% free float) we apply a 10% discount on said ratios. The result is a valuation by multiples of EUR 70mn for the equity of LION E-Mobility (i.e. EUR 5.7/share), quite aligned with our previous DCF.

#### Figure 15: Comparable Universe

Battery Universe	I	EV/Sales		EV/EE	BITDA		FFO Yield	I	Tickers
Trading Ratios	2023	2024	2025	2024	2025	2023	2024	2025	
Lion E Mobility	0.6	0.5	0.2	81.28	16.85	4.97	-2.07	-3.10	
Microvast	1.8	1.0	0.6	18.2	4.0	-21.1	-13.3	16.0	MVST-US
Electrovaya Inc.	2.8	1.6	1.0	11.9	4.1	-6.9	-51.8	20.5	ELVA-CA
Solid Power, Inc. Class	9.0	8.1	7.4			-34.4	-30.0	-29.0	SLDP-US
Dragonfly Energy Holdi	0.8	0.6	0.3		2.4	n.a.	n.a.	n.a.	DFLI-US
Allison Transmission H	2.5	2.5	2.4	7.2	6.9	11.1	11.6	14.3	ALSN-US
Xos, Inc.	1.4	0.4	0.1			n.a.	n.a.	n.a.	XOS-US
ChargePoint Holdings,	3.4	2.4	1.7		41.3	-12.7	-4.9	0.3	CHPT-US
Envestnet, Inc.	3.0	2.6	2.3	11.7	9.5	2.5	6.3	8.2	ENV-US
SFC Energy AG	2.9	2.0	1.4	14.4	9.0	-1.9	-2.0	-1.4	F3C-DE
Fluence Energy, Inc. Cla	1.3	1.0	0.7	41.4	11.1	-2.4	-1.0	1.7	FLNC-US
Energy Vault Holdings,	0.7	0.3	0.2		1.8	-42.3	-24.0	12.7	NRGV-US
ESS Tech Inc	15.7	2.0	0.6			-35.9	-43.8	-28.1	GWH-US
AVERAGE	3.5	1.9	1.5	26.6	10.7	-12.6	-14.1	1.1	

Sources: Company data, Mirabaud Securities

Figure 16: LION E-Mobility Valuation by Multiples

Valuation Multiples	EUR m	Average Normalised Peer Mult	iples
Avg Enterprise Value	81.9	EV/sales	1.1
Net Debt (inc. Leases)	-13.1	EV/EBITDA	10.0
Provisions	-0.9	Discounts on Lion E Mobility	10%
Affiliates*	2.2		
Equity	70.2		
Nº shares	12.4		
Target Price	5.7		
* 30% JV TUV SUD Battery Te	sting		

Sources: Company data, Mirabaud Securities

Finally, we calculate the average of the two methods, and we reach our **target price of EUR 5.3/share**. Theoretical valuation ratios **become more representative by 2026-27** when LION E-Mobility will be operating under a more stabilized and mature environment (EV/EBITDA between 10-15x and P/E <20x), **and even more appealing by 2028** when ratios could be below those seen in other mature clean tech operators.

#### Figure 17: LION E-Mobility Trading Ratios at Valuation

<u> </u>							_
Market Multiples at Valuation	2023	2024	2025	2026	2027	2028	
EV/Sales	1.3	1.0	0.5	0.4	0.3	0.2	
EV/EBITDA			29.4	14.6	8.1	4.1	
P/E				31.4	11.6	4.8	
							-

Sources: Company data, Mirabaud Securities

When looking into the **current trading ratios**, unfortunately, only one can be representative, i.e. **EV/Sales**; and the conclusions cannot be negative, supporting our investment case and recommendation. If on average, the universe is trading at 3.5x EV/Sales 2023, LION E-Mobility registers a very significant discount trading at 0.6x EV/Sales, and the same applies for the following years.

Finally, **we carry out a sensitivity analysis of our DCF valuation** considering variations on three significant parameters: our WACC (ranging from 13.6% to 15.6%), our long-term growth rate (from 0.5% to 2.5%) and finally, the run rate EBIT margin (from 6% to 8%), bringing forward the bounties to our valuation of further operating leverage. Target prices can vary from EUR 3.8/share to EUR 6.6/share, so even at the lowest point, there is substantial potential from current market prices.

