This presentation contains statements that constitute “forward-looking statements” under the Private Securities Litigation Reform Act of 1995. All statements other than statements of historical facts contained in this presentation, including statements regarding our short-term and long-term growth strategies, efforts to develop and commercialize our products, electric vehicle/battery market opportunities, future operations, future financial position, future capacity, future revenue, future Adjusted EBITDA, projected costs, prospects, plans, EP20 initiative, 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. 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.

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 information in this presentation is current as of April 30, 2020 and speaks only as of such date. We expressly disclaim any obligation to release any updates or revisions to any information presented herein, including any forward-looking statements, to reflect any change in our expectations or projections or any changes in events, conditions or circumstances on which any such information or statements are based for any reason, except as required by law, even as new information becomes available. All information and forward-looking statements in this presentation are qualified in their entirety by this cautionary statement.

In addition to results presented in accordance with U.S. Generally Accepted Accounting Principles (“GAAP”), this presentation and related tables include Adjusted EBITDA, a non-GAAP financial measure. We have provided a reconciliation of this measure to net income (loss), the most directly comparable GAAP measure, which is available in “reconciliations” starting on slide 23. We define Adjusted EBITDA as net income (loss) before interest expense, taxes, depreciation, amortization, stock-based compensation expense and other items. We believe Adjusted EBITDA is a useful measure of operating performance because it does not include the impact of items that we do not consider indicative of our core operating performance. We use Adjusted EBITDA for planning purposes including the preparation of our annual operating budget, to allocate resources, to enhance the financial performance of our business, and as a performance measure under our bonus plan. We also believe that the presentation of Adjusted EBITDA provides useful information to investors with respect to our results of operations and in assessing the performance and value of our business. Although we believe this non-GAAP financial measure enhances investors’ understanding of our business and performance, this non-GAAP financial measure should not be considered an alternative to or substitute for the accompanying GAAP financial measures. The discussion of non-GAAP financial measures set forth in our Annual Report on Form 10-K for the year ended December 31, 2019 and filed with the SEC on March 6, 2020, pursuant to the Securities Exchange Act of 1934, as amended, are incorporated by reference into this presentation and should be read in their entirety alongside this presentation. In addition, the risk factors set forth in our Annual Report on Form 10-K for the year ended December 31, 2019 and filed with the SEC on March 6, 2020 pursuant to the Securities Exchange Act of 1934, as amended, are incorporated by reference into this presentation and should be read in their entirety alongside this presentation.

This presentation contains market data and industry forecasts that were obtained from industry publications, third party market research and publicly available information. These publications generally state that the information contained therein has been obtained from sources believed to be reliable, but we have not independently verified, and cannot guarantee the accuracy and completeness of such information. This presentation also contains estimates and other statistical data made by independent parties and by us relating to market size and growth and other data about our industry. We obtained the industry and market data in this presentation from our own research as well as from industry and general publications, surveys and studies conducted by third parties, some of which may not be publicly available. For example, this presentation includes statistical data extracted from an off-the-shelf market research report (World Insulation - #3435) by The Freedonia Group, an independent international market research firm, and a separate custom market research report by Freedonia Custom Research, Inc., a wholly-owned subsidiary of The Freedonia Group, or Freedonia, which was commissioned by us and was issued in January 2017 (the “Freedonia Report”). 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.

The Freedonia Report represents data, research opinion or viewpoints developed independent of us but on our behalf and does not constitute a specific guide to action. In preparing the Freedonia Report, Freedonia used various sources, including publicly available third party financial statements; government statistical reports; press releases; industry magazines; and interviews with manufacturers of related products (including us), manufacturers of competitive products, distributors of related products and government and trade associations. The Freedonia Report speaks as of its final publication date (and not as of the date of this presentation).
First market: large-scale energy infrastructure facilities
- $3.1 billion global energy infrastructure insulation market
- Nearly $1.0 billion installed base and poised for continued penetration

Second market: building materials
- High performance & non-combustible insulation – delivering energy efficiency & building safety
- Partnered approach with BASF – technical, commercial & financial support

Third Market: electric vehicles (EVs)
- Passive fire protection – silica aerogel materials impede thermal runaway in lithium-ion batteries
- Battery materials – carbon aerogels provide unique structure enabling greater energy density
CURRENT END MARKETS AND PRODUCTS

- **Offshore**: Thin and durable for pipe-in-pipe applications
- **Refining**: Used by 24 of the world’s 25 largest refining companies
- **Petrochemical**: Installed by 20 of the top 20 petrochemical companies
- **LNG**: Preferred by LNG & FLNG for space saving design
- **Power**: Maximum efficiency for power generation
- **Other**: Building Materials, District Energy, Transportation, Apparel

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**Pyrogel®**
Hot Process Applications

