

Unlocking
Cost-Competitive
Cathode Production

Made with less

waste

GHG

energy

water



nanoOne
Matériaux Nano One Candiag

280

Changing
How the World Makes
Battery Materials

40 Patents (55+ Pending) \$150B+ Market in North America, EU, Indo-Pacific by 2035

Disclaimers

TSX: NANO | FF: LBMB | OTC: NNOMF

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500+ Years Cathode Experience

Executive, Investor and Business Leaders



Dan Blondal
CEO, Founder & Director



Alex Holmes
COO



Denis Geoffroy
CCO



Dr Stephen Campbell
CTO



Carlo Valente
CFO



Adam Johnson
SVP, External Affairs



Paul Guedes
Director,
Capital Markets



Andrew Muckstadt
VP Business Development



Kelli Forster
SVP, People and Culture

Board of Directors



Anthony Tse
Chair



Lisa Skakun
Director



Carla Matheson
Director



Dr. Joseph Guy
Director



Gord Kukec
Director



Lyle Brown
Audit Chair

Advisors



Robert Morris



Joe Lowry



Dr. Yuan Gao



Hon. Frank Fannon

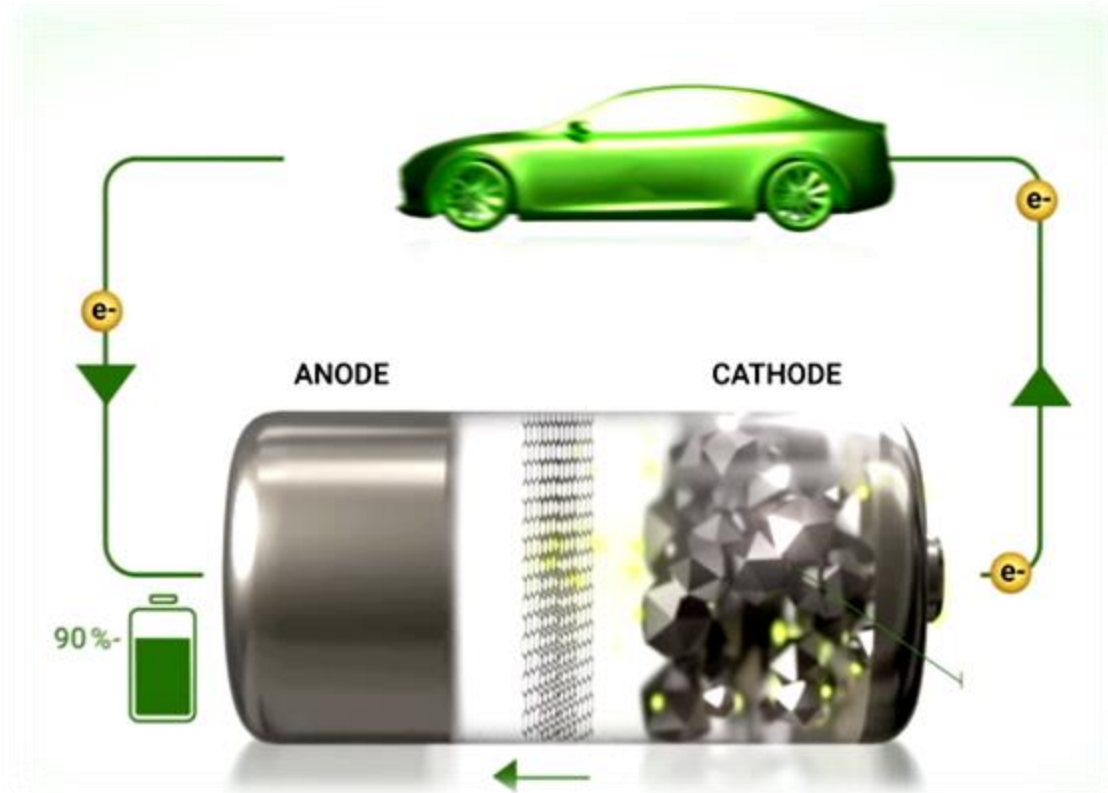


Battery & Market 101

Dan Blondal, CEO, Director & Founder—Nano One



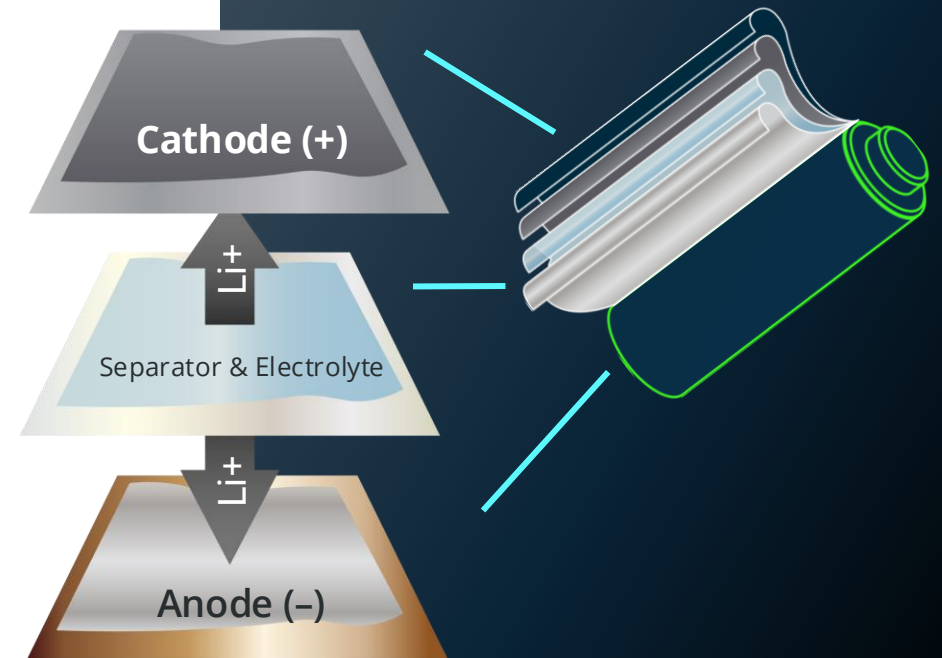
How Lithium-ion Batteries Work



Charging moves lithium ions from the cathode through the electrolyte to the anode

Energy is generated when lithium ions move from the anode to the cathode.

COMPONENTS



Cathode Active Material (CAM)

- Key to energy density, durability, power output, and efficiency.
- Most complex, costly, energy, and environmentally-intensive component.

Nano One's One-Pot CAM Process – a platform for many formulations

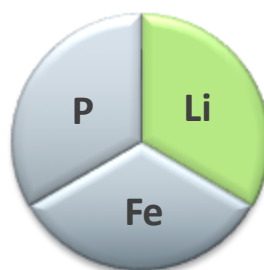


Cathode
Cost*
50%

±15% due to variations in raw material costs

* Source: [BloombergNEF 2021](#)

LFP
LMFP



↑ Durability ↑ Safety ↓ \$ ↓ Supply Chain Risk
LFP Pack density ≈ NMC
mass market EV, ESS, Industrial
60-70% Market Share in China

NMC
622
811
955 ...



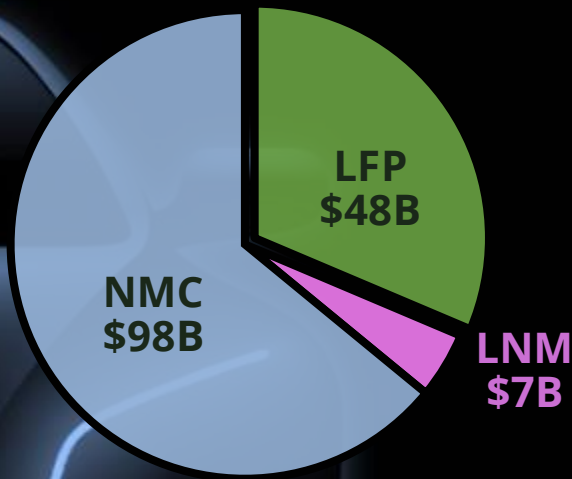
↑ Density ↓ Durability ↑ \$
Luxury long range EV

