SES

11 YEARS OF LI-METAL BATTERIES
Technology, Supply Chain, and New Business Model



DISCLAIMER

INDUSTRY AND MARKET DATA

Although all information and opinions expressed in this Presentation, including market data and other statistical information, were obtained from sources believed to be reliable and are included in good faith, SES has not independently verified the information and makes no representation or warranty, express or implied, as to its accuracy or completeness. Some data is also based on the good faith estimates of SES, which are derived from reviews of internal sources as well as the independent sources described above.

TRADEMARKS AND TRADE NAMES

SES owns or has rights to various trademarks, service marks and trade names that it uses in connection with the operation of its businesses. This Presentation also contains trademarks, service marks and trade names of third parties, which are the property of their respective owners. The use or display of third parties' trademarks, service marks, trade names or products in this Presentation is not intended to, and does not imply, a relationship with SES, or an endorsement or sponsorship by or of SES. Solely for convenience, the trademarks, service marks and trade names referred to in this Presentation may appear with the @, TM or SM symbols, but such references are not intended to indicate, in any way, that SES will not assert, to the fullest extent under applicable law, its rights or the right of the applicable licensor to these trademarks, service marks and trade names.

FORWARD-LOOKING STATEMENTS

All statements other than statements of historical facts contained in this presentation 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 assure you 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 presentation, 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 our 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: changes in domestic and foreign business, market, financial, political and legal conditions, including but not limited to the ongoing conflict between Russia and Ukraine; risks relating to the uncertainty of the projected financial information with respect to SES; risks related to the development and commercialization of SES's battery technology and the timing and achievement of expected business milestones; the effects of competition on SES's business; the ability of SES to issue equity or equity-linked securities or obtain debt financing in the future; the ability of SES to integrate its products into electric vehicles ("EVs"); the risk that delays in the pre-manufacturing development of SES's battery cells could adversely affect SES's business and prospects; potential supply chain difficulties; risks resulting from SES's joint development agreements and other strategic alliances, if such alliances are unsuccessful; the quickly evolving battery market; SES's ability to accurately estimate future supply and demand for its batteries; SES's ability to develop new products on an ongoing basis in a timely manner; product liability and other potential litigation, regulation and legal compliance; SES's ability to effectively manage its growth; SES's ability to attract, train and retain highly skilled employees and key personnel; the willingness of vehicle operators and consumers to adopt EVs; developments in alternative technology or other fossil fuel alternatives; SES's ability to meet certain motor vehicle standards; a potential shortage of metals required for manufacturing batteries; risks related to SES's intellectual property; the uncertainty in global economic conditions and risks relating to health epidemics, including the COVID-19 pandemic and any operational interruptions; risks related to SES's business operations outside the United States, including in China; SES has identified material weaknesses in its internal control over financial reporting and may identify material weaknesses in the future or otherwise fail to maintain an effective system of internal controls; compliance with certain health and safety laws; changes in U.S. and foreign tax laws; 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, 2021 filed with the Securities and Exchange Commission ("SEC") on March 31, 2022 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 presentation. 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 presentation.

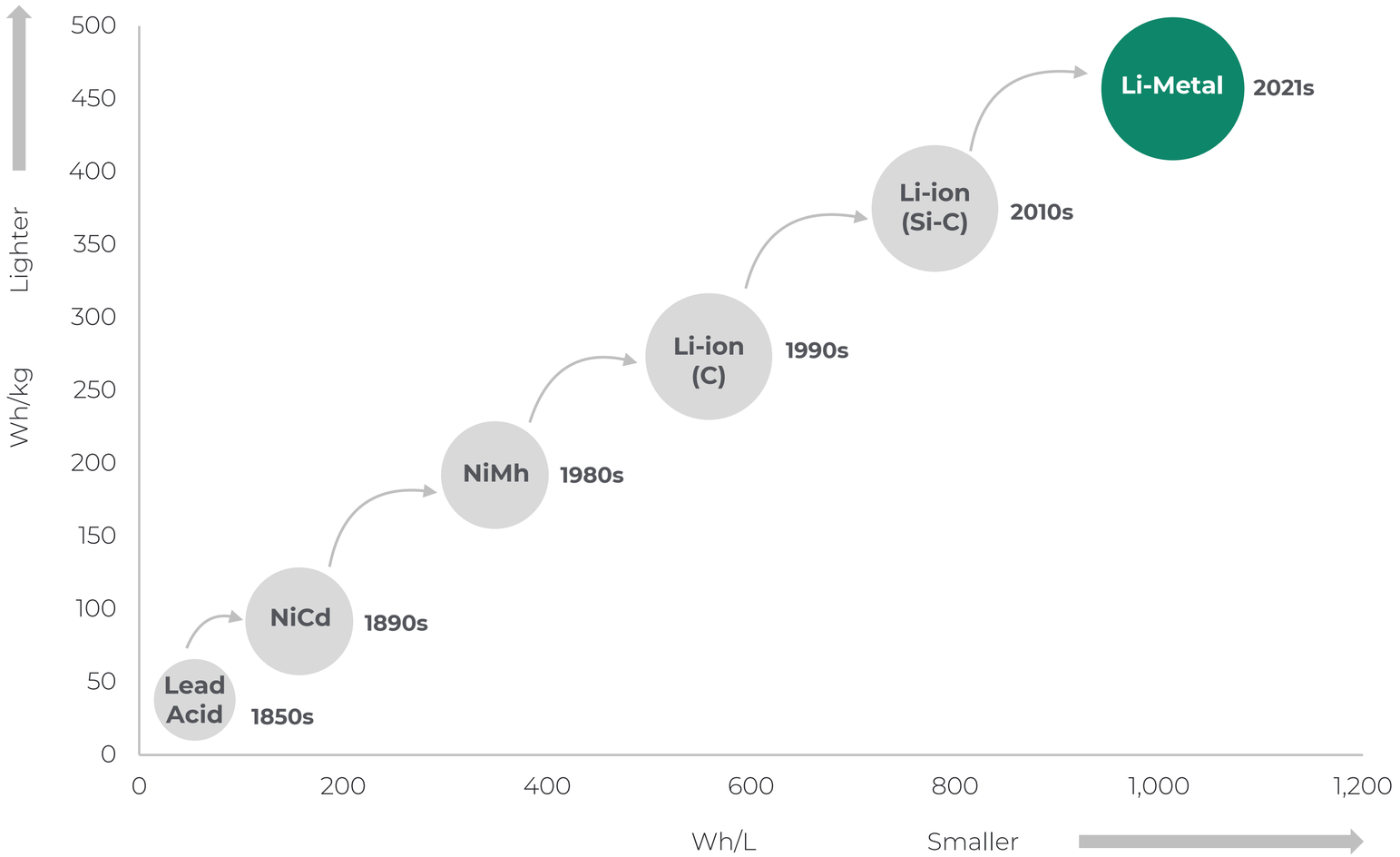
USE OF PROJECTIONS

This Presentation contains projected financial information with respect to SES. Such projected financial information constitutes forward-looking information, is for illustrative purposes only and should not be relied upon as necessarily being indicative of future results. The assumptions and estimates underlying such financial forecast information are inherently uncertain and are subject to a wide variety of significant technical, business, economic, competitive and other risks and uncertainties that could cause actual results to differ materially from those contained in the prospective financial information. See the "Forward-Looking Statements" paragraph above for a description of many of such risks and uncertainties. Actual results may differ materially from the results contemplated by the financial forecast information contained in this Presentation, and the inclusion of such information in this Presentation should not be regarded as a representation by any person that the results reflected in such forecasts will be achieved. SES's independent auditors have not audited, reviewed, compiled or performed any procedures with respect to the projections for the purpose of their inclusion in this Presentation, and accordingly, have not expressed an opinion or provided any other form of assurance with respect thereto for the purpose of this Presentation.

SES INVESTMENT HIGHLIGHTS

- Li-Metal Batteries with Leading Energy Density and Comprehensive Supply Chain Partners
- Manufacturing Approach Takes Advantage of Cost-effective Conventional Industry Processes
- A-Sample Joint Development Agreements in Place with General Motors, Hyundai, and Honda
- Collecting Data and Building AI Algorithms to Monitor Battery Health and Enhance Safety -- BaaS Opportunities
- Experienced Management Team with Decades of Battery Development
- Funded to Commercialization with $357MM of Cash on Balance Sheet as of 6/30/23

HISTORY OF BATTERIES



Winning Technologies Are Significantly Smaller and Lighter Than Their Precedents.