**Cryogel®**
Cold Process Applications

**Spaceloft®**
Ambient & Low Temperature Applications
UNIQUE INSULATION TECHNOLOGY

Aerogel Materials
- Amorphous silica solids
- Characterized by extreme properties
  - Lowest density solid, ~97% air
  - Lowest thermal conductivity

Our Breakthrough Technology
- Industrially robust
- Unique product form
- Proprietary manufacturing process
- Patent-protected: Over 200 patents issued or pending, owned or co-owned worldwide

Advantages vs. Traditional Insulation
- Leading thermal performance of any widely used insulation product
- Reduces corrosion under insulation
- Enables compact design
- Allows rapid, low-skill installation
- Highly durable & provides fire protection

Our Aerogel Products
- Pyroflex® HPS
- Pyroflex® XTE
- Pyroflex® XTE
- Spaceloft® Subsea
- Spaceloft®
- Cryogel® Z
STRONG VALUE PROPOSITION IN LNG

- Global LNG demand estimated to grow from ~300 MMtpa in 2018 to ~450 MMtpa by 2030\(^1\)
- Global LNG liquefaction/gasification capacity could be strained by 2025, ~17 expected projects potentially adding ~175 MMtpa capacity in planning stages\(^1\)

10 Years of LNG Growth

In the space of a decade, Cryogel Z has grown from small-scale use, targeting problem areas in LNG and FLNG facilities, to specification and adoption in over 35 liquefaction and gasification facilities world-wide.

2017 Reference Projects

- LNG Export
  - Cove Point Terminal, Lusby, MD USA
- LNG Import
  - PTT Map Ta Phut, Rayong, Thailand

April 2019 PTT LNG Award

- Nong Fab Terminal, Rayong, Thailand
- Receiving terminal & regasification facility
- $35M to $40M of Cryogel Z insulation
- Deliveries scheduled from Q2 '19 to Q4 '20

(1) Asia to Dominate Long-Term LNG Demand Growth, bnef.com (Bloomberg New Energy Finance)
INDUSTRY-LEADING END USERS
USED BY VIRTUALLY ALL LEADING PETROCHEMICAL AND REFINING COMPANIES

- CITGO
- PEMEX
- LyondellBasell
- HollyFrontier
- Chevron
- Shell
- BASF
- Dow
- ConocoPhillips
- Praxair
- ExxonMobil
- SAMSUNG
- Reliance
- Marathon
- Valero
- LG Chem
- Air Liquide
- Repsol
- Braskem
- Nexen
- Group
- PTT
- Devon
GLOBAL DISTRIBUTION NETWORK AND INSTALLED BASE

- 48 sales & marketing employees, 11 sales consultants and 68 distributors
- Installed in more than 50 countries worldwide
STRAATEGY

AEROGEL TECHNOLOGY PLATFORM (ATP)
Invest in and drive innovation

CORE MARKETS
Penetrate and gain global market share, drive capacity utilization and generate cash

ADJACENT MARKETS
Leverage products and demonstrated technical leadership with global energy companies

NEW MARKETS
Pursue new markets with partners providing commercial, technical and financial resources
BASF RELATIONSHIP

COMMERCIAL
Elite partner with channels in new, large addressable market

TECHNICAL
Next generation products enabled by Aspen’s ATP

FINANCIAL
Product revenue, prepayments and licensing opportunities

Partnered Approach – Proven Template for Access to New Markets
ELECTRIC VEHICLE MARKET OPPORTUNITIES

PASSIVE FIRE PROTECTION

CARBON AEROGEL BATTERY MATERIALS
Global passenger electric vehicles estimates range from 15 to 35 million units annually by 2030\(^1\)

Industry analysts estimate 1.2 to 2.1 TWh of annual lithium-ion battery production by 2030 for commercial and passenger vehicles as well as energy storage\(^1\)

**Lithium-ion Battery Production Capacity and Passenger EV Forecast Estimates**

(1) Electric Vehicle Research 2040 Forecast (Wood Mackenzie), Li-ion Battery Innovation Roadmap (LUX Research, January 2020), The Emerging Battery Markets Beyond XEV (Fraunhofer ISI, January 2020), EV Battery Arms Race Enters New Gear with 115 Megafactories (Benchmark Mineral Intelligence, December 2019)
PASSIVE FIRE PROTECTION

- Thermal runaway in lithium-ion battery packs can lead to fires that exceed 1000°C and is facing increasing regulatory scrutiny and EV manufacturer concerns.
- Aspen’s silica aerogel blankets offer a thin-profile, compressible, non-combustible solution for EV passenger and first responder safety.
- Aspen’s passive fire protection product can be manufactured with existing assets in our East Providence facility.

