

ADDIONICS

POWERING THE FUTURE

The World is on the Verge of Electrification

- The green revolution is happening across the economy, with no greater opportunity than EVs
- Batteries are key to unlocking this transition
- Costs will drive which battery technologies are adopted



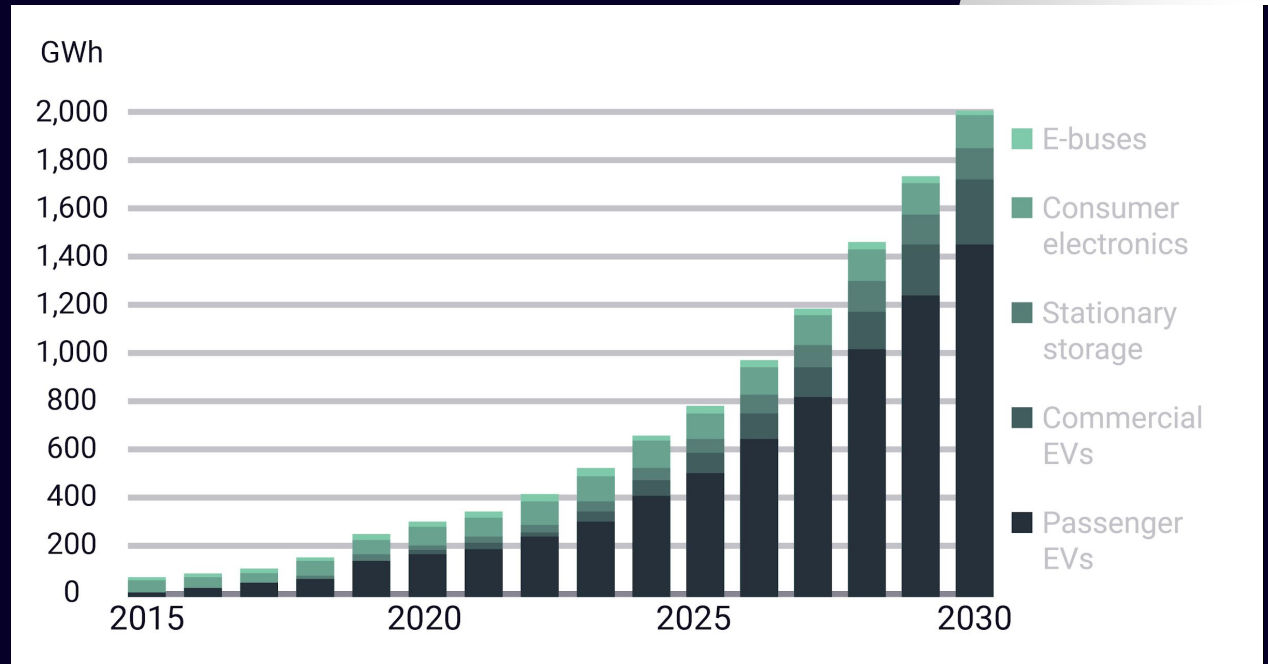
Batteries are Driving the Move to Clean Energy

That's why:

- \$9.2B in battery startup investment in 2020, up from \$4.3B in 2019
- More than 3X manufacturing capacity is in pipeline compared to today's capacity
- Major Automotive OEMs are going all electric and bringing battery tech in house

Everyone is trying to improve batteries

Annual Lithium-Ion battery demand



But, Battery Technology is Lagging Behind

- Today's battery performance cannot meet the needs of the market and needs lower costs
- End users want greater energy density, but not only:
 - Mobility needs fast charging
 - High power needs faster discharge rates
 - Storage needs greater safety
 - Incremental improvements every year
- Today, there is a big tradeoff between power to energy





Billions of dollars have been spent to create next generation batteries by focusing on **chemistry.**

