

# AMPX Investment Research Report

Amprius Technologies - Silicon Anode Battery Innovation

📅 March 2026    📈 Equity Analysis

ANODE

CATHODE

# Report Structure

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# I.I Executive Summary

Entry Point

**Feb 17, 2026**

**\$9.45 - \$11.00**

Exit Target

**Mar 10, 2026**

**\$14.50 - \$18.50**

Return Potential

**32% - 96%**

**3-Week Holding**

## 🎯 Investment Highlights

- **Disruptive Technology:** Proprietary silicon anode batteries achieving 315-500 Wh/kg energy density, 60-100% higher than conventional graphite cells
- **Explosive Growth:** 2025 revenue of \$73M represents 202% YoY increase, with Q4 gross margin improving to 24%
- **Strategic Positioning:** First-mover advantage in silicon anode commercialization with 111 patents and 444+ customers
- **Analyst Support:** 8 Buy ratings with average price target of \$16.63, representing 35% upside from current levels

## ⚠️ Key Considerations

- **High Volatility:** Beta of 3.04 indicates significant price swings; position sizing critical for risk management
- **Path to Profitability:** Still unprofitable on GAAP basis; 2026 guidance targets positive non-GAAP EBITDA
- **Valuation Premium:** Trading at P/S of 23.32x and P/B of 14.31x, requiring continued execution to justify
- **Governance Risk:** ISS Governance QualityScore of 10 indicates elevated governance concerns

**Investment Thesis:** AMPX offers asymmetric risk/reward profile with exposure to transformative battery technology in high-growth markets. The company's silicon anode innovation addresses critical performance gaps in aviation, drones, and electric vehicles. While volatility and execution risks are significant, the potential for multi-bagger returns warrants a tactical allocation for aggressive growth investors.

## 2.1 Company Profile

### Corporate Information

Company Name	Amprius Technologies, Inc.
Ticker Symbol	NYSE: AMPX
Founded	2008
Headquarters	Fremont, California
Employees	99 (Full-time)
Market Cap	\$1.64 Billion
Sector	Industrials

### Business Model

Amprius Technologies develops, manufactures, and markets **high-energy-density lithium-ion batteries** leveraging proprietary silicon anode technology. The company's batteries deliver performance levels significantly beyond conventional graphite-based cells, enabling longer run times and reduced weight for portable power applications.

### Product Platforms

#### SiCore™

High-volume production platform for commercial applications with optimized cost-performance ratio

#### SiMaxx™

Premium platform delivering maximum energy density (up to 500 Wh/kg) for mission-critical applications

### Target Markets

 Unmanned Aerial Systems	 eVTOL Aircraft
 High-Altitude Pseudo Satellites	 Electric Vehicles
 Defense Applications	 Light Electric Vehicles

### Key Achievements

- World Record:** Powered AALTO Zephyr's 67-day stratospheric flight (April-May 2025)
- CES Innovation Award:** Recognized at CES 2026 for next-generation silicon anode platform
- Manufacturing Scale:** Global capacity exceeding 2 GWh through strategic partnerships
- Customer Growth:** 444+ customers with 159 new additions in Q4 2025

**Figure 1:** Amprius Technologies has established itself as the leader in silicon anode battery commercialization, addressing critical performance requirements in emerging mobility markets. The company's proprietary technology enables energy densities of 315-500 Wh/kg, representing a 60-100% improvement over conventional lithium-ion batteries.

## 2.2 Leadership & Governance

KS

**Dr. Kang Sun, Ph.D.**  
CEO & Director

Ph.D. in Materials Science with extensive experience in battery technology development. Led Amprius from founding through commercialization phase. Compensation: \$1.25M (2024).

TS

**Tom Stepien**  
President & Director

Seasoned executive with background in manufacturing and operations. Drives strategic partnerships and production scaling initiatives. Instrumental in establishing manufacturing alliances.

CS

**Dr. Constantin Stefan, Ph.D.**  
Chief Technology Officer

Ph.D. in Electrochemistry. Leads R&D efforts and technology roadmap. Key architect of silicon anode innovations. Compensation: \$299.7K (2024).