Passive Fire Protection Market Opportunity

<table>
<thead>
<tr>
<th>EV Unit Capacity</th>
<th>Annual Revenue Opportunity ($ in millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bull Case ($150/vehicle)</td>
<td>$60</td>
</tr>
<tr>
<td>Base Case ($100/vehicle)</td>
<td>$50</td>
</tr>
<tr>
<td>Bear Case ($50/vehicle)</td>
<td>$40</td>
</tr>
</tbody>
</table>

ASSUMPTIONS

- 5% EV Fleet Penetration = $100M Base Case Revenue

(1) Why Some Lithium-Ion Batteries Explode, livescience.com
(2) EV Battery Arms Race Enters New Gear with 115 Megafactories (Benchmark Mineral Intelligence, December 2019)
BATTERY MATERIALS INITIATIVE

OPPORTUNITY
• Energy storage $100B opportunity
• Majority is Li-ion for EVs

VALUE PROPOSITION
• Carbon aerogels platform
• Drop-in Si anode solution
• Robust battery roadmap

EMERGING PARTNERSHIPS
• Battery and auto OEMs
• Technical, commercial & financial support

TECHNOLOGY ROADMAPS
• Diminishing returns on cost/performance
• Demands new materials

CONSUMER IMPACT
• Increased drive range
• Fast charge
• Low cost

STATUS
• Prototype evaluations
• Development agreements
• Multiple engagements

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TARGETING EV BATTERY MARKET

IMPROVE PERFORMANCE, COST, DURABILITY & SAFETY OF LI-ION BATTERIES

- Over a decade of carbon aerogel development
  - Strong technology platform and IP coverage
  - Proven aerogel manufacturing capabilities

- Actively engaging industry leaders in battery materials market
  - To accelerate adoption of our aerogel technology in emerging EV market
  - Formed partnerships with Evonik and SKC

- Initial focus on silicon-rich, high-capacity anodes in Li-ion batteries
  - Potential 20% to 40% improvement in EV drive range

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**Joint Evaluation Agreement January 2020**

- Leverage SK Group battery materials market knowledge to target specific performance and applications
- Potential commercialization partner of our battery technology

**Secrecy and Evaluation Agreement November 2019**

- Evaluate incorporation of Evonik’s innovative silicon nanoparticles into Aspen’s carbon aerogel anodes
- Potential supplier of Si nanoparticles to Aspen or our commercialization partners
Financial Overview
EP20 INITIATIVE AND FINANCIAL POTENTIAL

EP20 Initiative
- On track to expand East Providence manufacturing facility capacity by 20%
- Increase annual capacity from 50 million s.f. in 2018 to 60 million s.f. by the end of 2020
- Phased deployment of enhanced chemical and process technologies

<table>
<thead>
<tr>
<th></th>
<th>Millions</th>
<th>2019 Actual</th>
<th>Current Capacity</th>
<th>EP20 Potential</th>
<th>NBD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product Revenue</td>
<td></td>
<td>$137</td>
<td>$168 - $180</td>
<td>$184 - $198</td>
<td></td>
</tr>
<tr>
<td>Adjusted EBITDA</td>
<td></td>
<td>Breakeven</td>
<td>$22 - $27</td>
<td>$28 - $35</td>
<td>Breakout Value</td>
</tr>
</tbody>
</table>

* Values rounded to nearest million.

Penetrate Energy Market, Generate Cash
Invest For Breakout Value
### ANNUAL REVENUE & ADJUSTED EBITDA

**STRONG REVENUE & PROFIT GROWTH IN 2019**

<table>
<thead>
<tr>
<th>($ in thousands)</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Revenue</strong></td>
<td>$122,518</td>
<td>$117,738</td>
<td>$111,631</td>
<td>$104,361</td>
<td>$139,375</td>
</tr>
<tr>
<td><strong>Cost of Revenue</strong></td>
<td>97,870</td>
<td>94,427</td>
<td>92,960</td>
<td>91,692</td>
<td>113,091</td>
</tr>
<tr>
<td><strong>Gross Profit</strong></td>
<td>24,648</td>
<td>23,311</td>
<td>18,671</td>
<td>12,669</td>
<td>26,284</td>
</tr>
<tr>
<td><strong>Operating Expenses</strong></td>
<td>30,883</td>
<td>34,531</td>
<td>37,807</td>
<td>46,585</td>
<td>40,443</td>
</tr>
<tr>
<td><strong>Operating Loss</strong></td>
<td>(6,235)</td>
<td>(11,220)</td>
<td>(19,136)</td>
<td>(33,916)</td>
<td>(14,159)</td>
</tr>
<tr>
<td><strong>Other Expense, Net</strong></td>
<td>(182)</td>
<td>(803)</td>
<td>(185)</td>
<td>(524)</td>
<td>(406)</td>
</tr>
<tr>
<td><strong>Net Loss</strong></td>
<td>(6,417)</td>
<td>(12,023)</td>
<td>(19,321)</td>
<td>(34,440)</td>
<td>(14,565)</td>
</tr>
<tr>
<td><strong>Adjusted EBITDA Add-backs</strong></td>
<td>15,482</td>
<td>15,969</td>
<td>16,029</td>
<td>22,969</td>
<td>14,390</td>
</tr>
<tr>
<td><strong>Adjusted EBITDA</strong></td>
<td>$9,065</td>
<td>$3,946</td>
<td>$(3,292)</td>
<td>$(11,471)</td>
<td>$(175)</td>
</tr>
</tbody>
</table>

