

February 17, 2022



ASPEN AEROGELS

Q4 AND 2021 FY FINANCIAL RESULTS CALL

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 major US automotive OEM through 2025; Investment estimates for Plant 2 or in R&D; annual revenue capacity with Phase I and Phase II of Plant 2, gross profit and EBIDTA estimates with full manufacturing capacity; our expectations about revenue predictability; estimates of booked revenues 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. These statements involve known and unknown risks, uncertainties and other important factors that may cause our actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by the forward-looking statements. These forward-looking statements are only predictions, and we may not actually achieve the plans, intentions or expectations disclosed in our forward-looking statements, so you should not rely on our forward-looking statements. Actual results or events could differ materially from the plans, intentions and expectations disclosed in the forward-looking statements we make. We have based these forward-looking statements largely on our current expectations and projections about future events and trends that we believe may affect our business, financial condition and operating results. 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, 2020, 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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The industry and market data contained in this presentation is based either on our management's own estimates or on independent industry publications, reports by market research firms or other publicized independent sources. Although the Company believes these sources are reliable, it has not independently verified the information and cannot guarantee its accuracy and completeness, as industry and market data are subject to change and cannot always be verified with complete certainty due to limits on the availability and reliability of raw data, the voluntary nature of the data gathering process and other limitations and uncertainties inherent in any statistical survey or market shares. Accordingly, you should be aware that the industry and market data contained in this presentation, and estimates and beliefs based on such data, may not be reliable. Unless otherwise indicated, all information contained in this presentation concerning our industry in general or any segment thereof, including information regarding our general expectations and market opportunity, is based on management's estimates using internal data, data from industry related publications, consumer research and marketing studies and other externally obtained data. Certain financial or other targets are based on management estimates, currently available information and assumptions that may change. Accordingly, there can be no assurance that we will achieve our financial targets or other expectations. The expectations are inherently subject to significant economic, competitive and other uncertainties and contingencies, many of which are beyond the control of management. Actual results may vary materially based on a number of factors. For example, The Company's estimates in this presentation are based on assumptions about the following factors: (i) adoption rates of EV and our customers' market penetration, (ii) the aggregate pricing of our products, and (iii) the average amount of our products incorporated in each vehicle. Due to the rapid pace of technical development in lithium batteries, the Company's assumptions may evolve in the future due to various external factors resulting in different estimates than those arrived here. There are a wide range of estimates being published, including ones that would result in lower per vehicle figures. While the Company's management believes its estimates regarding possible pricing and market size are based on reasonable assumptions and methodology, there can be no assurance that the future pricing and market size will align with the Company's estimates. Such data may be outdated and involves a number of assumptions and limitations and contains projections and estimates of the future performance of the industries in which we operate that are subject to a high degree of uncertainty. We caution you not to give undue weight to such projections, assumptions and estimates.

2021 Financial Highlights

Strong revenue growth and achieved production launch with two PyroThin® customers

\$ in millions except EPS, unless noted

	2020	2021 ¹	2022 Outlook ¹
REVENUES YoY Growth	\$100.3 (28%)	\$121.6 21%	\$145.0 - \$155.0 19% 27%
Net (Loss)	\$(21.8)	\$(37.1)	\$(66.7) - \$(70.7)
Adj. EBITDA²	\$(6.4)	\$(26.0)	\$(42.0) - \$(46.0)
EPS	\$(0.83)	\$(1.22)	\$(1.95) - \$(2.07)
Cap Ex	\$3.4	\$13.8	\$250.0 - \$275.0

Commentary

Revenue growth in all principal markets

Significant investment in talent, resources and capital assets to enable EV market growth

Investment aligned with scale of e-mobility opportunities

Plant II investments, thermal barrier fabrication tooling and ABM R&D facilities

'21 Q4 Production Launches



1- Unaudited financials for 2021 (and Outlook)

2- See slide 11 herein for a reconciliation of net loss, the most directly comparable GAAP measure, to Adjusted EBITDA for the presented period

Koch Strategic Platforms Investments

\$100M convertible debt and \$50M common stock PIPE are a vote of confidence on Aspen's ability to execute

