

Letter to Our Shareholders

Q4 2023

Dear Shareholders,

2023 was a great year for us, we took a massive step toward commercialization of our Li-Metal technology for automotive applications. We signed the world's first automotive B-sample joint development agreement for Li-Metal batteries with a major automaker. No one has ever gotten this far with Li-Metal batteries for EV application. This is a giant leap in the commercialization of Li-Metal technology for automotive applications. Our 3 JDA partners, GM, Hyundai, and Honda continue to be very supportive and pushing aggressively in EV. Hyundai recently became the second largest EV maker in the US.

2023 Accomplishments

It's significant to note that some of the key milestones for entering into B-sample development include **1) practical safety** and **2) manufacturability**.

The first one, practical safety. We are talking about large 50 Ah and 100 Ah automotive A-sample cells coming off of our A-sample lines. We intentionally trigger thermal runaway under rigorous, and the worst, real-world scenarios so that we can characterize their worst thermal behavior.

Getting to this point was a culmination of improved safety characteristics in Li-Metal cell materials, including the electrolyte, cathode, and anode coating, as well as improvements in cell design and engineering. In fact, we achieved greater safety-related breakthroughs in cell engineering than in material chemistry. This was intentional - because by having minimal changes in material chemistry, and by focusing on cell design and engineering, we didn't have to sacrifice cell performance and energy density.

We recruited the world's top cell engineering talent, and created designs that are still based on state-of-the-art Li-ion, so they can be manufactured at scale, but are unique for Li-Metal and can address safety-related challenges. We won't go into details about these cell design and engineering improvements since they are our newest trade secrets, but these new designs, engineering, and process improvements will be incorporated into our new B-sample cells.

With regard to manufacturability, we operated 3 A-sample lines last year, and we demonstrated that we could manufacture large 50 Ah to 100 Ah automotive Li-Metal cells at pilot scale.

It's important to highlight that we built more large automotive cells per month in just one line in 2023 than during all of 2022.

This was made possible thanks to significant improvements in wide-width thin lithium metal anode production, and anode electrode punching and stacking. We made the right decision to move lithium metal anode production in-house; we were able to resolve issues associated with tear, wrinkle and powders much more efficiently. As Elon Musk said, "a high production rate solves many ills."

By consistently producing a large quantity of large 50 Ah and 100 Ah automotive Li-Metal cells, we could accelerate our development and verification of new material changes, new cell designs, and new process improvements. The data that we collected from these large automotive cells, including cell design, manufacturing quality, and cell test data, also fed our health monitoring and incident prediction Avatar AI model.

Prior to 2023, our Avatar AI prediction accuracy was 60%. By the end of 2023, we are pleased to report we achieved 92%.

This is an important progress. The combination of greater number of cells and greater number of production quality control plan checkpoints per cell was instrumental to the training of our Avatar AI model, making it more accurate. For example, the number of large automotive cells increased from less than 1,000 per year in 2022 to about 1,000 per month in just one line by the end of 2023; and our production quality control plan increased from less than 300 checkpoints per cell in the beginning of 2023 to more than 600 per cell by the end of last year.

We are uniquely positioned because we now have complete cell data for Li-Metal from design to manufacturing to testing, and deep Avatar AI development. We are confident that with more data training and advancement in AI models, we will achieve 95% incident prediction this year and eventually reach near 100%.

In 2023, we also laid the foundation for using AI for future roadmap electrolyte development. Electrolyte development has been our core competence and closely guarded secret, and we have hired some of the world's best human scientists in this field. The goal is to build a roadmap for future generations of Li-Metal. We started training the latest AI models with a massive universe of both public and internal data, to design novel electrolyte solvent and salt chemical structures.

2024 Plans

Looking forward, we expect to make further progress in automotive commercialization of Li-Metal in 2024. **We will focus full steam on our EV B-sample JDA.**

We plan to further boost our cell engineering and process development effort, we will continue to improve cell practical safety and manufacturability. We plan to build and operate B-sample lines with our JDA partner automakers, potentially one at our own facility and another at our JDA partner's facility. These two B-sample lines will incorporate our latest cell design and engineering, as well as manufacturing process improvements.

