

**UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION**  
Washington, D.C. 20549

**FORM 8-K**

**CURRENT REPORT  
Pursuant to Section 13 or 15(d)  
of the Securities Exchange Act of 1934**

**Date of Report (Date of earliest event reported): December 7, 2021**

**Enovix Corporation**

(Exact name of registrant as specified in its charter)

**Delaware**  
(State or other jurisdiction  
of incorporation)

**001-39753**  
(Commission  
File Number)

**85-3174357**  
(IRS Employer  
Identification No.)

**3501 W. Warren Avenue**  
**Fremont, California**  
(Address of principal executive offices)

**94538**  
(Zip Code)

**Registrant's telephone number, including area code: (510) 695-2350**

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligations of the registrant under any of the following provisions:

- Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)
- Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)
- Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))
- Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
<b>Common Stock, \$0.0001 par value per share</b>	<b>ENVX</b>	<b>The Nasdaq Stock Market LLC</b>
<b>Warrants, each whole warrant exercisable for one share of Common Stock at an exercise price of \$11.50 per share</b>	<b>ENVXW</b>	<b>The Nasdaq Stock Market LLC</b>

Indicate by check mark whether the registrant is an emerging growth company as defined in Rule 405 of the Securities Act of 1933 (§230.405 of this chapter) or Rule 12b-2 of the Securities Exchange Act of 1934 (§240.12b-2 of this chapter).

Emerging growth company

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.

**Item 7.01 Regulation FD Disclosure.**

On December 7, 2021, Enovix Corporation (the “*Company*”) issued (i) a press release announcing that certain of its executive officers will present the attached presentations regarding an update on the Company’s Electric Vehicle program at the 21<sup>st</sup> Annual Advanced Automotive Battery Conference, being held December 7-9, 2021 in San Diego, California and (ii) a blog post regarding the Company’s Electric Vehicle program. The above referenced press release will be available on the investor relations section of the Company’s website (<https://ir.enovix.com/>) and the above referenced blog post will be available at <https://enovix.medium.com/>.

Copies of the above referenced press release, presentations and blog post are furnished as Exhibit 99.1, Exhibit 99.2, Exhibit 99.3 and Exhibit 99.4, respectively, to this Current Report on Form 8-K. This information, including the information contained in the press release, presentations and blog post furnished as Exhibit 99.1, Exhibit 99.2, Exhibit 99.3 and Exhibit 99.4, shall not be deemed “filed” for purposes of Section 18 of the Securities Exchange Act of 1934, as amended, and are not incorporated by reference into any of the Company’s filings, whether made before or after the date hereof, regardless of any general incorporation language in any such filing.

**Item 9.01 Financial Statements and Exhibits.**

(d) Exhibits

<u>Exhibit No.</u>	<u>Description</u>
99.1	<a href="#">Press Release, dated December 7, 2021</a>
99.2	<a href="#">Presentation, dated December 7, 2021: “Enovix Overview”</a>
99.3	<a href="#">Presentation, dated December 7, 2021: “Enovix: From Mobile Electronics to EVs”</a>
99.4	<a href="#">Blog Post, dated December 7, 2021</a>
104	Cover Page Interactive Data File (embedded within the Inline XBRL document).

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

Date: December 7, 2021

**Enovix Corporation**

By: /s/ Steffen Pietzke  
Steffen Pietzke  
Chief Financial Officer



**Enovix Executives Provide Update to EV Program at the  
21st Advanced Automotive Battery Conference in San Diego**

**FREMONT, Calif., Dec. 7, 2021** – Enovix Corporation (“Enovix”) (Nasdaq: ENVX, ENVXW), the leader in the design and manufacture of next-generation 3D Silicon™ Lithium-ion batteries, announced today its executives will be speaking at the 21st Advanced Automotive Battery Conference (“AABC”) at the San Diego Convention Center on December 7, 2021, and will provide an update to the Company’s Electric Vehicle (“EV”) program.

Ashok Lahiri, Enovix Chief Technology Officer and Co-Founder, will speak at 9:20 am PT as part of a panel on “Silicon Anodes in the Recent Advancements in Battery Chemistries” program. Cam Dales, Enovix General Manager and Chief Commercial Officer, will speak at 4:20 pm PT as part of the Late Stage Innovator Showcase in the Innovation & Investment Forum. His presentation is titled “Enovix 3D Silicon Lithium-Ion Battery: From Mobile Electronics to Electric Vehicles.”

Their presentations will include updates on the Company’s EV program including:

- 1) promising early battery performance from its U.S. Department of Energy (“DOE”) grant program,
- 2) improved energy density over currently available EV solutions,
- 3) fast charge capability compared to equivalent pouch cells, and
- 4) results of a third-party study Enovix commissioned to evaluate the unique advantages of its 3D silicon cell architecture for EV packs.

For more information, Enovix published a blog on Medium, which can be found [here](#).

The Enovix 3D silicon lithium-ion battery incorporates a 100% active silicon anode using its proprietary 3D cell architecture. The Enovix battery cell is designed to deliver up to double the energy density of batteries in several categories of currently available consumer electronic products.

**About Enovix**

Enovix is the leader in advanced silicon-anode lithium-ion battery development and production. The company’s proprietary 3D cell architecture increases energy density and maintains high cycle life. Enovix is building an advanced silicon-anode lithium-ion battery production facility in the U.S. for volume production. The company’s initial goal is to provide designers of category-leading mobile devices with a high-energy battery so they can create more innovative and effective portable products. Enovix is also developing its 3D cell technology and production process for the electric vehicle and energy storage markets to help enable widespread utilization of renewable energy. For more information, go to [www.enovix.com](http://www.enovix.com).





**Forward Looking Statements**

This press release contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended, about us and our industry that involve substantial risks and uncertainties. Forward-looking statements generally relate to future events or our future financial or operating performance. In some cases, you can identify forward-looking statements because they contain words such as “believe”, “will”, “may”, “estimate”, “continue”, “anticipate”, “intend”, “should”, “plan”, “expect”, “predict”, “could”, “potentially”, “target”, “project”, “believe”, “continue” or the negative of these terms or similar expressions. Forward-looking statements in this press release include, but are not limited to, statements regarding the results of our DOE Grant Program and the design and performance of our lithium-ion battery solutions. Actual results could differ materially from these forward-looking statements as a result of certain risks and uncertainties, including, without limitation, the risks set forth under the caption “Risk Factors” in the Form 10-Q that we filed with the Securities and Exchange Commission (the “SEC”) on November 15, 2021, and other documents we have filed, or that we will file, with the SEC. Any forward-looking statements made by us in this press release speak only as of the date on which they are made and subsequent events may cause these expectations to change. We disclaim any obligations to update or alter these forward-looking statements in the future, whether as a result of new information, future events or otherwise, except as required by law.

**For investor and media inquiries, please contact:**

Enovix Corporation  
Charles Anderson  
Phone: +1 (612) 229-9729  
Email: canderson@enovix.com

Or

The Blueshirt Group  
Gary Dvorchak, CFA  
Phone: (323) 240-5796  
Email: gary@blueshirtgroup.com

**For media inquiries, please contact:**

Enovix Corporation  
Kristin Atkins  
Phone: +1 (650) 815-6934  
Email: katkins@enovix.com

###



# Enovix Overview

Ashok Lahiri  
CTO and Co-Founder  
December 7, 2021

# Disclaimer

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## Forward Looking Statements

This Presentation contains forward-looking statements made pursuant to the Safe Harbor provisions under the United States Private Securities Litigation Reform Act of 1995. These forward-looking statements generally are identified by the words "anticipate," "believe," "continue," "could," "estimate," "expect," "future," "goal," "intend," "may," "outlook," "plan," "potential," "predict," "project," "pro forma," "seek," "seem," "should," "target," "to be," "will," "will be," "would," and similar expressions that predict or indicate future events or trends or that are not statements of historical matters. These forward-looking statements include, but are not limited to, statements regarding Enovix's ability to build and scale its advanced silicon-anode lithium-ion battery; the rate of increase in lithium-ion battery energy density; the build out of Enovix's production facilities; Enovix's production and commercialization timeline; Enovix's business strategy; the capabilities, performance, and advancement of Enovix's technology and products; Enovix's projected factory expansion and economics; and Enovix's future product development and roadmap, including the timing of its entry into the electrical vehicle battery market and the results of its DOE Grant Program. All forward-looking statements are based on current assumptions, expectations and beliefs, and involve substantial risks and uncertainties that may cause results, performance or achievement to materially differ from those expressed or implied by these forward-looking statements. These statements are based on various assumptions, whether or not identified in this press release, and on the current expectations of the management of Enovix and are not predictions of actual performance. These forward-looking statements are provided for illustrative purposes only and are not intended to serve as, and must not be relied on by an investor as, a guarantee, an assurance, a prediction, or a definitive statement of fact or probability. Actual events and circumstances are difficult or impossible to predict and will differ from assumptions.