				WACC							WACC		
		13.6%	14.1%	14.6%	15.1%	15.6%	te		13.6%	14.1%	14.6%	15.1%	15.6%
	0.5%	5.5	5.2	4.8	4.5	4.3	2	6.0%	4.8	4.5	4.3	4.0	3.8
ate	1.0%	5.6	5.3	4.9	4.6	4.3	2	6.5%	5.3	4.9	4.6	4.3	4.1
50	1.50%	5.7	5.4	5.0	4.7	4.4	nrg	7.0%	5.7	5.4	5.0	4.7	4.4
	2.0%	5.9	5.5	5.1	4.8	4.5	Ē	7.5%	6.2	5.8	5.4	5.0	4.7
	2.5%	6.0	5.6	5.2	4.9	4.6	B	8.0%	6.6	6.2	5.8	5.4	5.1
-	-			· ···									

Figure 18: LION E-Mobility DCF Valuation Sensibility Tables

Sources: Company data, Mirabaud Securities

Finally, on top of the above is **the potential upside to our valuation coming from an additional capexintensive phase** in the form of a **second production line to the current European facility**. This possibility is not to take place in the short term, as the priority will be given to the consideration of a U.S. facility due to the current subsidies and the knowledge obtained from the U.S. portfolio of clients. Nonetheless, from 2028 onwards, in which the full capacity of Hildburghausen is expected, LION E-Mobility might consider it. With a capex range of EUR 15-20mn, spread in 2Y time, the company could open a second line with an additional capacity for 15-20k battery packs per year. Additional revenue contribution could be c. EUR 120mn at full capacity with our assumptions and EBIT c. EUR 9.6mn if we stick to our long-term operating margin. Applying an **EV/EBITDA multiple 12x** -broadly in line with current renewable operators and considering 80% debt financed, **we could add c. EUR 1.9/share to our valuation.** 

Figure 19: LION E-Mobility Potential Upside

Second Production Line	Assumptions
Additional Battery Packs	15 to 20
ASP (EUR/u)	9.4
Utilisation Rate	85%
Revenues (EUR m)	120
EBIT (EUR m)	9.6
EBIT mrg	8%
DDA (EUR m)	1.5
Capex (EUR m)	20
Debt Finance weight	80%
EBITDA (EUR m)	11.1
EV/EBITDA	12
EV (EUR m)	133.5
Discounted EV (EUR m) 9 Yrs	39.1
Equity (EUR m)	23.1
Additional Value (EUR/sh)	1.9

Sources: Company data, Mirabaud Securities

#### MAIN RISKS

Due to the lack of track record in the new strategy deployed, we envisage several risks to our valuation model. Summarising we highlight the following:

- Unsuccessful commercial policy, unable to reach, aside from BMW aftermarket, relevant order intakes
  among the mid-size mobility market and the stationary storage market. Not reaching the optimum scale
  could damage profitability as target load factors will not be reached, purchasing power might not be strong
  enough, and operating leverage improvement will be limited.
- Technological risk: A competitor might bring forward a successful technology upgrade, and LION might
  not obtain the desired results in the three areas where it is currently working: upgrading NMC current
  technology, developing the new LFP technology and working on the LIGHT Battery prototypes
  (immersion cooling technology).

Moreover, energy density has largely improved over the last couple of years. Driven by advancement in cathodes, there was a move towards chemistries with higher nickel contents. The risks are further gains in performance and costs are likely to come **from emerging technologies, including next-generation anodes, solid-state batteries and sodium-ion cells.** LION E-Mobility could be left behind. For example, Toyota wants to commercialize the solid-state battery in 2027. This promises 1200km range and 10 min charging. The fast-changing technology change could lead to higher capex expenditure.

Additionally, European authorities are considering the **implementation of mandatory circularity** (collection, recovery and recycling) of all battery components by 2027, which is something that LION is monitoring, to be tackled at AGM 2024, and to be accomplished in a non-capex intensive way (i.e. J.V. with a local waste management entity or municipality).