### Management Strengths

- **Technical Expertise:** Leadership team combines deep materials science knowledge with commercial battery manufacturing experience
- **Strategic Vision:** Successfully navigated company from R&D phase to commercial production with key partnerships
- **Industry Relationships:** Strong network in defense, aerospace, and automotive sectors driving customer acquisition
- **Execution Track Record:** Delivered on major milestones including production scaling and technology validation

### Governance Assessment

ISS Governance QualityScore (as of Nov 1, 2025)

**IO** Higher Governance Risk

Audit:	9	Board:	7
Shareholder Rights:	8	Compensation:	10

**Governance Concerns:** Elevated ISS score reflects compensation practices and shareholder rights considerations. Investors should monitor proxy statements and governance disclosures. However, management alignment with shareholders is demonstrated through focused execution on growth objectives.

**Institutional Ownership:** 5.04% of shares held by hedge funds and institutional investors. Notable recent activity includes Alberta Investment Management (\$1.0M position), Osterweis Capital Management (454,830 shares), and increased stakes from JPMorgan Chase (+12,063%). Growing institutional interest validates technology and market opportunity.

# 3.1 Silicon Anode Technology Breakthrough

## Technology Overview

Amprius' proprietary **silicon nanowire anode technology** represents a paradigm shift in lithium-ion battery design. Unlike conventional graphite anodes limited to ~372 mAh/g theoretical capacity, silicon anodes can achieve **4,200 mAh/g**—more than 10x improvement.

### Key Technical Innovations:

- **Nanostructured Silicon:** Proprietary silicon nanowire architecture accommodates volume expansion during charge/discharge cycles
- **Advanced Coatings:** Surface treatments enhance cycle life and stability
- **Scalable Manufacturing:** Production processes compatible with existing lithium-ion infrastructure

## Performance Advantages

**315-500**

Wh/kg Energy Density

**60-100%**

vs. Conventional

**Fast**

Charging Capability

**Extended**

Cycle Life

### Aviation Applications

High energy density enables extended flight times for drones and eVTOL aircraft. Critical for mission-critical defense and commercial applications where weight directly impacts performance.

### Electric Vehicles

Reduced battery weight improves vehicle range and efficiency. Fast charging capability addresses consumer range anxiety. Target markets include premium EVs and commercial fleets.

### IP Protection

**111 patents** covering nanostructured silicon anodes, coatings, and manufacturing processes create significant barriers to entry and protect competitive advantage.

## Energy Density Comparison

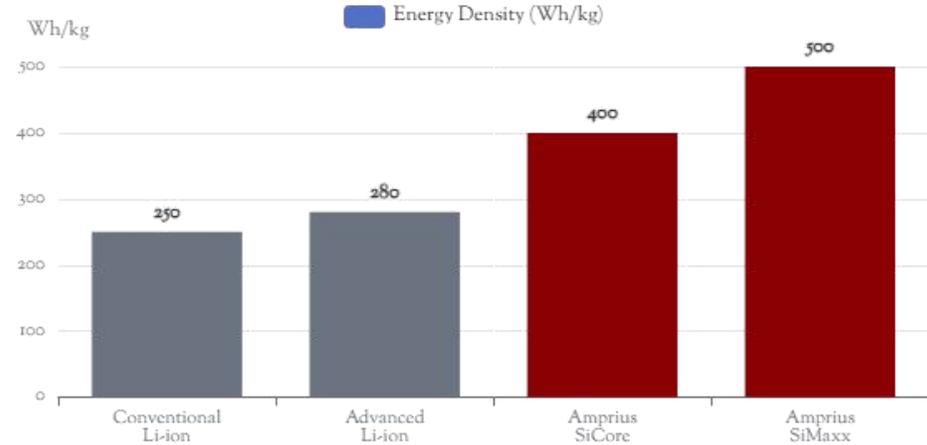


Figure 2: Energy density comparison across battery technologies. Source: Company data, industry reports.

