April 28, 2022

ASPEN AEROGELS

Q1 2022 FINANCIAL RESULTS CALL

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Disclaimer on Forward Looking Statements

This presentation contains statements that constitute "forward-looking statements" under the Private Securities Litigation Reform Act of 1995. The words "anticipate," "believe," "could," "estimate," "expect," "guidance," "intend," "may," "plan," "potential," "predict," "project," "should," "target," "will," "would," "outlook" and similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words. All statements other than statements of historical facts contained in this presentation, including statements regarding our short-term and long-term growth strategies and expectations about the growth of our business; 2023 and 2025 revenue targets; future revenue opportunities through this decade; efforts to develop and commercialize our products; market opportunities in the electric vehicle market regarding thermal barriers as well as battery materials; market opportunities in the sustainable building materials and the energy infrastructure markets; our expectations regarding future operations, future financial position, future capacity, future revenue and projected costs; our expectations about global electric vehicle sales as well as the potential revenue from the sale of our products per electric vehicle; the revenue opportunity estimates from the major US automotive OEM ;Investment estimates for Plant II or in R&D; capital expenditure programs, annual revenue capacity with Phase I and Phase II of Plant 2, gross profit and EBITDA estimates with full manufacturing capacity; our expectations about revenue predictability; estimates of Awarded Programs in 2023 and 2025; estimates of product mixes in 2023 and 2025; our expectations about customers and automotive industry's approach towards addressing thermal runaway; our prospects and plans; objectives of management; and expected market growth are forward-looking statements. 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The Company's future financial and operating results, as well as any forward-looking statements, are subject to inherent risks and uncertainties, such as those described in its Annual Report on Form 10-K for the year ended December 31, 2021, as well as its subsequent annual, quarterly and current reports filed with the U.S. Securities and Exchange Commission. Such risks and uncertainties include those related to: an inability to create new product, partnership and market opportunities; any sustained downturn in the energy industry or energy prices; any sustained downturn in the petrochemical, refinery, subsea, LNG, U.S., North American, Asian, European, South American, Middle Eastern, building materials, electric vehicle or other market due to the coronavirus pandemic, COVID-19 or any other factor; any failure to sustain project-based demand in the subsea, LNG, on-shore or other markets; the right of EV thermal barrier customers to cancel contracts with Aspen at any time and without penalty; any costs, expenses, or investments incurred by Aspen in excess of projections used to develop pricing under the contracts with EV thermal barrier customers; any failure of Aspen or PyroThin® to meet contractual specifications and requirements under contracts with EV thermal barrier customers; Aspen's inability to create new product, customer or market opportunities, including for PyroThin® or for new products developed from Aspen's aerogel technology; any disruption or inability to achieve expected capacity levels in any of our three production lines or at Plant II including due to the coronavirus pandemic, COVID-19 or any other factor, any inability to expand manufacturing capacity Plant II; Aspen's Pyrothin® product or another product's ability to solve the customer problem towards which it is targeted; the failure to receive all regulatory or other approvals required to operate, maintain or expand our facilities; any failure of demand for Aspen's products; any failure to achieve expected price increases or average selling prices for Aspen's products; any significant increase in the cost of raw materials, utilities or any other manufacturing consumable; the failure to mitigate the impact of any significant increase in the cost of raw materials, utilities or other manufacturing consumable; shortages of raw materials, utilities or any other manufacturing consumable due to the coronavirus pandemic, COVID-19 or any other factor; the failure to generate sufficient operating cash flow or to obtain significant additional capital to pursue Aspen's strategy; the failure of Aspen's products to become widely adopted; the competition Aspen faces in its business; any failure to enforce any of Aspen's patents; any failure to protect or expand Aspen's aerogel technology platform; any future finding of invalidity of any patent in any jurisdiction; any failure to generate sufficient operating cash flow or to obtain sufficient additional capital to continue to pursue Aspen's new business, technology, patent enforcement, or patent defense strategy; any failure of Aspen's products to meet applicable specifications and other performance, safety, technical and delivery requirements; the general economic conditions and cyclical demands in the markets that Aspen serves; the economic, operational and political risks associated with sales and expansion of operations in foreign countries; the loss of any direct customer, including distributors, contractors and OEMs; compliance with health and safety laws and regulations; and the maintenance and development of distribution channels.

