



Changing How the World Makes Battery Materials

Corporate Overview

19 Patents (35+ Pending)
\$23B Cathode Market (2025)



Disclaimers

TSX: NANO | FF: LBMB | OTC Nasdaq International: NNOMF

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Leadership



Dan Blondal
CEO

30+ yrs in tech at
Kodak, Creo, General
Fusion & Nano One



John Lando
President

30+ yrs at RBC
Dominion & equity
market finance



Dr Stephen Campbell
CTO

30+ yrs as Principal
Scientist at Ballard Power
& AFCC



Alex Holmes
COO

CEO @ Plateau
Tech Founder
BD @ Oxygen Cap
Investment Banker



Paul Matysek
Chairman

\$2B+ growth
LithiumX, Lithium1,
GoldRock, Energy
Metals & Potash One



Joe Lowry
Strategic Advisor

Global Lithium LLC
25 yrs as global
lithium expert



Robert Morris
Strategic Advisor

Morris Consulting
Battery Metals expert
EVP Vale, MD Umicore

40+ employees (PhDs, Engineers, BD, HR, IR ...)

19 Patents (35+ pending)

~20 collaborators/co-developers/partners

Lithium-ion Batteries

Boost Performance

Capacity 

Charge 

Cycling 

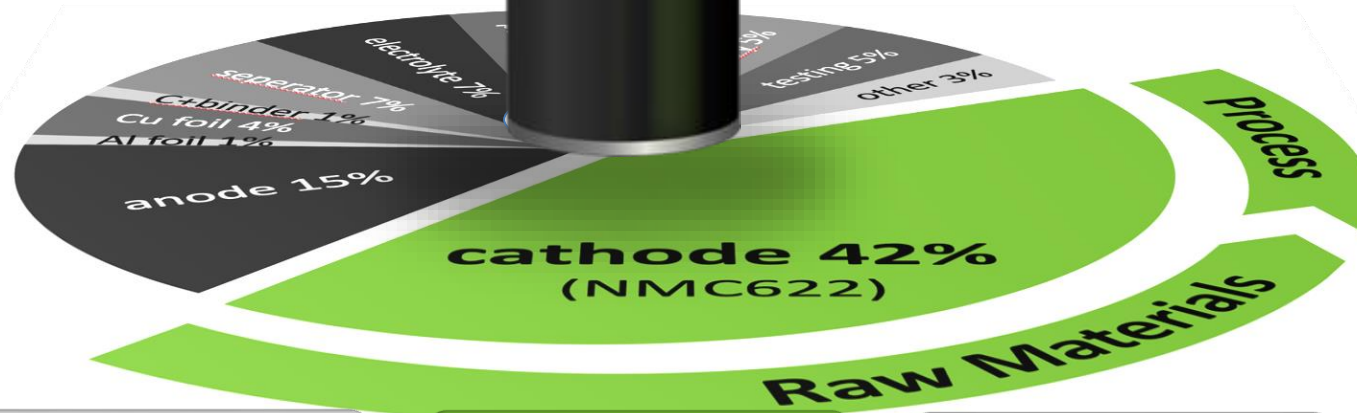


Reduce Cost

 Raw Materials

 Reduce Waste

 Scale



nanoOne

Cathodes

Patented

Proven

Piloted

Partnered



Standard

Advanced

Solid State

Source: doi: 10.1002/aesr.202000110
Rodrigo V. Salvatierra, Weiyin Chen and James M. Tour

Partnership and Collaborator Overview

Miners & Refiners

Niobium Coatings



Other

Thermal Processing



Cathode Producers

eLNO



LNMO (HVS)