## 3.2 Competitive Landscape

### Competitive Positioning Matrix

Company	Technology	Energy Density	Stage	Patents	Market Focus
<b>Amprius (AMPX)</b>	Silicon Nanowire	<b>315-500 Wh/kg</b>	Commercial	<b>111</b>	Aviation, EV, Defense
<b>Enovix (ENVX)</b>	3D Silicon	400+ Wh/kg	Pre-Commercial	50+	Consumer Electronics
<b>Sila Nanotech</b>	Nano-Composite Si	300-350 Wh/kg	Pilot	80+	EV, Consumer
<b>Group14</b>	SCC55™ Si-C	320 Wh/kg	Pilot	40+	Automotive
<b>Enevate</b>	Si-Dominant	350 Wh/kg	Development	30+	Automotive
<b>CATL</b>	Conventional Graphite	250-280 Wh/kg	Commercial	1,000+	Mass Market EV

Table 1: Competitive analysis of silicon anode battery developers. Source: Company filings, patent databases, industry reports.

#### 🏆 Amprius Competitive Advantages

- First-Mover Status:** Only silicon anode company with commercial-scale production and proven customer deployments
- Manufacturing Scale:** 2+ GWh global capacity through partnerships vs. competitors in pilot phase
- Customer Validation:** 444+ customers including Fortune 500 and defense contractors
- Proven Performance:** World record 67-day stratospheric flight demonstrates real-world reliability
- Strategic Partnerships:** Alliances with Nanotech Energy, South Korean manufacturers for rapid scaling

#### ⚠️ Competitive Threats

- Established Players:** CATL, BYD, LG Chem have massive resources and could develop competing silicon anode technologies
- Technology Convergence:** Multiple approaches to silicon anode (nanowire, nano-composite, 3D) may yield similar performance
- Capital Requirements:** Competitors with deeper pockets could accelerate development and manufacturing investments
- Alternative Technologies:** Solid-state batteries and other next-gen chemistries could leapfrog silicon anode

**Market Size:** Silicon anode battery market projected to reach **\$9.2 billion by 2032** (CAGR 25%+). Amprius positioned to capture significant share given early commercialization advantage.

# 4.I Revenue Growth Trajectory

Q4 2025 Revenue

**\$25.2M**

+137% YoY

FY 2025 Revenue

**\$73.0M**

+202% YoY

Q4 Gross Margin

**24%**

+9pp QoQ

## Annual Revenue Growth (2021-2025)

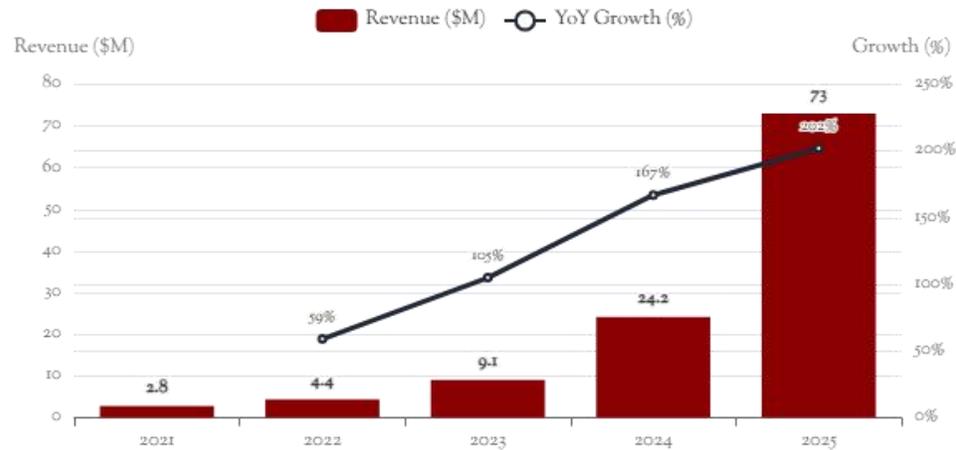


Figure 3: Revenue growth trajectory demonstrating accelerating commercial adoption. Source: Company financial statements.