These two B-sample lines will also have our latest production quality control plan. We will increase from about 600 checkpoints to about 1,500 checkpoints later this year, including more imaging-based checkpoints such as X-ray, ultrasound, CT and vision. All of these will be fully integrated with our Avatar AI model. This means the amount of data we will have access to for AI model training will significantly increase in both quantity and quality. We expect our Avatar AI model prediction accuracy to reach 95% for large automotive cells. We believe that no other company has such a comprehensive set of Li-Metal cell material design and engineering data, manufacturing quality data, cell test data, and advanced AI model development.

Avatar AI model can reach near 100% incident prediction accuracy with sufficient data training. Today's Li-ion quality data are still based on traditional statistical analysis, and the manufacturing data are decoupled from real-world test data, and rudimentary models are used to predict incident. That's why we still have Li-ion battery-related incidents that cost billions of dollars in recall. Our Avatar AI applies a far more advanced AI model that's pre-trained on our internal Li-Metal data and public Li-ion data, and we have access to a comprehensive set of material chemistry design data, manufacturing quality data (not based on statistics, but actual specific data), and real-world test data.

"We can achieve near 100% safety guaranteed. This near 100% safety guarantee is extremely important for automotive applications, and it's only possible with advanced Avatar AI."

On the use of AI for roadmap electrolyte development, our amazing team of human scientists and AI scientists will work together and use a combination of large language models and neural network models to systematically study electrolyte chemical structures from known publications and internal databases, including text and data graphs.

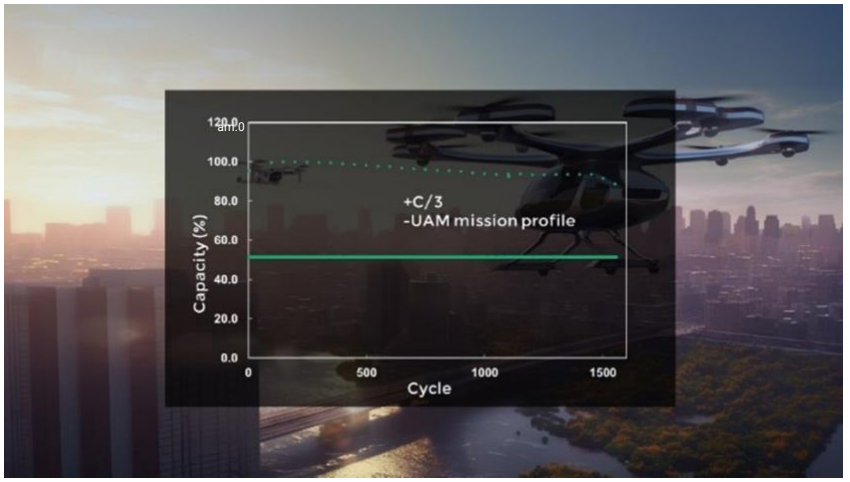


We are excited to report we will commission our new Electrolyte Foundry in Massachusetts to focus exclusively on high throughput synthesis and testing of both human and AI-recommended novel electrolyte solvent and salt chemical structures.

This is a super exciting area. Some pharmaceutical companies have already demonstrated promising signals using similar approach; however we are the very first to go this deep in the battery industry, and the signals are very inviting. We know we can accelerate the screening of novel electrolyte candidates. Now let's see if we can use AI to develop a new electrolyte that's better than the best ever human-developed one. While we focus on automotive commercialization of current generation of Li-Metal, this will help us build a robust roadmap of future generations of Li-Metal.

In addition to the EV market, we identified Urban Air Mobility or UAM as a promising and exciting market that is about to take off especially when powered by high energy density Li-Metal batteries. It's significant to note that B-sample for EV is equivalent to commercial production for UAM.

For UAM, the energy density and power density of current Li-ion batteries are too low, which results in short flight time and limited payload and number of passengers, making the current UAM business not economical. Li-Metal with about 60% higher energy density will change all that and make UAM a profitable business. The leading UAM companies have been waiting for a Li-Metal company that can produce high-quality large automotive-grade cells. 2024 will be a key year for their battery design-in and qualification, and 2025 will see demo flights in major cities such as Seoul, New York, and Abu Dhabi.



In the past Battery World 2023, SES AI showed that Li-Metal has the potential to achieve more than 1500 cycles using C/3 charge (3 hours) and UAM mission profile discharge.