The future is not solid. It will be Li-Metal.

SES LI-METAL BATTERIES ARE



DENSER

Projected 400 Wh/kg and 1,000 Wh/L, leading to significantly longer driving range

SCALABLE

Designed to be manufacturable at scale using existing infrastructure and processes

LIGHTER

Ultra-thin Li-Metal anode reduces battery weight and production cost

SAFER

Proprietary electrolyte and AI algorithm greatly enhance safety

FASTER

Capable of 80% charge in less than 15 minutes

SMARTER

AI-powered algorithm optimizes performance

Superior Technology, Safety and Manufacturability

BACKED BY STRATEGIC INVESTORS & OPERATORS



HYUNDAI MOTOR GROUP

HONDA

KIA









TEMASEK

SES

OUR TEAM



DR. QICHAO HU
Founder, Chairman & CEO

HARVARD UNIVERSITY

MIT

- Forbes 30 Under 30
- MIT Technology Review Innovators Under 35
- PhD in Applied Physics from Harvard and BS in Physics from MIT



ROHIT MAKHARIA
President
Chief Strategy Officer

gm

- 19 years with General Motors
- 12 years in fuel cell and battery EV. Led battery cell development for Chevy Bolt
- 7 years at GM Ventures. Previously, Board Director of SES



JING NEALIS
Chief Financial Officer

view
SUNPOWER

- 18 years of finance experience, including at public companies
- Previously worked at View, SunPower, Shunfeng, Suntech Power and Deloitte



DR. HONG GAN
Chief Science Officer

BROOKHAVEN NATIONAL LABORATORY

ENEVATE

- 25 years of battery R&D experience
- Key contribution in silicon-based Li-ion and Li-S technologies
- PhD in Chemistry from Uni. of Chicago and PostDoc from Uni. of Rochester



HANS KIM
Head Of Korea

SAMSUNG LG SK
HYUNDAI MOTOR GROUP posco

- 30 years of experience in cross border corporate finance and capital markets in Seoul, Asia, US and UK
- Advised Korean blue-chip companies such as Samsung Electronics, LG, Hyundai, SK, Posco and Korean sovereign institutions



DR. WINSTON WANG
Head of China

dji

- Managed battery R&D at DJI. Responsible for DJI's key drone smart battery and power systems launch.
- PhD in Mechanical Engineering from the University of Hong Kong.



KYLE PILKINGTON
Chief Legal Officer

IGT SULLIVAN & CROMWELL

- 16 years of international legal experience, including in capital markets, securities law, corporate governance and M&A
- Previously worked at International Game Technology, Sullivan & Cromwell, Gibson Dunn and Baker McKenzie



ERIC GOLDSTEIN
VP of Investor Relations

BEAR STEARNS MAGNA

- Over 25 years of Wall Street experience analyzing the automotive industry as a sell-side research analyst and a professional investor while working at Bear Stearns, Salomon Brothers, and Shay Capital.
- Also served as VP of Investor Relations for auto supplier Magna International. .



RICHARD CHANG
VP of Business Development

力信能源 eTrust Power FOXCONN
TOSHIBA CATL

- Previously held senior sales positions at prominent battery technology companies
- At CATL, held account management responsibility for BMW and VW

OUR FOOTPRINT

Boston HQ + Shanghai Giga + South Korea Positions SES to Realize Scale in Multiple High-Growth Markets

BOSTON HQ

- Chemistry, materials, algorithm R&D, deep learning
- Headquarters
- Finance
- Legal

SHANGHAI GIGA

- Manufacturing process development
- Cell, module, BMS R&D
- Pilot plant
- 1 OEM JDA

SOUTH KOREA

- Supply chain
- Customer relations
- 2 OEM JDAs
- Pilot plant





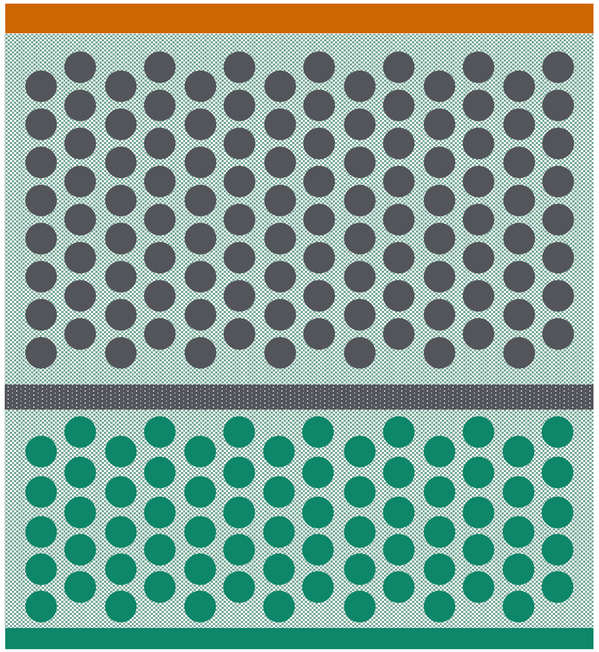
SES VS OTHER APPROACHES

Conventional Li-ion

Anode

Separator

Cathode



✗ Energy Density

✓ Manufacturability

All-Solid-State Li-Metal

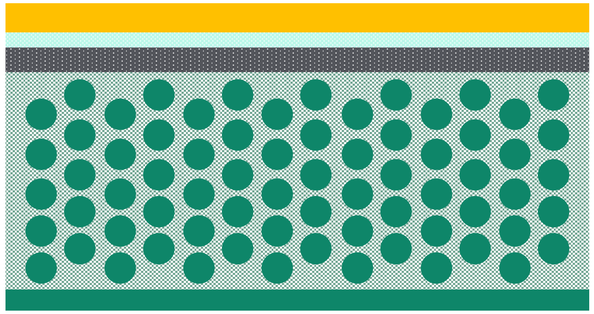
Solid-State Separator
Never Demonstrated at Scale

Solid-State Cathode
Never Demonstrated at Scale

✓ Energy Density

✗ Manufacturability

SES Li-Metal



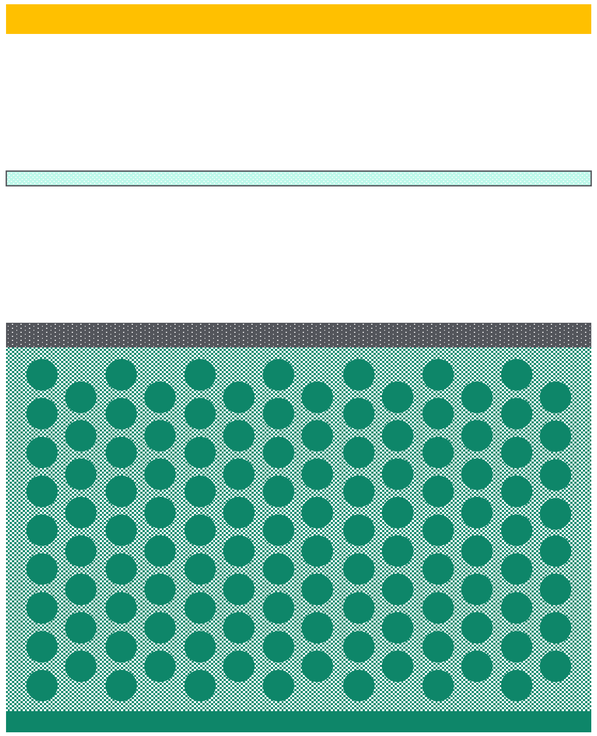
✓ Energy Density

✓ Manufacturability

SES

SES LI-METAL BATTERY TECHNOLOGY





Wide Format Li-Metal Anode
- Ultra-thin Li-Metal anode manufactured through a proprietary process

Composite Anode Coating
- Mechanical barrier to enhance safety

Polymer-Based Separator
- Highly manufacturable state-of-the-art separator

Solvent-in-Salt Liquid Electrolyte Formula
- Low-volatility and self-extinguishing

High-Capacity Cathode
- Highly manufacturable state-of-the-art cathode technology

Combined in a Proprietary Cell Design for Optimized Performance and Safety

INNOVATIVE AND PROPRIETARY ELECTROLYTE COMPOSITION

SES electrolyte uses a high concentration solvent-in-salt approach. A conventional liquid electrolyte is low concentration, where the salt is coordinated by solvent and there are free solvent molecules that are volatile and flammable. In SES's high concentration electrolyte, the solvent is coordinated by the salt and there are no free solvent molecules, and the solvent molecules are non-volatile and non-flammable.

