



MVST makes batteries for electric vehicles, principally buses and trucks.

## **A dead company in China**

Photos and drone videos, along with interviews, indicate that MVST's huge factory in Huzhou, China is almost entirely idle. [Here is a video](#) taken at 10 am on a working Friday. It shows no activity. We took [another drone video](#) between 11 am and 2 pm on a Monday. We counted six cars in the compound and two people walking about but no trucks or apparent product.

We believe MVST's China plants have basically been abandoned. MVST has three plants close to one another in the same development zone in Huzhou. Interviews plus visits to the perimeter indicate that not much is going on. Below are photos of the three addresses taken at 3 pm on Monday, October 9, 2023, the day after a long Chinese holiday. China does not celebrate Columbus Day.







Our photos of the three sites in China show no construction activity and no visible manufacturing.





## No visible new China procurement announcements since 2017

We have searched for procurement announcements by Chinese companies or by MVST about Chinese buyers and can identify nothing since 2017. In 2021, MVST mentioned several Chinese companies with which it cooperates, but those were old announcements, and we found no comment by those companies inside China. Yet for the first nine months of 2023, the company reported that 57% of its sales were from customers located in China, with even higher proportions reported in 2020, 2021, and 2022.

## MVST customer announcements

Date	Customer Name	MVST statement	Customer Country of Origin	Source/Type
11/19/11	Kunming Public Transportation Group	<a href="https://microvast.com/microvast-receives-the-hybrid-electric-bus-battery-order-from-kunming-public-transportation-group/">https://microvast.com/microvast-receives-the-hybrid-electric-bus-battery-order-from-kunming-public-transportation-group/</a>	China	MVST press release
2011	Xiamen Golden Dragon	<a href="https://microvast.com/microvast-receives-the-hybrid-electric-bus-battery-order-from-kunming-public-transportation-group/">https://microvast.com/microvast-receives-the-hybrid-electric-bus-battery-order-from-kunming-public-transportation-group/</a>	China	MVST press release
2011	Shanghai Sunlong	<a href="https://microvast.com/microvast-receives-the-hybrid-electric-bus-battery-order-from-kunming-public-transportation-group/">https://microvast.com/microvast-receives-the-hybrid-electric-bus-battery-order-from-kunming-public-transportation-group/</a>	China	MVST press release
2011	Anhui Ankai	<a href="https://microvast.com/microvast-receives-the-hybrid-electric-bus-battery-order-from-kunming-public-transportation-group/">https://microvast.com/microvast-receives-the-hybrid-electric-bus-battery-order-from-kunming-public-transportation-group/</a>	China	MVST press release
2011	Yangzhou Yaxing Bus	<a href="https://microvast.com/microvast-receives-the-hybrid-electric-bus-battery-order-from-kunming-public-transportation-group/">https://microvast.com/microvast-receives-the-hybrid-electric-bus-battery-order-from-kunming-public-transportation-group/</a>	China	MVST press release
12/5/12	Chongqing Hengtong	<a href="https://microvast.com/microvast-supplies-e-bus-batteries-to-chongqing-public-transportation-group/">https://microvast.com/microvast-supplies-e-bus-batteries-to-chongqing-public-transportation-group/</a>	China	MVST press release
12/7/15	Beiqi Foton Motor	Strategic Cooperation Agreement	China	Supplier Agreement
10/16/15	Xiamen King Long International Trading Co., Ltd	<a href="https://microvast.com/microvast-is-going-to-electrify-the-world/">https://microvast.com/microvast-is-going-to-electrify-the-world/</a>	China	MVST press release
7/28/17	Yutong Bus Co., Ltd	<a href="https://m.chinabuses.org/news/11216.html">https://m.chinabuses.org/news/11216.html</a>	China	Supplier Agreement
6/29/17	Higer Bus Company Limited	<a href="https://www.masstransitmag.com/home/press-release/12348104/microvast-inc-microvast-battery-systems-power-electric-shuttle-buses-at-expo-2017-astana">https://www.masstransitmag.com/home/press-release/12348104/microvast-inc-microvast-battery-systems-power-electric-shuttle-buses-at-expo-2017-astana</a>	China	Mass Transit Magazine
7/28/17	Wuzhoulong	<a href="https://m.chinabuses.org/news/11216.html">https://m.chinabuses.org/news/11216.html</a>	China	Supplier Agreement
7/28/17	CRRC	<a href="https://m.chinabuses.org/news/11216.html">https://m.chinabuses.org/news/11216.html</a>	China	Supplier Agreement
11/19/19	CNH Industrial Group	<a href="https://microvast.com/microvast-collaborates-with-fpt-industrial-to-develop-and-offer-battery-power-solutions-through-its-new-gigawatt-factory-in-ludwigsfelde/">https://microvast.com/microvast-collaborates-with-fpt-industrial-to-develop-and-offer-battery-power-solutions-through-its-new-gigawatt-factory-in-ludwigsfelde/</a>	Netherlands	MOU on joint development
2020	JBM Group	<a href="https://www.prnewswire.com/in/news-releases/india-based-jbm-group-produces-pure-electric-buses-equipped-with-fast-charging-batteries-from-microvast-897458600.html">https://www.prnewswire.com/in/news-releases/india-based-jbm-group-produces-pure-electric-buses-equipped-with-fast-charging-batteries-from-microvast-897458600.html</a>	India	Supplier Agreement
2021	SAIC Motor Corporation Ltd	"In the PRC, our customer base covers some of the largest passenger car and commercial vehicle OEMs, including SAIC, JBM, King Long Group, Foton and Zhongtong Bus."	China	Company prospectus
2021	ZF Friedrichshafen AG	"We are proud to work with leading OEMs and Tier 1 suppliers, including CNH Industrial, Iveco S.p.A, FPT Industrial S.p.A., ZF Friedrichshafen AG, Oshkosh Corporation and Dana Incorporated."	Germany	8K February 1, 2021