Li-Metal with about

60% higher energy density

will make UAM more profitable.

This is perfect timing for us. We will convert one of our A-sample lines in South Korea to produce exclusively UAM cells. This will incorporate our latest production quality control plan and be fully integrated with Avatar AI. This line, just outside of Seoul, will have all the quality and engineering improvements of our B-sample lines, but dedicated to UAM Li-Metal cell, module and Avatar AI development and production.

We plan to incorporate these cells and modules onboard a sub-size or even full-size aircraft and fly for an extended duration. While doing so, we will collect battery data during flight, charging, and storage, and show that our Avatar AI can predict incidents with 95% and ultimately near 100% accuracy. Similar to EV applications, this near 100% safety guarantee will be essential for aviation safety certification. Near 100% safety guarantee for EV and UAM is only possible with Avatar AI.

We are also taking on sustainability initiatives. For example, we are collaborating with partners in novel dry electrode processing, significantly reducing our cathode production cost, permit process, and CO_2 footprint; and recycling - allowing our materials to be recycled so that we can build a supply chain that can qualify for exciting incentives in the Inflation Reduction Act. Our Avatar AI model can also provide critical information connecting the entire loop, from material development to cell design, cell manufacturing, vehicle field health monitoring, and recycling.







A sub-size UAM powered by SES Li-Metal batteries flew successfully in Jeju Island, South Korea last year.

2024 Goals

In 2024, we will build based on our accomplishments in 2023. We will push forward on our EV B-sample joint development agreement, develop UAM cells and deliver the first batch of cells to our UAM customers, and improve Avatar AI incident prediction accuracy.

These are challenging but exciting goals. Progress in EV B-sample development and shipping the first batch of UAM cells will represent major progress in the commercialization of Li-Metal batteries for EV and UAM applications. Achieving 95% incident prediction accuracy for Avatar AI will represent a major milestone towards the ultimate goal of near 100% safety guarantee, which will be critical for real world safety.

1. **EV B-sample progress:** We will work with our B-sample joint development partner automakers to build and operate new B-sample lines. We will improve manufacturing quality control plan from 600 to 1,500 checkpoints.



2. **Ship UAM cells:** Our UAM cells will be our first commercial products. We will build a dedicated UAM Li-Metal line and ship first batch of cells to our UAM customers.



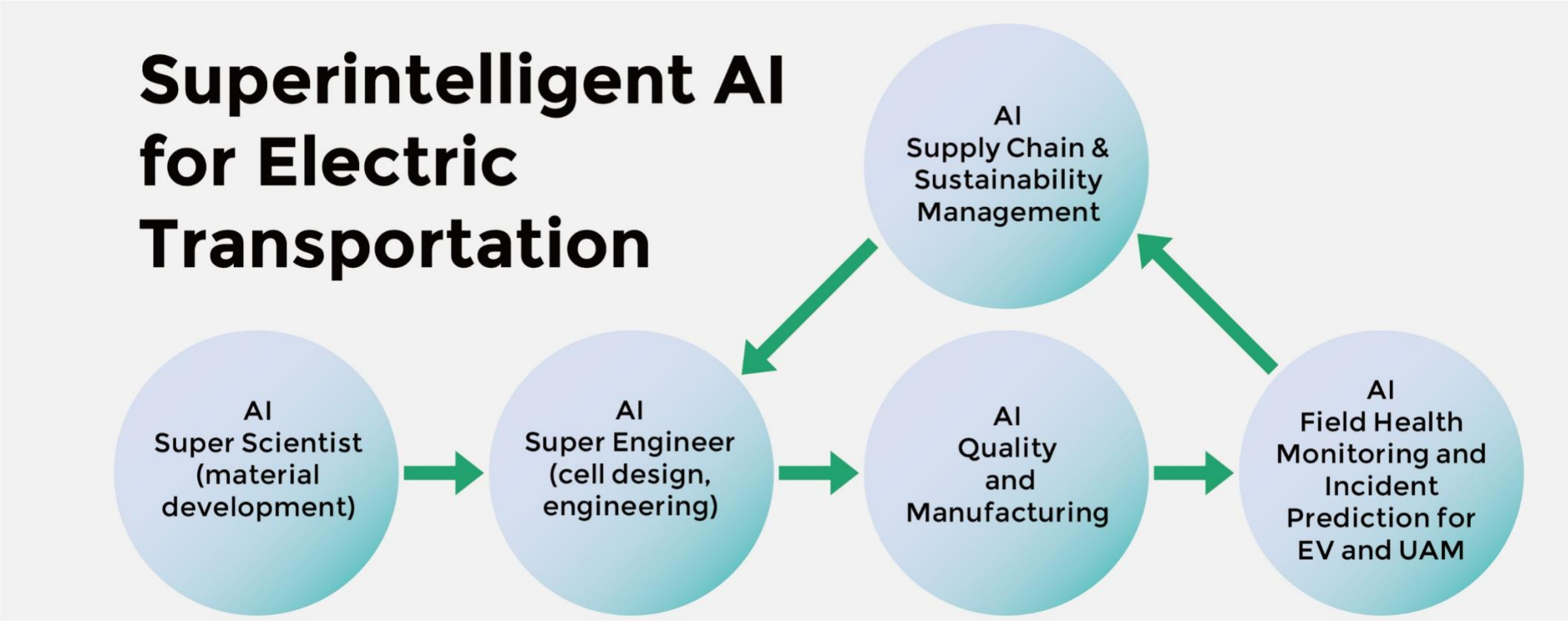
3. **Avatar AI incident prediction:** Our ultimate goal is near 100% safety guarantee for EV and UAM applications. In 2024, our goal is 95%. We will finish pre-training our Avatar AI models with all EV A-sample Li-Metal cells, and train with new EV B-sample and UAM cells.