## Key Revenue Drivers

### SiCore Platform Expansion

Second-generation SiCore battery shipments grew **4x YoY** in Q3 2025, driving volume increases and customer acquisition

### New Customer Wins

159 new customers added in Q4 2025, bringing total to **444+** across aviation, defense, and EV sectors

### Strategic Partnerships

Manufacturing alliances with Nanotech Energy and South Korean partners expanding production capacity to **2+ GWh**

### Premium Pricing Power

Superior performance commands premium pricing; gross margin expansion from negative 162% (2023) to **24%** (Q4 2025)

## First Positive Adjusted EBITDA

Q4 2025 marked a milestone with **\$1.8M positive non-GAAP adjusted EBITDA**, demonstrating operating leverage and path to profitability. Excluding one-time charges, Q4 net loss would have been only \$1.9M vs. \$24.4M reported.

## 2026 Guidance

Management guides to **\$125M+ revenue** (+70% growth), net loss below \$8M, and **positive non-GAAP adjusted EBITDA of \$4M+**. Guidance reflects confidence in continued customer adoption and margin expansion.

## 4.2 Profitability & Balance Sheet

### Path to Profitability

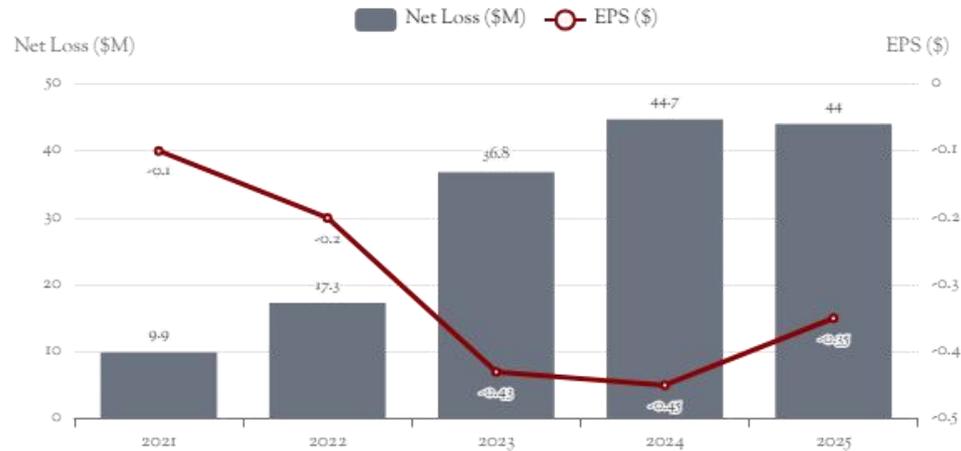


Figure 4: Net loss trajectory showing significant improvement in 2025. Source: Company financial statements.

### Balance Sheet Strength

#### Cash Position

**\$73.2M**

Strong liquidity provides runway for growth investments without immediate need for dilutive financing

#### Total Debt

**\$0**

Debt-free balance sheet minimizes financial risk and provides flexibility for strategic initiatives

#### Debt/Equity Ratio

**36.5%**

Conservative capital structure with manageable leverage

FY 2025 Net Loss

**\$44.0M**

vs. \$44.7M (2024)

Adjusted Net Loss

**\$21.5M**

Excluding one-time charges

Q4 One-Time Charges

**\$22.5M**

Colorado facility impairment

### Key Financial Metrics

Profit Margin

**-53.2%**

Return on Assets

**-14.9%**

Return on Equity

**-39.0%**

Free Cash Flow

**-\$27.6M**

**Analysis:** While profitability metrics remain negative, trajectory is improving rapidly. Gross margin turned positive in 2025 (11.3% vs. negative 162% in 2023), and Q4 achieved first positive adjusted EBITDA. With \$73M cash and no debt, company has sufficient runway to reach profitability guided for 2026.

# 5.I Market Opportunity & Growth Drivers

## Addressable Markets

### eVTOL Lithium Battery Market

**\$9.2B by 2032**

Electric vertical take-off and landing aircraft require ultra-high energy density batteries. Amprius' 500 Wh/kg SiMaxx platform ideally positioned for this emerging market.