LNM



↓ Density ↑ Voltage ↑ Charge
Next Gen Chemistry - niche

Total Addressable Market (TAM) by 2035
North America + EU + Indo-Pacific



\$150B+

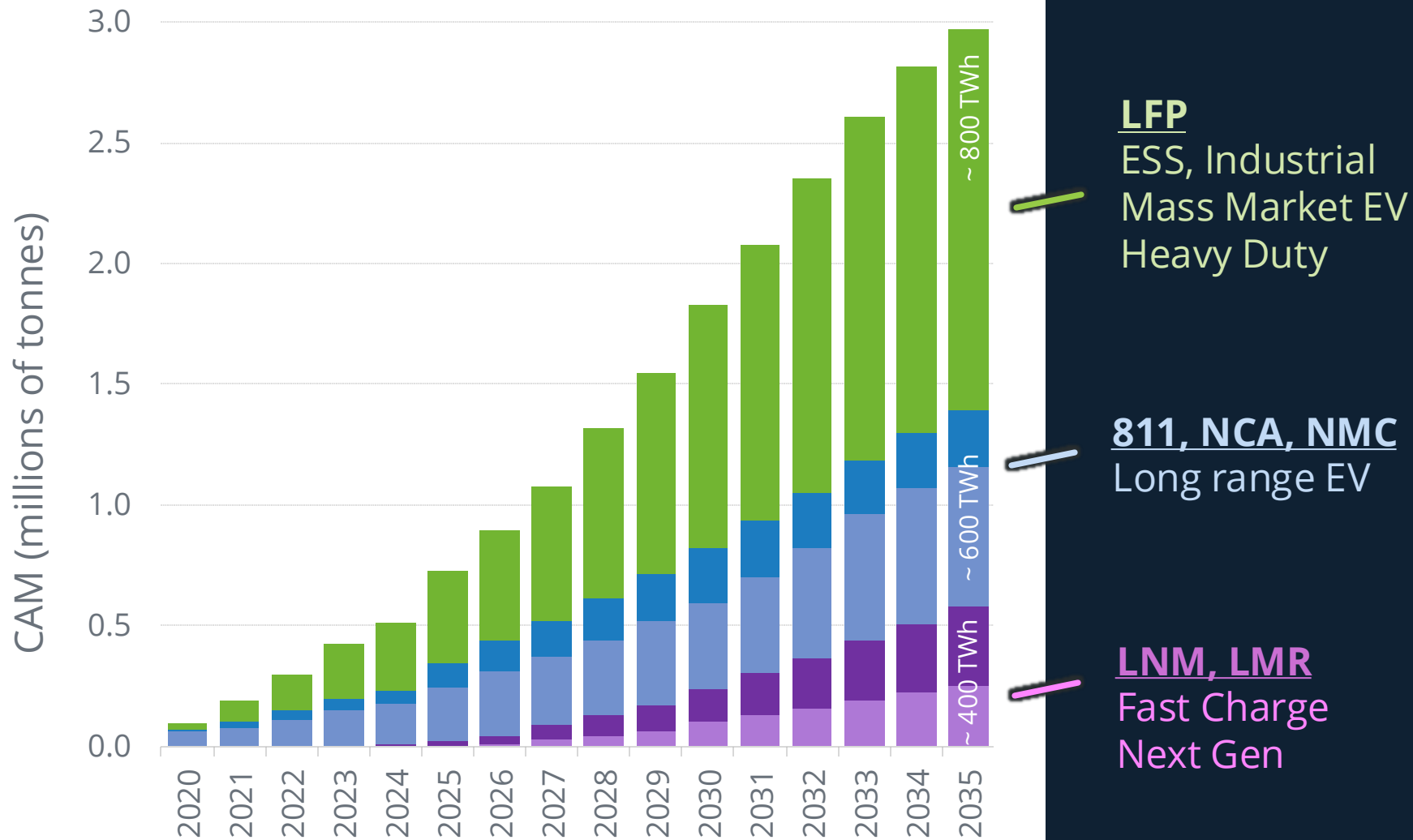
Target for licensing & production opportunities¹

1st target LFP – NMC & LNM to follow

¹ Derived from Demand data from Benchmark Mineral Intelligence Q2 2023 Lithium-Ion Battery Database - pricing assumes the prior 6 months' average from Benchmark's 2023 Monthly Cathode Assessments.