TOTAL KSP INVESTMENTS OF \$225M SINCE JUNE 2021 CONTINUE ENABLING THE EXPANSION OF AEROGEL CAPACITY TO MAXIMIZE THE EV OPPORTUNITY WITH THE EXPERTISE AND SUPPORT OF VARIOUS KOCH ENTITIES

\$100M CONVERTIBLE DEBT

- Unsecured Convertible Notes: \$100M
- Coupon Rate:
 - SOFR (Fed Overnight Rate), floor of 1% and ceiling of 3%
 - Plus 5.5% (if Cash) or +6.5% (if PIK)
- Term: 5 Years
- Conversion Price: 125% of 10-day VWAP
- Conversion by KSP at any time
- Redemption / Conversion Rights for Aspen
- Change of Control Protections
- Transfer Restrictions
- One Year Standstill Agreement

\$50M COMMON STOCK PIPE

- Common Stock Issuance at \$27.90 (average of 5 prior closes)
- Otherwise, same structure used in June 2021 KSP PIPE
- Closing Subject to antitrust (HSR) clearance, expected within 60 days



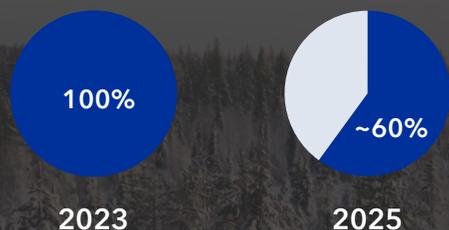
Increasing Capacity to Deliver the Revenue Plan

Capacity to fulfill awarded thermal barrier business will drive Aspen's growth and pave the path to profitability with:

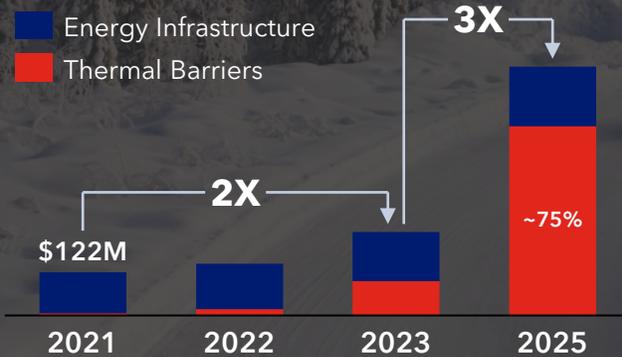
REVENUE PREDICTABILITY

OEM EV launches balanced by short term energy and infrastructure revenue

Target Thermal Barrier Revenue from Awarded Programs



Target Revenue ¹ and Thermal Barrier Mix

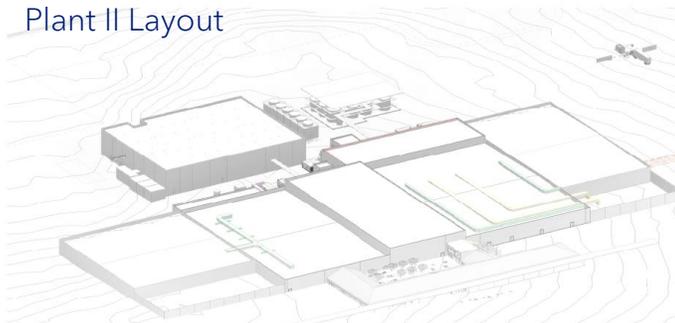


1- Excludes potential Aspen Battery Materials revenues

CAPITAL EFFICIENCY

Core aerogel scalability enabled by Plant II expansion

Plant II Layout



Aerogel Capacity Investment Summary ²

	Phase I	Phase II
Investment	\$575M	Additional \$125M
Annual Revenue Capacity	\$900M	\$1,600M
CAPEX per \$ of Revenue	<\$0.88	<\$0.54

2- Includes full capacity revenue of \$250M from current East Providence plant

CAPACITY ECONOMICS

Based on proprietary and protected technology, processes and scale

Target Annual Capacity and Margins

Phase I \$900M ² of Revenue or ~2.2M Vehicles

Phase II \$1.6B ² of Revenue or ~4.4M Vehicles

~35%
Gross Profit

~25%
EBITDA ⁴

To enable Sustainability and Future Investment

Over \$150M

R&D investment and IP defense through 2025 ³

2- Includes full capacity revenue of \$250M from current East Providence plant
3- Includes Aspen Battery Materials investments