Undisclosed Asian
Cathode Producer

LFP



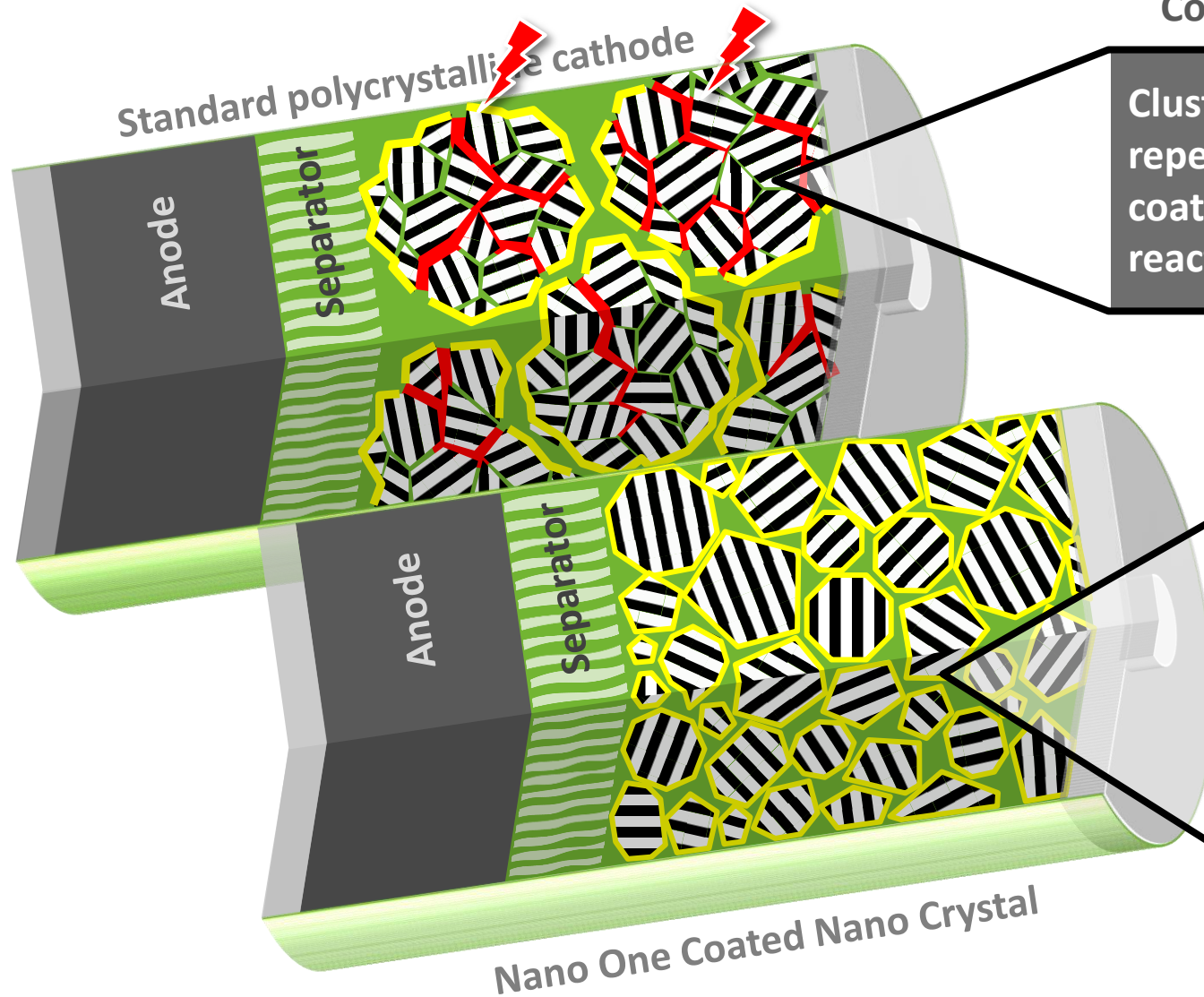
EV OEMS

High Energy Cathodes



Undisclosed
US OEM

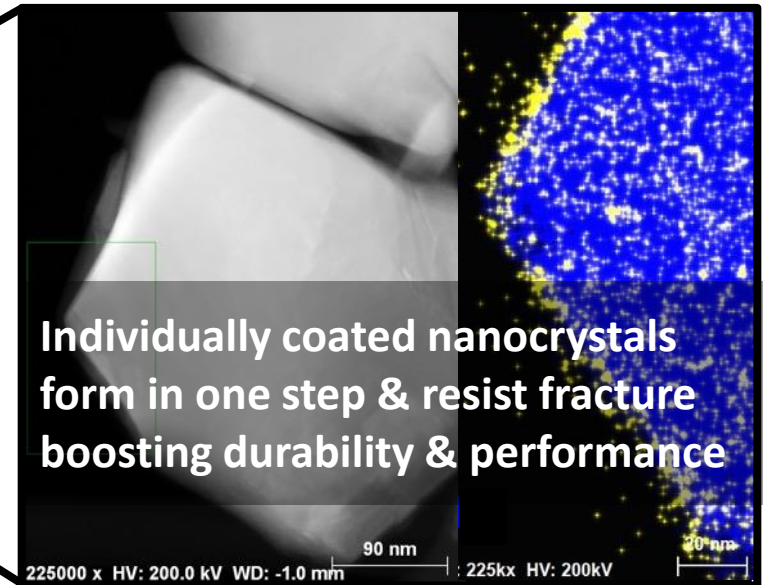
Nano One – Coated Single Crystal Ni Rich NMC



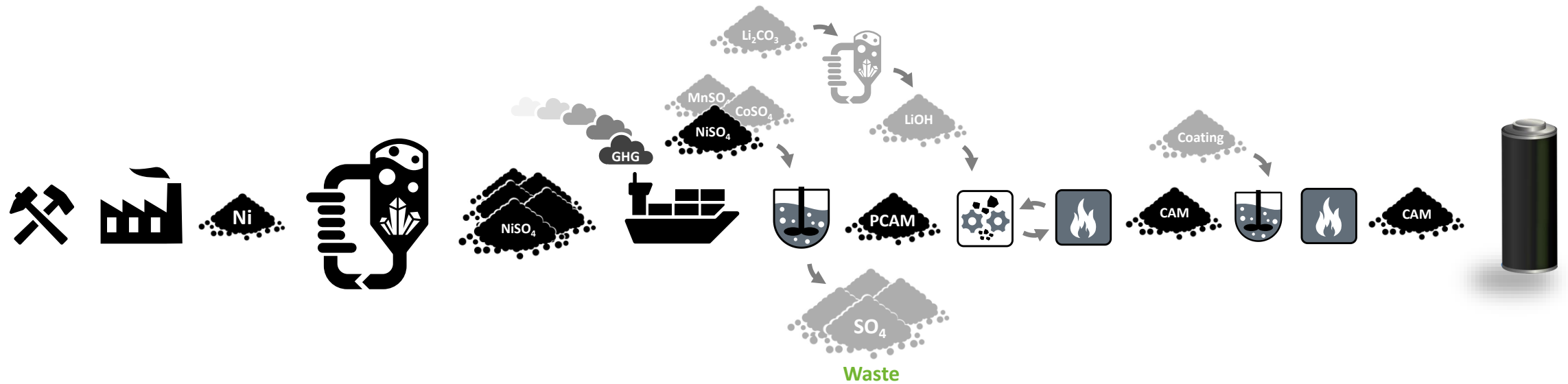
Conventional Polycrystalline Cathode Particles

Clusters of crystals break apart from stress of repeated charging, which fractures the protective coating and exposes the inner crystals to side reactions – Reducing Range, Life & Charge

Nano One Coated Single Nanocrystal Cathode

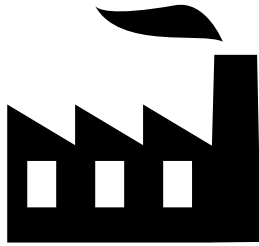
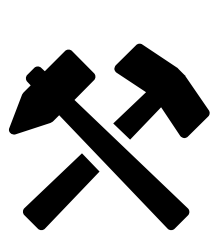