Disclaimer on Forward Looking Statements

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This presentation includes certain non-generally accepted accounting principles (GAAP) financial measures that we use to describe our company's performance or estimated or targeted future performance. The non-GAAP information presented provides investors with additional useful information but should not be considered in isolation or as substitutes for the related GAAP measures. Moreover, other companies may define non-GAAP measures differently, which limits the usefulness of these measures for comparisons with such other companies. We encourage investors to review our financial statements and publicly filed reports in their entirety and not to rely on any single financial measure.

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Q1 2022 Developments

Delivering growth across all markets, with GM awarding Aspen for it's *LAUNCH EXCELLENCE on recent programs*.

Q1 2022 Highlights

- 37% YoY Revenue Growth
- 22% QoQ Revenue Growth
- Strong Energy Industrial order book and distribution chain eager for inventory
- Higher than expected initial EV thermal barrier volumes on successful launches
- Closed $150M investment from Koch Strategic Platforms
- Raised $23.6M through ATM offerings at $35.10 / share

Sales Growth Drivers

	Quarter Over Quarter	Year Over Year
THERMAL BARRIERS	41%	99X growth
ENERGY INDUSTRIAL	19%	10%

Commercial Highlights

- Received the *OVERDRIVE AWARD* as part of GM's 30th Annual Supplier of the Year Awards
- Award for *LAUNCH EXCELLENCE* recognized Aspen's responsiveness and world class levels of service



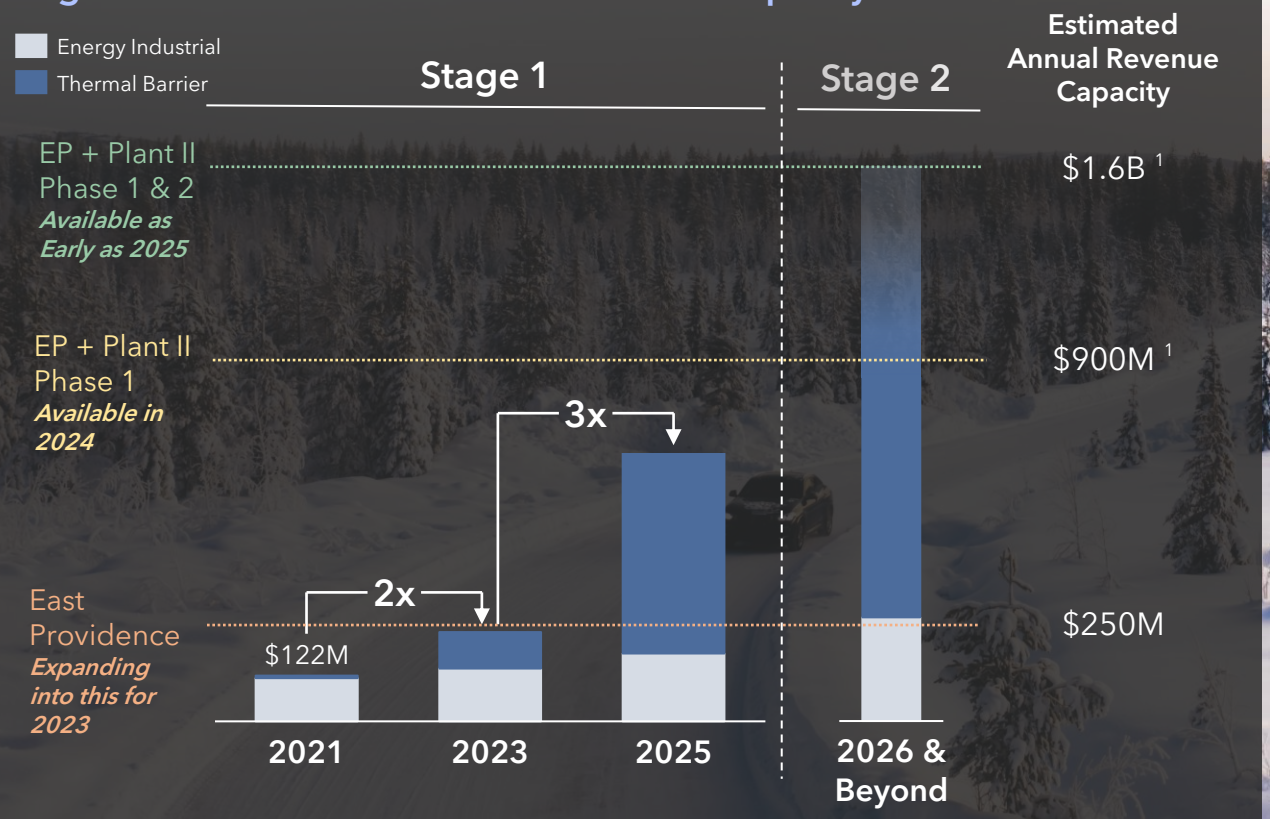
Reaffirming the Long-Range Plan (LRP) Targets