Electrolyte Composition:

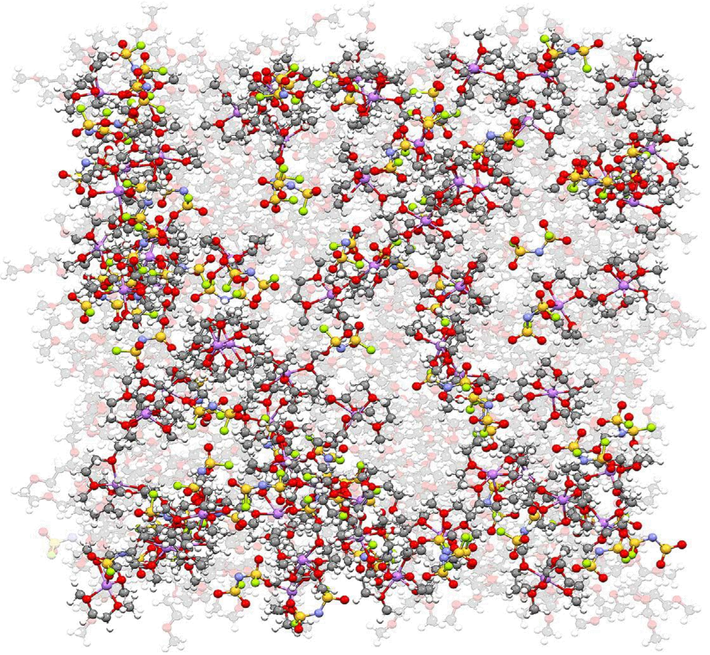
Salt: The main salt is LiFSI, with a proprietary purity profile and trade secret purification process

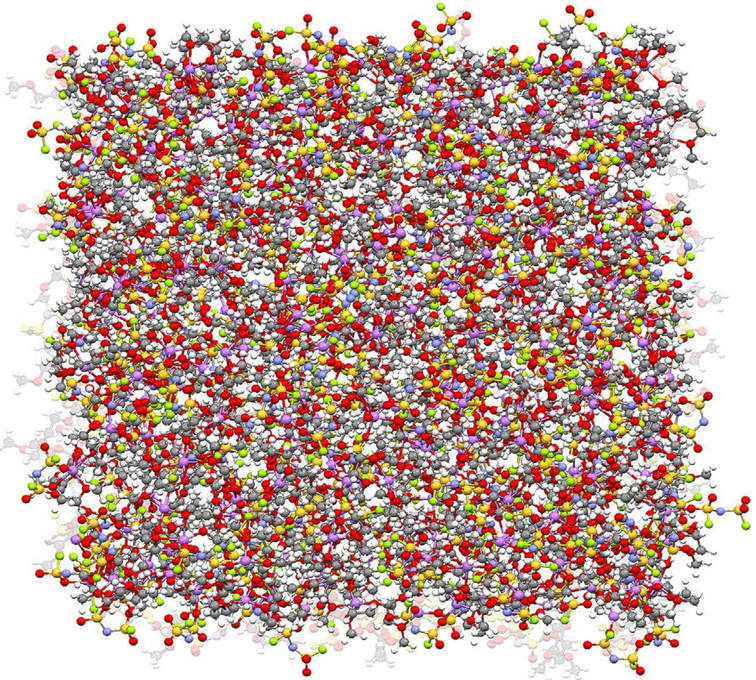
Solvent: Proprietary and patented solvent that SES designed and synthesized, not commercially available, and non-volatile and non-flammable

Additives: Proprietary/trade secret

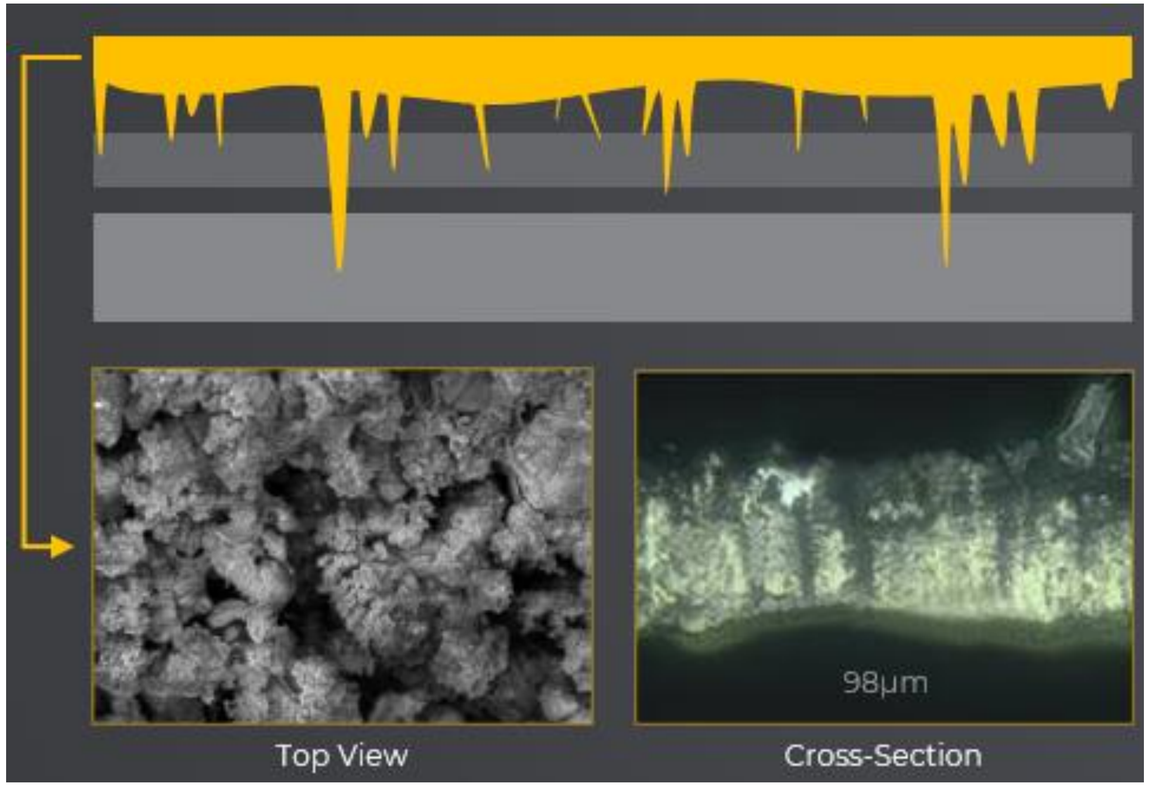
Low Concentration
Most solvent molecules are uncoordinated