The Cathode Supply Chain is LONG and COMPLEX

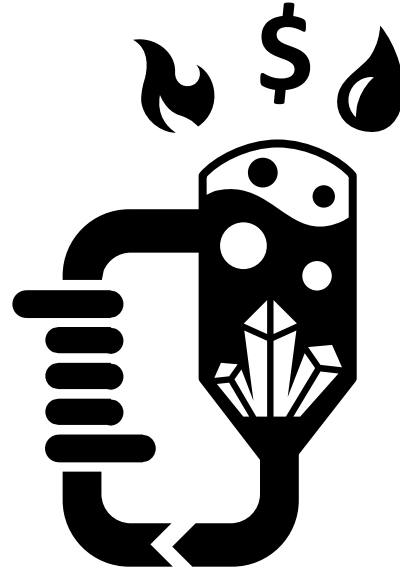


Battery Raw Materials

Costly with Environmental Footprint



Miners make their money **HERE**



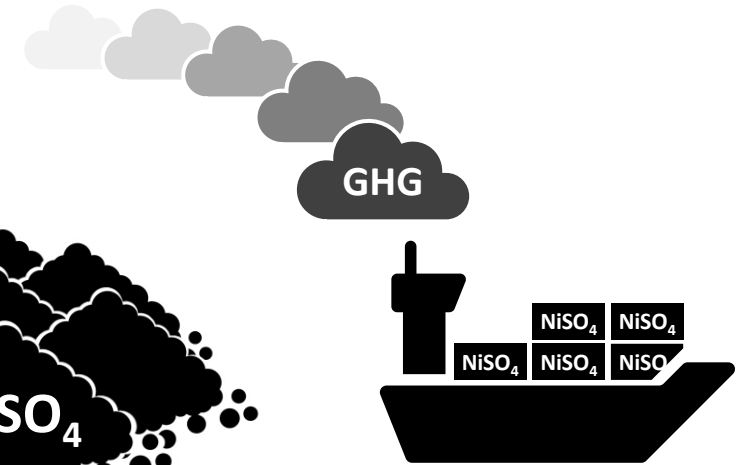
Crystallization

Lots of water & energy
Carbon Footprint
Adds cost (\$4k/t)



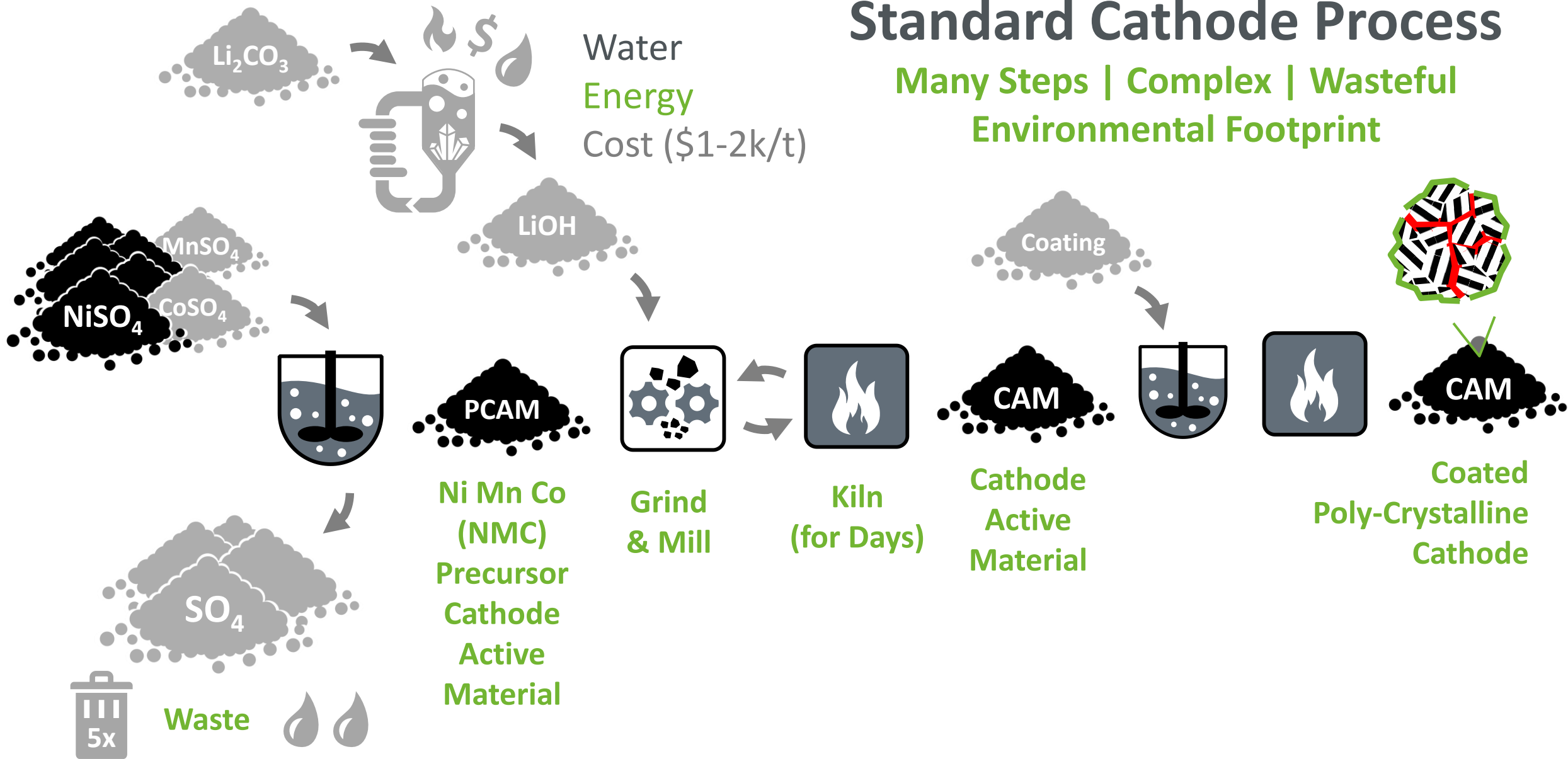
5x heavier Nickel Sulfate ($\text{NiSO}_4 \cdot 6\text{H}_2\text{O}$)