A two-stage view of target revenue growth from awarded programs drives focus on near-term capacity investments.

INVESTING IN ADDITIONAL CAPACITY…

Upfront capacity investments in Stage 1 support additional growth of Stage 2…

Target Revenue Mix and Annual Revenue Capacity



…TO FULFILL AWARDED PROGRAMS

…that will also be driven by winning additional programs.

Estimated Awarded Program Sizing 2

Stage 1

~$1B

of Program Awards through 2025 drives Stage 1 revenue growth

Target Thermal Barrier Revenue from Currently Awarded Programs



Stage 2

~$2B

of Program Awards after 2025 is the foundation of Stage 2 revenues that will also be driven by:

Additional Program Award Wins

1- Includes full capacity revenue of $250M from current East Providence plant
2- Awarded business excludes additional quotes in process; long-term plan includes 2022 through estimated full capacity in 2026 and beyond

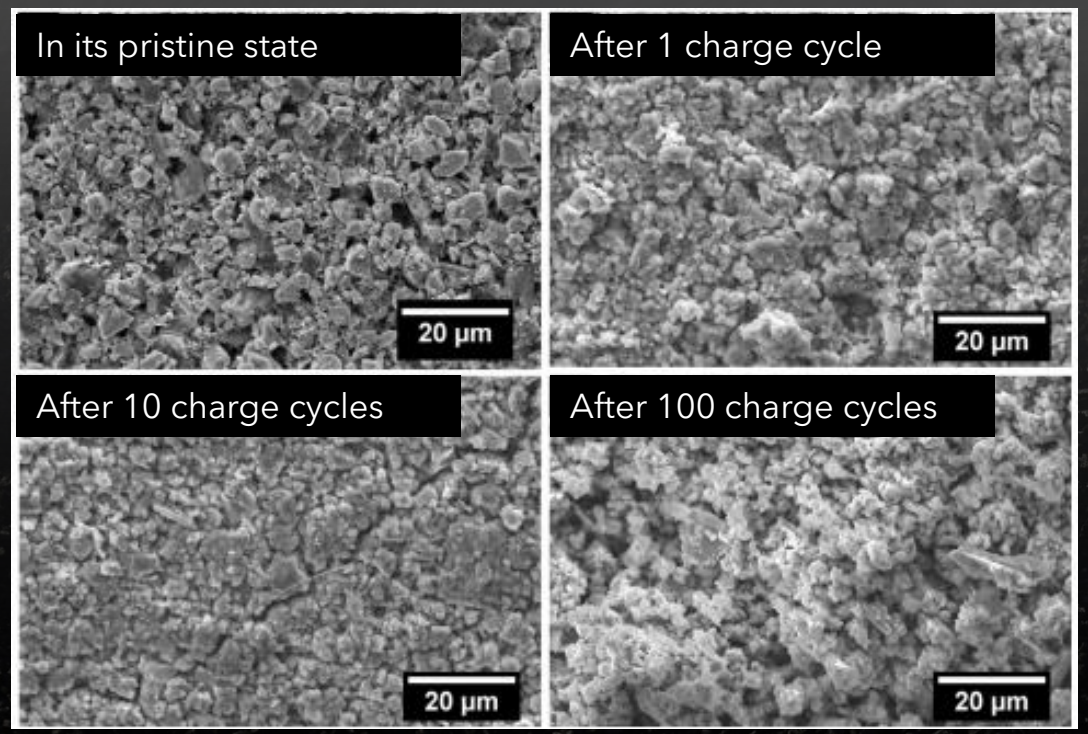
Addressing Graphite's and Silicon's Limitations

Graphite can't store enough energy without a blend of silicon, the incompatibility of these materials drives degradation.