High Concentration
Solvent almost fully coordinated
No free solvent





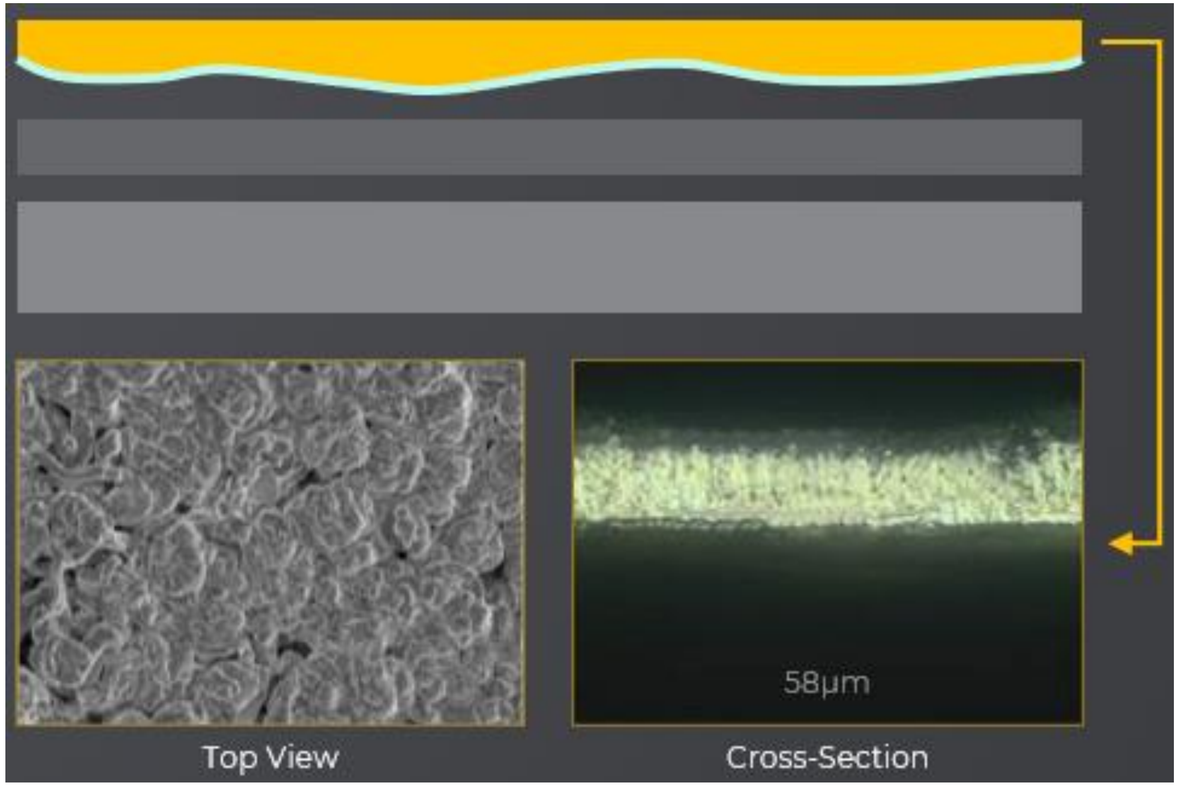
MOSSY LITHIUM NOT DENDRITES



Anode

Separator

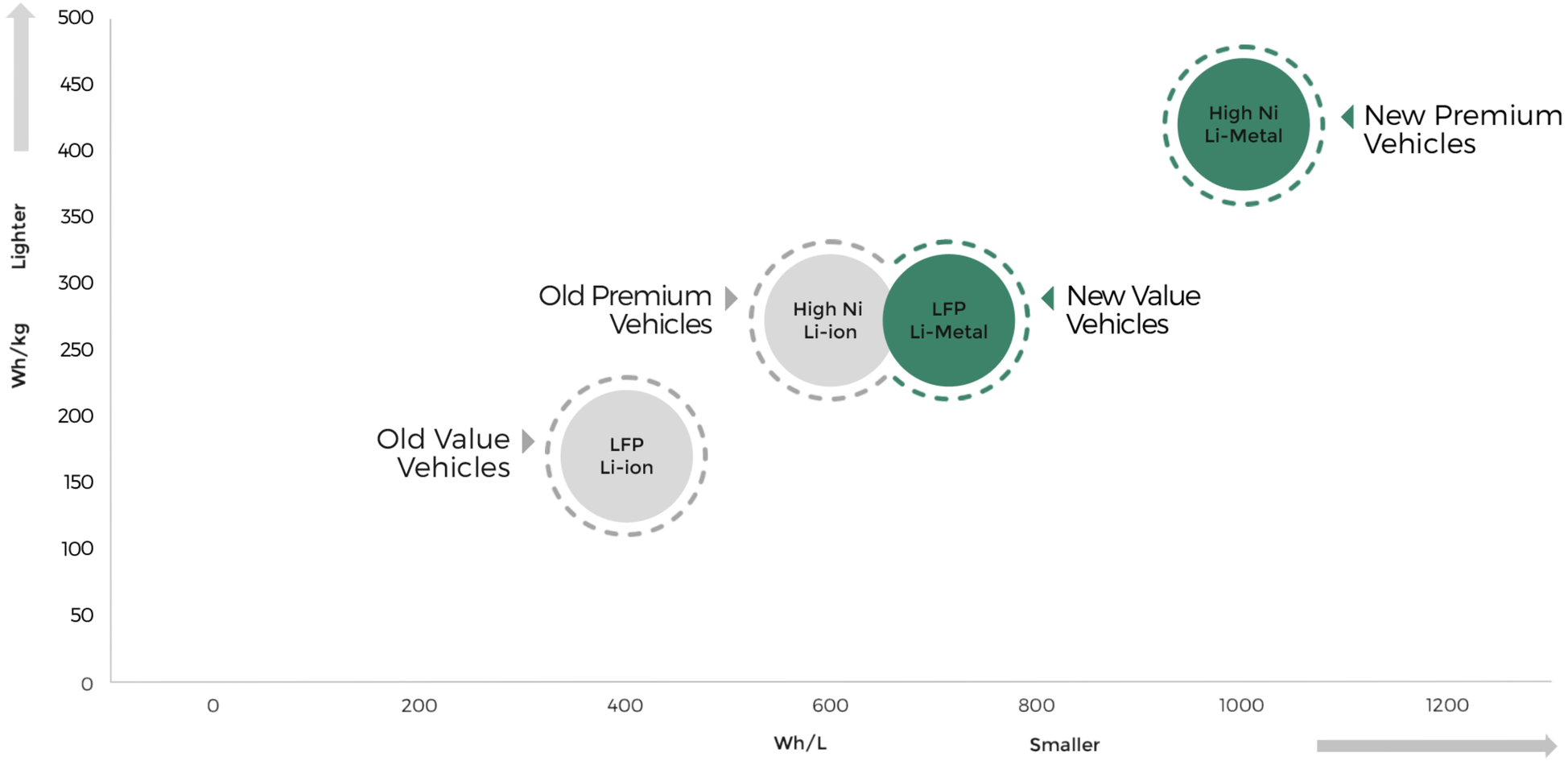
Cathode



CELL DATA COMPARISON FOR OUR LI-METAL CELLS

	Cell Type	*4.2Ah (25+ layer) at 25ºC*	*50.7Ah (16+ layer) at 25ºC*	*102.8Ah (32+ layer) at 25ºC*
Room Temperature (25℃) Energy Density	Low power C/20	>375 Wh/Kg	-	-
	Low power C/10	375 Wh/Kg (= 700 Wh/L at SOC 30%)	357 Wh/Kg (= 773 Wh/L at SOC 30%)	383 Wh/Kg (= 853 Wh/L at SOC 30%)
	Medium power C/3	-	342 Wh/Kg (=743 Wh/L)	Ongoing
	Medium power 1C	339 Wh/Kg	-	Ongoing
	High power 3C	-	303 Wh/Kg	Ongoing
	High power 5C	321 Wh/Kg	-	Ongoing
Low Temperature (0℃) Energy Density	Low power C/10	324 Wh/Kg	-	Ongoing
	Medium power 1C	298 Wh/Kg	-	Ongoing
	High power 5C	282 Wh/Kg	-	Ongoing
Lifetime (Ch-Dch)	C/10 – C/3	600 cycles (80% retention)	>200 cycles (Ongoing)	Ongoing
	C/6 – C/3	-	Ongoing	Ongoing
	C/5 - 1C	700 cycles (80% retention)	Ongoing	Ongoing
Fast Charging	Charge at 4C	80% in <15min	Ongoing	Ongoing
Safety	Thermal	Electrolyte is stable with Li above Li melting point	PASS TEST	Ongoing
	Nail Penetration	PASS TEST	PASS TEST	Ongoing
	Overcharge	PASS TEST	PASS TEST	Ongoing
	External Short Circuit	PASS TEST	PASS TEST	Ongoing
Certification		UN38.3	UN38.3, IATF16949	Ongoing
Manufacturability		Highly similar to Li-ion	Highly similar to Li-ion	Highly similar to Li-ion
Tested Operating Temperature		-30 ºC to 60 ºC	-10 ºC to 45 ºC	-10 ºC to 45 ºC