Date	Customer Name	MVST statement	Customer Country of Origin	Source/Type
2021	Dana Inc.	"We are proud to work with leading OEMs and Tier 1 suppliers, including CNH Industrial, Iveco S.p.A, FPT Industrial S.p.A., ZF Friedrichshafen AG, Oshkosh Corporation and Dana Incorporated."	U.S.	8K February 1, 2022
7/29/21	eVersum	<a href="https://ir.microvast.com/news-releases/news-release-details/microvast-and-eversum-jointly-drive-urban-commercial-vehicle">https://ir.microvast.com/news-releases/news-release-details/microvast-and-eversum-jointly-drive-urban-commercial-vehicle</a>	Austria	Development Agreement
2021	Oshkosh	<a href="https://www.businesswire.com/news/home/20210205005089/en/Microvast-Enters-Electrification-Joint-Development-Agreement-With-Oshkosh-Corporation">https://www.businesswire.com/news/home/20210205005089/en/Microvast-Enters-Electrification-Joint-Development-Agreement-With-Oshkosh-Corporation</a>	U.S.	Electrification Joint Development Agreement
3/25/21	SAFRA	<a href="https://ir.microvast.com/news-releases/news-release-details/microvast-expands-french-e-bus-market">https://ir.microvast.com/news-releases/news-release-details/microvast-expands-french-e-bus-market</a>	Switzerland	Supplier Agreement
6/8/21	Gaussin SA	<a href="https://ir.microvast.com/news-releases/news-release-details/microvast-and-gaussin-partner-accelerate-transition-zero">https://ir.microvast.com/news-releases/news-release-details/microvast-and-gaussin-partner-accelerate-transition-zero</a>	France	Supplier Agreement
2021	Kone Cranes and Demag Pty Ltd	"We have customer relationships with the likes of Kion, Kalmar, Kone Cranes, Linde, PSA Singapore and Gaussin"	Finland	
2021	PSA Corporation Ltd	"We have customer relationships with the likes of eVersum, Kion, Kalmar, Linde, PSA Singapore and Gaussin."	Singapore	
2022	Ashok Leyland Limited	"As an example, we received a \$10.1 million order for various e-bus solutions from Ashok Leyland." Q4: "During the fourth quarter, we received an order in excess of \$6 million from Switch, a subsidiary of Ashok Leyland for an E-bus application in India, where Microvast is an exclusive supplier."	India	Q1 2022 earnings, Q4 2022 earnings
11/7/22	Kalmar Cargotec Solutions LLC	<a href="https://ir.microvast.com/news-releases/news-release-details/microvast-and-handling-solutions-provider-kalmar-extend">https://ir.microvast.com/news-releases/news-release-details/microvast-and-handling-solutions-provider-kalmar-extend</a>	Finland	Supply and Purchase Agreement
1/10/22	FPT Industrial	<a href="https://ir.microvast.com/news-releases/news-release-details/microvast-and-fpt-industrial-under-hood-new-iveco-bus-electric">https://ir.microvast.com/news-releases/news-release-details/microvast-and-fpt-industrial-under-hood-new-iveco-bus-electric</a>	Italy	Supplier Agreement
2022	IVECO S.p.A.	<a href="https://ir.microvast.com/news-releases/news-release-details/microvast-and-fpt-industrial-under-hood-new-iveco-bus-electric">https://ir.microvast.com/news-releases/news-release-details/microvast-and-fpt-industrial-under-hood-new-iveco-bus-electric</a>	Netherlands	
12/7/22	Unnamed customer	<a href="https://www.businesswire.com/news/home/20221207005143/en/Microvast-Wins-Contract-to-Supply-1.2GWh-Battery-Energy-Storage-Project-in-the-United-States#:~:text=HOUSTON%2D%2D(BUSINESS%20WIRE)%2D%2D,BESS)%20to%20a%20U.S.%20customer.Microvast">https://www.businesswire.com/news/home/20221207005143/en/Microvast-Wins-Contract-to-Supply-1.2GWh-Battery-Energy-Storage-Project-in-the-United-States#:~:text=HOUSTON%2D%2D(BUSINESS%20WIRE)%2D%2D,BESS)%20to%20a%20U.S.%20customer.Microvast</a>	U.S.	Contract to Supply 1.2GWh Battery Energy Storage Project
3/15/23	MAFI TREPEL Transport-Systeme GmbH	<a href="https://ir.microvast.com/news-releases/news-release-details/microvast-selected-mafi-trepel-battery-supplier-their-electric">https://ir.microvast.com/news-releases/news-release-details/microvast-selected-mafi-trepel-battery-supplier-their-electric</a>	Germany	Supplier Agreement
1/26/23	REE Automotive	<a href="https://ir.microvast.com/news-releases/news-release-details/ree-automotive-names-microvast-battery-pack-supplier-its">https://ir.microvast.com/news-releases/news-release-details/ree-automotive-names-microvast-battery-pack-supplier-its</a>	Israel	Supplier Agreement