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

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

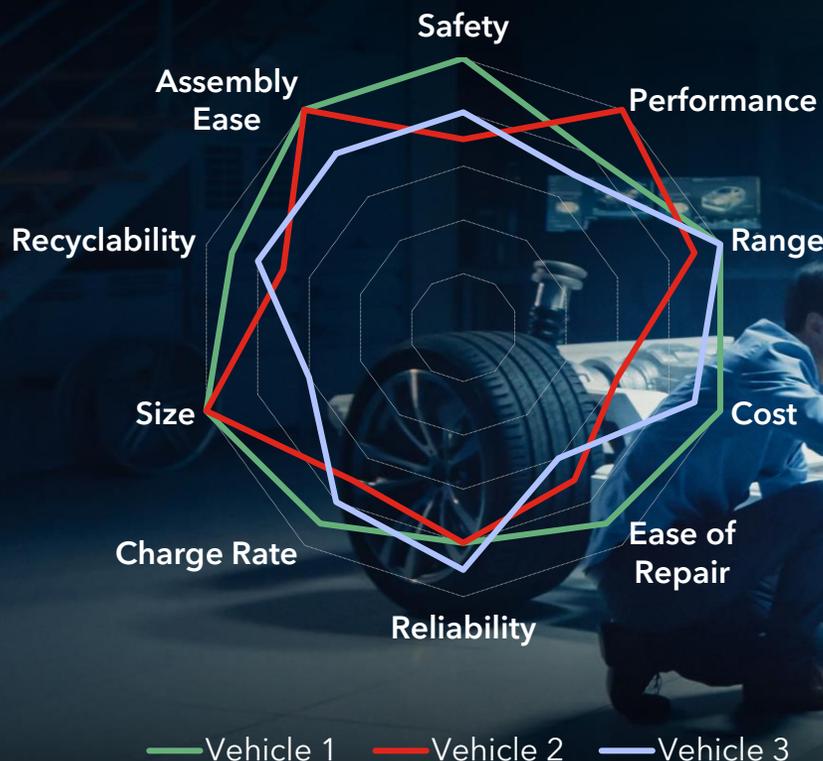


10-year and 3-year sustainability roadmap to direct ESG efforts

Addressing Thermal Runaway in EVs

Managing runaway is a vehicle and battery system level optimization exercise that requires active and passive solutions

OEM target vehicle attributes...



...determine integration priorities, and...

...drive battery architecture decisions...

...such as chemistry...

LFP

NMC

Mixed Silicon Graphite Anode

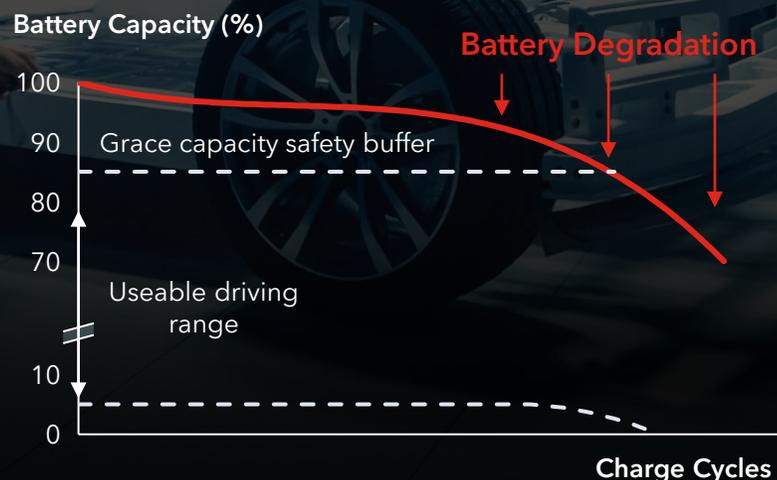
and form factor...