LI-METAL MAKES NICKEL FREE CHEMISTRIES COMPETITIVE



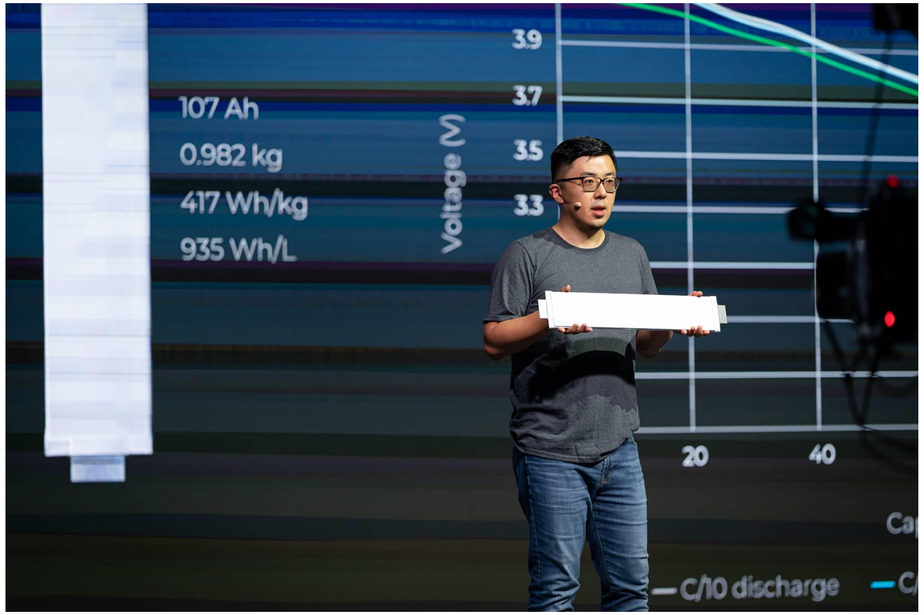
A-SAMPLE JDA WITH 3 WORLD-LEADING OEMS

- **$50MM+ JDA** (March 2021)
- **$60MM equity investment** (since 2015)
- **Joint pre-production facility**
- **GM's CTO serves as a director on our Board**

- **JDA** (May 2021)
- **$50MM equity investment** (May 2021)
- **$50MM PIPE commitment** (June 2021)
- **Joint pre-production facility** (going forward)

- **JDA** (January 2022)
- **Largest single investor** in PIPE financing -- $75 million
- **6th major global car manufacturer** to invest in SES

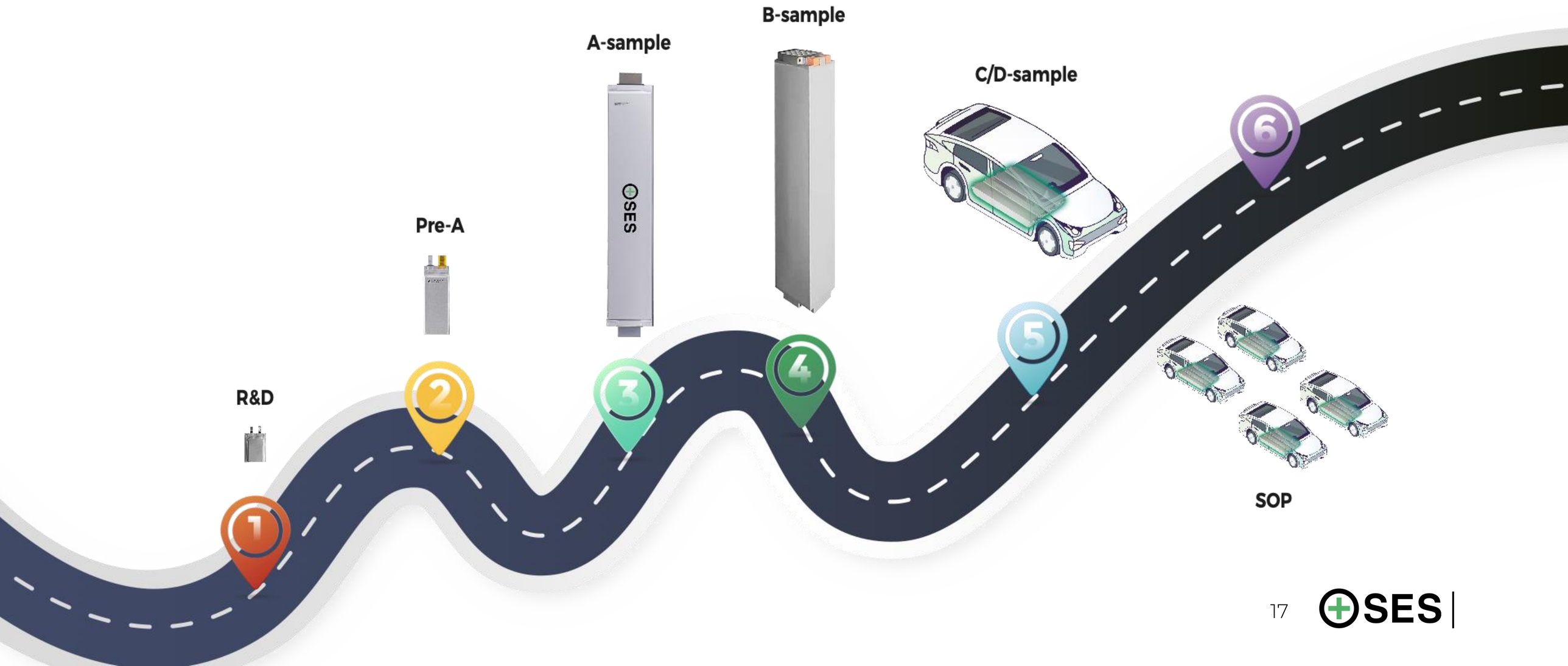
BATTERY WORLD 2021 – APOLLO™ INTRODUCED



a 107 Ah Li-Metal battery that is the largest in the world and a breakthrough for the automotive industry

107Ah	0.982 kg	417 Wh/kg	935 Wh/L

DEVELOPMENT OF AN OEM-READY BATTERY



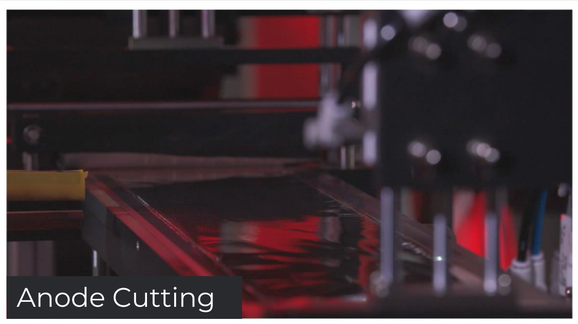
SES SHANGHAI GIGA

Line 1

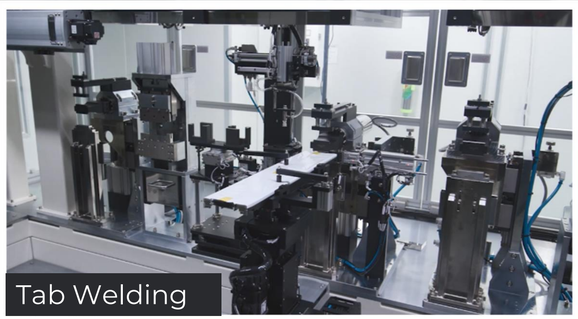
- Completion: **March 2022**
- Capacity: **1000 cells/month by year-end 2023**
- Production: **A-sample prototypes (from 50Ah to >100Ah)**

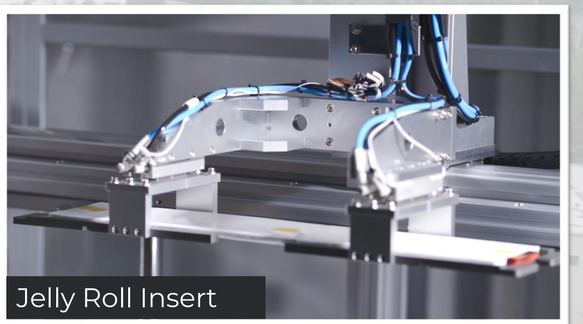
Line 4 and 5

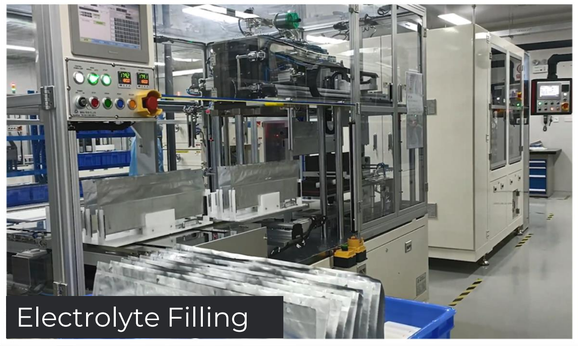
- Expected Completion: **1H24**
- Markets: **B-samples for EV & UAM**
- Capacity: **1000 cells/month/line**
- Size: **300,000 square feet**