Source: MVST disclosures, press reports

## Technical dead end

MVST's claim to fame is the lithium titanium oxide (LTO) battery, once promising because of its fast-charging properties but now abandoned by the industry due to low energy density and propensity to catch fire. The founder of MVST "unfortunately chose the wrong technical route," a Chinese battery scientist told us.

With much of its production and sales in China, MVST had a brief, hopeful period after launching the LTO in China in 2011 but nearly went bankrupt in 2019 and

had to liquidate a subsidiary.

In 2021, MVST found a U.S. SPAC that had been searching for a cannabis asset. The subsequent merger poured about \$705 mln in net proceeds into company accounts (as well as generating a big payday for insiders) and saved MVST from going out of business.

Losses continue to mount, and operating cash flow has been heavily negative. In one year, 2021, losses were greater than revenue, which is quite an achievement for a company that once had good sales in established products.

### MVST Financials (\$,000)

	FY 2019	FY 2020	FY 2021	FY 2022	9 months 2023
<b>Revenue</b>	\$76,434	\$107,518	\$151,976	\$204,495	\$202,042
<b>Net Loss</b>	\$(59,663)	\$(33,625)	\$(206,483)	\$(158,200)	\$(81,821)
<b>Operating Cash Flow</b>	\$13,371	\$15,556	\$(45,039)	\$(53,928)	\$(70,350)

Source: MVST company filings

Chinese battery engineers don't consider MVST a competitor anymore. "There are very few lithium titanate batteries now," a Chinese battery engineer told us. "Is anyone still doing this in China? Those companies should all be gone."

Back in 2017, several bus and truck companies in China were willing to give the MVST batteries a shot. Customers included Beiqi Foton, Zhongtong Bus, Higer Bus in Suzhou, and several others, albeit all in small volumes. In 2017, according to the financial information company Wind, 108 vehicle models were equipped with batteries supplied by MVST.

But MVST batteries were both expensive and inefficient, and the market dribbled away. In 2018, only 75 automobile models used MVST batteries, according to Wind, and in 2019, 35 models.<sup>1</sup> Currently, MVST is not seen in Chinese procurement lists.

"I know Microvast," said a battery engineer with a large Chinese battery company. "I don't think their technology is that good. The company just does a good job in marketing. . . Their best time was from 2015 to 2016, and the best products they made at that time were lithium iron phosphate batteries, which were used on buses."

MVST has not mentioned LTO for a year and now focuses its promotion on a "pouch" cobalt-oxide-lithium battery dubbed the 53.5Ah. But many battery companies offer cells of this capacity and design, and we do not believe MVST holds any special advantage.

<sup>1</sup> See this article on Netease: <https://www.163.com/dy/article/EML4JDHR05509P99.html>



Photo of MVST lithium iron phosphate batteries for sale for ¥3 each on Taobao. Screen capture October 17, 2023: <https://www.taobao.com/list/item/563221534068.htm?spm=a21wu.10013406.taglist-content.19.1e1b7142oqSMUz>

## Suspicious Chinese financials

We question why MVST holds over \$100 mln in *short-term* debt (reported in China) plus restricted cash. Given the lack of visible activity, we question whether the cash is needed to fund operations and capital expenditures or only give the appearance of operations.