# The Enovix Advantage



Step-Change Increase in Energy Density



Validation from Category-Leading Customers



Patented Battery Architecture and Process Technology



100% Active Silicon Anode



Scaling Up Production with Multiple Facilities Planned



Commercial Production in Q1 2022 and First Product Revenue Q2 2022



Focused on Premium Markets

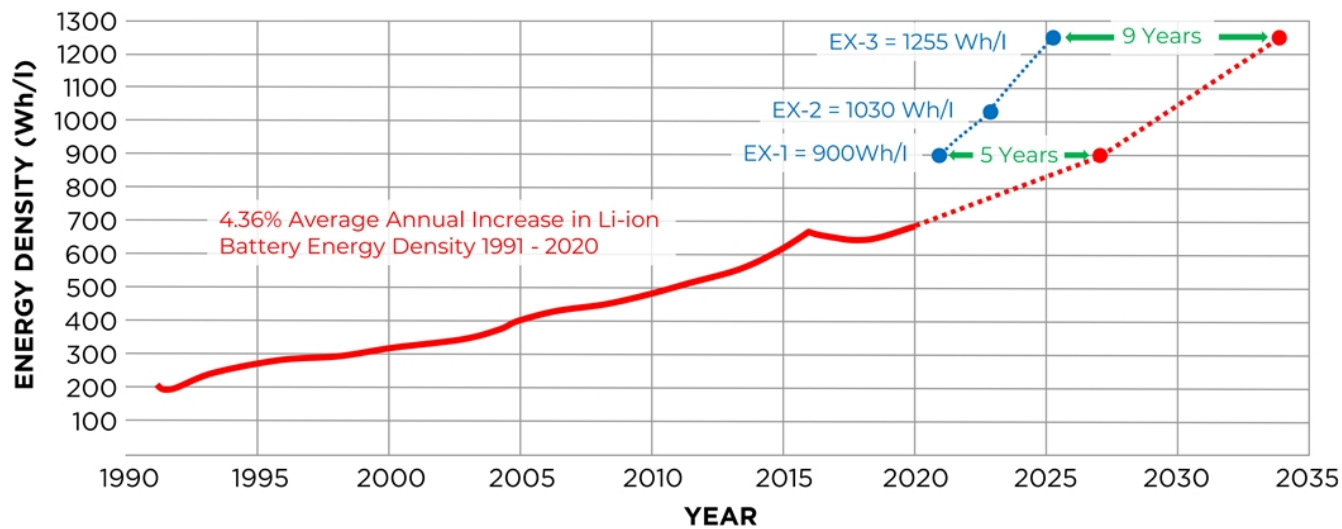


Attractive Financial Profile



Experienced Leadership and Board

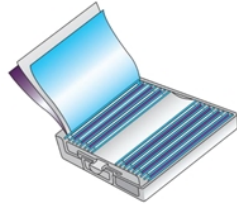
# Step-Change Increase in Energy Density<sup>1</sup>



<sup>1</sup> Actual and projected (continued 4.36% improvement) energy density metrics for a median cell-phone-size battery and Enovix energy density roadmap for a cell-phone-size battery

# Conventional Cell Architecture

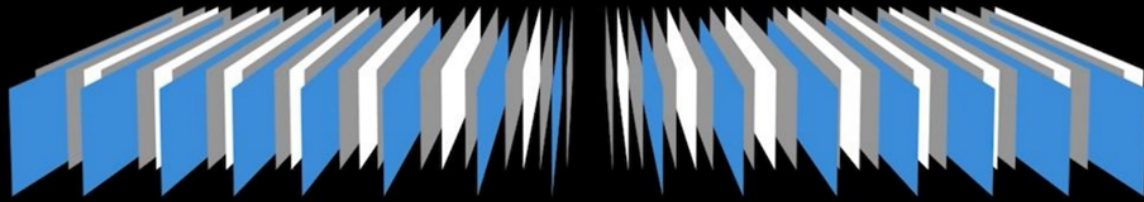
Conventional **Wound** Lithium-ion Cell



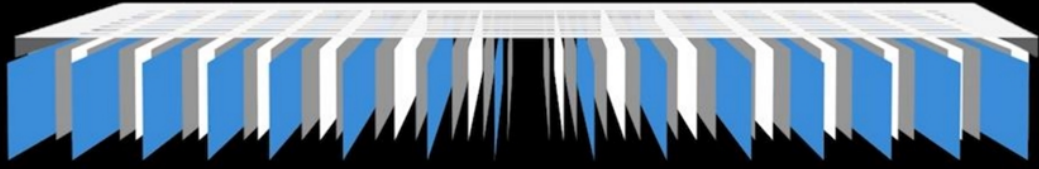
**Illustrated Cross-Section**





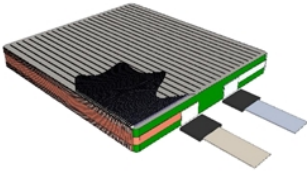




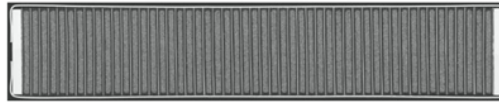


# Enovix 3D Silicon™ Cell Architecture

Enovix 3D Silicon Lithium-ion Cell



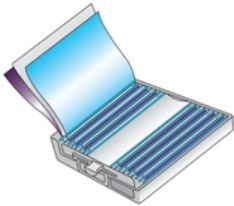
Photomicrograph Cross-Section<sup>1</sup>



Silicon Anode Material Capacity

**1800 mAh/cc<sup>2</sup>**

Conventional Wound Lithium-ion Cell



Illustrated Cross-Section



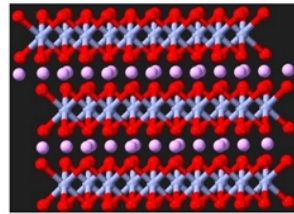
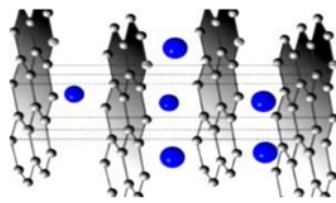
Graphite Anode Material Capacity

**800 mAh/cc<sup>3</sup>**

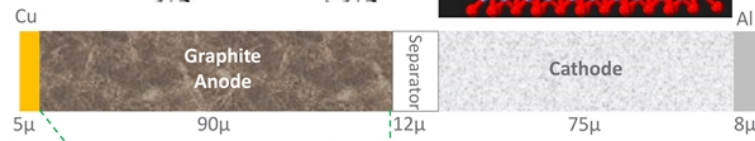
<sup>1</sup>Source: Enovix Corporation. <sup>2</sup>De-rated from theoretical capacity of 2194 mAh/cc for Li trapping losses. <sup>3</sup>Nominal capacity between host capacity of 841 mAh/cc and lithiated capacity of 719 mAh/cc.

# Higher Energy Density: Silicon Anode

$\text{LiC}_6$   
Graphite Anode  
90 $\mu$  at 28%  $\text{Li}^2$

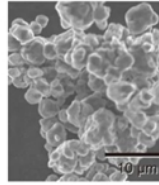


$\text{LiCoO}_2$   
Cobalt Oxide Cathode

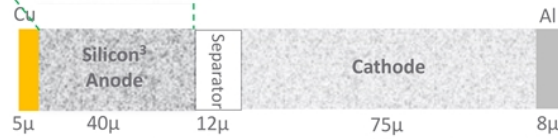


Graphite:  
190 $\mu$  total  
thickness

$\text{Li}_{15}\text{Si}_4$   
Silicon Anode  
40 $\mu$  at 63%  $\text{Li}^{1,2}$



$\frac{190\mu}{140\mu} = 1.36x$   
  
= 36% more capacity



Silicon:  
140 $\mu$  total  
thickness

<sup>1</sup>De-rated from theoretical capacity of 2194 mAh/cc to account for Li-trapping and pre-lithiation