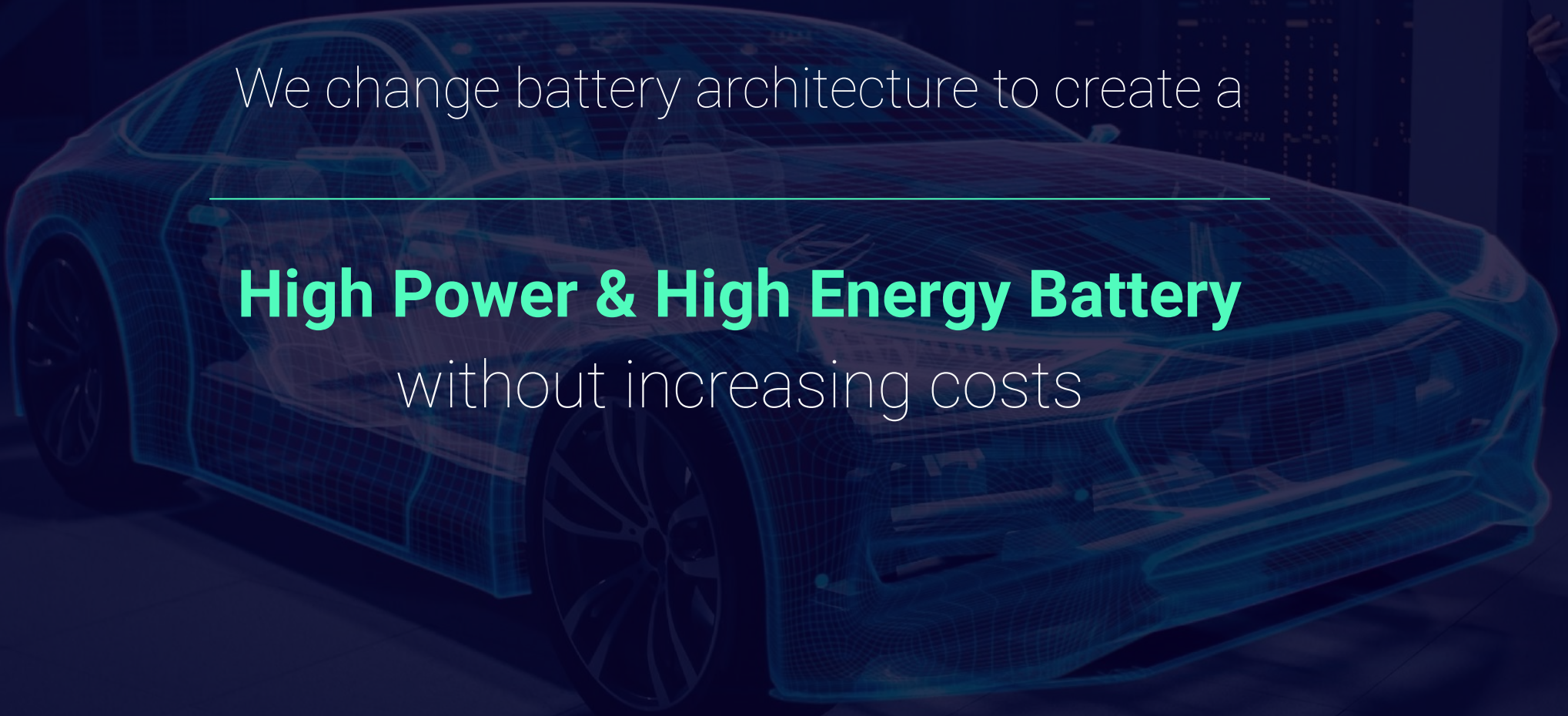
Yet battery performance still lags behind

Unlocking the battery revolution requires focusing on **physics.**

We change battery architecture to create a

High Power & High Energy Battery

without increasing costs

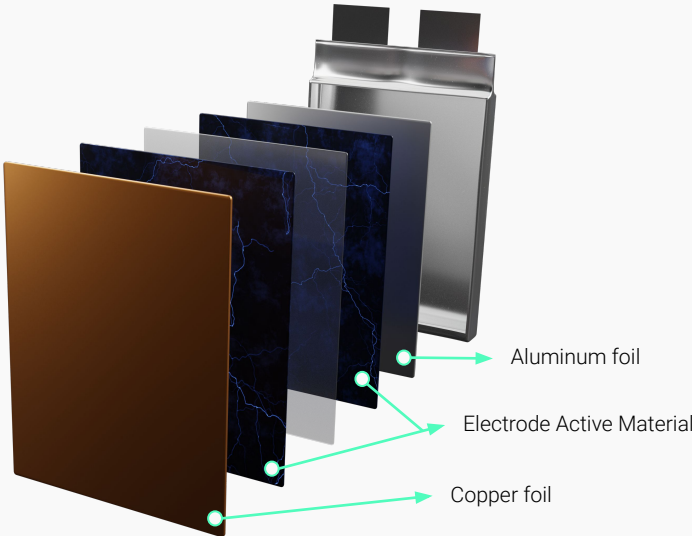


Addionics Revolutionary 3D Battery Design

The architecture of commercial battery cells has been unchanged for 30 years. By redesigning the physical structure of battery cells, Addionics makes maximum impact on any battery chemistry on