We obtained credit reports on MVST subsidiaries in China for 2021. The Chinese parent company, Microvast Power Systems Co., Ltd., had \$126 mln in short term bank and notes payable borrowings at the end of that year. In its U.S. filings, MVST reported only around \$74 mln in short-term debt and notes payable by end 2021. What happened to the other \$52 mln?

## Credit Report, MVST's China Subsidiary (units converted to USD at the year end 2020 and 2021 exchange rates)<sup>2</sup>

Assets	31/12/2020	31/12/2021
Cash and bank deposits	\$156,597,703	\$122,443,941
Short-term investments		
Bill receivable		
Accounts receivable	\$28,702,910	\$34,524,697
Other receivables	\$42,062,940	\$48,835,702
Prepaid expenses		
Prepayments	\$9,911,639	\$17,080,835
Inventory	\$17,405,513	\$24,263,796
Other current assets		
<b>Total current assets</b>	<b>\$254,680,704</b>	<b>\$247,148,972</b>
Construction in progress	\$-	\$-
Net value of fixed assets	<b>\$172,419,142</b>	<b>\$231,400,651</b>
<b>Total fixed assets</b>	<b>\$172,419,142</b>	<b>\$231,400,651</b>
Other intangible assets	\$11,472,129	\$11,434,484
Deferred assets		
<b>Total intangible assets</b>	<b>\$11,472,129</b>	<b>\$11,434,484</b>
<b>Long-term investment</b>	<b>\$18,529,862</b>	<b>\$19,040,425</b>
<b>Other assets</b>	<b>\$35,294,334</b>	<b>\$49,232,403</b>
<b>Total assets</b>	<b>\$492,396,172</b>	<b>\$558,256,936</b>
<b>LIABILITIES</b>	<b>31/12/2020</b>	<b>31/12/2021</b>
Accounts payable	\$21,076,570	\$25,249,493
Notes payable		
Other payables	\$54,702,757	\$90,154,684
<b>Short-term loan</b>	<b>\$137,825,421</b>	<b>\$125,887,111</b>
Advance payment		
Income tax payable	\$2,357,580	\$3,899,511
Fees payable		
Dividends payable		
Other current liabilities	\$3,315,008	\$10,497,254
Wages payable	\$2,409,035	\$3,833,577
Benefits payable		
<b>Total current liabilities</b>	<b>\$221,686,371</b>	<b>\$259,521,629</b>
Non-current liabilities		
<b>Total non-current liabilities</b>		
<b>Total Liabilities</b>	<b>\$221,686,371</b>	<b>\$259,521,629</b>
<b>Total shareholders' equity</b>	<b>\$270,709,801</b>	<b>\$298,735,307</b>
<b>Total liabilities and shareholders' equity</b>	<b>\$492,396,172</b>	<b>\$558,256,936</b>

Source: Credit report, Microvast Power Systems Co., Ltd. (Huzhou, China)

2 "For the purposes of presenting the consolidated financial statements, the assets and liabilities of the Group's foreign operations are translated into the reporting currency of the Group (i.e. US\$) at the prevailing exchange rate at the end of the reporting period." - MVST 10K



Outside of China, the company disclosed a German bank loan facility drawdown of some \$9.7 mln, however, this was repaid in October 2021 after a default event was triggered, as disclosed in earlier versions of its S1 prospectus. We question where the other \$52 mln may be reported.

“As of June 30, 2021, the Group’s Germany subsidiary was not in compliance with the financial covenants. The Company obtained a waiver for the covenant violation through September 30, 2021, and subsequently cured the default in August 2020 by capital injection.”

In 2020 and 2021, pledged assets against bank loans far exceeded disclosed bank borrowing amounts, matching the above noted scale of discrepancy between Chinese and U.S. filings. MVST disclosed bank loans of \$12.2 mln and \$13.3 mln at end 2020 and 2021, respectively, whereas related pledged asset values against these debts were much higher at \$44.8 mln and \$43.2 mln for the same comparable periods. This could imply either there were substantially more debt-related obligations than disclosed, or the true market value of pledged assets was a lot less.

## 12. BANK BORROWINGS – continued

Changes in bank borrowings were as follows:

	Year Ended December 31,		
	2019	2020	2021
Beginning balance	\$ 66,267	\$ 11,922	\$ 12,184
Proceeds from bank borrowings	17,735	17,308	38,926
Repayments of principal	(71,674)	(17,815)	(37,568)
Exchange difference	(406)	769	(241)
<b>Ending balance</b>	<b>\$ 11,922</b>	<b>\$ 12,184</b>	<b>\$ 13,301</b>

All balance of bank borrowings as of December 31, 2021 is current borrowings.