- Oversupply: The global battery market could enter an oversupply from 2025 onward, driven by excess capacity in China, where an overcapacity of 800 GWh by 2025, is enough to serve 2.5-times Europe's demand. The European market could face intensifying pressure from Chinese lithium ferro phosphate oversupply, while the U.S. could be more protected.
- Cluster risk. The adjustment of the sales guidance in Autumn 23 has highlighted the cluster risk of the company. The bankruptcy of one client has led to an adjustment of 15mn at the mid-point in the sales guidance. Canada was 70% of overall sales in 2022. In Canada, Lion Electric is probably the clearly most relevant client. Lion Electric's financial stability is limited, and the company has an Altman Z-score of 0.6x.
- Chinese entry into the European battery pack market. Gotion High-Tech (002074 CH) has begun making battery packs at its automated plant in Goettingen, Germany and expects deliveries to clients in Europe to commence at the start of October 23. The plant will have a production capacity of 5 GWh a year by the middle of 24. The aim is for production capacity to reach 20 GWh a year, which will be completed in four stages. Can Gotion execute these plans? Besides Goettingen, there is by Gotion the intention for a USD 2bn plant in Illinois, U.S., and May 23, the company wanted to construct a USD 6.3bn plant in Morocco.
- Impairments: Currently, LION E-Mobility has c. EUR 3mn of capitalized expenses in their balance sheet, mainly linked to the LIGHT Battery initiatives and, to a lesser extent, to the BMS (battery management system). The evolution of the LIGHT Battery prototypes could imply future impairments. Additionally, the recent sales adjustment due to a client's financial distress can bring minor impairments at FY23.
- Litigation/arbitration risk: Currently, nothing relevant to be tackled by the AGM.

- Financial risk if higher debt levels are reached, and/or expensive cost of debt persists, and/or if hedging becomes a need, increasing financial costs and deteriorating the potential interest coverage once operating break-even is reached. The Altman Z-score is currently at 1.26. Moreover, Lion Electric has an even lower Altman Z-score.
- Equity dilutive instruments linked to both the shareholder loan conversion -depending on the conversion price agreed- and the expansion into other markets (i.e. U.S.) that very probably will be partially equity financed.
- Forex risk: Significant appreciation/depreciation in foreign currencies (USD). For the time being, even though most of its client portfolio is in the U.S., all revenues and costs are EUR-denominated. Nonetheless, if the American part of the business enlarges, LION E-Mobility might need to hire financial hedges, increasing the financial cost.
- **Profitability risk**: Lower-than-expected returns in the battery market due to harsher competition and capex inflation trends.
- **Pricing risk**: We are currently forecasting a substantial benefit from the transformational transaction with Chinese cell producer SVOLT. The substantial benefits could be eroded in a very competitive environment.
- **Market risk**: linked to being a very small cap with limited liquidity in the market. We believe that this risk has been tackled with the incorporation of a high equity risk premium in our valuation.
- Political risk: Former President Trump vowed to pull the plug on EV support. In particular, he wants to end
  federal tax credits and domestic manufacturing incentives for EVs. Should he be elected, this could create
  a negative narrative for battery producers.
- Economies of scale: Given the size of LION E-Mobility, it remains to be seen if the company can be competitive. It was reported in September that Gotion picked Illinois (U.S.) for a USD 2bn factory, starting production in 24. This new plant should produce 10 GWh lithium-ion battery packs.
- Operational risk and risks of clients: The company relies on a few key people. Moreover, the company relies on a few customers. The increase in the production capacity utilisation rate could encounter problems. Moreover, some clients might encounter financial problems (i.e. sales warning in Autumn 23). The launch of the LFP-based battery could be delayed, and competition could be quicker, and LION could be more expensive. LION E-Mobility could risk losing market share due to an increased production capacity of competitors. Raw materials spike and cannot be passed on. Large groups could decide to move in the battery packs. Making lithium-ion batteries is not easy, especially at scale.

## ANNEX

## HISTORY AND EVOLUTION

LION E-Mobility was established in 2008 and initially operated as a battery lab in Frieding, Germany. It was among the pioneering companies to develop and test Li-ion batteries.

LION E-Mobility AG is a publicly listed Swiss holding company that focuses on strategic investments in the emobility sector, particularly in the sales of electrical energy storage and lithium-ion battery system technology. The company owns 100% of LION Smart GmbH, a German company specializing in the development of battery packs and battery management systems. Additionally, it holds 100% of LION Smart Production GmbH, which is responsible for manufacturing battery packs. The company's journey can be depicted as follows.

LION Smart also holds a 30% stake in TÜV SÜD Battery Testing GmbH, a joint venture with TÜV SÜD AG. Additionally, LION E-Mobility AG owns 100% of the shares in LION Smart North America Inc.