<sup>2</sup>Fully lithiated

<sup>3</sup>100% of active anode is elemental silicon

# Four Killer Problems Faced Silicon Anodes

	Conventional Graphite Anode <sup>1</sup>	Conventional Silicon Anode Problems
<b>1. First charge expansion</b>	<b>LOW</b> Anode material only expands ~10%	<b>HIGH</b> Silicon anodes <b>expand by over 2x when charged</b>
<b>2. First charge efficiency</b>	<b>HIGH</b> (90-95%) Low loss of Li trapped in anode material	<b>LOW</b> (50-60%) About <b>half the Li is permanently trapped</b> in silicon anode <sup>2</sup>
<b>3. Cycle swelling</b>	<b>LOW</b> (<10%) Stable anode electrode thickness	<b>HIGH</b> (>20%) Anode repeatedly swells and shrinks battery during cycling
<b>4. Cycle life</b>	<b>HIGH</b> (>500 cycles) Stable structure Low Li trapping loss	<b>LOW</b> (<100 cycles) <b>Silicon particles electrically disconnect</b> & even <b>crack</b>

# Silicon Anode Approaches Today

	MINIMAL SILICON	STRUCTURALLY ENGINEERED SILICON	100% ACTIVE SILICON <sup>2</sup>
	<b>Panasonic</b> 	Multiple Companies	<b>ENOVIX</b>
Silicon Content Today	<b>LOW</b> (3-7%) <sup>1</sup>	<b>MEDIUM-HIGH</b>	<b>HIGH</b>
Energy Density Improvement	<b>LOW</b>	<b>LOW<sup>3</sup>-MEDIUM</b>	<b>HIGH</b>
Commercially Available	<b>TODAY</b>	<b>VARIED</b>	<b>2022<sup>4</sup></b>
Designed for Low-Cost Silicon	<b>YES</b>	<b>NO</b>	<b>YES</b>

<sup>1</sup>UBS Global Research, May 2021

<sup>2</sup>100% of the active material that is cycling is silicon

<sup>3</sup>Including External Constraint

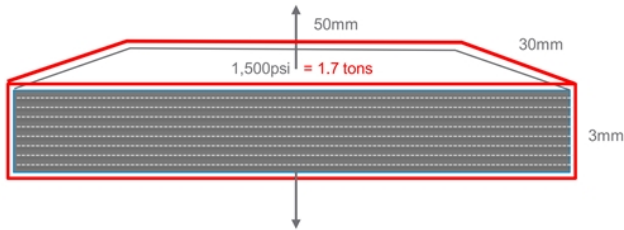
<sup>4</sup>Projected

# Enovix Solved the Four Problems of Silicon Anodes

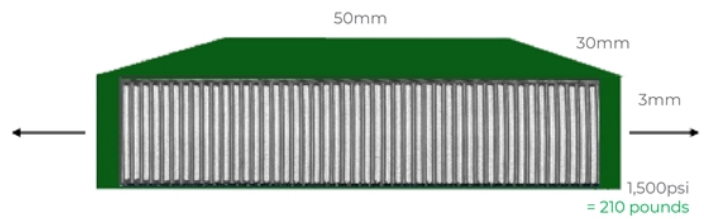
## 1. First Charge Expansion

**Enovix Solution:** Provide a constraint and space for Si expansion. Reorient the electrodes to face the small side to decrease required constraining force.

### Conventional Cell



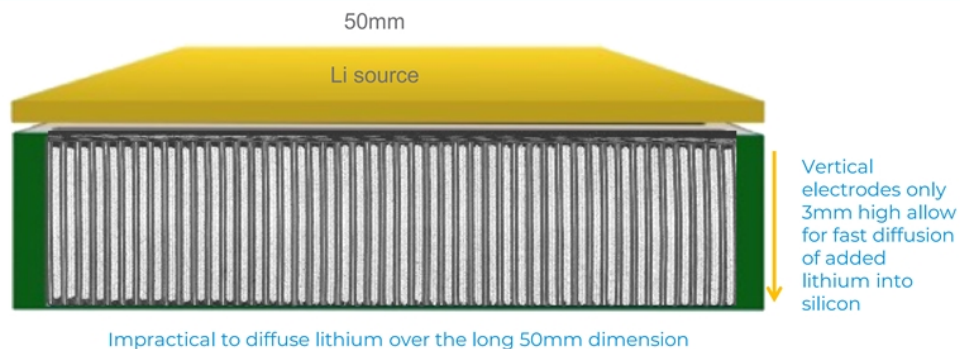
### Enovix 3D Cell



# Enovix Solved the Four Problems of Silicon Anodes

## 2. First Charge Efficiency

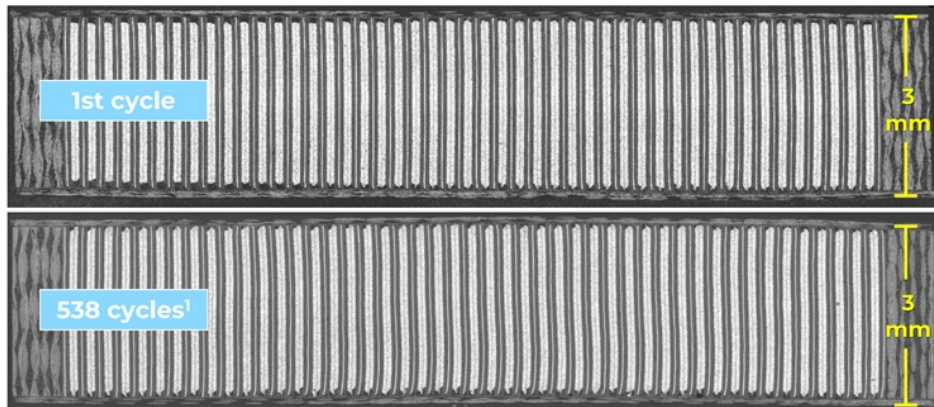
**Enovix Solution:** “Pre-lithiation” process during manufacturing to insert additional lithium source to top off lithium trapped at formation into vertically short electrodes.



# Enovix Solved the Four Problems of Silicon Anodes

## 3. Cycle Swelling

**Enovix Solution:** Cycle swelling managed by integrated constraint, limiting to <2% swelling.



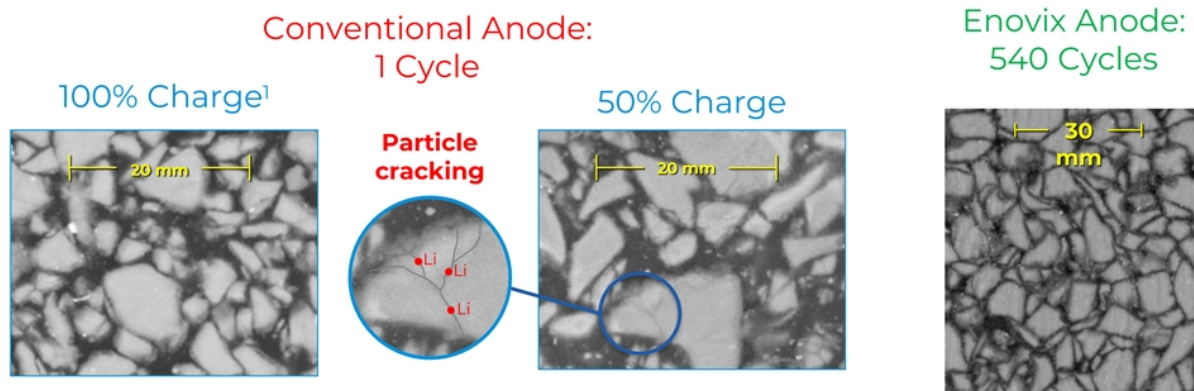
100% DOD, 4.35v-2.70v.  
1C charge (CCCV)/1C  
discharge