Certain assets of the Group had been pledged to secure the above banking facilities granted to the Group. The aggregate carrying amount of the assets pledged by the Group as of December 31, 2020 and December 31, 2021 are as follows:

	December 31, 2020	December 31, 2021
Buildings	\$ 22,732	\$ 31,361
Machinery and equipment	19,297	7,376
Land use rights	2,789	4,470
<b>Total</b>	<b>\$ 44,818</b>	<b>\$ 43,207</b>

Source: 2021 MVST 10-K, page F-31

Loan guarantees from related third parties were disclosed in earlier versions of the company’s original listing documents that were later omitted in the final submissions and the 2021 10K. At end 2020, the third parties loan guarantee was \$20.8 mln. So for 2020, there were pledged assets of \$44.8 mln and loan guarantees of \$20.8 mln against what was supposed to be a short term bank loan of only \$12.2 mln and maybe more. Similar guarantees were made for at least part of 2021.

“In addition, the Group’s related parties Ochem Chemical Co., Ltd (“Ochem”) and Ochemate Material Technologies Co., Ltd (“Ochemate”) provided \$

20,874 and \$ 21,838 of guarantees to secure certain bank facilities granted to the Group as of December 31, 2020 and June 30, 2021, respectively.”

The same third parties also lent money to the company during those years that were repaid by year end:

“MPS [Microvast Power Systems] received certain interest-free loans from related parties, Ochemate and Ochem, for the years ended December 31, 2019, 2020 and 2021, with accumulative amounts of \$ 15,142 , \$ 18,889 and \$ 8,426, respectively. The outstanding balance for the amount due from Ochem was nil as of December 31, 2020 and \$85 as of December 31, 2021, respectively.”

## The disappearing \$200 mln

We think MVST hid from investors that it had lost a \$200 mln grant. We believe MVST knew of the revocation in February 2023 and did not disclose the information until it was published online on May 23, 2023. This grant was likely to have made a substantial difference to the economics and profitability of the planned development.

In November 2022, MVST announced that it had been selected for a \$200 mln grant from the U.S. Department of Energy (DOE). The grant had been made specifically to fund a second plant in Clarksville, according to local news reports.<sup>3</sup> MVST had told Clarksville in 2021 that it had chosen the city to build a plant.<sup>4</sup>

But the following February, 2023, MVST informed the town of Clarksville that it would not build a second plant there as promised despite having received the \$200 mln grant.<sup>5</sup>

That may have been because the DOE said that the grant was “under review.” Congress had prompted DOE to reconsider on the grounds that MVST was actually Chinese.

In March, Rep. Frank Lucas (R-OK), Chair of the House Committee on Science, Space, and Technology, sent a letter to DOE Secretary Jennifer Granholm detailing concerns about MVST and saying that DOE had promised to review its awards.

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<sup>3</sup> Jake Foster, “Microvast gets \$200 million federal grant to build second battery plant in Clarksville,” Clarksville Now, October 21, 2022: <https://clarksvillenow.com/local/microvast-gets-200-million-federal-grant-to-build-second-battery-plant-in-clarksville/>

<sup>4</sup> See Youtube: <https://www.youtube.com/watch?v=erXg3KPOvLg>

<sup>5</sup> Jake Foster, “Microvast won’t build 2nd battery plant in Clarksville, but will continue expanding current location,” Clarksville Now, February 21, 2023: <https://clarksvillenow.com/local/microvast-wont-build-2nd-battery-plant-in-clarksville-but-will-continue-expanding-current-location/>



In a letter sent to the Department on December 7, 2022, and again on January 25, 2023, the Committee highlighted some of the most egregious connections between **Microvast** and the **CCP**,<sup>4,5</sup> including the fact that nearly **80% of Microvast's assets are located in China** that the company has disclosed that the **Chinese government "exerts substantial influence over the manner in which we must conduct our business activities and may intervene, at any time and with no notice."**<sup>6</sup> Our previous letters have a longer list of troubling facts about Microvast, all of which are publicly available and easily accessible and should have come up in any vetting process.

**On February 1, 2023, DOE issued an interim response to the Science Committee to describe in general terms its post-award grant vetting policy, noting that DOE would not provide more information on the status of these awards until a certain review phase had been completed.**

March 9, 2023 letter to DOE Secretary Granholm

Just two weeks after MVST changed its position on Clarksville, on February 16, 2023, Bloomberg [reported](#) as much, saying that "Microvast's links to China have drawn outrage from lawmakers," and "Funds are in 'post-selection' review."

On May 16, 2023, MVST was still telling investors that it would receive the grant.