BEYOND LI-ION

At SES AI, our mission is to power a new era of electric transportation on land and in air with Li-Metal batteries. As we build more automotive large capacity Li-Metal cells, generate more data, expand to B-sample, and prepare for C-sample and commercial production, AI becomes an increasingly integral part in both material development and battery health monitoring and incident prediction. Li-Metal not only leads to longer range and more passengers, but near 100% safety guarantee and accelerated roadmap technology development. We realize that we are building not just a super battery company, we are building the beginning of a superintelligent AI for electric transportation.

In material development, we are building an AI super scientist; in cell design and engineering, we are building an AI super engineer; in manufacturing quality and real-world health monitoring and incident prediction, we are building Avatar AI; and this information can be used in our supply chain and sustainability management, so we reduce cost and CO_2 footprint and build a new supply chain for our EV and UAM customers.



Financial Highlights and Outlook

Operating expenses for the fourth quarter and full year 2023 were $17.9M and $78.2M, respectively. For the full year 2023, cash used in operations was $56.4M and capital expenditures were $15.8M, lower than our previous guidance. We ended 2023 with $332M in liquidity. Our strong balance sheet will support us as we remain on track to achieve our commercialization milestones.

For the full year 2024, we expect cash usage from operations to be between $90M and $100M, and capital expenditures to be between $20M and $30M. Priorities for 2024 spendings are to attract top talents to achieve our strategic goals, build production capacities to deliver Li-Metal cells to our EV and UAM partners, and invest in the use of AI for electrolyte material discovery as we stay at the forefront of battery material science innovation.



Qichao Hu
Founder, CEO and Chairman



Jing Nealis
Chief Financial Officer

SES AI Corporation
Condensed Consolidated Balance Sheet
(Unaudited)