# Enovix Solved the Four Problems of Silicon Anodes

## 4. Cycle Life

**Enovix Solution:** Integrated constraint keeps particles under constant stack pressure.

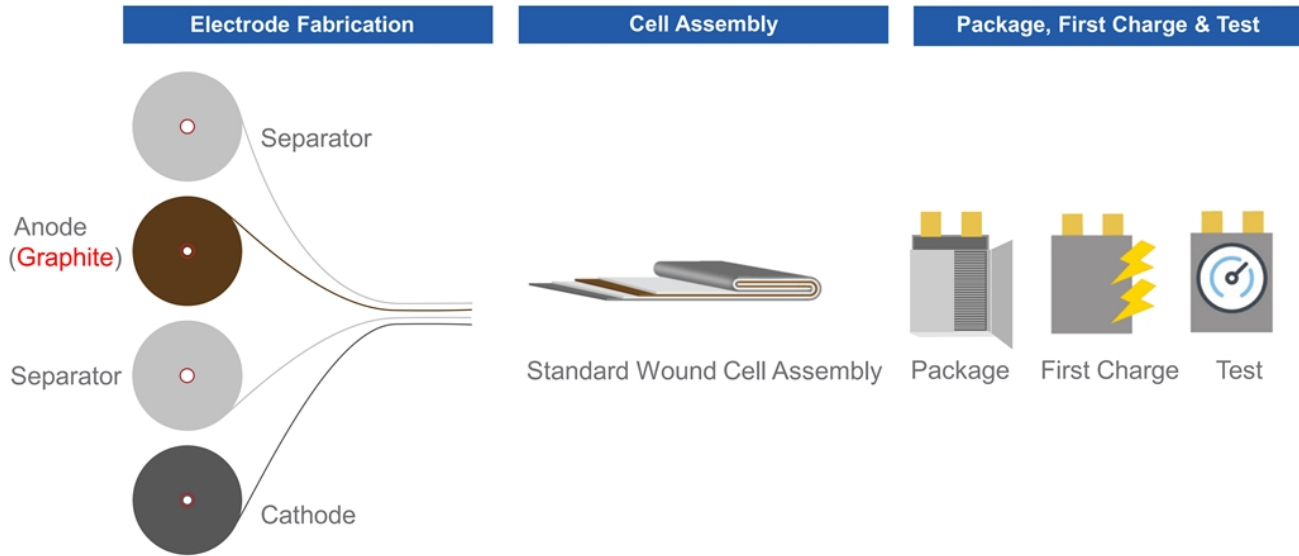




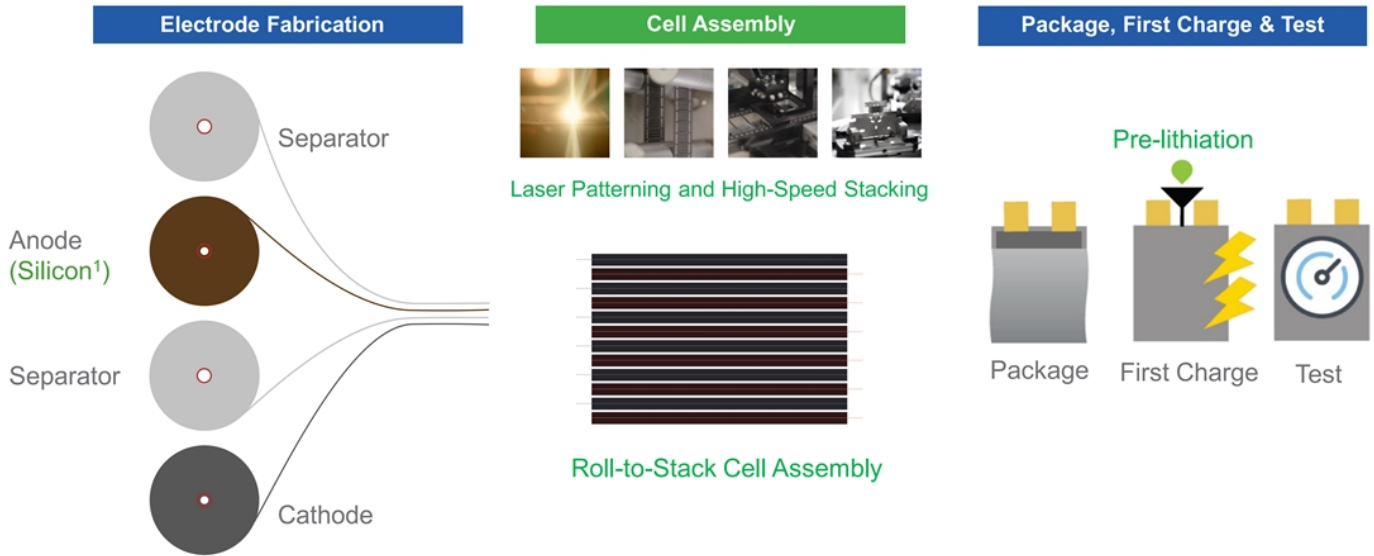
# Production

ENOVIX ©2021 ENOVIX

# Standard Li-ion Battery Production Process



# Enovix 'Drop-In' Battery Production Process

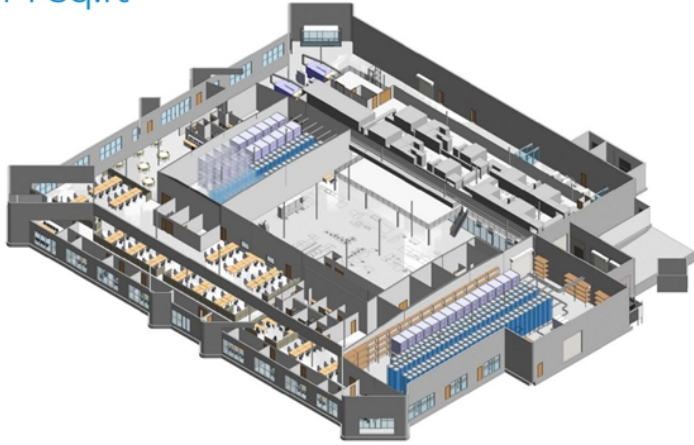


# Novel Patterning and Stacking Approach

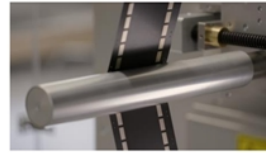
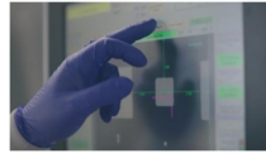


# Fab-1 Fremont

45,044 sq.ft



ZONE	Area [SQFT]	Comment
Zone1 - Electrode Fabrication	5656	
Zone2 - Battery Assembly	9242	
Zone3 - Battery Packaging	+ 8667	Partially Dry Room - Mezzanine
Zone4 - Formation & Test	12812	Partially Hot Room
<b>Total FAB1 - Production Floor</b>	<b>+ 36377</b>	Incl. Spare for 3rd Line (Z1, Z2 & Z3)