Cracking Silicon in Graphite

And solid electrolyte interface (SEI) formation are the leading cause of capacity degradation in lithium ion batteries

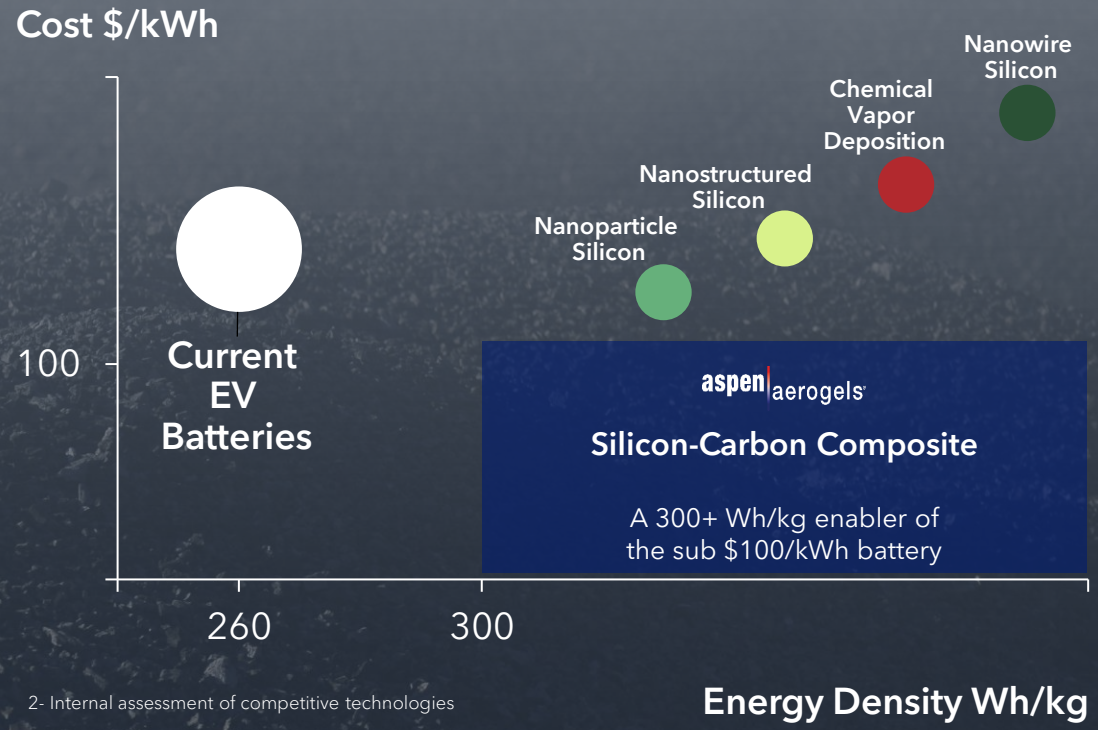
SEM Images of Silicon Breakdown & Build-Up of SEI [1]



The Industry's Response

ABM is focused on delivering a drop-in solution that can be easily adopted by current battery designs at a low cost.