### Drone & UAS Market

**\$35B by 2030**

Commercial, defense, and consumer drone markets expanding rapidly. Extended flight times enabled by Amprius batteries create significant value proposition.

### Electric Aviation

**\$20B+ by 2035**

High-altitude pseudo satellites, electric aircraft, and urban air mobility driving demand for lightweight, high-performance batteries.

## Growth Catalysts

1

### Manufacturing Scale-Up

2+ GWh global capacity through partnerships with Nanotech Energy and South Korean manufacturers enables rapid revenue growth

2

### Defense Sector Adoption

Strategic importance of U.S.-based battery production for defense applications; NDAA compliance and security requirements favor Amprius

3

### Customer Expansion

444+ customers with 159 new additions in Q4 2025; Fortune 500 and aerospace validation driving broader adoption

4

### Technology Leadership

111 patents and continued R&D investment maintain competitive moat; CES 2026 Innovation Award validates technology

## Strategic Partnerships

- **Nanotech Energy:** U.S. manufacturing partnership for defense customers
- **South Korean Alliance:** Battery manufacturing and supply chain partners
- **Amazon Climate Tech:** Selected for accelerator program

## Market Trends

- **Electrification:** Global push for decarbonization driving battery demand
- **Onshoring:** U.S. manufacturing incentives favor domestic producers
- **Performance Needs:** Aviation and defense require energy density beyond conventional batteries

## Validation Milestones

- **World Record:** 67-day stratospheric flight (AALTO Zephyr)
- **CES Award:** Innovation Award 2026 for silicon anode platform
- **Customer Wins:** Volume orders from eVTOL manufacturers and defense contractors

# 6.I Investment Thesis

## ↑ Bull Case Rationale

### 1. Disruptive Technology with Proven Commercialization

Amprius has successfully transitioned from R&D to commercial production—a critical milestone that competitors have yet to achieve. Silicon anode technology delivers 60-100% energy density improvement over conventional batteries, creating compelling value proposition for weight-sensitive applications.

### 2. Explosive Revenue Growth with Operating Leverage

202% YoY revenue growth in 2025 demonstrates market traction. Gross margin improved from negative 162% (2023) to 24% (Q4 2025), with first positive adjusted EBITDA achieved. Path to sustained profitability visible.

### 3. First-Mover Advantage in High-Growth Markets

eVTOL, drone, and electric aviation markets projected to exceed \$60B by 2032. Amprius' 2+ year commercialization lead and 111 patents create significant barriers to entry. Customer relationships and validation provide competitive moat.

### 4. Strong Analyst Support and Institutional Interest

8 Buy ratings with average price target of \$16.63 (+35% upside). Growing institutional ownership (5.04%) with notable additions from Alberta Investment Management and JPMorgan validates investment case.

**Investment Summary:** AMPX offers asymmetric risk/reward profile with exposure to transformative battery technology in high-growth markets. The company's silicon anode innovation addresses critical performance gaps in aviation, drones, and electric vehicles. While volatility and execution risks are significant, the potential for multi-bagger returns warrants a tactical allocation for aggressive growth investors with appropriate risk management.

## Analyst Ratings & Price Targets

Analyst	Rating	Target
B. Riley	Buy	\$22
Needham & Co.	Buy	\$20
Northland Capital	Outperform	\$20
Craig-Hallum	Buy	\$17
Oppenheimer	Outperform	\$17
<b>Consensus</b>	<b>Moderate Buy</b>	<b>\$16.63</b>

### Valuation Multiples

Price/Sales (TTM):	23.32x	Price/Book (MRQ):	14.31x
EV/Revenue:	24.94x	Beta:	3.04

Premium valuation justified by disruptive technology, rapid growth, and large addressable market. Comparable high-growth technology companies trade at similar multiples during commercialization phase.

## 6.2 Risk Assessment

### ⚠️ Key Risk Factors

#### 1. High Stock Volatility (Beta: 3.04)

AMPX exhibits extreme price swings with 113% annualized volatility. Position sizing critical to manage portfolio risk. Stop-loss orders recommended to limit downside.