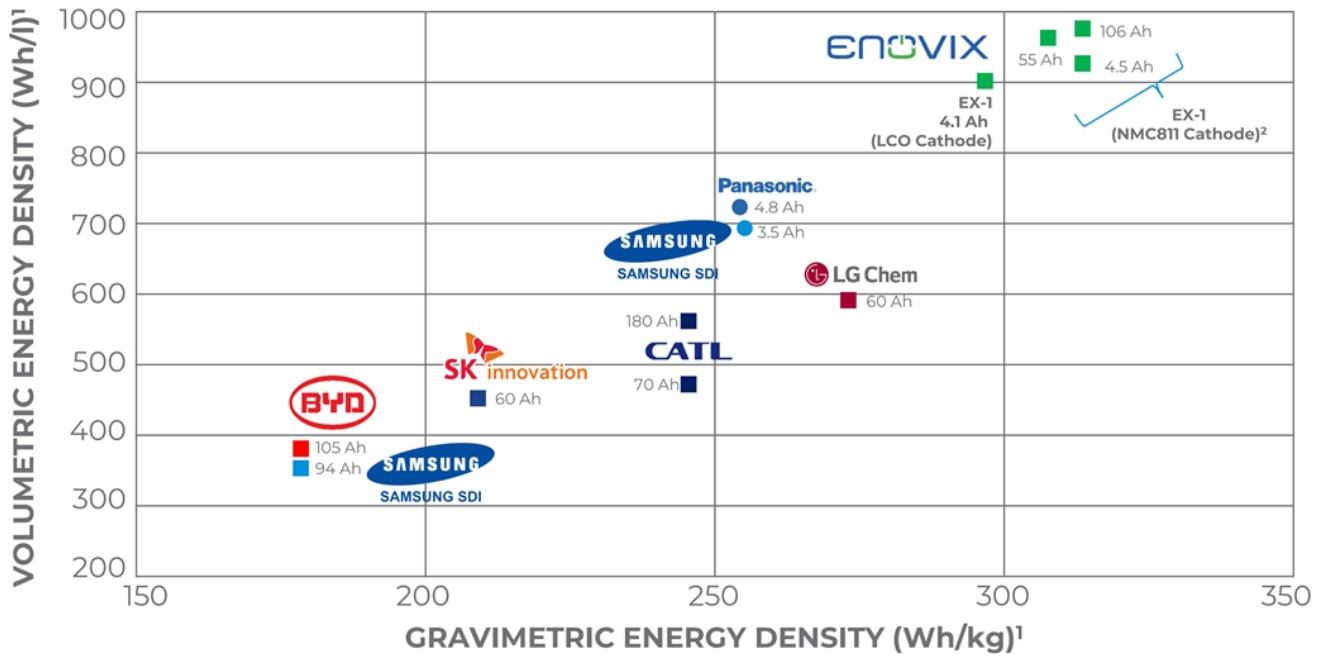




# From Mobile Electronics to EVs

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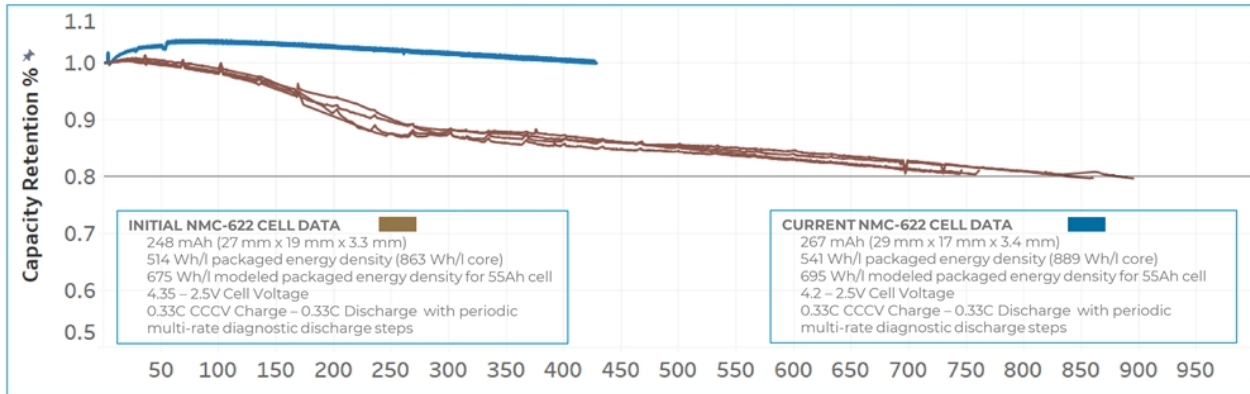
# The Leader in Energy Density





# Structurally and Electrochemically Stabilized Si-rich Anodes for EV Applications

## Awarded up to \$3.2M, 3 Year DOE Grant in 2020



### DOE Program Objectives:

Demonstrate Si-rich anode and electrolyte capable of:<sup>1</sup>

- (i) 350 Wh/kg
- (ii) 750 Wh/l
- (iii) <20% Energy Fade after 1000 cycles
- (iv) 10-year calendar life

### Collaborators:



Multi-component model predicting Si integrity

**Mitsubishi Chemical**

Optimized electrolytes for Si anodes

<sup>1</sup>When scaled to an automotive size cell (40 Ah or greater)

# In Summary

**Unique  
3D Cell  
Architecture**

**100% Active  
Silicon  
Anode**

**Industry  
Leading  
Energy  
Density**

**94 Patents Issued  
63 Patents Pending  
14 Years of R&D  
\$254M of Funding**

Proprietary 3D Architecture and  
Manufacturing Processes





## Next Steps

Actively investing  
Building dedicated team  
Seeking partners

[info@enovix.com](mailto:info@enovix.com)

**ENOVIX** ©2021 ENOVIX



Thank You



# Enovix: From Mobile Electronics to EVs

Cameron Dales  
General Manager and Chief Commercial Officer  
December 7, 2021

# Disclaimer

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## Forward Looking Statements

This Presentation contains forward-looking statements made pursuant to the Safe Harbor provisions under the United States Private Securities Litigation Reform Act of 1995. These forward-looking statements generally are identified by the words "anticipate," "believe," "continue," "could," "estimate," "expect," "future," "goal," "intend," "may," "outlook," "plan," "potential," "predict," "project," "pro forma," "seek," "seem," "should," "target," "to be," "will," "will be," "would," and similar expressions that predict or indicate future events or trends or that are not statements of historical matters. These forward-looking statements include, but are not limited to, statements regarding Enovix's ability to build and scale its advanced silicon-anode lithium-ion battery; the rate of increase in lithium-ion battery energy density; the build out of Enovix's production facilities; Enovix's production and commercialization timeline; Enovix's business strategy; various addressable markets; anticipated market size and trends, growth, and developments in markets in which Enovix operates; the capabilities, performance, and advancement of Enovix's technology and products; Enovix's projected factory expansion and economics; and Enovix's future product development and roadmap, including the timing of its entry into the electrical vehicle battery market and the results of its DOE Grant Program. All forward-looking statements are based on current assumptions, expectations and beliefs, and involve substantial risks and uncertainties that may cause results, performance or achievement to materially differ from those expressed or implied by these forward-looking statements. These statements are based on various assumptions, whether or not identified in this press release, and on the current expectations of the management of Enovix and are not predictions of actual performance. These forward-looking statements are provided for illustrative purposes only and are not intended to serve as, and must not be relied on by an investor as, a guarantee, an assurance, a prediction, or a definitive statement of fact or probability. Actual events and circumstances are difficult or impossible to predict and will differ from assumptions.



# The Enovix Advantage



Step-Change Increase in Energy Density



Validation from Category-Leading Customers



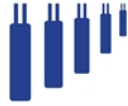
Patented Battery Architecture and Process Technology



100% Active Silicon Anode



Scaling Up Production with Multiple Facilities Planned



Commercial Production in Q1 2022 and First Product Revenue Q2 2022



Focused on Premium Markets



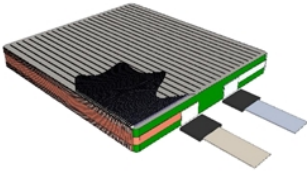
Attractive Financial Profile



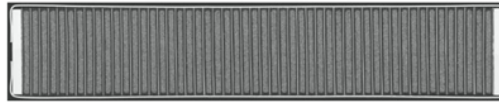
Experienced Leadership and Board

# Enovix 3D Silicon™ Cell Architecture

Enovix 3D Silicon Lithium-ion Cell



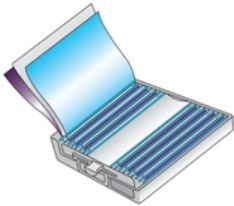
Photomicrograph Cross-Section<sup>1</sup>



Silicon Anode Material Capacity

**1800 mAh/cc<sup>2</sup>**

Conventional Wound Lithium-ion Cell



Illustrated Cross-Section



Graphite Anode Material Capacity

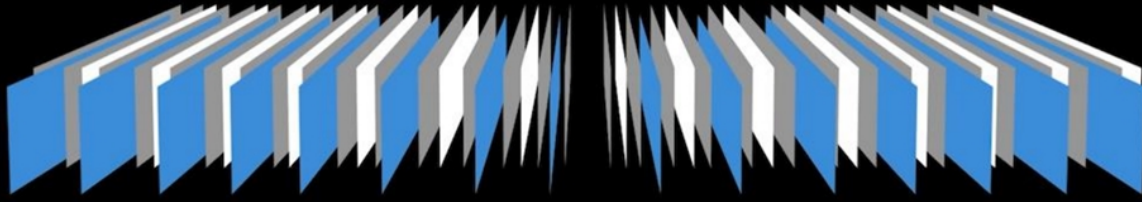
**800 mAh/cc<sup>3</sup>**

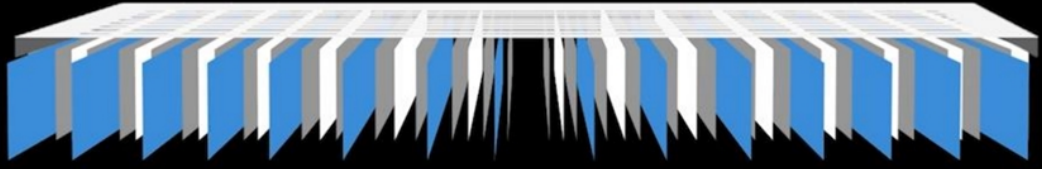
<sup>1</sup>Source: Enovix Corporation. <sup>2</sup>De-rated from theoretical capacity of 2194 mAh/cc for Li trapping losses.

<sup>3</sup>Nominal capacity between host capacity of 841 mAh/cc and lithiated capacity of 719 mAh/cc.