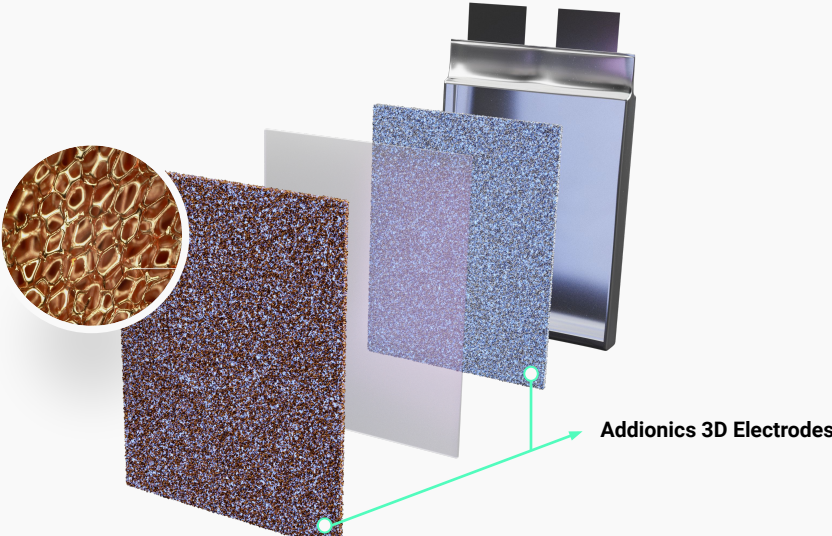
Standard Battery Cells

Active material (black and purple) is coated onto 2D metal foil in anode and cathode

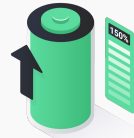


Addionics 3D Battery Cells

A revolution in battery cell design: architecture that integrates active material throughout cell structure



Delivering Better Performance



2X accessible capacity

Increased energy density by enabling greater active material loading and by accessing more capacity especially at high power rates



50% reduction in charging time

50% lower internal resistance at the cell level allows for < 15 min fast charging time



Increased safety

Significantly improved thermal uniformity and higher mechanical stability



Up to 150% longer lifetime

Better structural adhesion prevents cracks & delamination and facilitates better heat dissipation along the cell

Superior Production Abilities



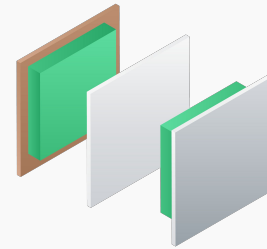
Chemistry agnostic

Improves performance of existing & emerging chemistries



Drop in solution

Compatible with Existing Factories and Dry/Wet process



Anode & Cathode

A rare battery technology that can improve both electrodes



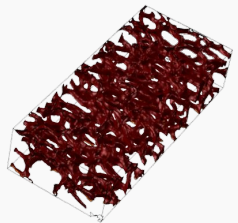
Sustainable

Less creation of waste

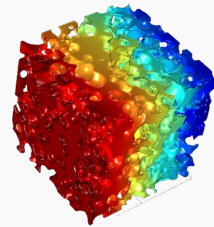
Software & AI Algorithms for Designing Structures

Addionics 3D manufacturing is guided by proprietary battery cell modelling software, optimizing battery structures for specific performance outcomes