Cylindrical

Pouch

Prismatic

...aimed at managing lifetime capacity...



...while ensuring safety with:

Active Measures

To preemptively avoid a runaway event such as:

- High grace capacity safety buffers
- Cooling/heating systems
- Fast charging algorithms
- Cell balancing controls
- Battery disconnect units
- Digital twin battery models

Passive Systems

To slow down, stop or protect from an event such as:

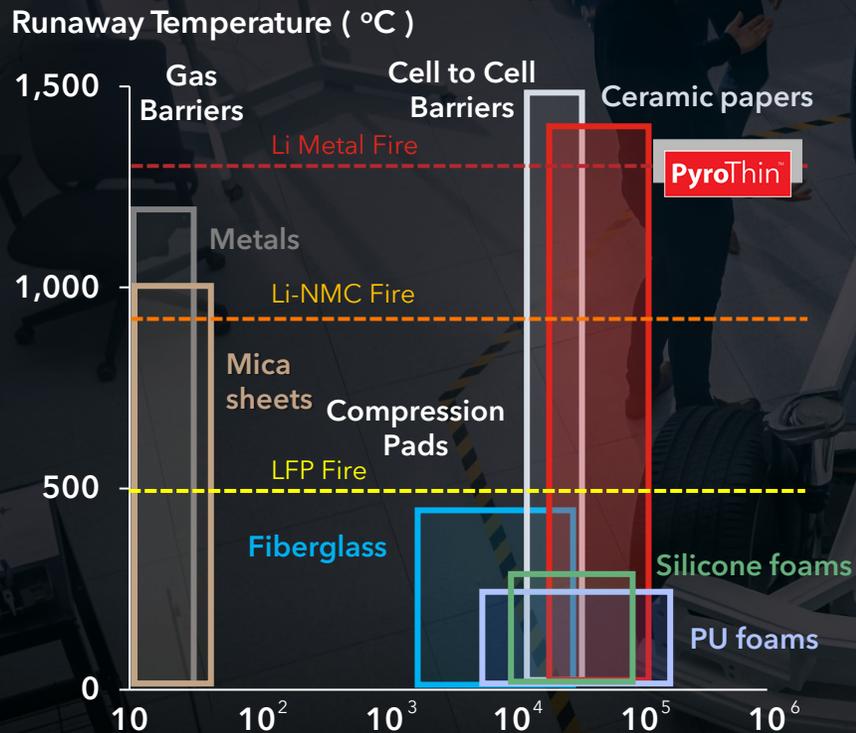
- PyroThin® cell to cell barriers
- Thermal and gas barriers
- Compression pads
- Strong battery pack structures
- Metal plates and conductors
- Fire retardant chemicals

Earning and Optimizing Content per Vehicle

A focused approach on managing CPV instead of simply trying to increase it is required to meet customers' needs

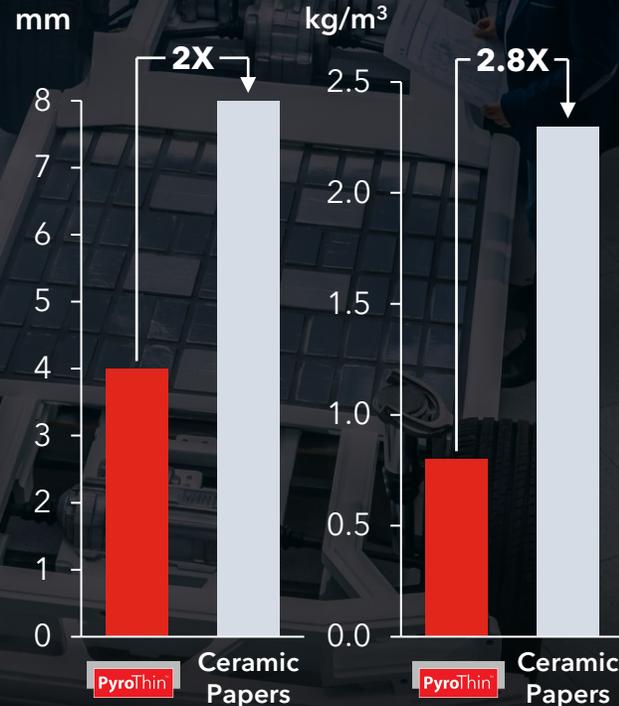
PyroThin® can deliver the required fire protection and mechanical properties with half the thickness and 35% of the weight of the nearest competitive material in cell-to-cell barriers