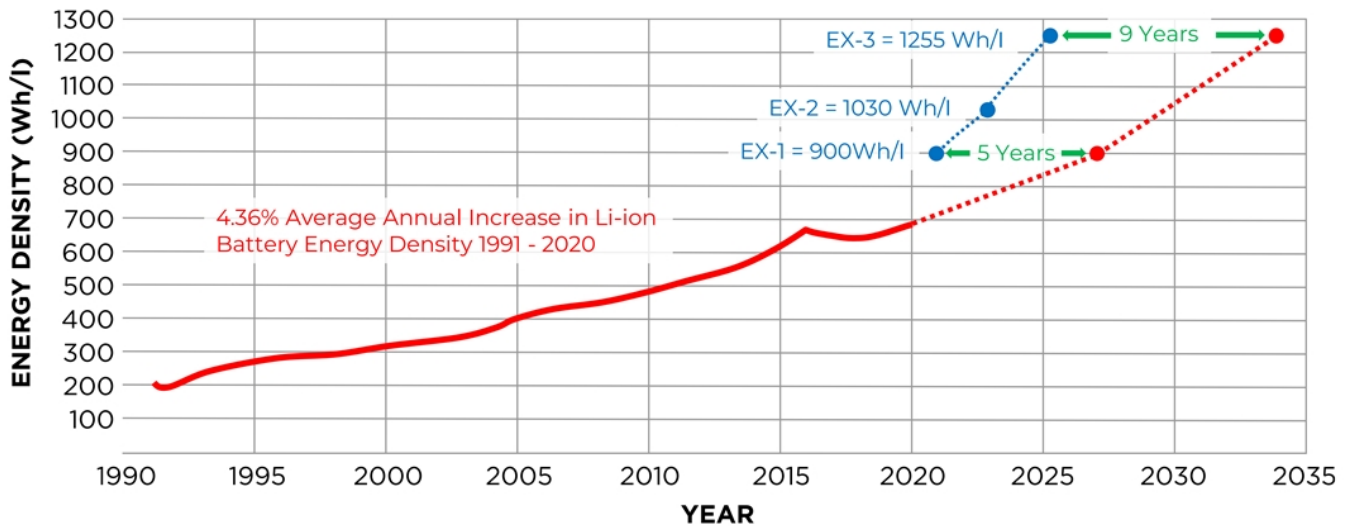






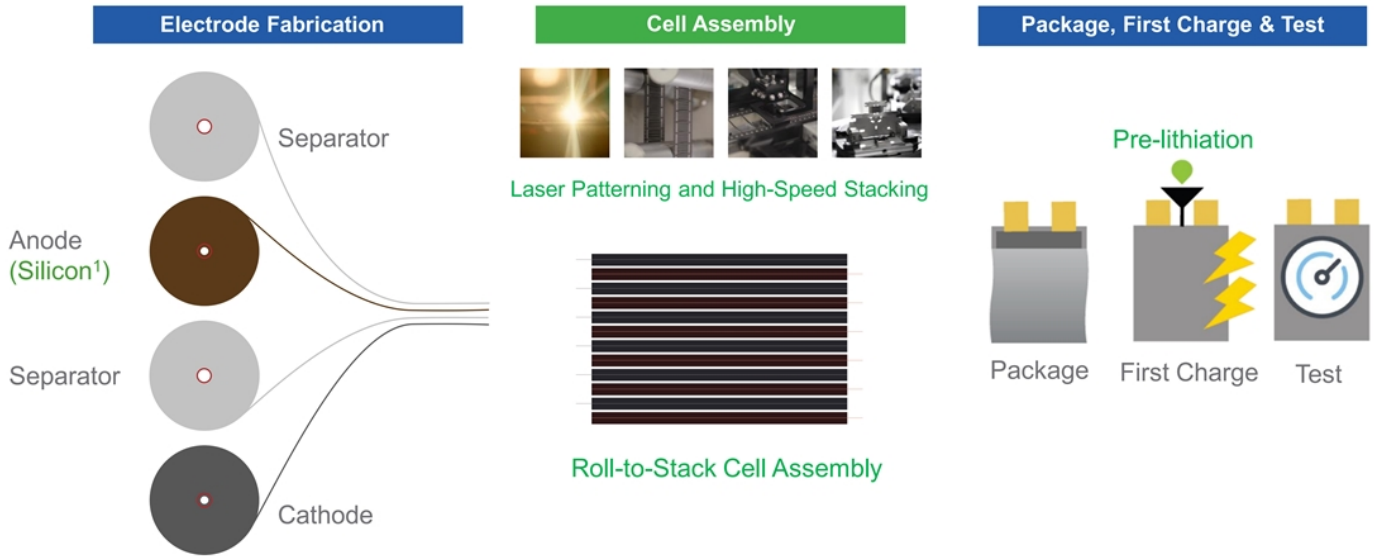


# Step-Change Increase in Energy Density<sup>1</sup>



<sup>1</sup> Actual and projected (continued 4.36% improvement) energy density metrics for a median cell-phone-size battery and Enovix energy density roadmap for a cell-phone-size battery

# Enovix 'Drop-In' Battery Production Process



# Novel Patterning and Stacking Approach



<sup>1</sup> Replaces industry standard electrode winding and flattening process

# Commercialization Roadmap

PROJECTED

2022



### Fab 1

254 MWh Capacity  
Q2 2022 First Revenue  
2025E Units: 45M

2023



### Fab 2

1.53 GWh Capacity  
Q2 2023 First Revenue  
2025E Units: 89M

2024

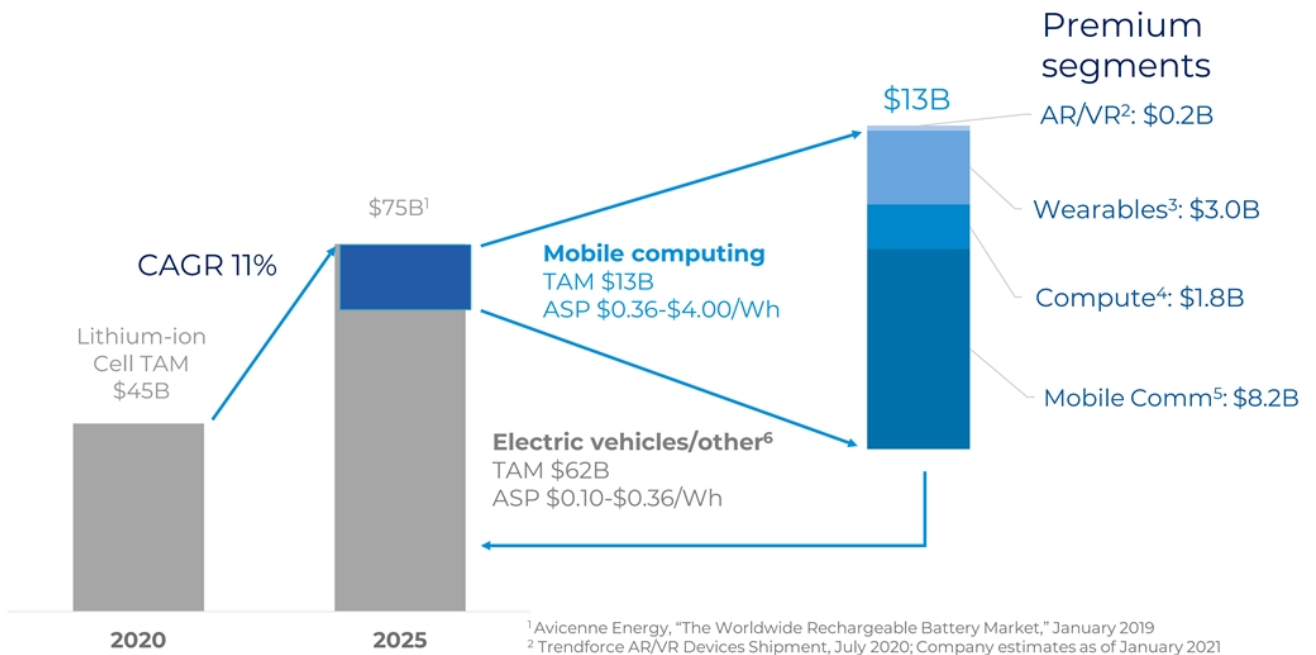
2025



### Fab 3

Auto JV or Licensing  
2025 First Revenue

# Strategy to Win in \$75B Market



<sup>1</sup> Avicenne Energy, "The Worldwide Rechargeable Battery Market," January 2019  
<sup>2</sup> Trendforce AR/VR Devices Shipment, July 2020; Company estimates as of January 2021  
<sup>3</sup> IDC Worldwide Wearable Device Forecast 2020-25, January 2021; Company estimates as of January 2021  
<sup>4</sup> IDC Quarterly Personal Computing Device Tracker, January 2021; Company estimates as of January 2021  
<sup>5</sup> IDC Quarterly Mobile Phone Tracker, January 2021; Company estimates as of January 2021  
<sup>6</sup> Approximately \$3B Tam of Other applications and devices; Company estimates as of January 2021



# Design Wins with Market Leaders



**Laptop** market leader<sup>1</sup>  
Laptop market: \$102B (2017)<sup>1</sup>

**Product development. Funded**



**Land mobile radio (LMR)** market leader (public safety, EMS)<sup>2</sup>  
LMR market: \$18B in 2019 to \$25B in 2022<sup>3</sup>