(in thousands, except share and per share amounts)	December 31, 2023	December 31, 2022
Assets		
Current Assets		
Cash and cash equivalents	$ 85,671	$ 106,623
Short-term investments	246,775	283,460
Receivable from related party	3,911	2,383
Inventories	558	383
Prepaid expenses and other assets	11,712	3,792
Total current assets	348,627	396,641
Property and equipment, net	37,959	27,756
Intangible assets, net	1,345	1,473
Right-of-use assets, net	13,099	11,363
Deferred tax assets	1,057	—
Other assets, non-current	4,723	3,206
Total assets	$ 406,810	$ 440,439
Liabilities and Stockholders' Equity		
Current Liabilities		
Accounts payable	$ 4,830	$ 6,187
Operating lease liabilities	2,404	1,899
Accrued expenses and other liabilities	13,121	11,271
Total current liabilities	20,355	19,357
Sponsor Earn-Out liabilities	4,166	10,961
Operating lease liabilities, non-current	11,316	10,165
Unearned government grant	9,270	6,657
Other liabilities, non-current	2,753	1,760
Total liabilities	47,860	48,900
Stockholders' Equity		
Preferred stock, $0.0001 par value; 20,000,000 shares authorized, none issued and outstanding as of December 31, 2023 and 2022, respectively	—	—
Common stock: Class A shares, $0.0001 par value, 2,100,000,000 shares authorized; 310,266,922 and 305,833,589 shares issued and outstanding as of December 31, 2023 and December 31, 2022, respectively; Class B shares, $0.0001 par value, 200,000,000 shares authorized; 43,881,251 shares issued and outstanding as of December 31, 2023 and December 31, 2022	35	35
Additional paid-in capital	559,214	538,041
Accumulated deficit	(198,686)	(145,286)
Accumulated other comprehensive loss	(1,613)	(1,251)
Total stockholders' equity	358,950	391,539
Total liabilities and stockholders' equity	$ 406,810	$ 440,439

SES AI Corporation
Condensed Consolidated Statements of Operations and Comprehensive Income (Loss)
(Unaudited)

(in thousands, except share and per share amounts)	Three Months Ended December 31,		Year Ended December 31,	
	2023	2022	2023	2022
Operating expenses:				
Research and development	$ 7,367	$ 8,287	$ 30,675	$ 27,967
General and administrative	10,551	12,456	47,483	51,606
Total operating expenses	17,918	20,743	78,158	79,573
Loss from operations	(17,918)	(20,743)	(78,158)	(79,573)
Other income (expense):				
Interest income	4,219	3,736	16,685	6,196
Gain on change in fair value of Sponsor Earn-Out liabilities	1,383	9,032	6,795	25,432
Miscellaneous income (expense), net	32	(882)	425	(1,793)
Total other income, net	5,634	11,886	23,905	29,835
Loss before income taxes	(12,284)	(8,857)	(54,253)	(49,738)
Benefit (provision) from income taxes	1,531	(945)	853	(1,255)
Net loss	(10,753)	(9,802)	(53,400)	(50,993)
Other comprehensive income (loss), net of tax:				
Foreign currency translation adjustment	582	1,089	(937)	(1,373)
Unrealized gain (loss) on short-term investments	587	(245)	575	(245)
Total other comprehensive income (loss), net of tax	1,169	844	(362)	(1,618)
Total comprehensive loss	$ (9,584)	$ (8,958)	$ (53,762)	$ (52,611)
Net loss per share attributable to common stockholders:				
Basic and diluted	$ (0.03)	$ (0.03)	$ (0.17)	$ (0.18)
Weighted-average common shares outstanding:				
Basic and diluted	316,537,274	311,737,683	315,051,508	288,304,750

SES AI Corporation
Condensed Consolidated Statements of Cash Flows
(Unaudited)

(in thousands)	Year Ended December 31, 2023	2022
Cash Flows From Operating Activities		
Net loss	$ (53,400)	$ (50,993)
Adjustments to reconcile net loss to net cash used in operating activities:		
Gain on change of fair value of Sponsor Earn-Out liabilities	(6,795)	(25,432)
Stock-based compensation	20,649	22,775
Depreciation and amortization	5,541	2,596
Accretion income from available-for-sale short-term investments	(11,050)	(2,350)
Other	(244)	490
Changes in operating assets and liabilities:		
Receivable from related party	(1,528)	5,525
Inventories	(184)	(383)
Prepaid expenses and other assets	(8,170)	(1,586)
Deferred tax assets	(1,057)	—
Accounts payable	(62)	(3,975)
Accrued expenses and other liabilities	(112)	6,833
Net cash used in operating activities	(56,412)	(46,500)
Cash Flows From Investing Activities		
Purchases of property and equipment	(15,763)	(14,654)
Purchase of short-term investments	(281,518)	(411,355)
Proceeds from the maturities of short-term investments	330,000	130,000
Net cash provided by (used in) investing activities	32,719	(296,009)
Cash Flows From Financing Activities		
Proceeds from Business Combination and PIPE Financing, net of issuance costs	—	282,940
Proceeds from government grant	2,751	6,657
Proceeds from stock option exercises	524	330
Net cash provided by financing activities	3,275	289,927
Effect of exchange rates on cash	(552)	(526)
Net decrease in cash, cash equivalents and restricted cash	(20,970)	(53,108)
Cash, cash equivalents and restricted cash at beginning of period	107,936	161,044
Cash, cash equivalents and restricted cash at end of period	$ 86,966	$ 107,936
Supplemental Non-Cash Information:		
Conversion of Redeemable Convertible Preferred Stock to shares of Class A common stock	$ —	$ (269,941)
Release of accrued transaction costs related to Business Combination and PIPE Financing	$ —	$ 6,061
Accounts payable and accrued expenses related to purchases of property and equipment	$ 6,008	$ 4,349
Lease liabilities arising from obtaining right-of-use assets	$ 3,808	$ 1,547
Liabilities of Ivanhoe acquired in the Business Combination	—	(387)
Incomes taxes paid	$ 222	$ —