Heat Resistance and Compressibility / Recovery range of Gas Barrier, Compression Pad and C2C barrier materials ¹



Compressibility / Recovery Range
Reversible Strain Energy at 250 kPa (J/m³)

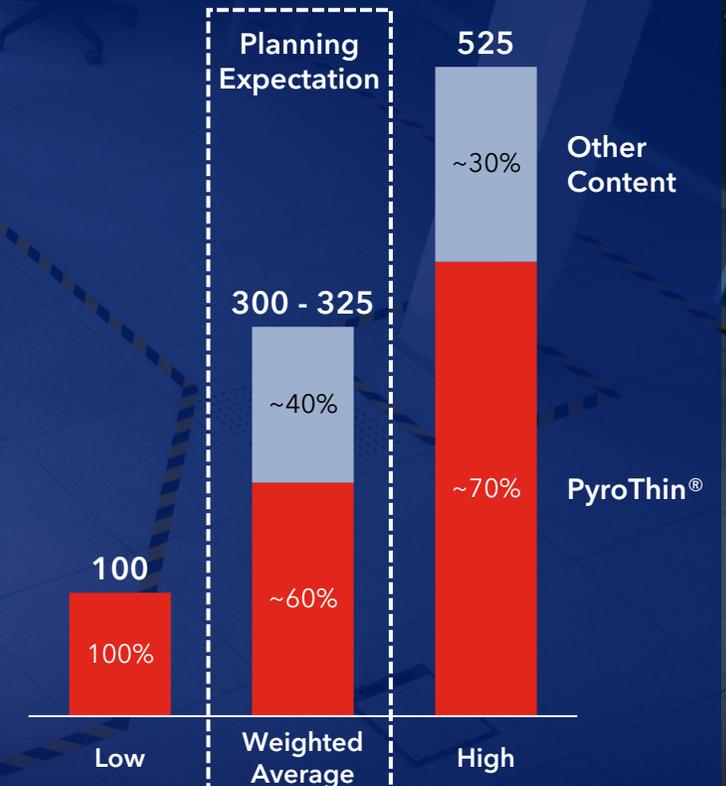
Comparison of thickness and weight of PyroThin® and Ceramic Papers, needed to mitigate a 700 °C thermal runaway



1- Internal assessment of the relevant material level properties required for a cell-to-cell thermal barrier and comparison of our products and generic competing materials on those properties

Content per vehicle will evolve within the current range in our line of sight

CPV summary (\$) and estimated content breakdown ²



2- Based on production programs and submitted quotes as of February 17th, 2022. PyroThin® CPV includes Aerogel material, integration and fabrication