**Product development. Funded**



**Smartwatch** market leader<sup>4</sup>  
Smartwatch market: 19.6% CAGR to \$96B by 2027<sup>5</sup>

**Product development. Negotiating Supply Agreement**



**AR/VR** -- augmented/virtual reality market leader<sup>6</sup>  
AR/VR market: \$11B (2017) to \$571B (2025)<sup>7</sup>

**Product development. Funded**



**AR platform** technology leader  
AR market: \$6B (2018) to \$198B (2025)<sup>8</sup>

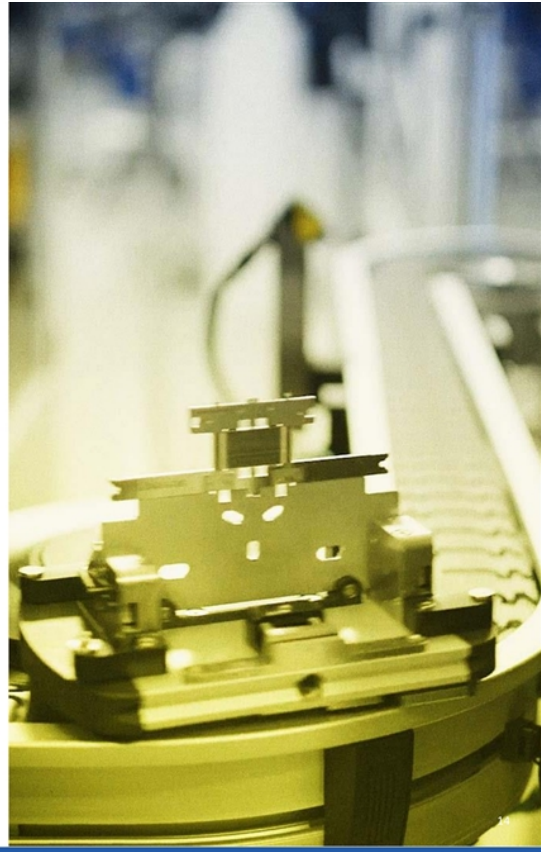
**Product development. Funded**

<sup>1</sup>Laptops By The Numbers, Fortunly, 4/29/20. <sup>2</sup>LMR Market, Reuters Plus, 2/11/19.

<sup>3</sup>Statista estimates: Credence Research ©2020. <sup>4</sup>Canalys, 6/17/20. <sup>5</sup>Allied Market Research, 4/20. <sup>6</sup>TrendForce, Statista ©2019. <sup>7</sup>IDC, 7/20/20. <sup>8</sup>Statista ©2020.

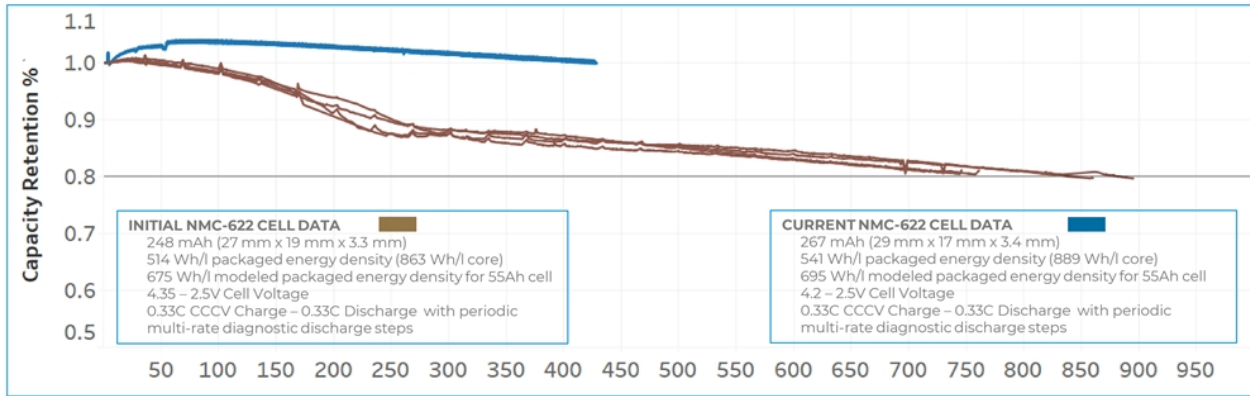
# Enovix EV Program

enovix ©2021 ENOVIX



# Structurally and Electrochemically Stabilized Si-rich Anodes for EV Applications

## Awarded up to \$3.2M, 3 Year DOE Grant in 2020



### DOE Program Objectives:

Demonstrate Si-rich anode and electrolyte capable of<sup>1</sup>:

- (i) 350 Wh/kg
- (ii) 750 Wh/l
- (iii) <20% Energy Fade after 1000 cycles
- (iv) 10-year calendar life

### Collaborators:



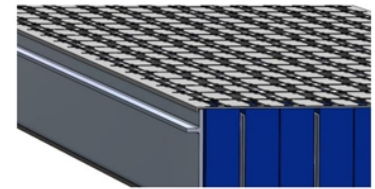
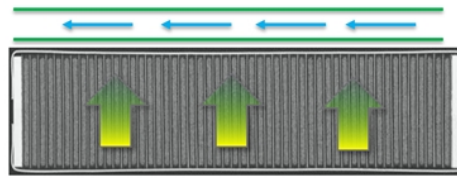
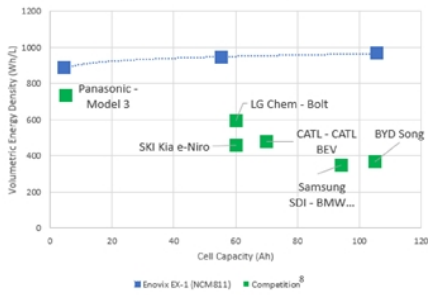
Multi-component model predicting Si integrity

**Mitsubishi Chemical**

Optimized electrolytes for Si anodes

# EV Pack Model Advantages - Incorporating Results of a 3rd Party Study

Energy Density vs Capacity:  
Enovix EX1 NCM811<sup>1</sup>



## Energy Density

**>30%** higher cell VED at EV relevant scales & form factors<sup>2</sup>

**>40%** higher pack level ED<sup>3</sup>

## Fast Charge

~**4.6x** cell thermal conductivity for equivalent pouch cells<sup>4</sup>

~**56%** thinner anode than graphite<sup>5</sup>

~**140mV** higher lithiation potential<sup>6</sup>

## Manufacturability<sup>7</sup>

**Low swell**, tight tolerance cells

**Simplified** interconnect and thermal design

**Integral constraint** eliminates pack level constraints

<sup>1</sup> Design Targets - NMC811 cathode at 6.0 mAh/cm<sup>2</sup> loading, 100% active silicon anode, modeled energy for Enovix EX1 design

<sup>2</sup> Enovix 55.2 Ah cell design vs 5 Ah, 730Wh/l, 21700 cell

<sup>3</sup> Assumed 100% packing efficiency for pouch or prismatic vs 90.7% packing efficiency for cylindrical form factor

<sup>4</sup> Through-plane conductivity; Enovix 3.4Ah cell, 5.3mm thick, LCO cathode (3.3 W/m-K) vs 6.0Ah pouch cell, 6.7mm thick NMC cathode (0.732 W/m-K); verified by 3<sup>rd</sup> engineering pack analysis

<sup>5</sup> 100% active elemental Si anode de-rated from a fully-lithiated theoretical capacity of 2194 mAh/cc to account for Li-trapping and pre-lithiation

<sup>6</sup> 0.22V vs Li/Li+ for Si; 0.08V vs Li/Li+ for Graphite

<sup>7</sup> Third Party Engineering Pack Analysis

<sup>8</sup> Sources for competitor data: UBS Global Research, October 2020

A photograph of two scientists in a laboratory setting. They are wearing white lab coats and face masks. The scientist on the left is a man with glasses and a black face mask. The scientist on the right is a woman with glasses and a white face mask. They are looking at a piece of equipment or a screen. The background shows laboratory equipment and blue walls.