**Revenue Growth**
- 20% (2015)
- (4)% (2016)
- (5)% (2017)
- (7)% (2018)
- 34% (2019)

**Gross Margin**
- 20% (2015)
- 20% (2016)
- 17% (2017)
- 12% (2018)
- 19% (2019)

**Adjusted EBITDA Margin**
- 7% (2015)
- 3% (2016)
- (3)% (2017)
- (11)% (2018)
- (0)% (2019)

*See slide 23 herein for a reconciliation of net loss, the most directly comparable GAAP measure, to Adjusted EBITDA for the periods presented.*
## FIRST THREE MONTHS 2020 PERFORMANCE

**MARGIN EXPANSION LEADS TO POSITIVE ADJUSTED EBITDA**

### Three Months Ended

<table>
<thead>
<tr>
<th></th>
<th>3/31/20</th>
<th>3/31/19</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>$(in thousands)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Revenue</td>
<td>$28,419</td>
<td>$27,912</td>
<td>$507</td>
</tr>
<tr>
<td>Cost of Revenue</td>
<td>22,439</td>
<td>24,194</td>
<td>$(1,755)</td>
</tr>
<tr>
<td>Gross Profit</td>
<td>5,980</td>
<td>3,718</td>
<td>2,262</td>
</tr>
<tr>
<td>Operating Expenses</td>
<td>9,066</td>
<td>9,679</td>
<td>$(613)</td>
</tr>
<tr>
<td>Operating Loss</td>
<td>(3,086)</td>
<td>(5,961)</td>
<td>2,875</td>
</tr>
<tr>
<td>Interest Expense, Net</td>
<td>(83)</td>
<td>(41)</td>
<td>(42)</td>
</tr>
<tr>
<td>Net Loss</td>
<td>(3,169)</td>
<td>(6,002)</td>
<td>2,833</td>
</tr>
<tr>
<td>Adjusted EBITDA Add-backs</td>
<td>3,638</td>
<td>3,451</td>
<td>187</td>
</tr>
<tr>
<td>Adjusted EBITDA</td>
<td>$469</td>
<td>$(2,551)</td>
<td>$3,020</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross Margin</td>
<td>21%</td>
</tr>
<tr>
<td>Adjusted EBITDA Margin</td>
<td>2%</td>
</tr>
</tbody>
</table>

See slide 24 herein for a reconciliation of net loss, the most directly comparable GAAP measure, to Adjusted EBITDA for the periods presented.
Summary
ASPEN OPPORTUNITY

- Global Aerogel Technology Leader
  - Extensive portfolio of product and process patents – enforced successfully
  - Nearly $1 billion of aerogel revenue since 2008

- Assets in Place to Support Strong Revenue, Profit and Cash Flow Growth in Core Energy Markets
  - Potential to generate nearly $200 million in revenue and $35 million in Adjusted EBITDA per year

- Leveraging Aerogel Technology Platform Into High Potential Electric Vehicle Market

- Partnerships with Leading Energy, Building Materials and EV Battery OEMs

- Experienced Management Team Focused on Creating Long-Term Value
Note: The table above presents a reconciliation of net loss, the most directly comparable GAAP measure, to Adjusted EBITDA for the periods presented.
## RECONCILIATION

($ in thousands)

<table>
<thead>
<tr>
<th>Description</th>
<th>3/31/20</th>
<th>3/31/19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net loss</td>
<td>(3,169)</td>
<td>(6,002)</td>
</tr>
<tr>
<td>Depreciation and amortization</td>
<td>2,563</td>
<td>2,532</td>
</tr>
<tr>
<td>Stock-based compensation</td>
<td>992</td>
<td>878</td>
</tr>
<tr>
<td>Interest expense, net</td>
<td>83</td>
<td>41</td>
</tr>
<tr>
<td><strong>Adjusted EBITDA</strong></td>
<td>$ 469</td>
<td>$ (2,551)</td>
</tr>
</tbody>
</table>

**Note:** The table above presents a reconciliation of net loss, the most directly comparable GAAP measure, to Adjusted EBITDA for the periods presented.