22% Ni & 78% sulfur & water
5x the logistics, cost &
CARBON footprint to ship



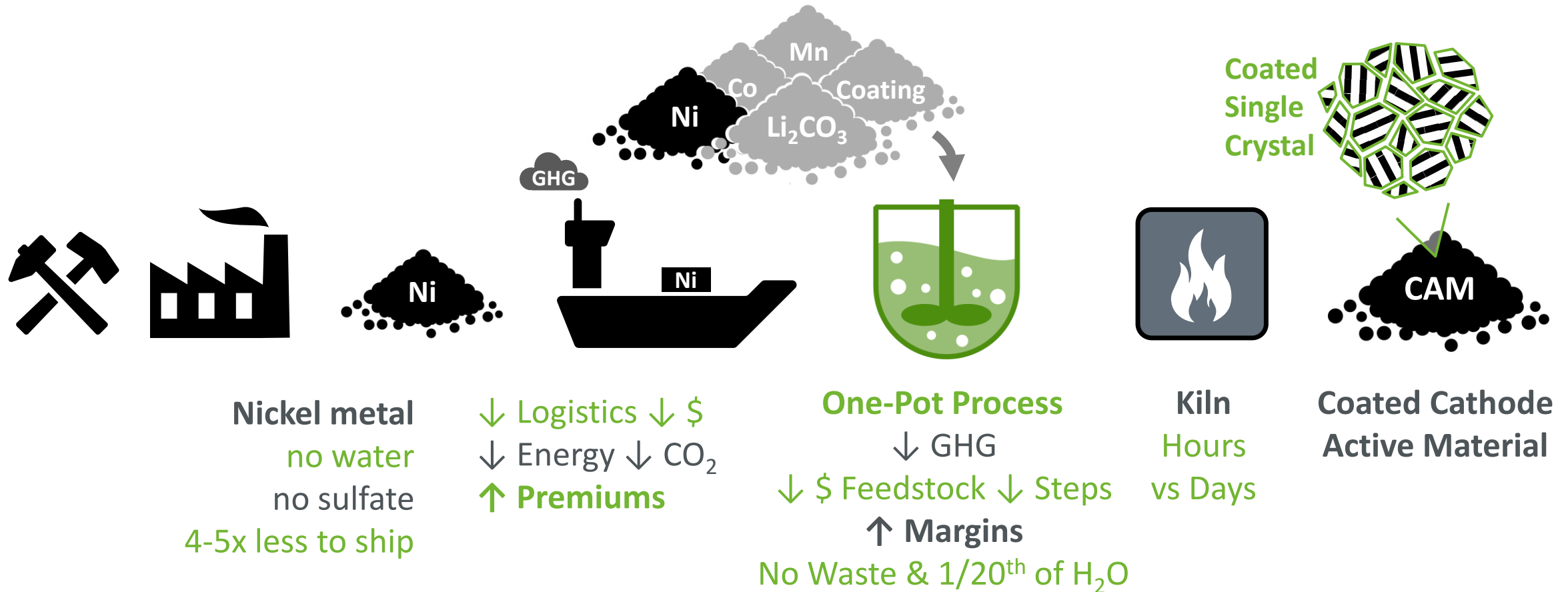
Standard Cathode Process

Many Steps | Complex | Wasteful
Environmental Footprint



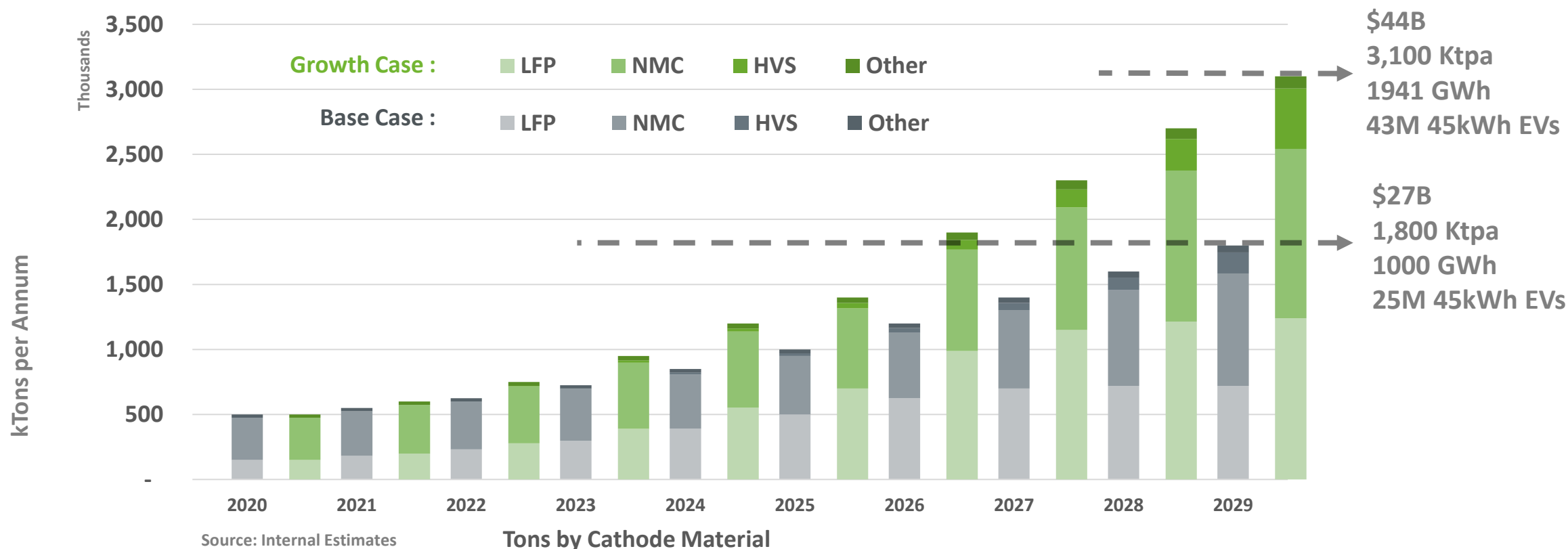
Nano One's M2CAM Metal direct to Cathode

Eliminates Complexity, Waste, Cost & Carbon Footprint



a fraction of the Carbon footprint and potential savings of many \$1000s per tonne

Total Addressable Cathode Market



- Internally generated data for cathode active materials (CAM) based on heavy LFP adoption & conservatively low CAM pricing.
- Total Market Value based on metals estimates (LME, Lithium chemical, converter costs), blended average ~\$23/kWh and LFP/NMC/HVS energy densities of 511, 770 and 654 Wh/Kg, respectively. Sources: Nano One Materials internal TAM modeling, Avicenne Energy August 2020 Report on Batteries & Raw Materials Supply (CAM Market = 700k-900ktpa by 2025, 1-1.5Mtpa by 2030), Reports & Data August Report on Cathode Material Markets (Estimate of \$28.28B market by 2027)
- LFP/NMC/HVS breakdown is the same in both cases, NNO can address all three
- EV numbers assume 45kWh LiB per Electric Vehicle (EV)

Licensing Scenarios

1 production line = 5M kg/yr cathode for ~70,000 45kWh EV batteries



An example of how a royalty could work ...