Anode Cutting


Zig-Zag Stacking


Tab Welding


Jelly Roll Insert


Electrolyte Filling


Dry room

SES SOUTH KOREA

Line 2 and 3

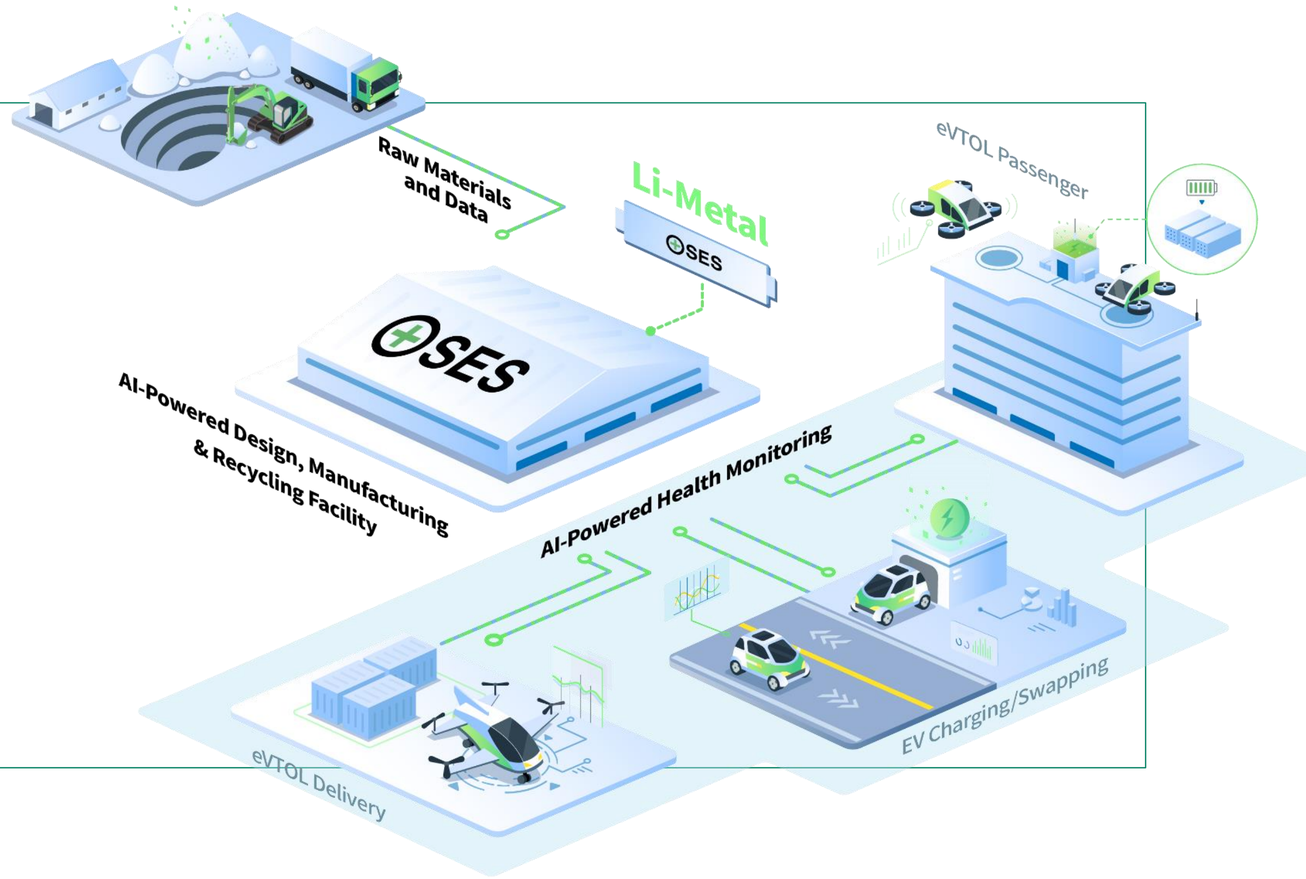
- Completion: **September 2022**
- Capacity: **1000 cells/month/line by year-end 2023**
- Production: **A-sample prototypes (from 50Ah to >100Ah)**
- Customer**: Supports 2 JDAs**



PLATFORMS FOR BATTERY DEVELOPMENT - AVATAR

AVATAR – Mine-to-Men AI Software

- From mine to manufacturing to in-vehicle use and recycling
- Integral to monitoring battery health & end of life use
- Data will support new Battery as a Service (BaaS) models



PLATFORMS FOR BATTERY DEVELOPMENT - AVATAR

Avatar accuracy:

>99%

(Hermes training since 2019)



Avatar accuracy:

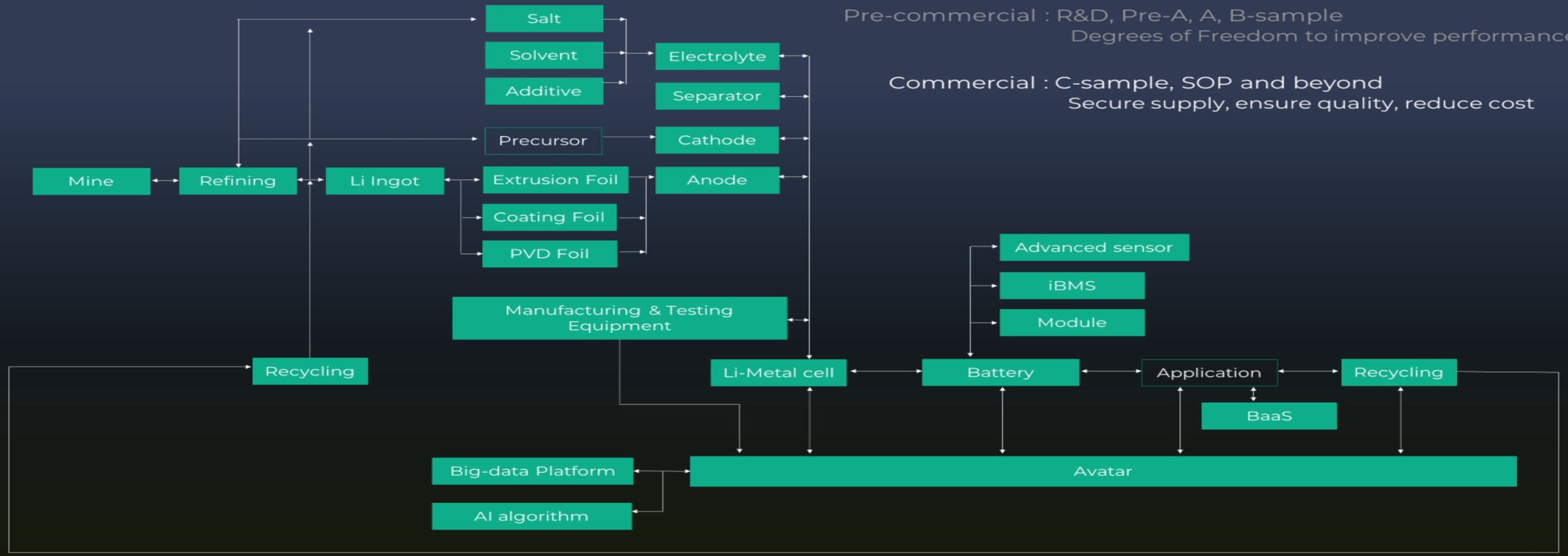
~60%

(Apollo training since 2022)



SUPPLY CHAIN – THE FUTURE OF LI-METAL / LI-ION

next



Pre-commercial : R&D, Pre-A, A, B-sample
Degrees of Freedom to improve performance

Commercial : C-sample, SOP and beyond
Secure supply, ensure quality, reduce cost

MILESTONES & 2023 FINANCIAL GUIDANCE

- **Targeted Milestones by Mid-2024**
    - Transition to B-samples
    - Establish a robust cell engineering, manufacturing, and quality platform
    - Improve Avatar safety prediction algorithm

- **2023 Financial Guidance**
    - Capital expenditures in the range of $50 - $70 million
    - Cash used in operations in the range of $80 - $100 million
    - Total cash used in the range of $130 - $170 million