The company's initial public offering (IPO) took place in 2011, and the current free float stands at 55.3%. The largest shareholder is lan Mukherjee, who holds a 37% stake and has an outstanding shareholder loan of EUR 6mn. The founders of the company hold a 6% share.

A pivotal moment in its history was the acquisition of the technology and production rights for the former BMW i3 SE09 battery packs from BMW. Within one year, the production was successfully transferred to Hildburghausen (Thuringia). In Q3 2022, the transfer of the production line from Dingolfing to Hildburghausen began.

The SE09 Battery Pack (42.2 kWh / 400V) was utilized by BMW for the i3 model. Up until 2022, more than 250k battery packs (including earlier variants) were produced, incorporating two upgrades with more efficient cells. In June 2022, production of the BMW i3 ceased.

LION E-Mobility has obtained the license and necessary equipment to manufacture LION SE09 batteries and modules, as well as modify, improve, and develop new products based on the SE09 technology. These batteries boast the highest automotive quality and safety standards inherited from the premium OEM BMW.

The opening ceremony of its first plant in Hildburghausen, Thuringia, was on June 23, 2023. The plant has a capacity of 50T battery packs a year.

# MANAGEMENT TEAM

The Board of Directors is composed of the following three members:

- Alessio Basteri: He has served as the Chairman of the Board since June 2019. Prior to joining LION E-Mobility, he was a founding member of Acquarius Advisory and possesses expertise in corporate law and mergers and acquisitions (M&A).
- Tobias Mayer: Co-Founder of the company, Tobias studied engineering at the University of Munich. During his university years, he, along with two other friends, established LION. He brings extensive experience in design, automotive, engineering, and product development. Before co-founding LION Smart, Tobias worked in project and quality management at BMW.
- 3. **Ian Mukherjee**: A Member of the Board, Ian is a strategic investor and holds a 37% stake in the company, plus a shareholder loan of EUR 6mn. Prior to joining LION E-Mobility, he served as the Chief Investment Officer (CIO) at Amiya Capital. Before that, he held a position at Goldman Sachs.

The Executive Board includes the following individuals:

- 1 **Winfried Buss** (CEO): With over 25 years of experience in the automotive industry, Winfried has held managerial positions in both small and large companies.
- 2 **Joerg Peter Hahn** (Head of Finance): Joerg joined the company on November 1st, 2022, bringing extensive experience as a director, head of finance, and Chief Financial Officer (CFO) from several international companies.
- 3 Michael Geppert (CTO): Chief Technology Officer of the company.
- 4 Andreas Vogt (Head of Production): Responsible production operations

We think the management team has a good mix of financial and technical expertise.

#### PRODUCTS AND PRODUCTION PROCESSES

#### **PRODUCT PORTFOLIO**

LION E-Mobility's **product portfolio is small**. Thanks to the astute transaction with BMW, the company has a production, **at the right time of the electrification boom,** and now, **the time is to diversify** its production portfolio (see Figure 20)

#### Figure 20: Product development



Sources: LION E-Mobility, Mirabaud Securities

Figure 21: Product development from the current Gen 1 to Gen 3 (NMC: nickel manganese cobalt - LFP. Lithium iron phosphate)



Sources: LION E-Mobility, Mirabaud Securities

The current production is in Generation 1 SE09 battery; while Generation 3 refers to LIGHT Battery, which is accomplished through the immersion-cooling technology. Potential targets are: hypercars or super heavy-duty industrial vehicles (mining trucks)



Sources: LION E-Mobility, Mirabaud Securities

LION (in cooperation with the Vestaro Consortium, which among others includes Evoni, has been working on an immersion cooled battery pack since 2019. Importantly, **LION is currently testing prototypes with a premium OEM.** Who are LION E-Mobility's competitors in the field of the LIGHT Battery? These are McLaren, Tesla, Xing Mobility, Kreisel Electric (Deere) among others. Carrar, an Israel start-up, said that their battery would have a longer lifespan and ultrafast charging in less than 5 minutes and that the company is partnering with some of the world's biggest OEM's. Other smaller competitors are Voss Automotive and Lucid.

# **BRIEF OVERVIEW ON SUPPLIERS, COMPETITION AND CLIENTS**

## **CELL SUPPLIERS**

The cell supply is commoditised part of the battery value chain.