Assume \$4+/kg savings could earn \$1/kg in royalties
= 5M kg/yr x \$1/kg x 1 production line
= \$5M/yr royalty revenue per line
Low Opex, High Margin, Modest Cash Flow per Line

An example of how a joint venture could work ...

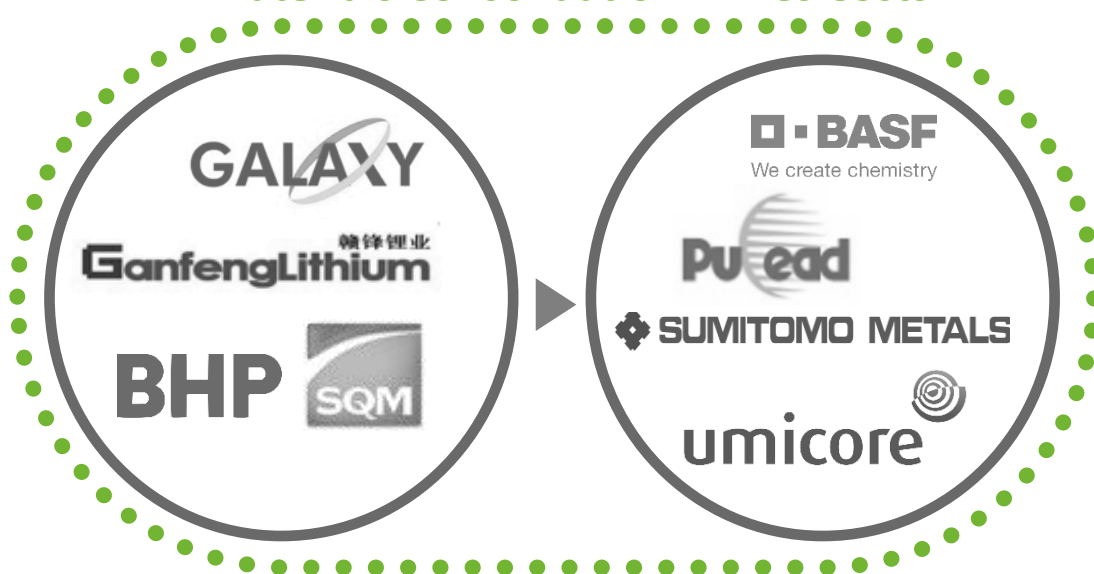
Assume cathode selling price of \$20-30/kg
= 5M kg/yr x \$20-30/kg x 1 production line
= \$100-150M/yr shared product revenue per line
Higher Opex, Lower Margin, Higher Cash Flow per Line

2025 Total Addressable Cathode Market (CAGR % 25+) = ~1-1.4B kg/yr = ~200-280 production lines (5M kg/yr/line)

Nano One's Supply Chain Opportunities

Licensing, JV & M&A can add value across the entire battery supply chain

Materials Consolidation Drives Costs



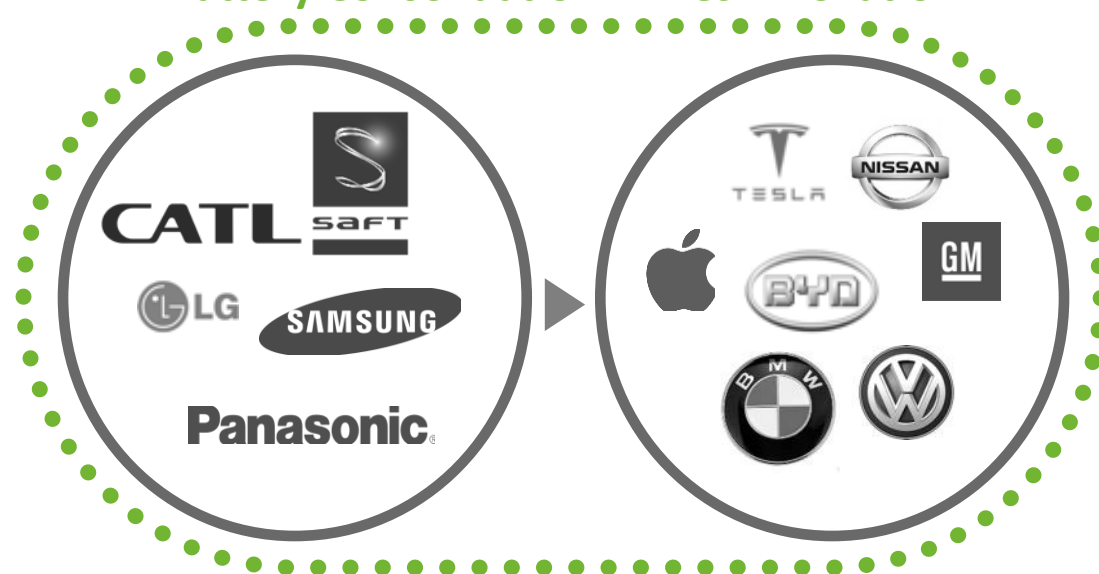
Raw Materials Suppliers

NANO enables integration, consolidation, value add through licensing, JV and M&A

Cathode Producers

NANO Provides mfg advantage & differentiation through licensing & JV

Battery Consolidation Drives Innovation



Cell Producers

NANO Enables next generation LiB & differentiation

OEMs

NANO enables IP rights, LiB innovation & supply chain control through licensing + M&A