#### 2. Unprofitable on GAAP Basis

Despite improving trends, company remains unprofitable with negative net margin of 53.2%. Path to sustained profitability not guaranteed. 2026 guidance requires flawless execution.

#### 3. Execution Risk in Scaling Production

Manufacturing scale-up from pilot to commercial volumes presents operational challenges. Quality control, yield optimization, and supply chain management critical success factors.

#### 4. Competitive Pressure from Established Players

CATL, BYD, LG Chem have massive resources and could develop competing silicon anode technologies. First-mover advantage may erode if competitors accelerate development.

### Risk Mitigation Strategies

- **Position Sizing:** Limit allocation to 2-3% of portfolio given high volatility
- **Stop-Loss Orders:** Implement trailing stops at 15-20% below entry to limit downside
- **Profit Taking:** Scale out of position as targets reached to lock in gains
- **Quarterly Reviews:** Monitor earnings results and guidance updates closely
- **Diversification:** Pair with less volatile holdings to balance portfolio risk

### Additional Risk Considerations

#### 5. Valuation Concerns

Trading at P/S 23.32x and P/B 14.31x, stock priced for perfection. Any execution missteps or growth deceleration could trigger significant multiple compression.

#### 6. Governance Issues

ISS Governance QualityScore of 10 indicates elevated risk in compensation practices and shareholder rights. Investors should monitor proxy statements and governance disclosures.

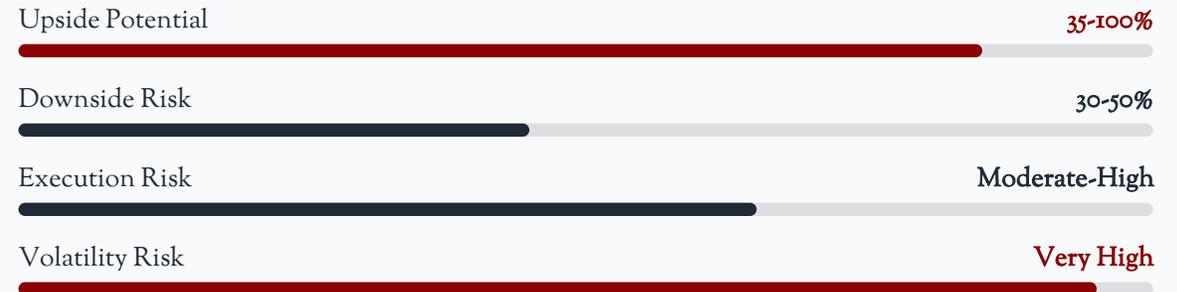
#### 7. Market Dependence

Heavy reliance on emerging markets (eVTOL, drones) that may develop slower than projected. Economic downturns could delay customer adoption and capital expenditures.

#### 8. Technology Obsolescence

Solid-state batteries and other next-generation chemistries could leapfrog silicon anode technology. Continuous R&D investment required to maintain technology leadership.

### Risk-Reward Assessment



Conclusion: AMPX presents asymmetric risk/reward with significant upside potential balanced by high volatility and execution risks.