Energy Density and Cost of Competitive Technologies [2]



2- Internal assessment of competitive technologies

1- Source: *"Investigation of cycling-induced microstructural degradation in silicon-based electrodes in lithium-ion batteries using X-ray nano tomography" By: Oluwadamilola O. Taiwoa, Melanie Loveridgeb, Shane D. Beattiec, Donal P. Finegana, Rohit Bhagatb, Daniel J.L. Brettaa, Paul R. Shearinga,**

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Earning our Right to Play and Win Inside the Battery

Practical approach focused on material and process development coupled with cell level validation and clear timelines

Material Development

- Nanomorphology derived mechanical and electrical properties
- Aimed and enabling high Si content with tunability for various Si loadings

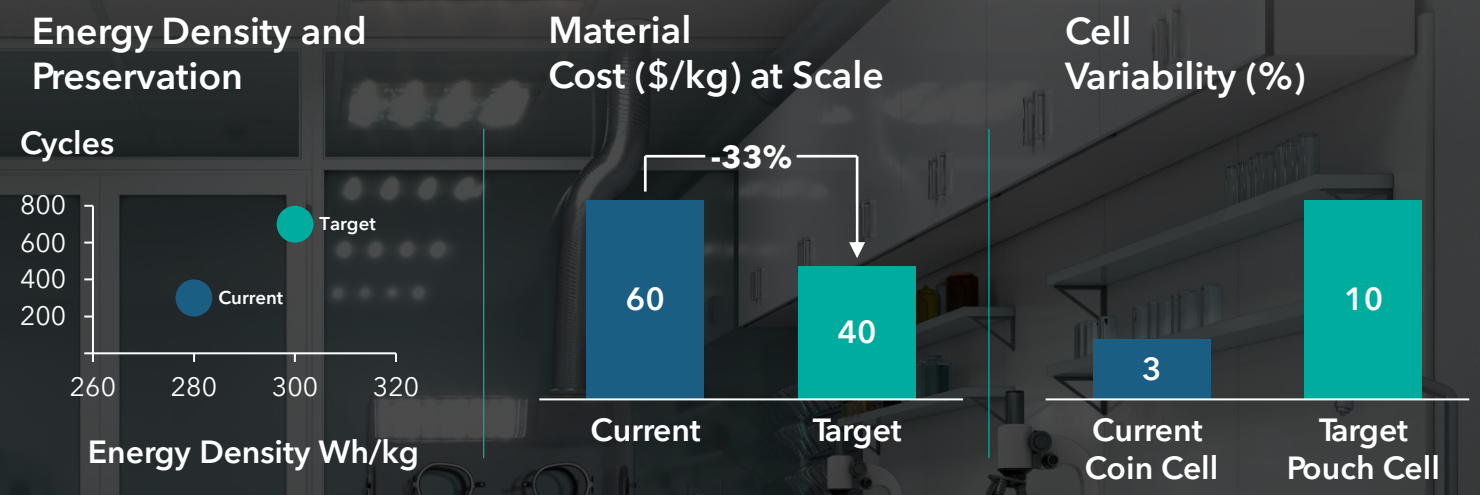
Process Development

- Because a material that can't be made at scale and cost repeatably is not viable
- On path to have a controlled process that can deliver material at accretive margins

Cell Level Validation

- Parallel validation of material performance and energy density preservation at cell level
- Multiple form factor processes
- 3rd parties and customers drive acceleration

Product Targets and Current Development Status



… ensure commercial viability that …

… is being further validated at the cell level to demonstrate:

a) 3rd party confirmation of 300 Wh/kg supporting 80% energy density preservation at 500 cycles

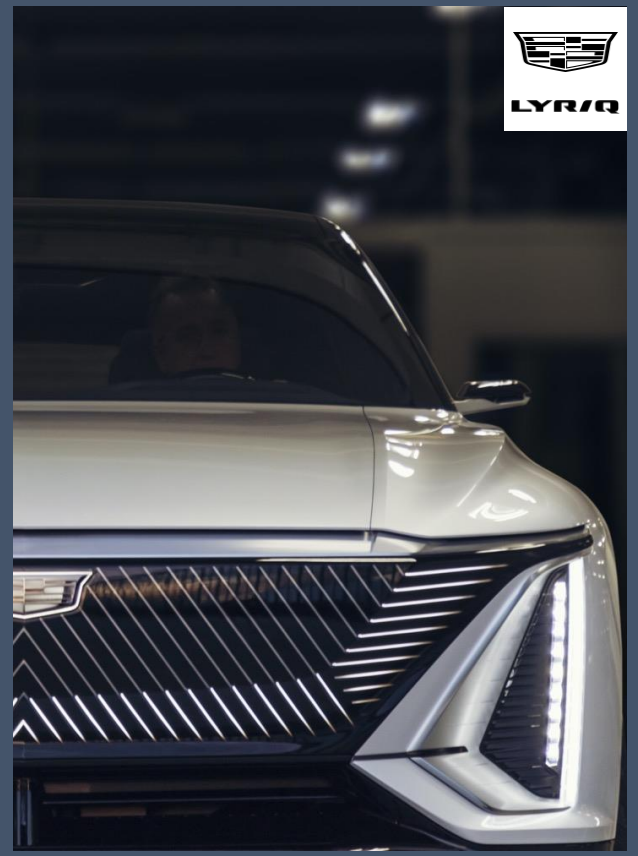
b) Less than 10% variability for 30 x 1 Ah pouch cells using Aspen Si-CA anode material