## Next Steps

Actively investing  
Building dedicated team  
Seeking partners

[info@enovix.com](mailto:info@enovix.com)

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Thank You



**From Mobile Electronics to Electric Vehicles**

*By Ashok Lahiri, CTO and Co-Founder and Cam Dales, GM and CCO*

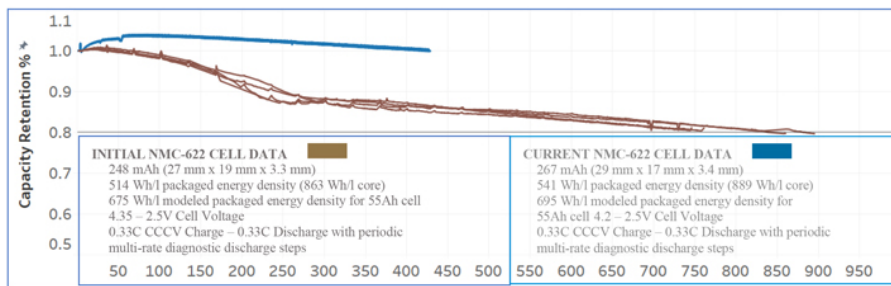
It's an exciting time for electric vehicles. With rapidly growing sales, many new models entering the market and substantial investments from both automotive OEMs and governments globally, the U.S. government's goal of reaching 40-50% EV sales by 2030 seems within reach. Today, we are in San Diego presenting at the 21st Annual Advanced Automotive Battery Conference. We will give an update on our EV program including:

- 1) promising early battery performance from our U.S. Department of Energy (DOE) grant program,
- 2) improved energy density over currently available EV solutions,
- 3) fast charge capability compared to equivalent pouch cells, and
- 4) results of a third-party study we commissioned to evaluate the unique advantages of our 3D silicon cell architecture for EV packs.

While we have initially targeted the mobile electronics space for several reasons outlined below, we plan to enter the EV battery market by 2025. We believe our 3D cell architecture coupled with our 100% active silicon anode, has the potential to create unique advantages for automotive OEMs and pack providers, providing increased energy density, better thermal conductivity, high cycle life, and lower cost at both the cell and pack level, through simplified system design and low-cost manufacturing processes. Our EV program is in its early stages, but we're pleased with the results so far.

**DOE Grant Program**

Building off favorable results from an initial R&D project to demonstrate the use of NMC cathodes within our 3D silicon cell architecture, we were awarded a three-year grant from the DOE in 2020. The project, titled, "Structurally and Electrochemically Stabilized Silicon-rich Anodes for Electric Vehicle (EV) Applications," is part of a program that targets demonstrating cells with energy density over 750 Wh/l, 350 Wh/kg, cycle life greater than 1,000 cycles and 10-year calendar life using a 95%-plus active silicon anode. Mitsubishi Chemical Corporation, a global leader in formulated electrolytes for Li-ion batteries, and the National Renewable Energy Laboratory (NREL), a leading research institution focused on energy-efficient solutions, are collaborating with us on the project. Here's a chart on our early results of the project on cycle life using our 100% active silicon anode, which are encouraging thus far.



### Improved Energy Density

The combination of our 100% active silicon anode, rectilinear format and unique architecture results in superior energy density when compared to traditional cells as follows:

- >30% higher cell Volumetric Energy Density (VED) at EV relevant scales & form factors<sup>1</sup>
- >40% higher pack level energy density<sup>2</sup>

### Fast Charge Capability

The ability to do fast charge is a combination of multiple factors. The two principal factors are: 1) the ability of the electrode and electrolyte design to be able to quickly and safely absorb lithium during charge and 2) how uniform and efficiently heat can be pulled out of the battery cell.

Enovix provides distinct advantages including:

- ~4.6x cell thermal conductivity for equivalent pouch cells<sup>3</sup>
- ~56% thinner anode than graphite<sup>4</sup>
- ~140mV higher lithiation potential during charge for a 100% active Si anode<sup>5</sup>

### Third-Party Study to Evaluate our 3D Silicon Cell Architecture for EV Packs

We recently commissioned a study by a team of leading battery pack and module designers from Manufactory Co. to evaluate the potential advantages of our cell architecture in a reference EV pack from a US-based, commercially-available EV with an estimated range of 390-396 when the study was completed earlier this year.

In addition to improved energy density and enhanced fast charge capability, the study supports there may be several potential advantages Enovix could bring to market in the form of:

- **Low swell**, tight tolerance cells
- **Simplified** interconnect and thermal design
- **Integral constraint** that can eliminate pack level constraints

Such improvements in energy density and form factor could open up significant design opportunities for auto manufacturers, enabling increased freedom to create new designs while improving performance.

### Battery Cost in EVs

The Li-ion battery is the most costly part of a passenger EV today. To date, the decline in battery cost has been driven largely by a declining cost of raw materials, increased manufacturing scale and improved production efficiency. But, according to BloombergNEF, continued battery cost reduction in the second half of the 2020s will require increased energy density for greater Watt-hour capacity at the cell and pack level. Enovix's 3D cell architecture allows us to use a 100% active silicon anode, and to potentially use lower-cost silicon active materials, to increase cell energy density and

<sup>1</sup> Enovix 55.2 Ah cell design vs 5 Ah, 730Wh/l, 21700 cell

<sup>2</sup> Assumed 100% packing efficiency for pouch or prismatic vs 90.7% packing efficiency for cylindrical form factor

<sup>3</sup> Through-plane conductivity; Enovix 3.4Ah cell, 5.3mm thick, LCO cathode (3.3 W/m-K) vs 6.0Ah pouch cell, 6.7mm thick NMC cathode (0.732 W/m-K); verified by 3<sup>rd</sup> party engineering pack analysis

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<sup>5</sup> 0.22V vs Li/Li+ for Si; 0.08V vs Li/Li+ for Graphite



minimize costs in the future. We believe our ability to use a lower-cost raw material set, in combination with highly efficient and high-speed assembly processes, will provide a battery cell at a lower cost than a comparable conventional Li-ion cell at scale. While our architecture adds a small amount of cost to each individual cell (for instance the fabrication of our integrated constraint system which is stamped from thin steel foils), we anticipate this cost will be more than offset by the higher energy density per cell on \$/Whr basis in addition to savings at the pack level.

#### **Why We're Focused on Mobile Electronics First**

While we intend to be in the EV market by 2025, we're targeting the mobile electronics market initially for several reasons:

- 1) product designers demand high energy densities, which allow them to add features, functionality and create new form factors, especially to power the technologies of the future such as Augmented Reality, Artificial Intelligence and 5G;
- 2) consumer electronics design cycles are shorter than what is common in other industries such as automotive, enabling us to scale a new cell technology faster; and
- 3) batteries often make up a small fraction of the cost of the mobile device, which speeds adoption of new technologies.

We plan to begin commercial production for the mobile electronics consumer market in Q1 2022, and we forecast first product revenue in Q2 2022.

#### **Next Steps**

Our business strategy has been to first commercialize our technology through batteries tailored to the mobile electronics market. This allows us to reach scale and operational efficiency through the premium segment of the market, while we reduce costs and optimize our operations for quality and reliability. Earlier this year, our first automated factory in Fremont, Calif., began producing batteries with a 100% active silicon anode and is currently in the midst of qualification to support industry-leading customers.

The next stage in our strategy is to start the development work to deploy our technology to the EV market. We're pleased with the early results of our EV research and we're seeing positive feedback on our technology as we gain more results from our sampling program. Based on this, we intend to accelerate our efforts by adding additional resources to address this market.

Interested in working with us? Contact [info@enovix.com](mailto:info@enovix.com) or find us on [LinkedIn](#) or visit our [website](#).

#### **Forward Looking Statements**

This blog contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended, about us and our industry that involve substantial risks and uncertainties. Forward-looking statements generally relate to future events or our future financial or operating performance. In some cases, you can identify forward-looking statements because they contain words such as "believe", "will", "may", "estimate", "continue", "anticipate", "intend", "should", "plan", "expect", "predict", "could", "potentially", "target", "project", "believe", "continue" or the negative of these terms or similar expressions. Forward-looking statements in this blog include, but are not limited to, statements regarding our plans to enter into the EV battery market; our EV program, including the advantages that our advanced silicon-anode lithium-ion battery provides to automotive OEMs and pack providers; our battery design, energy density, performance and manufacturing capability; our ability to minimize battery costs; our production and commercialization timeline; the results of our DOE Grant Program; our future product development and roadmap; and the future demand for our lithium-ion battery solutions. Actual results could differ materially from these forward-looking statements as a result of certain risks and uncertainties, including, without limitation, the risks set forth under the caption "Risk Factors" in the Form 10-Q that we filed with the Securities and Exchange Commission (the "SEC") on November 15, 2021, and other documents we have filed, or that we will file, with the SEC. Any forward-looking statements made by us in this press release speak only as of the date on which they are made and subsequent events may cause these expectations to change. We disclaim any obligations to update or alter these forward-looking statements in the future, whether as a result of new information, future events or otherwise, except as required by law.