The cell supply is dominated by Chinese companies. Korean companies are important as well. The largest company is CATL (3000750 CH). CATL is a very large company with a revenue base of CNY 328.6bn. Over the last two years, the company has more than doubled sales in 21 and in 22.





Sources: Frost & Sullivan, CALB global offering, Sept. 22, page 139, Mirabaud Securities

To illustrate the size difference: CATL is planning a EUR 7.3 bn factory in Hungary in partnership with Mercedes-Benz.

While LION E-Mobility is purchasing (through BMW) the cells at Samsung SDI, and during 2024, it will start to receive supplies from the recently announced SVOLT agreement.

## COMPETITION

Figure 24: Competition		
Listed Western World competition	Revenues	Difference
Electrovaya (ELVA CN)	22: USD 19.8mn	In distribution
Forsee Power (FORSE FP)	22: EUR 111.0mn	Smart batteries
Leclanche (LECN SW)	22: CHF 18.0mn	Vertical integration
Microvast (MVST US)	22: USD 204.5mn	Vertical integration
Not listed Western World competition		
Akasol	20: EUR 68.3mn	Vertically integrated - acquired by BWA
INTILION	22/23: approx. 30mn	Only storage solutions
Proterra	22: USD 309.4mn	Vertical integration – chapter 11
Listed Chinese competition		
CALB (3931 HK)	HKD 40.9bn	Vertical integration
EVE Energy (300014 CH)	CNY 36.3bn	
Gotion High-tech (002074 CH)	CNY 23.1bn	
Pylon Technologies (688063 CH)	CNY 6.0bn	

Sources: Bloomberg Finance LP, Mirabaud Securities

The list is not complete. It is an opaque sector, in particular in China.

Non-third-party EV battery manufacturers usually supply EV batteries to their own vehicles, thus facing less competitive pressure from the peers. This is the case at BYD.

However, market expansion of such non-third-party EV battery manufacturers heavily relies on the sales volume of their own brands of vehicles.

In contrast, third-party EV battery manufacturers usually have less risk and uncertainty on market expansion as they have a diversity of business opportunities.

It is noticeable that the independent Western World Competition is much smaller than the Chinese competition of LION E-Mobility. In addition, the financial position of the independent Western World competition is much more precarious.

#### CLIENTS

LION E-Mobility's clients can be divided into mobility (marine, trucks, commercial vehicles) and stationary storage (ESS) (see Figure 25).



Figure 25: Economic client segmentation

Sources: LION E-Mobility, Mirabaud Securities

In 22, stationary storage systems amounted to 10% of group sales, and in 23, the share is 50%.

Use cases extend from single-pack to multi-pack systems for (2-12 packs) up to large-scale stationary systems (> 100 packs).

LION E-Mobility runs B2B, not a B2C. The company has 10-ish clients, of which three clients are known.

Figure 26: Known clients

Client	Revenues	Characteristic
Aflen (ALFEN NA)	EUR 440mn	Storage
Karsan Otomotiy (KARSN TI)	TRY 9961mn	Light commercial trucks
Lion Electric (LEV CN)	USD 139.9mn	School buses - established initial production
Sources: Bloomberg Finance I.P. Mirabau	Securities	

Sources: Bloomberg Finance LP, Mirabaud Securities

Why do these companies choose LION E-Mobility?

- Large companies choose LION E-Mobility as an outsourcing company and because the company has the expertise and the available capacity.
- Smaller and mid-sized companies choose LION because of the technical expertise and because capital is scarce. These companies can be described as growth companies.

In particular, Lion Electric is an important client. Lion Electric is a good example of a client. It is not a giant company. After gaining a certain revenue size, the company is in-sourcing again in Mirabel, Quebec (the "Lion Campus"). The company completed production of its first lithium-ion battery pack at the Lion Campus. We think the business relationship between LION E-Mobility and Lion Electric will last well into 2024.

Final certification of the first battery pack model was expected in the first half of 2023, followed by a gradual ramp-up of production at the Lion Campus in 2023.