PRODUCT

## — SELECTED BY THE U.S. DEPARTMENT OF ENERGY for a \$200 Million Grant

- **Microvast selected by the U.S. Department of Energy ("DOE") to receive a \$200 million grant.**
- Over 200 companies applied for \$2.8 billion in grant funding; only 20 companies selected.
- The DOE grant, plus funding to be arranged by Microvast, will support construction of a mass production facility in the U.S. for our thermally stable polyaramid separator technology.
- Microvast holds unique, patented wet-process technology to produce a thin polyaramid base film for very high temperature resistance.
- The separator is a critical element for battery safety and our polyaramid technology has significant safety advantages over incumbent technology such as polyethylene and polypropylene.
- Microvast and General Motors will collaborate to create a specialized separator.
- Target markets for polyaramid separator are large and growing and include commercial, specialty and passenger EVs, as well as consumer electronics and ESS systems.

MVST investor presentation May 16, 2023 page 15

But on the evening of May 22, the press reported publicly that the grant had been revoked. There were multiple stories on May 23. On May 24, company chairman Wu Yang said: "the Company is surprised by the DOE's decision to withdraw the grant."

MVST was preparing for its first-ever Investor Day, to be held on May 25. On May 24 and May 25, 2023, MVST issued press releases claiming it had learned of the revocation from a Reuters article.

We sent Freedom of Information Act (FOIA) requests to various parts of the U.S. government seeking communications between DOE and MVST, but we received responses that were completely blacked out. We have appealed. But, given vast paperwork surrounding this grant, we suspect MVST was likely directly informed about the grant revocation well in advance of Investor Day and possibly before the February communication with Clarksville.

## DOE Funding Opportunity Announcement



Selection Statement and Analysis

**FUNDING OPPORTUNITY ANNOUNCEMENT (FOA) NUMBER DE-FOA-0002678  
Bipartisan Infrastructure Law (BIL) Battery Materials Processing and Battery Manufacturing**

03	2678-1616	Solvay Specialty Polymers USA, LLC	(b) (5)
03	2678-1728	Mexichem Fluor, Inc. (dba Koura)	
04	2678-1855	American Battery Technology Company	
05	2678-1564	Lilac Solutions, Inc.	
07	2678-1596	Ascend Elements, Inc.	
07	2678-1875	ICL-IP America Inc.	
08	2678-1570	Microvast, Inc.	
08	2678-1602	Membrane Holdings LLC - ENTEK	
09	2678-1600	Sila Nanotechnologies	
09	2678-1765	Group14 Technologies Inc.	
10	2678-1530	Applied Materials, Inc.	
11	2678-1670	Retriev Solutions, LLC	

Source: MVST funding application as redacted via FOIA request to the Department of Energy, page 1

MVST submitted a 240-page grant application on May 16, 2022 and issued many interim announcements. As far as we can tell, the grant application did not mention China or say that 67% of revenue and assets were in China.



## Grant application as redacted

To realize these goals Microvast's main objective during this project is to build and commission a 300 M m<sup>2</sup>/yr. polyaramid separator plant to supply the Li-ion battery cell manufacturers.

Additional objectives include:

- Create at least 650 US manufacturing jobs
- Use a US based supply chain [REDACTED]
- Source [REDACTED]
- Meet all USABC technology technical requirements for a separator, excluding shutdown temperature which is only done through a cost add coating if required by customer
- Integrate GM [REDACTED] Microvast's polyaramid base film and develop to reach manufacturing maturity during project
- Work with local community groups and schools to develop curriculum and training opportunities, particularly for DACs.
- (b) (4) Create a training pipeline from [REDACTED] local institutions to fill separator job opportunities
- Manage an internal database of local community groups and small businesses to make sure communication about work opportunities are available
- Meeting the Justice40 economic impact goals

Source: MVST grant application received via FOIA request to the Department of Energy, page 221

The grant was revoked based on MVST's previously undisclosed ties to China.

On May 23, 2023, MVST shares dropped by 36% after news was published of the grant revocation. Several class-action suits are seeking information as to why MVST asserts it only received this news from the press.

MVST has assured Clarksville that it is continuing to expand its first plant, even though plant 2 has been mothballed. But the video MVST has posted to demonstrate progress does not fill investors with confidence: nothing was inside the building as of last June 2023. Yet in the Q2 2023 10Q, the company reported it already had \$241 mln worth of property, plant, and equipment in the United States..



MVST channel on Youtube, June 2023 <https://www.youtube.com/watch?v=SYpC320bHUM>

## Faulty technology: the U.K. Routemaster

Even the sales made overseas have caused more problems than they solved, according to public reports.

In 2012, for example, MVST's batteries were deployed in London in 200 double-decker "New Routemaster" buses. Within three years, 80 of the buses no longer used the batteries, [according to the BBC](#). According to a 2015 [Ars Technica report](#), "The batteries just aren't fit for purpose. It's not that the technology isn't there it's just the wrong technology."