Q1 2022 Financial Highlights

37% YoY revenue growth driven by strong demand across all markets and higher than expected thermal barrier volumes.

$ in millions except EPS, unless noted	Q1 2021	Q1 2022[1]	2022 Outlook[1]	Commentary
REVENUES YoY Growth	$28.1 (1%)	$38.4 37%	$145.0 - $155.0 19% 27%	Accelerating Pyrothin volumes and energy infrastructure project demand growth.
Net (Loss)	$(6.3)	$(19.5)	$(66.7) - $(70.7)	Significant investment in talent, systems, facilities and tooling to enable earlier than planned EV market growth and energy transition projects.
Adj. EBITDA[2]	$(2.6)	$(14.7)	$(42.0) - $(46.0)	
EPS	$(0.22)	$(0.59)	$(1.88) - $(1.99)	Investments aligned to deliver customer demand and enable supply chain resiliency.
Cap Ex	$1.5	$14.5	$250.0 - $275.0	R&D facility upgrades, Plant II construction, Pyrothin fabrication tooling, IT systems.

Q1 2022 Launch Highlights



1- Unaudited financials for Q1 2022 (and Outlook)
2- See slide 10 herein for a reconciliation of net loss, the most directly comparable GAAP measure, to Adjusted EBITDA for the presented period

2022 Stakeholder Prioritization Initiatives

Standards for Construction Materials and Automotive Parts guide our implementation of ESG initiatives

PRIORITY ALIGNMENT

Environment
- Sustainable products
- Materials management
- Energy consumption
- Carbon and other emissions

Social
- Team member safety
- Human capital optimization
- Diversity
- Community support

Governance
- Business ethics
- Transparency and disclosure
- Metric establishment
- Continuous improvement

RECENT INITIATIVES

- Engaged external support for ESG assessment, strategy and reporting
- Created ESG Steering Committee to direct the strategy's implementation
- Formally designated an executive sponsor to lead: VP IR & Corp. Communications

Board of Directors
Nomination and governance committee driving priorities

Executive Leadership Team

Sustainability Leadership Team

Steering Committee

Business / Functional Managers

Team Members

Stakeholders

2022 ACTION PLAN

Materiality assessment to identify most salient ESG opportunities

Public-facing ESG report anticipated to be published in the Spring of 2022

Climate risk assessment to understand pertinent physical and transition opportunities

10-year and 3-year sustainability roadmap to direct ESG efforts

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Our Strategy to Create Stakeholder Value

Leveraging our platform in markets with favorable dynamics while focusing on doing the right things well creates value