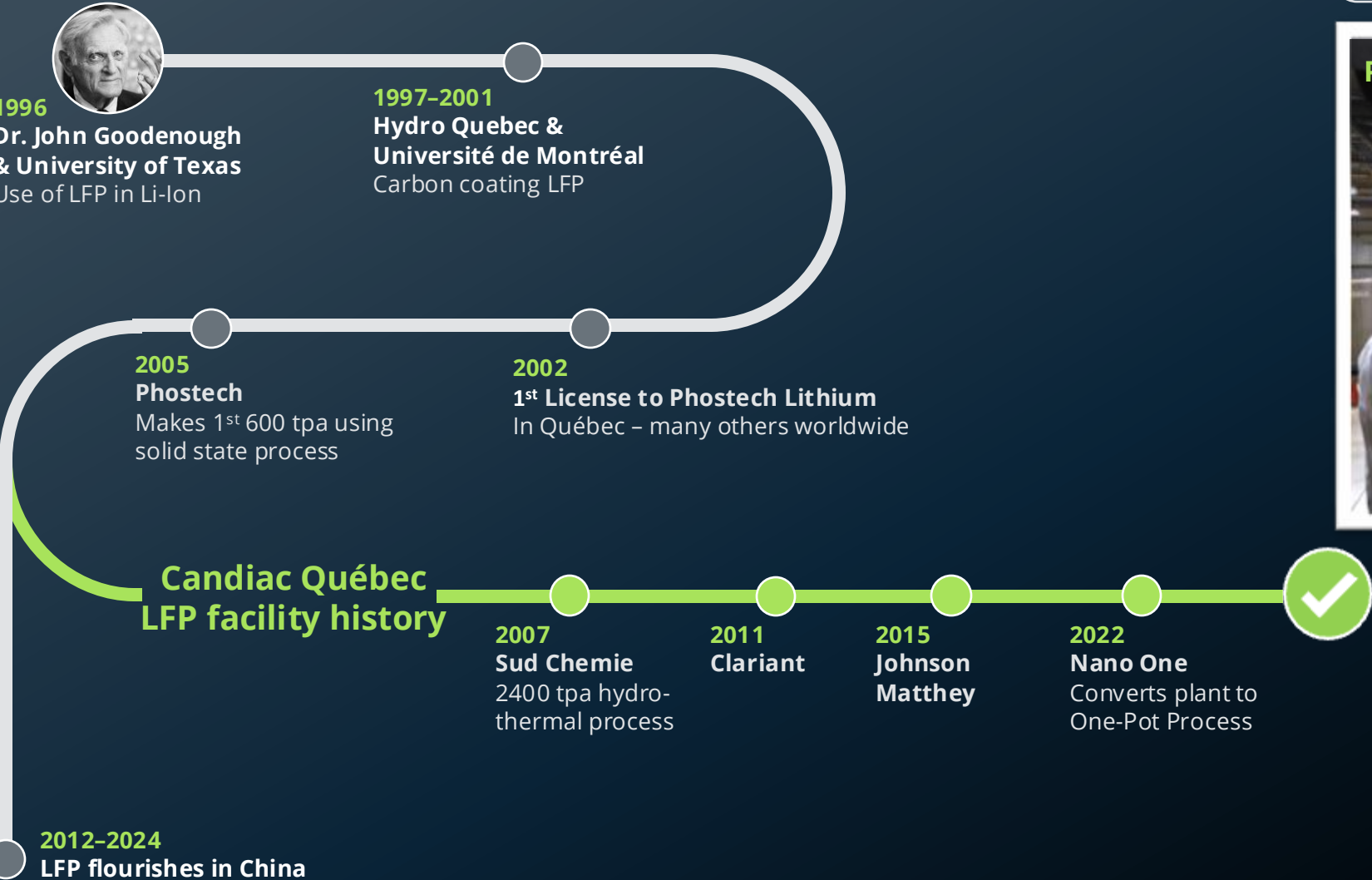
Cathode Market

North America + EU + Indo-Pacific²



² derived from Bloomberg NEF Long Term Electric Vehicle Outlook (2022)