The buses were intended to be diesel-electric hybrids, with batteries powering the electric motors, and a diesel generator topping up the batteries on demand. By 2015, 80 of the batteries were not usable, and all 200 had to be replaced by the manufacturer under warranty, according to local press reports. Drivers told the BBC the hybrid system did not work "in 90% of buses" and noted they "don't [did not] feel in control."

The buses in the end emitted 74% more harmful particles than the buses they'd replaced, according to a report in [Londonist](#).

The MVST batteries were quietly retrofitted, and the New Routemaster [now operates with Equipmake](#) technology.<sup>6</sup>

## Radically less capacity in China

MVST claims to be spending somewhere around \$250 mln on a plant in Huzhou, China. But in five years, according to our sources, construction has not started. Chinese job boards show that MVST Huzhou is now hiring for a number of positions. But we could not find evidence of significant staffing in 2019-2022.

In its [8K issued February 1, 2021](#) (its first as a public company), MVST said that it would bring its Huzhou plant from 3 GWh to 7 GWh. Yet in the Q3 2023 10Q, MVST says: "The Phase 3.1 expansion in Huzhou for the production of 53.5Ah cells, modules and packs was completed during Q3 2023 and we expect it will reach its 2 GWh per year design capacity by the end of the year."

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<sup>6</sup> See James Atwood, "London's New Routemaster bus is given electric makeover," November 1, 2022, [moveelectric: https://www.moveelectric.com/e-world/londons-new-routemaster-bus-given-electric-makeover](https://www.moveelectric.com/e-world/londons-new-routemaster-bus-given-electric-makeover)



## Transaction Highlights

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- \$2.1Bn pre-money equity value
- Transaction proceeds will be used to finance buildout of world-class manufacturing facilities in the U.S. and Europe; total estimated global capacity of 9 GWh by 2022
  - **U.S.:** New 2 GWh cell, module and pack production line, and separator plant
  - **Germany:** Ongoing cash flow requirements; finalizing purchase of module and pack production equipment
  - **China:** New production lines at Huzhou plant, expanding production capacity from 3 GWh to 7 GWh

MVST 8K February 1, 2023

An environmental impact statement filed by MVST's China company indicates the intention in 2021 to increase annual capacity to 1.5 GWh.<sup>7</sup> That is half the capacity claimed in the 2023 presentation. But a credit report on the company indicates that there was no construction under way in Huzhou in 2021. When was capacity supposed to have doubled?

Capacity clearly wasn't 3 GWh. It probably wasn't even half that. In 2018, according to a Chinese industry report [cited by Baidu](#), the Huzhou factory capacity was 469 MWh. Given that the company nearly went bankrupt in 2019, it is unlikely it increased capacity by a factor of six before the SPAC merger.

"It is very common in the battery industry to overstate the scale of production capacity," a Chinese industry expert told us. "Microvast Power is considered a small company among battery manufacturers."

## Dubious backlog

We question MVST's backlog announcements. In the latest quarter, backlog stood at \$678.7 mln. Growth in backlog has been stunningly high, but revenue growth has not matched it. Much of the backlog is reportedly for the new 53.5Ah battery, and mostly for U.S. and European customers. But there are dozens of companies that offer this battery technology, and even if the backlog is real - which we doubt - we are skeptical that MVST can compete with a company like Panasonic or CATL. Company filings also state that MVST faces intense competition from other Chinese battery manufacturers, some of which have state support. Regardless, from the company's track record, this could easily be just a backlog of future losses, which is no cause for celebration.

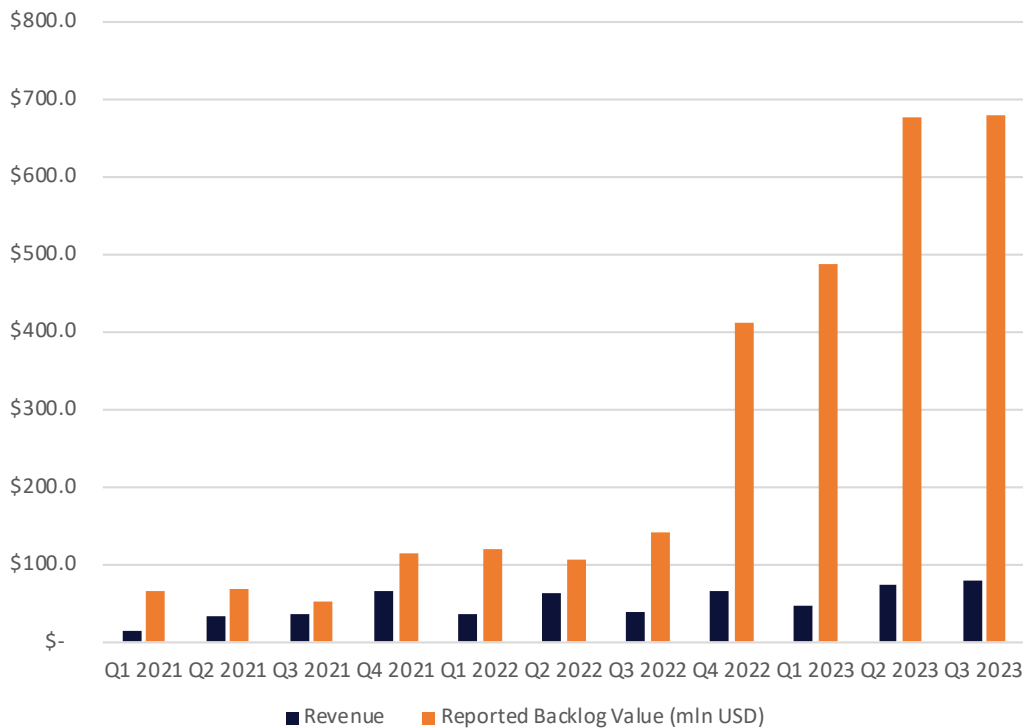
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<sup>7</sup> See environmental impact statement: <https://custom.huzhou.gov.cn/DFS/file/2022/08/15/20220815160544683rxi7ph.pdf>