INCOME STATEMENT (EUR m)	FY 2021	FY 2022	FY 2023E	FY 2024E	FY 2025E
Revenue from sales	29	54	60	75	146
Gross profit	3	8	8	11	22
Personnel expenses	-3	-4	-4	-5	-10
Selling and marketing expenses	-3	-4	-5	-5	-10
Other operating expenses	-3	-4	-5	-5	-10
Other operating income	0	0	0	0	0
EBITDA	-1	-0	-0	1	3
Depreciation	-0	-0	-1	-1	-1
EBII	-2	-1	-1	-1	1
Interest income	0	0	0	0	0
Interest expenses	-0	-0	-   1	-   1	-2
Share of associates & IVs	0	-0	-1	-1	-2
FRT	-2	-1	- <b>2</b>	-2	-0
Income tax	-2	-1			-0
Minority interests	ů 0	0	0	0	0 0
Net profit	-1	-1	-2	-2	-0
Net profit adjusted	-1	-1	-2	-2	-0
Per share data (EUR)					
EPS	-0	-0	-0	-0	-0
Adjusted EPS	-0.12	-0.07	-0.19	-0.16	-0.02
DPS (EUR)	0.00	0.00	0.00	0.00	0.00
Growth rates (%)					
Net revenue	67.7%	87.5%	11.0%	25.0%	94.3%
Gross profit	-6.3%	151.0%	11.0%	29.5%	103.8%
EBIIDA	-43.4%	80.6%	40.2%	461.1%	412.8%
EBI1	-57.9%	63.5%	-112.1%	50.1%	324.7%
Group profit	-11.2%	29.8%	-187.9%	15.9%	90.0%
	-11.2% 11.2%	29.8% 12.0%	-107.9%	15.9%	90.0%
EP3	-11.270	43.0%	-107.9%	15.9%	90.0%
Margin Analysis in % of Revenue					
Gross margin	10.4%	13.9%	13.9%	14.4%	15.1%
EBITDA margin	-4.3%	-0.4%	-0.2%	0.7%	1.8%
EBT margin	-5.3%	-1.2%	-3.9%	-2.6%	-0.2%
lax rate	23.5%	24.6%	0.0%	0.0%	15.0%
Group protit margin	-4.0%	-1.5%	-3.9%	-2.6%	-0.1%
ivet profit margin	-4.0%	-1.5%	-3.9%	-2.6%	-0.1%

BALANCE SHEET (EUR m)	FY 2021	FY 2022	FY 2023E	FY 2024E	FY 2025E
Cash and marketable securities	1	3	3	3	3
Trade receivables	4	4	5	6	12
Inventories	1	7	4	5	8
Other current assets	1	1	1	1	1
Current assets	7	15	10	12	21
Fixed assets	11	15	15	19	20
Intangible assets	6	7	7	7	7
Financial assets	5	6	6	6	6
Non current assets	11	15	15	19	20
Total assets	18	30	25	31	41
Trade payables	6	5	5	7	15
Current liabilities	6	5	5	7	15
Long-term debt	1	2	0	0	0
Long-term liabilities	1	2	0	0	0
Shareholders' equity	9	14	12	10	10
Total liabilities and equity	18	30	25	31	41
Balance sheet analysis (EUR m)					
Net working capital	-1	6	4	4	5
Net working capital / sales (%)	-3.6%	11.7%	6.2%	4.7%	3.7%
Net debt	1	7	7	13	16
Net debt / EBITDA (x)	-1.1	-29.0	-50.8	25.4	6.0
Gearing	14.3%	47.8%	59.6%	129.0%	158.2%
Equity / total assets	0.5	0.5	0.5	0.3	0.2
Receivable days (incl. other assets)	55	30	30	30	30
Payable days (incl.other current liabilities)	74	31	31	35	37
Profitability analysis (%)					
Asset turnover	159.6%	182.0%	238.6%	241.5%	356.0%
ROE	-25.5%	-7.0%	-17.8%	-17.8%	-2.0%
ROIC (NOPAT/IC)	-16.3%	-2.9%	-6.8%	-2.8%	4.9%
WACC	14.6%	14.6%	14.6%	14.6%	14.6%