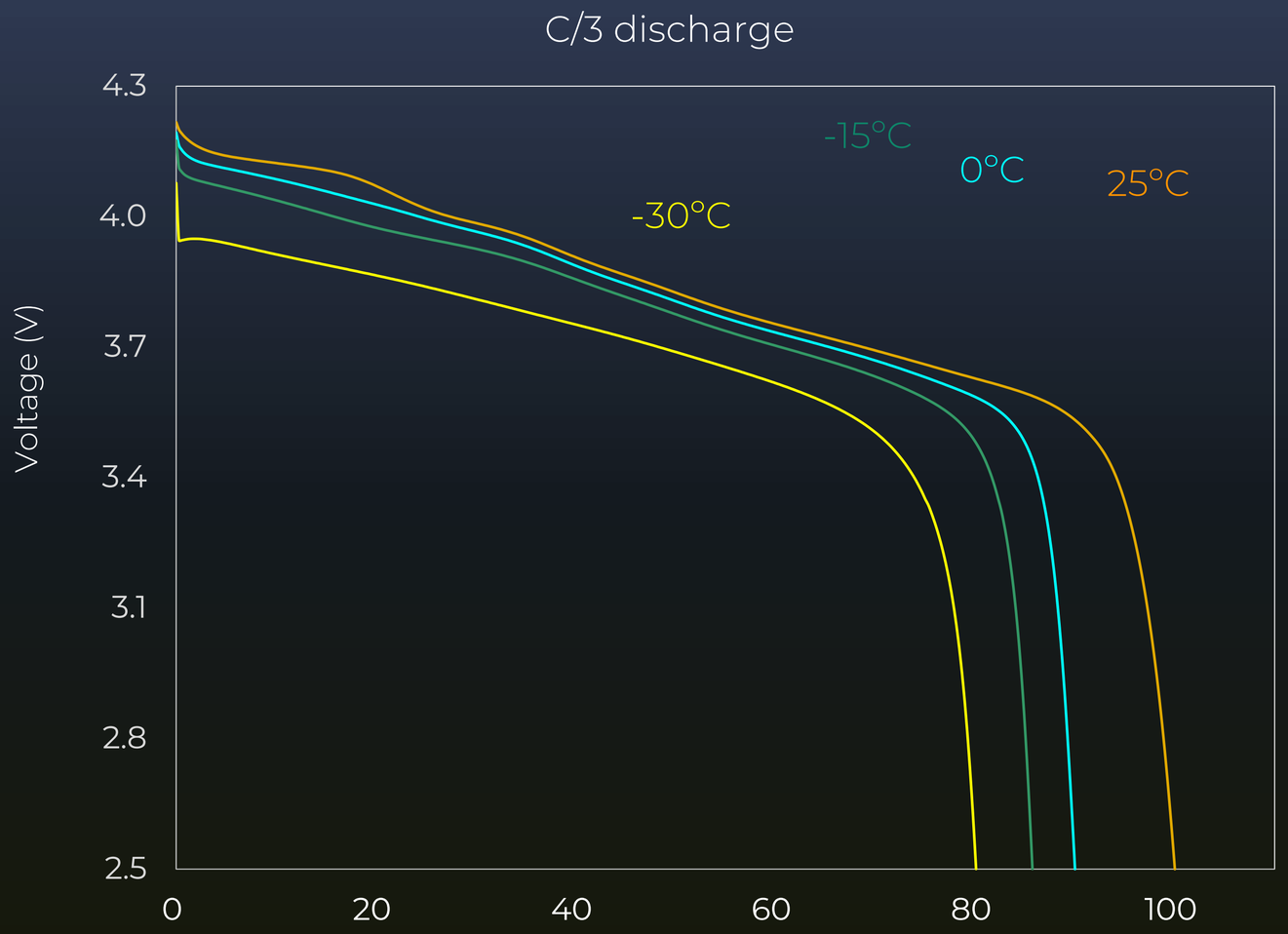
Note: Milestones and financial guidance provided on August 8, 2023

APPENDIX:

PERFORMANCE – 50 AH CELL



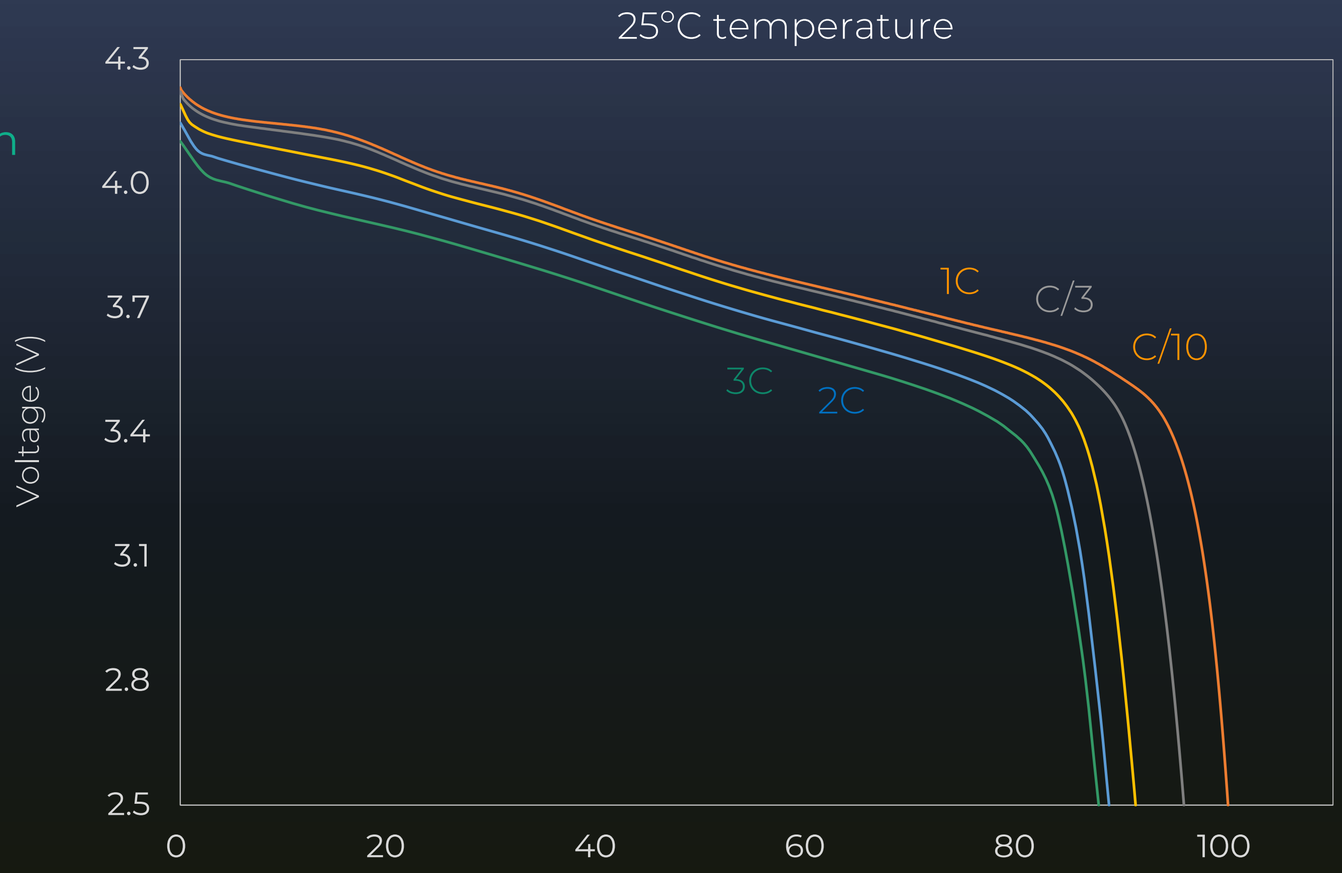
Excellent performance in cold weather climates



PERFORMANCE – 50 AH CELL



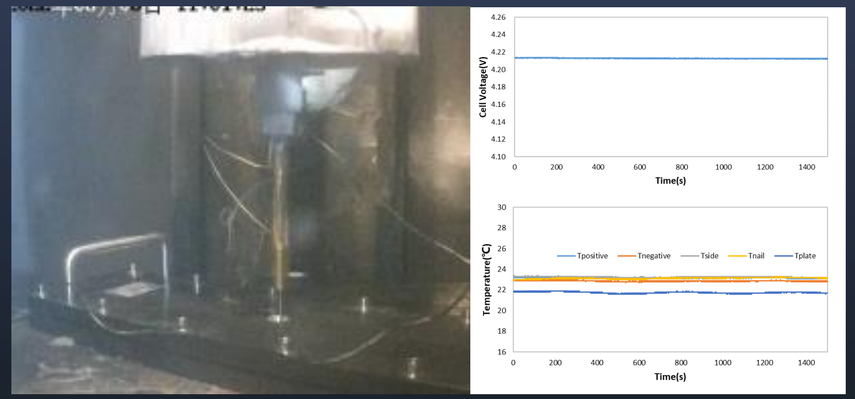
Excellent performance in high power discharge