WHO WE ARE

PROPRIETARY AEROGEL TECHNOLOGY PLATFORM™, PROCESSES, SCALE AND CRITICAL TALENT BASE

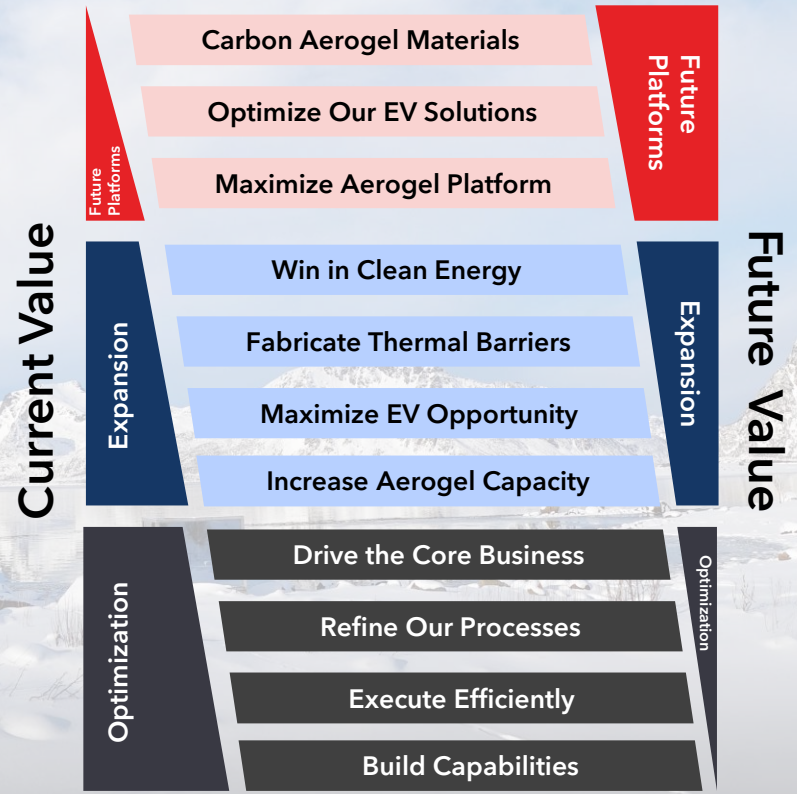
WHERE WE PLAY

AT THE CRUX OF 4 ACCELERATING TRENDS REQUIRING SOLUTIONS

- EV SAFETY, RELIABILITY, SERVICEABILITY
- ENERGY DENSITY, COST, RELIABILITY
- ASSET EFFICIENCY, RESILIENCY, SAFETY
- THERMAL EFFICIENCY AND FIRE SAFETY

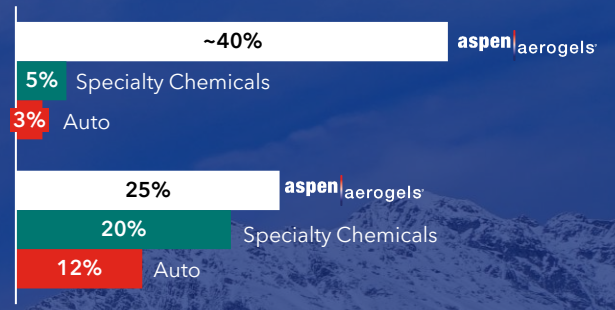
WHAT WE DO

OPTIMIZE AND EXPAND OUR PLATFORM WHILE INVESTING TOWARDS THE FUTURE



CREATES VALUE

Peers' [1] Revenue Growth / EBITDA Margins [2] side by side with Aspen's targeted performance at Full Capacity [3]



Peers' [1] TEV, Revenue Growth / EBITDA Margins [2] relative to Aspen's targeted performance at Full Capacity [3]



Data from S&P Capital IQ, accessed post market close on 4/26/2022
1- Auto Peers are the S&P Global 1200 Auto Parts & Equipment Index and Specialty Chemicals Peers are the S&P Global 1200 Specialty Chemicals Index. Peer TEV is TEV weighted
2- 7-year look-back of average performance
3- Excludes potential revenue and EBITDA contributions of Aspen Battery Materials

Appendix

GAAP-Non-GAAP Reconciliation

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GAAP to Non-GAAP Reconciliation

($ in thousands)	Q1 2021	Q1 2022	FY 2022 Low	FY 2022 High
Net loss	(6,250)	(19,484)	(70,700)	(66,700)
Depreciation and Amortization	2,638	2,129	9,700	9,700
Stock-based Compensation	976	1,828	8,200	8,200
Interest Expense, net	75	860	6,800	6,800
Adjusted EBITDA	**(2,561)**	**(14,667)**	**(46,000)**	**(42,000)**


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