CASH FLOW STATEMENT (EUR m)	FY 2021	FY 2022	FY 2023E	FY 2024E	FY 2025E
Net profit	-1	-1	-2	-2	-0
Depreciation and amortisation	0	0	1	1	1
Other non-cash items	0	0	0	0	0
Cash flow	0	-8	1	-1	-1
Change in working capital	1	-7	3	0	-2
Inventories	1	7	4	5	8
Trade receivables & prepayments	4	4	5	6	12
Trade payables & prepayments	6	5	5	7	15
Taxes paid	0	-0	0	0	0
Cash flow from operating activities (A)	0	-8	1	-1	-1
Capex tangible assets net	-0	-3	-2	-5	-2
Capex intangible assets net	0	0	0	0	0
Free cash flow from operating activities	0	0	0	0	0
Financial investments	0	0	0	0	0
Acquisitions / Disposals	0	0	0	0	0
Interest received	0	0	0	0	0
Cash flow from investing activities (B)	-0	-3	-2	-5	-2
Short term debt	0	0	0	0	0
Long term debt	2	10	10	16	19
Interest paid	-0	-0	-1	-1	-2
Dividends paid	0	0	0	0	0
Capital	0	0	0	0	0
Other financing	0	0	0	0	0
Free cash flow from financing activities (C)	2	10	9	15	17
Translation difference (D)	0	0	0	0	0
Change in Cash (= A+B+C+D)	2.3	-0.8	8.8	8.9	14.3

VALUATION DATA	FY 2021	FY 2022	FY 2023E	FY 2024E	FY 2025E
Enterprise value (EUR m) and Valuation (x)					
Market capitalisation	na	na	na	na	na
Net debt	1	7	7	13	16
Pension liabilities	na	na	na	na	na
Capitalised minorities	na	na	na	na	na
Financial assets	na	na	na	na	na
Enterprise value (EV)	na	na	na	na	na
P/E	nm	nm	nm	nm	nm
P / Adjusted EPS	nm	nm	nm	nm	nm
P / FCF	nm	nm	nm	nm	nm
P / BV	na	na	na	na	na
EV / EBITDA	na	na	na	na	na
EV / EBITA	na	na	na	na	na
EV / EBIT	na	na	na	na	na
(EV/IC)/(ROIC/WACC)	na	na	na	na	na
Dividend yield (%)	0.0%	0.0%	0.0%	0.0%	0.0%
SHARE PRICE AND COUNT	FY 2021	FY 2022	FY 2023E	FY 2024E	FY 2025E
Share prices EUR / as of 31-12	o 40		4.07	4.07	4 67
Year-end / actual price	3.19	3.95	1.97	1.97	1.97
Year high	0.00	4.00	5.00	na	na
Year low	2.38	2.04	1.85	na	na
market capitalization avg	na	na	na	na	na
Shs outstanding (weighted average, diluted, # m)	na	na	na	na	na
Treasury shares / shares issued (%)	na	na	na	na	na
Dilutive shares / shares issued (#)	na	na	na	na	na
Device and the (FUD)					
Per share data (EUR) Basic EPS	-0 12	-0.07	-0 19	-0.16	-0.02
Basic Cash EPS	-0.12 na	-0.07 na	-0.15 na	-0.10 na	-0.02 na
Diluted EPS	-0 12	-0.07	_0 19	-0.16	-0.02
Diluted cash EPS	na	0.07 na	0.19 na	0.10 na	0.02 na
Diluted EPS adjusted	na	na	na	na	na
Pay out	na	na	na	na	na
Dividend normal	na	na	na	na	na
Dividend special	na	na	na	na	na
Par value reduction	na	na	na	na	na
Payout ratio (%)	0.00	0.00	0.00	0.00	0.00
Par value	na	na	na	na	na
EBITDA	na	na	na	na	na
EBITA	na	na	na	na	na
EBIT	na	na	na	na	na
FCF	na	na	na	na	na
Book value	na	na	na	na	na
Tangible book value	na	na	na	na	na

DISCLAIMER

#### **RECOMMENDATIONS HISTORY**

# LION E-Mobility

Market Index:	SPI			
Date	Market	Stock	Target	Recommendation
	Index	Price	Price	
	Level	(EUR)	(EUR)	
19 Oct 2023	659	1.98	5.30	Buy

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BUY:	The stock is expected to generate absolute positive price performance of over 10% during the next 12 months.
HOLD:	The stock is expected to generate absolute price performance of between negative 10% and positive 10% during the next 12 months.
SELL:	The stock is expected to generate absolute negative price performance of over 10% during the next 12 months.
RISK QUALIFIER:	Speculative: The stock bears significantly higher risk that typically cannot be valued by normal fundamental criteria and investment in the stock may result in material loss.

The ratings are applicable to all research produced after 1st January 2016

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