Order backlog	Q1 2021	Q2 2021	Q3 2021	Q4 2021	Q1 2022	Q2 2022	Q3 2022	Q4 2022	Q1 2023	Q2 2023	Q3 2023
<b>Reported Backlog Value (mln USD)</b>	\$65.1	\$69.3	\$52.7	\$114.5	\$120.8	\$105.3	140.6	\$410.5	\$486.7	\$675.9	\$678.7
<b>YoY quarterly backlog growth</b>					86%	52%	167%	259%	303%	542%	383%
<b>Revenue (mln USD)</b>	\$14.9	\$33.4	\$36.9	\$66.8	\$36.7	\$64.4	\$38.6	\$64.8	\$47.0	\$75.0	\$80.1
<b>YoY quarterly revenue growth</b>					145%	93%	5%	-3%	28%	16%	107%
<b>MWh</b>	184.4	229.2	214.6	444.8	327.6	299.5	477.4	1,599.7	2,086.6	2,559.5	2526.1
<b>Cost per MWh</b>	\$0.35	\$0.30	\$0.25	\$0.26	\$0.37	\$0.35	\$0.29	\$0.26	\$0.23	\$0.26	\$0.27
<b>Cost per per KWh</b>	\$353	\$302	\$246	\$257	\$369	\$352	\$295	\$257	\$233	\$264	\$269

Source: MVST filings, J Capital

## MVST Order Backlog vs Revenue (mln USD)



Source: MVST filings, J Capital

## The company's backers have an unsavory history

In 2018, a blank-check company called Tuscan Holdings [was launched](#), initially to go into the cannabis industry.

businesses or entities, which we refer to as a "target business." Our efforts to identify a prospective target business will not be limited to a particular industry or geographic region although we intend to focus our search for target businesses on companies in the cannabis industry. We do not have any specific business combination under consideration and we have not (nor has anyone on our behalf), directly or indirectly, contacted any prospective target business or had any substantive discussions, formal or otherwise, with respect to such a transaction. If we are unable to consummate an initial business

Source: Tuscan Holdings Corp. prospectus<sup>7</sup>

Tuscan went public March 5, 2019 as THCB but never found any good cannabis targets. In July 2021, Microvast merged with THCB, and the new MVST started to trade on Nasdaq.

MVST's lead manager was EarlyBirdCapital. EarlyBird also ran the SPAC for Faraday Future (FFIE), which closed its first day trading at \$13.98 and now trades at around 80 cents. EarlyBird raised money for Clever Leaves Cannabis Co., Soundhound (down from \$12 to \$2 since its December 2020 the April 2022 IPO), Finnovate, and many more.

Audited by Deloitte Touche's lead auditor for TAL Education Group, Momo Inc., AirMedia, and Up Fintech, MVST is advised by Houlihan Lokey and B. Riley Financial, advisors to such dubious small companies as FAZE.

## Insiders sell down

In September, Director Zheng Yanzhuan sold over 300,000 shares, about 15% of his holdings.

On November 14, he sold another million shares.

Public investors should think about selling too.<sup>9</sup>

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<sup>8</sup> Prospectus for \$240 mln, 24 mln units [https://www.sec.gov/Archives/edgar/data/1760689/000121390019003643/f424b40319\\_tuscan.htm](https://www.sec.gov/Archives/edgar/data/1760689/000121390019003643/f424b40319_tuscan.htm)

<sup>9</sup> See Open Insider: <http://openinsider.com/insider/Zheng-Yanzhuan/1874015>



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