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



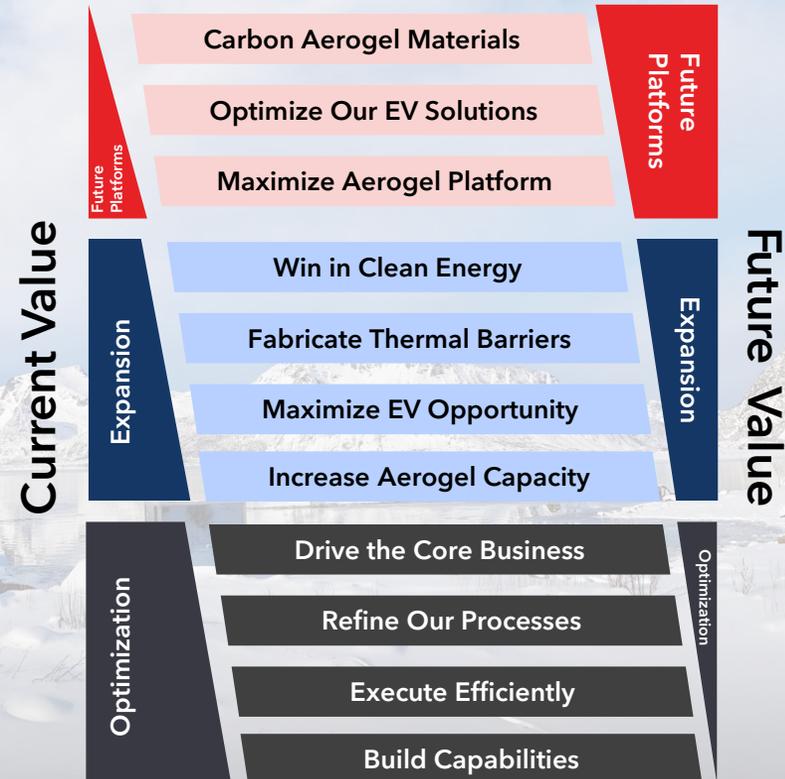
ASSET EFFICIENCY, RESILIENCY, SAFETY



THERMAL EFFICIENCY AND FIRE SAFETY

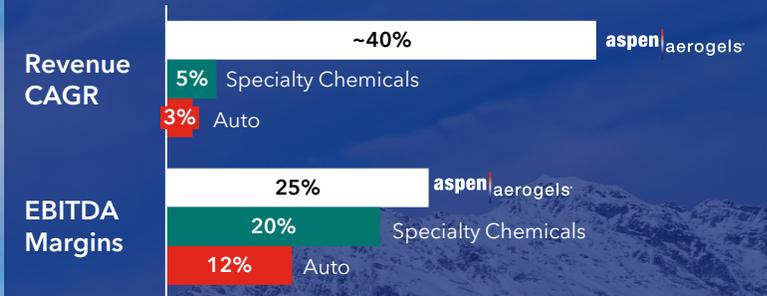
WHAT WE DO

OPTIMIZE AND EXPAND OUR PLATFORM WHILE INVESTING TOWARDS THE FUTURE

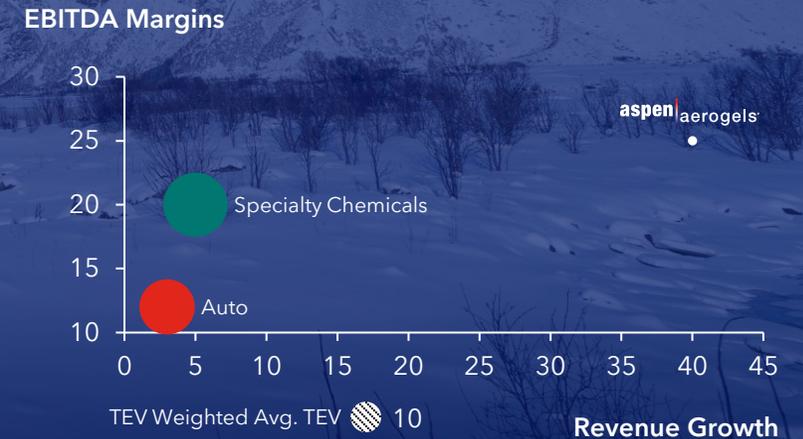


CREATES VALUE

Peers' ¹ Revenue Growth and EBITDA Margins ² side by side with Aspen's anticipated performance at Full Capacity ³



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



Appendix

GAAP-Non-GAAP Reconciliation

GAAP to Non-GAAP Reconciliation

(\$ in thousands)	FY 2020	FY 2021	FY 2022	
			Low	High
Net loss	(21,809)	(37,094)	(70,700)	(66,700)
Depreciation and Amortization	10,198	9,440	9,700	9,700
Stock-based Compensation	5,004	5,176	8,200	8,200
Gain on the Extinguishment of Debt	-	(3,734)	-	-
Interest Expense, net	240	229	6,800	6,800
Adjusted EBITDA	(6,367)	(25,983)	(46,000)	(42,000)

An aerial photograph of a dense evergreen forest covered in snow. A dark, winding road or path cuts through the trees, curving from the bottom left towards the top right. The overall color palette is monochromatic, consisting of various shades of blue, grey, and white.

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