\$76M Equity

\$13M Non-Dilutive  Grants

Cash & Runway thru 2025+

\$3M PP (2011-14) \$3M IPO (2015) \$4M PP (2017)

\$325K  IRAP (2015) \$2M SDTC \$2M ASIP (2016)

Patents #1-4 (2015-17) Pilot (2017)



Shares: 95M Outstanding | 106M Fully Diluted

Catalysts: Partnerships | Licensing | Patents

Nano One Quick Reference

Quick Facts

Headquarters	British Columbia, Canada (c. 2011)
Employees	40+
Market Capitalization	C\$465M (USD\$385M) 2021-06-08
Business Model	License/Royalty Model
IPO	March 2015 at C\$0.25 a share
Patents	19 in US, Canada, Japan, Korea, China, Taiwan and 35+ pending
Partnerships	7 – Johnson Matthey, VW, CBMM, Pulead, Saint-Gobain, Undisclosed Asian cathode producer, Undisclosed US OEM

- **One Pot Process** improves cost and durability of cathode
- Lower cost and carbon footprint using **M2CAM**
- **Coated nanocrystal** durability adds range/charge/life
- For lithium ion and solid-state batteries
- For electric vehicle, renewable energy storage & portables
- **Seasoned leadership** in financing, capital growth, technology management, chemistry, engineering, materials science, batteries, and intellectual property.
- **Lab, demonstration pilot plant** and engineering plans for full scale production.

Expert Commentary

Keiji Kata – EVP and GM of Toyota’s battery business

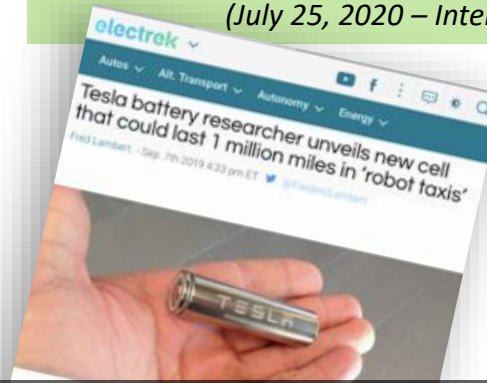
Discussing the challenges for their next-gen electric powertrains:

"The hitch is, the more expansion and contraction there is, the more the electrolyte particles become deformed. And this deformation inhibits the flow of ions and electrons and degrades battery performance over time."

"The key is developing a material that won't deform easily."

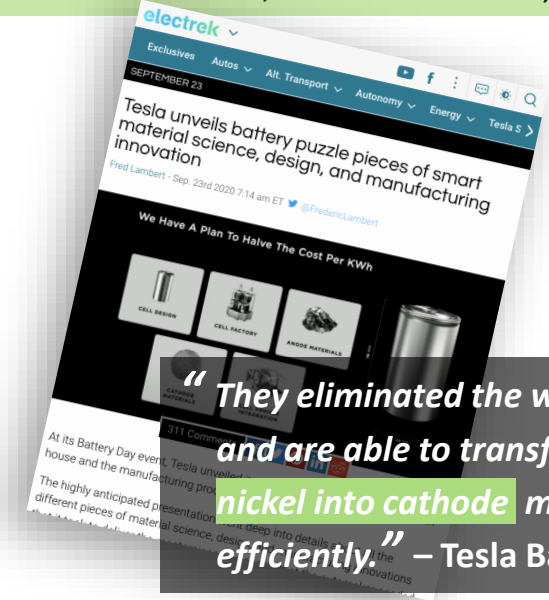
"A breakthrough might come from new materials or new designs"

(July 25, 2020 – Interview with Automotive News, www.autonews.com)



"The new battery tested is a Li-Ion battery cell with a next-generation single crystal NMC cathode and a new advanced electrolyte."

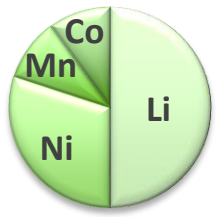
– Tesla Battery Research



"They eliminated the waste water and are able to transform the nickel into cathode much more efficiently." – Tesla Battery Day