Forward-Looking Statements

This letter contains statements that SES believes are "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995. These forward-looking statements include, without limitation, statements relating to expectations for future financial performance, business strategies or expectations for our business. These statements are based on the beliefs and assumptions of the management of SES. Although SES believes that its plans, intentions and expectations reflected in or suggested by these forward-looking statements are reasonable, it cannot provide assurance that it will achieve or realize these plans, intentions or expectations. These statements constitute projections, forecasts and forward-looking statements, and are not guarantees of performance. Such statements can be identified by the fact that they do not relate strictly to historical or current facts. When used in this press release, words such as "anticipate", "believe", "can", "continue", "could", "estimate", "expect", "forecast", "intend", "may", "might", "plan", "possible", "potential", "predict", "project", "seek", "should", "strive", "target", "will", "would" and similar expressions may identify forward-looking statements, but the absence of these words does not mean that a statement is not forward-looking.

You should not place undue reliance on these forward-looking statements. Should one or more of a number of known and unknown risks and uncertainties materialize, or should any of SES's assumptions prove incorrect, our actual results or performance may be materially different from those expressed or implied by these forward-looking statements. Some factors that could cause actual results to differ include, but are not limited to the following risks: risks related to the development and commercialization of SES's battery technology and the timing and achievement of expected business milestones; risks relating to the uncertainty of achieving and maintaining profitability; risks relating to the uncertainty of meeting future capital requirements; the ability of SES to integrate its products into electric vehicles ("EVs") and Urban Air Mobility ("UAM") and other applications; the risk that delays in the pre-manufacturing development of SES's battery cells could adversely affect SES's business and prospects; risks relating to the development of the UAM market and demand for batteries from the UAM industry; potential supply chain difficulties; the ability of SES to engage target original equipment manufacturers ("OEMs") customers successfully and integrate SES's products into EVs manufactured by OEM customers; the ability to obtain raw materials, components or equipment through new or existing supply relationships; risks resulting from SES's joint development agreements and other strategic alliances and investments; product liability and other potential litigation, regulation and legal compliance; SES's ability to attract, train and retain highly skilled employees and key personnel; and any operational interruptions; developments in alternative technology or other fossil fuel alternatives; risks related to SES's intellectual property; business, regulatory, political, operational, financial and economic risks related to SES's business operations outside the United States; risks related to SES's use of artificial intelligence and machine learning; SES has identified material weaknesses in its internal control over financial reporting and may identify material weaknesses in the future or otherwise fail to develop or maintain an effective system of internal controls; the volatility of SES's common stock and value of SES's public warrants; and the other risks described in "Part I, Item 1A. Risk Factors" in our annual report on Form 10-K for the fiscal year ended December 31, 2022 filed with the Securities and Exchange Commission ("SEC") on March 16. 2023 and other documents filed from time to time with the SEC. There may be additional risks that SES presently knows and/or believes are immaterial that could also cause actual results to differ from those contained in the forward-looking statements. In addition, forward-looking statements reflect SES's expectations, plans or forecasts of future events and views only as of the date of this press release. SES anticipates that subsequent events and developments will cause its assessments to change. However, while SES may elect to update these forward-looking statements at some point in the future, SES specifically disclaims any obligation to do so. These forward-looking statements should not be relied upon as representing SES's assessments as of any date subsequent to the date of this letter.