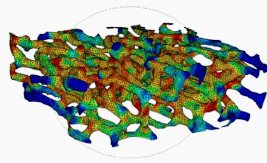
Thermal



Electrochemical



Mechanical



Low-Cost Manufacturing Process

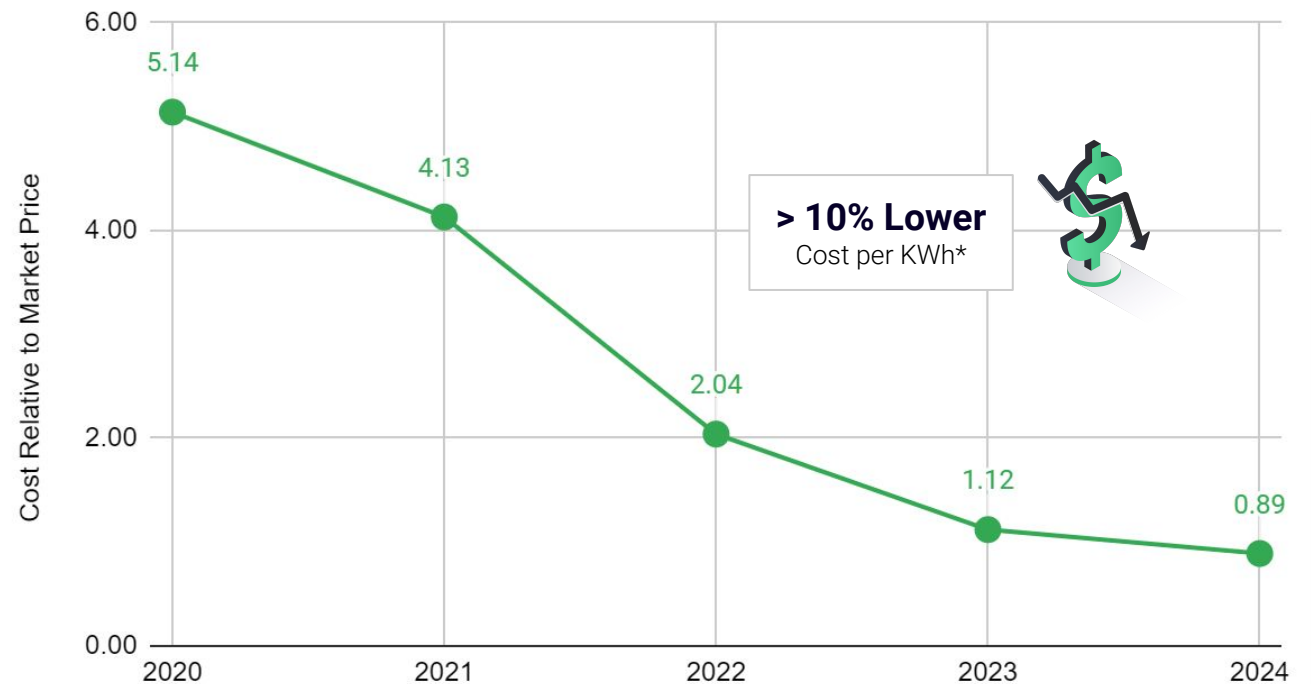
Our IP

- A combination of electrochemical processes to create 3D porous metal structures

Fit in Market

- Low cost, scalable, and works with existing factories
- Cost savings:
 - Metal structure
 - Coating process
 - Fewer layers

Projected Cost Relative to Market Price of \$100/kWh



* Based on the \$100 kWh automotive targeted price ([Bloomberg](#))

Mobility Market Traction

Three partnerships proving Addionics technology can both enable new emerging chemistries and improve performance of existing chemistries

Solid State

Co-development with Saint Gobain

- Solid State is the next generation of high performance batteries
- Estimated 46% increase in energy density
- \$1M grant and \$500K project commitment from St Gobain

Silicon

Automotive Tier-1 Supplier

- Co-developing high energy and high power silicon battery
- Advanced to 2nd stage in Q1 2021 after successful first stage
- 15% improvement in energy density

LFP / NMC

Multinational Conglomerate

- LFP is low cost, but suffers from low energy density with standard architecture
- Can keep low cost and high safety with 25% improvement in energy density
- Began manufacturing in Q1 2021

Consumer Electronics Market Traction

Two partnerships currently being finalized.

Lithium Cobalt Oxide Polymer

Consumer Wearables Company

- Improving existing battery with existing chemistry
- Estimated 15% increase in energy density
- Directly working with end user's primary supplier, one of the largest consumer electronics battery manufacturers in the world

NMC

High Power Consumer Product Manufacturer

- Pilot with end user, batteries for high power applications including power tools and vacuum cleaners
- Estimated increase of 20% in energy density with safety improvements

Core Team and Advisory Board



Dr Moshiel Biton
Co-Founder & CEO



Dr Vladimir Yufit
Co-Founder & CTO



Dr Farid Tariq
Co-Founder & CSO



Prof Herbert Kohler



Parminder Kohli



Shell Lubricants



Alon Lam
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Chemistry Dev lead



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R&D Manager



Dr Enrique Ruiz-Trejo
Electrochemical Eng.



Dr Prabhakar Patil



Pierre Labat



Novelis



THANK YOU

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