Appendices

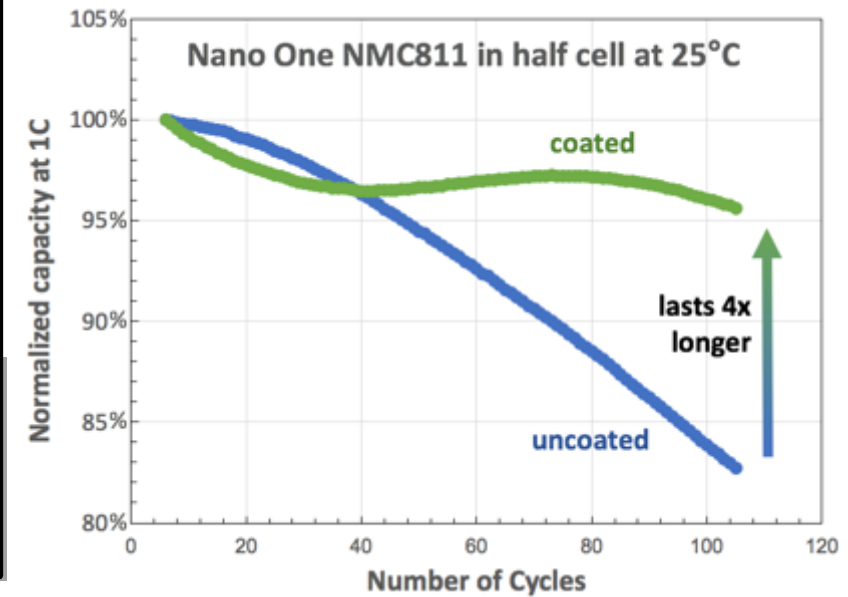
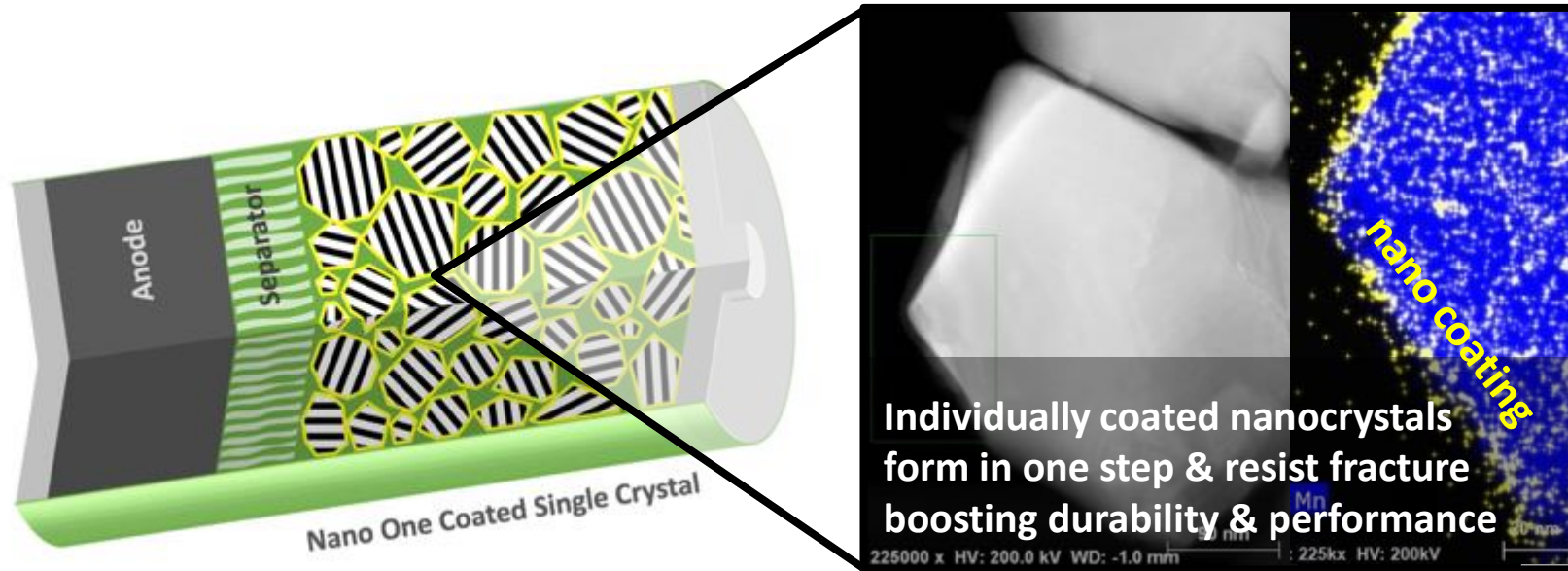


Coated Single Crystal NMC (811)

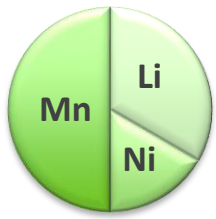
Energy Dense | Long Range | Improved Durability
for advanced lithium-ion and E mobility applications



Nano One Coated Single Nanocrystal Cathode

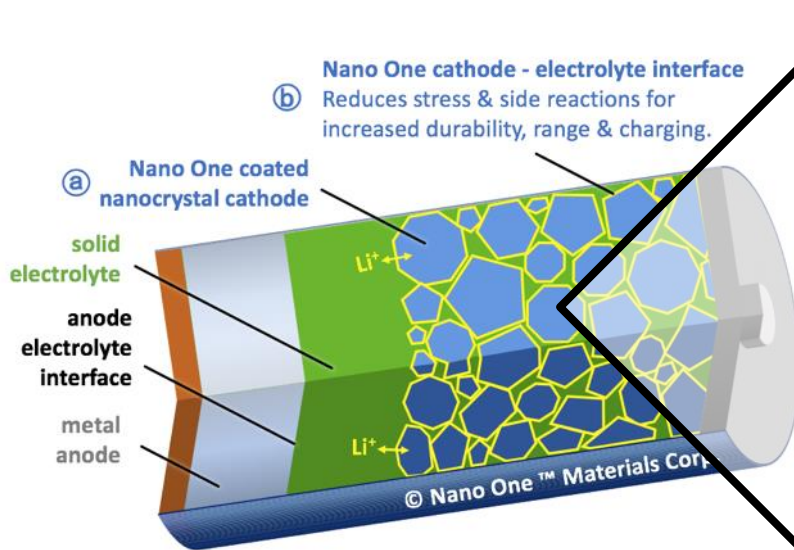


News: Nano One Introduces a Breakthrough in Longer Lasting Lithium-ion Cathode Materials



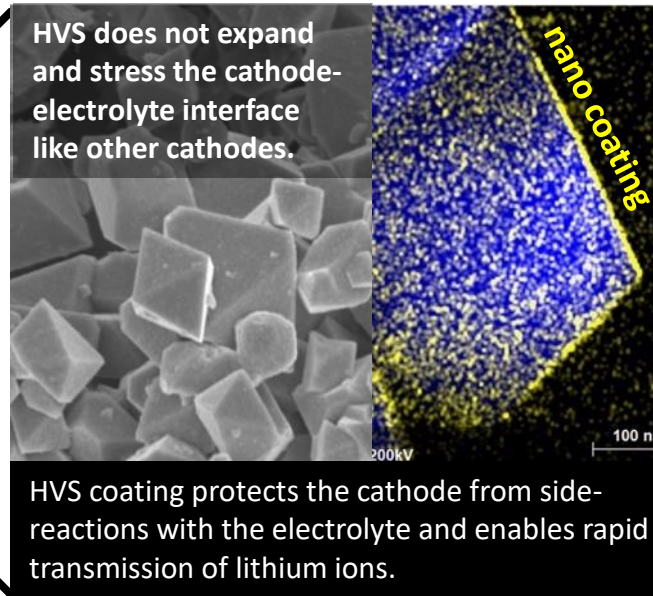
High Voltage Spinel (HVS, LNMO)

Cobalt Free | High Voltage | Fast Charge | Dimensionally Stable
for advanced lithium-ion and solid-state batteries



HVS does not expand and stress the cathode-electrolyte interface like other cathodes.