SAFETY DATA – 50 AH CELL FROM 3RD PARTY TESTING

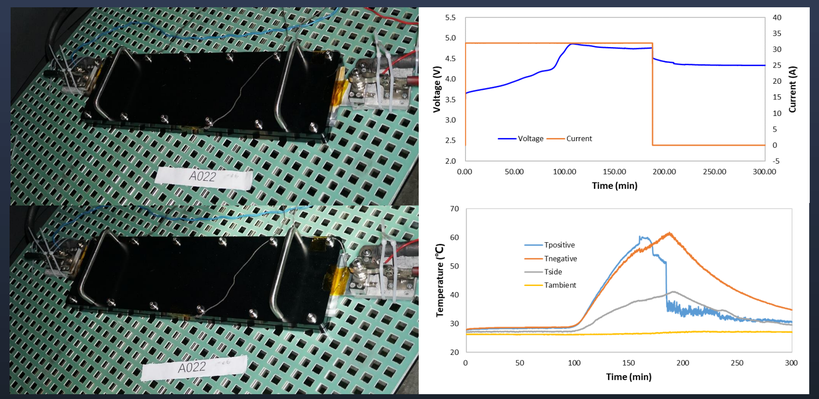


Nail Penetration: ✓PASSED



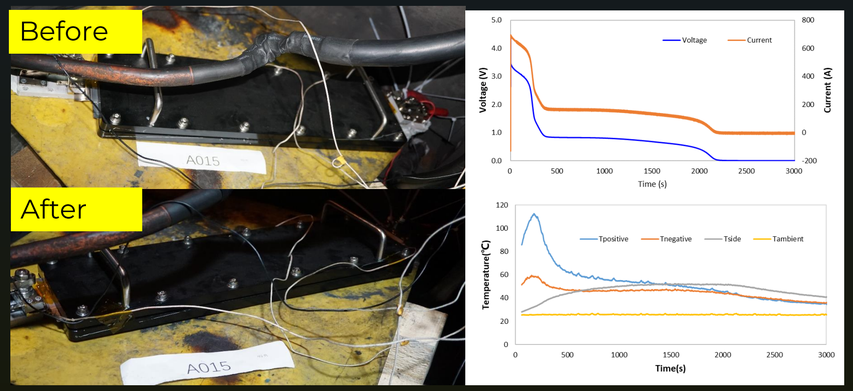
No thermal runaway even with complete nail penetration

Overcharge: ✓PASSED



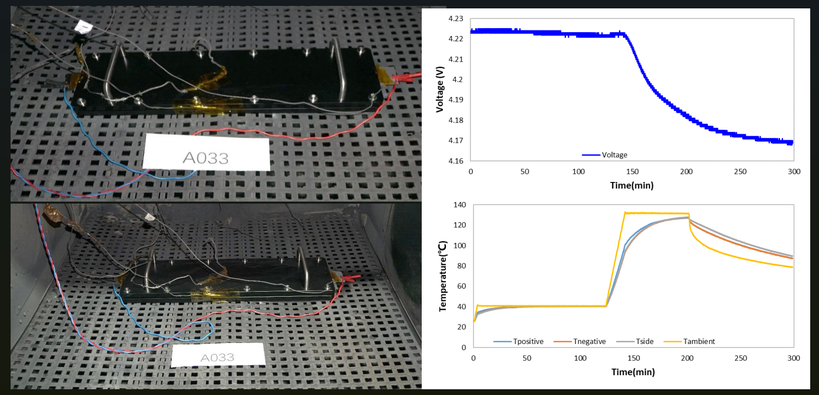
No thermal runaway

External Short Circuit: ✓PASSED



No thermal runaway even when cell is short circuited

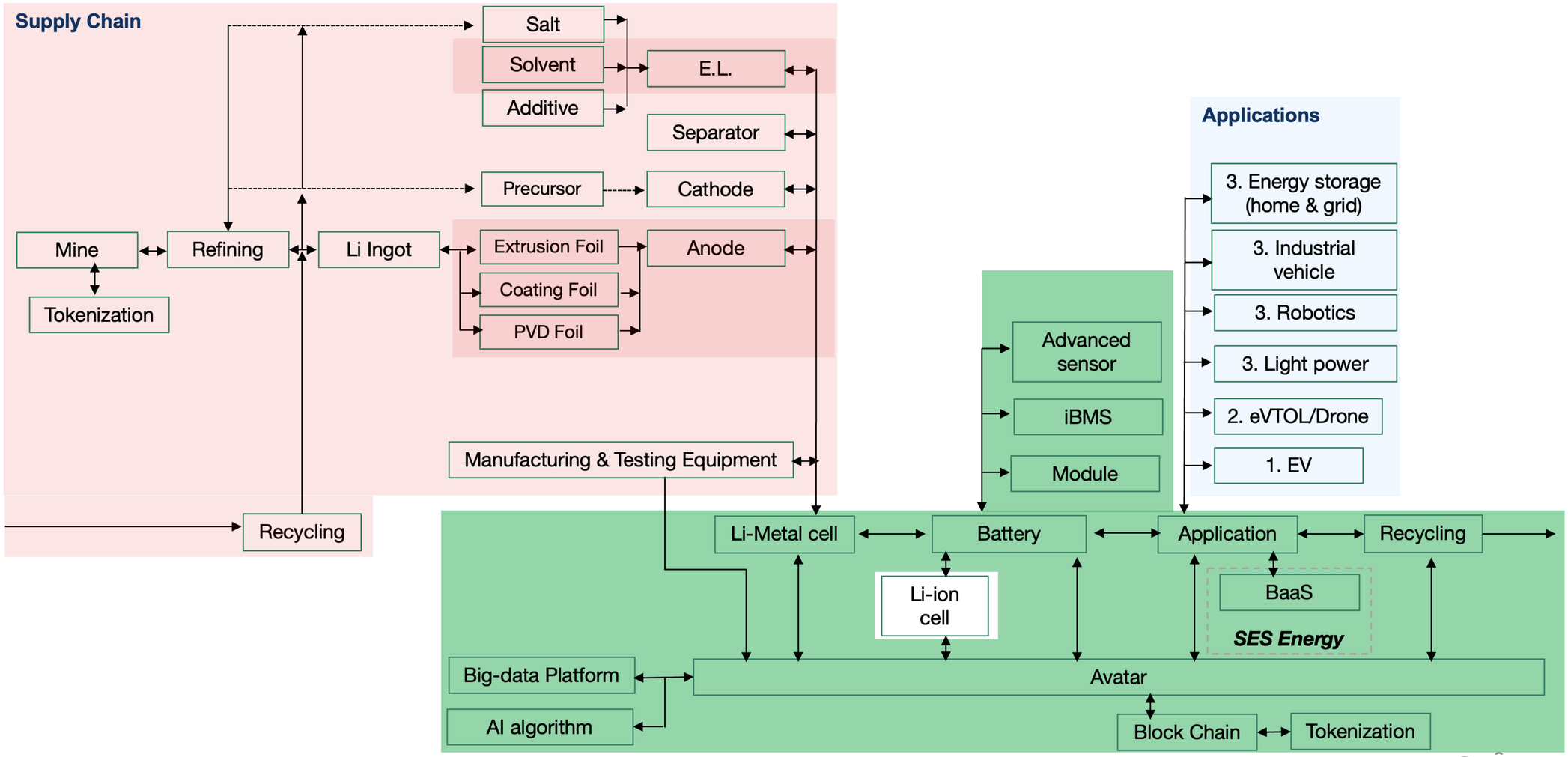
Thermal Stability: ✓PASSED



No thermal runaway

Note: all data from 3rd party testing

SUPPLY CHAIN – THE FUTURE OF LI-METAL / LI-ION



SES

Li-Metal Batteries