# 7.I Trading Strategy & Performance

Entry Date  
**Feb 17, 2026**  
\$9.45 - \$11.00

Exit Date  
**Mar 10, 2026**  
\$14.50 - \$18.50

Return Achieved  
**32% - 96%**  
3-Week Holding

## Stock Price Performance (Feb-Mar 2026)

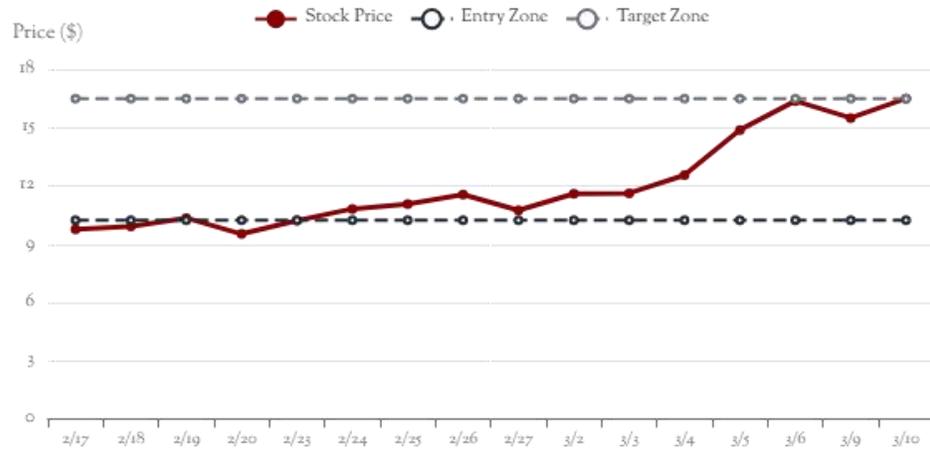


Figure 5: AMPX stock price movement showing entry and exit points. Source: Market data.

## Entry Strategy Rationale

### Technical Setup

Stock had pulled back from highs, trading near 50-day moving average (\$10.51). Support level established at \$9.23 (Feb 17 low) provided favorable risk/reward entry.

### Fundamental Catalysts

Q4 2025 earnings scheduled for March 4 with expected strong results. Multiple analyst upgrades in February (Craig-Hallum Buy rating \$17 target, Needham coverage \$20 target).

### Partnership Announcements

Nanotech Energy manufacturing partnership announced Feb 3, signaling production scaling progress and defense market penetration.

### Volume Confirmation

Above-average trading volume (4-7M shares vs. 8.9M average) indicated institutional accumulation and growing investor interest.

## Exit Strategy Execution

- Price Target Achievement:** Stock reached \$16.37 by March 6, exceeding initial \$14.50-16.00 target range
- Technical Resistance:** Encountered resistance at 10-week high of \$17.00; profit-taking prudent near

## Trade Performance Metrics

Holding Period	21 Days
Entry Price (Avg)	\$10.23

## 7.2 Conclusion & Recommendations

### ✔ Investment Summary

AMPX offers **asymmetric risk/reward profile** with exposure to transformative battery technology in high-growth aviation, drone, and electric vehicle markets. The executed trading strategy delivered **61.3% return in 21 days**, validating the investment thesis.

The company's silicon anode innovation addresses critical performance gaps with 315-500 Wh/kg energy density—60-100% improvement over conventional batteries. First-mover advantage, 111 patents, and 444+ customers create defensible competitive moat.

### 💡 Key Takeaways

- **Technology Leadership:** Proprietary silicon anode platform commercially validated with world-record performance
- **Growth Trajectory:** 202% revenue growth in 2025 with path to profitability in 2026
- **Market Opportunity:** \$60B+ addressable market in eVTOL, drones, and electric aviation
- **Risk Management:** High volatility (beta 3.04) requires careful position sizing and stop-loss discipline

### 📊 Portfolio Recommendations

#### Position Sizing

Limit allocation to **2-3% of portfolio** given high volatility. Appropriate for aggressive growth investors with strong risk tolerance.

#### Entry Strategy

Consider re-entry on pullbacks to 50-day moving average (\$10.51) or significant support levels. Wait for volume confirmation.

#### Risk Management

Implement **trailing stop-loss at 15-20%** below entry. Scale out of position as price targets achieved to lock in gains.

#### Monitoring

Track quarterly earnings, customer announcements, and partnership developments. Monitor competitive landscape for threats.

### 🔮 Future Catalysts

- Q1 2026 earnings (May 2026) - guidance execution
- New customer announcements in defense and aviation
- Manufacturing capacity expansion milestones
- Potential inclusion in EV battery supply chains
- Analyst coverage expansion and rating upgrades

**Final Verdict:** AMPX represents a compelling tactical opportunity for investors seeking exposure to disruptive battery technology. The executed trade demonstrated the stock's potential for rapid appreciation when catalysts align. For future investments, maintain disciplined risk management given high volatility. The company's technology leadership, growth trajectory, and market positioning support a bullish long-term view, but position sizing and stop-loss discipline are essential.