HVS coating protects the cathode from side-reactions with the electrolyte and enables rapid transmission of lithium ions.



eliminates gassing failure & Mn side reactions

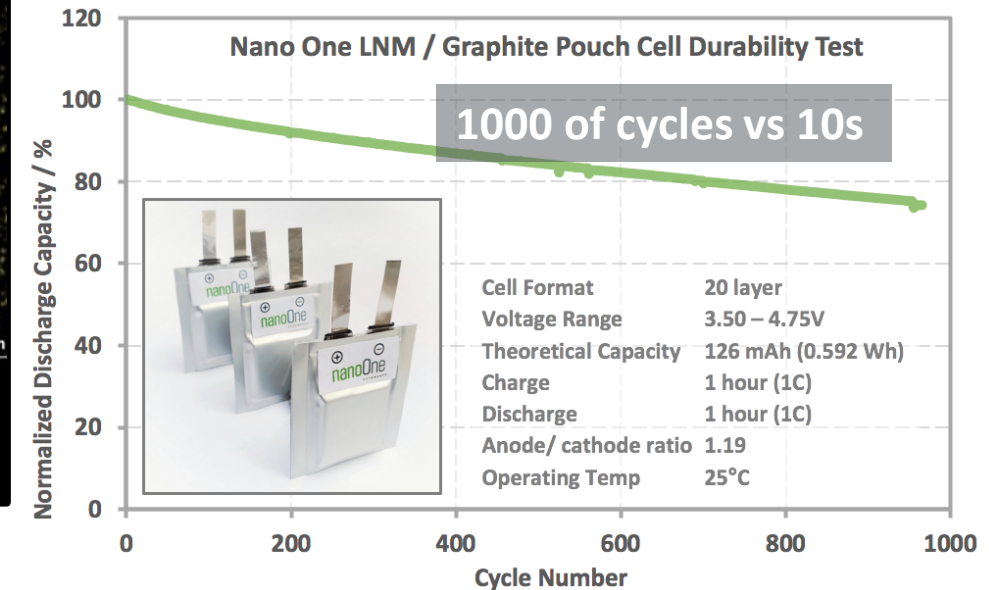
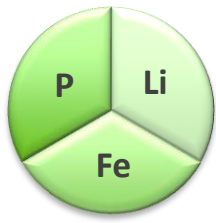


Figure showing Nano One's patented LNM cathode ($\text{LiNi}_{0.5}\text{Mn}_{1.5}\text{O}_4$) tested with a graphite anode and conventional electrolyte in a 20 layer 126mAh pouch cell, demonstrating a breakthrough in longevity for a cobalt free high voltage battery.

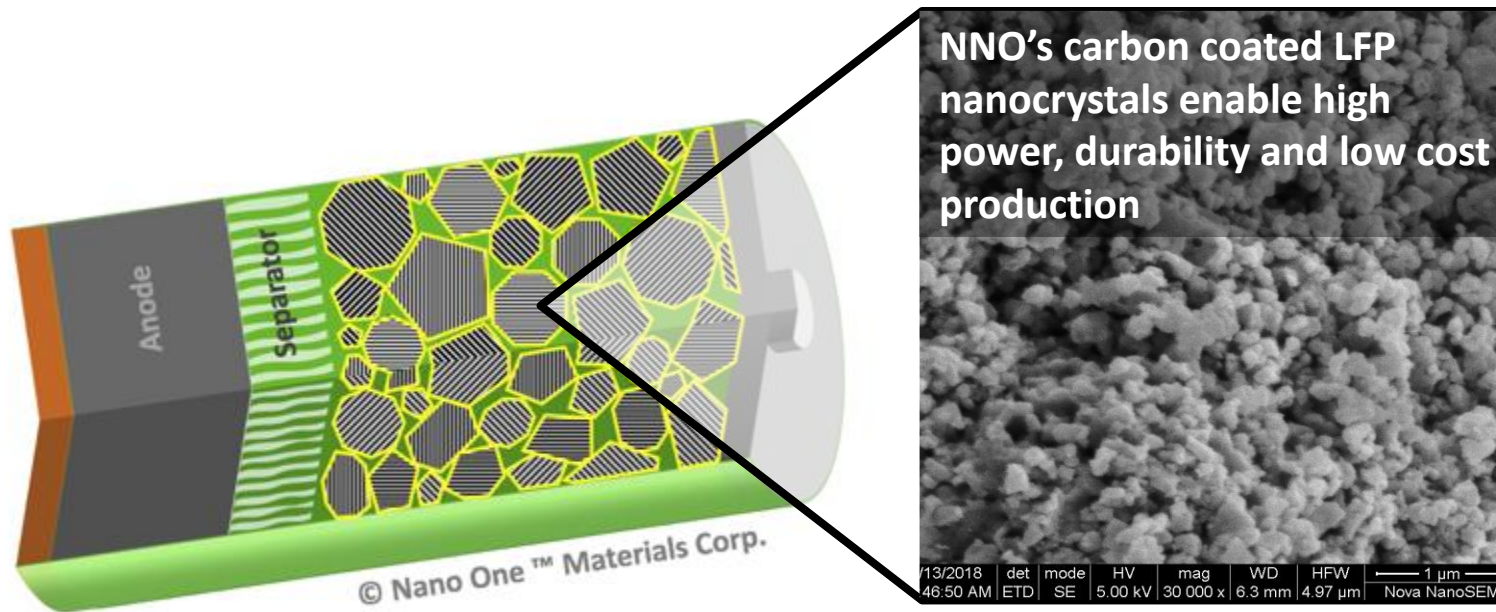
News: Nano One Patented Cathode Tests Positively in Solid State Batteries





Lithium Iron Phosphate (LFP)

Lowest Cost | Longest Lasting | Safest | Long Range Potential
for industrial, storage, heavy duty and long calendar life applications



NNO's carbon coated LFP nanocrystals enable high power, durability and low cost production

Engineering Report complete for commercial scale production of LFP using NNO technology (NORAM engineering)

- Enhanced 4800 tpa design specifications
- Tightened budgetary estimates
- Improved economics
- Joint Development Partnership with Pulead Technology

News: Engineering Report Enhances Value of Nano Ones LFP Battery Cathode Technology



Changing How The World Makes Battery Materials

Thank you