History of Lithium Iron Phosphate (LFP)



Scan to watch how
Nano One contributed



Present Nano One enables **LFP** outside Asia

2024
Nano One Awarded US\$12.9M from US DoD
Expands LFP industrial base and strengthens energy security in North America



Tech, Knowhow & Assets

Stephen Campbell, PhD, CSci, CChem, MRSC CTO - Nano One

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One-Pot Process

PCAM, CAM & Coating combined



Cost-competitive¹ & Greener²

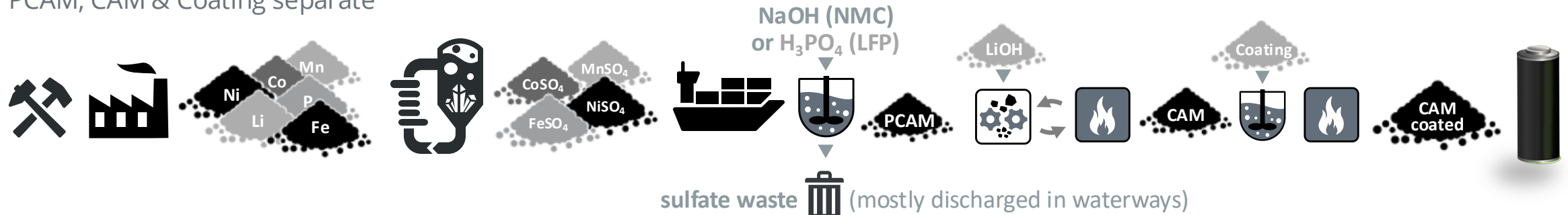
- ↓ steps, equip, time ↑ yield
- ∅ wastewater ∅ sulfate by-product
- ↓ energy
- ↓ 50-60% GHGs
- ↓ 80% water usage
- ↓ foreign supply chain risk

See how it works



Standard Process

PCAM, CAM & Coating separate



¹ Independent Pre-Feasibility Study – <https://nanoone.ca/news/pre-feasibility-study-anticipates-10x-increase-in-capacity-for-nano-one-lfp-site-in-quebec/>

² Independent Life-Cycle Analysis – <https://nanoone.ca/news/nano-one-could-reduce-ghgs-by-up-to-60-for-nmc-50-for-lfp-and-reduce-water-use-by-up-to-80/>

Sustainable Manufacturing Innovative Technology Solutions

Sulfate-Free Inputs **M2CAM[®]**

Our M2CAM[®] Technology enables sulfate-free metal powder inputs which eliminates 100% of wasteful sodium sulfate by-products while simplifying manufacturing.

This innovation also unlocks flexible supply chains for increased security and resiliency.

Streamlined Process **One-Pot**

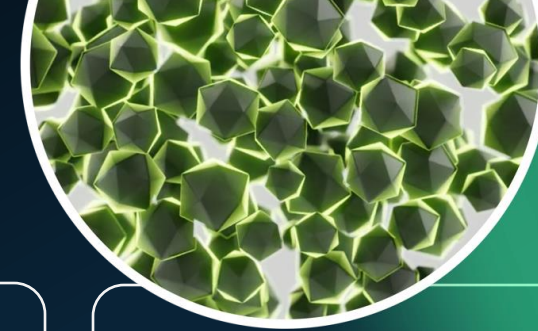
Central to our cathode manufacturing solutions, the One-Pot process simplifies production and enables our M2CAM[®] technology.

Our production methods require less water and consume less energy, reducing operational cost and time while using sustainable, scalable design.


Next-Gen Durable **Cathodes**

Our simplified One-Pot process enables cathodes to form simultaneously with their protective coating at the nano level.

This eliminates process steps and protects cathodes from degradation, enhancing durability for a longer-lasting lithium-ion battery.



 **50-60% Less
GHG Emissions**

 **80% Less
Water Usage**

 **100% Less
Waste Streams**

 **Reduced
Energy Usage**

R&D, testing & characterization



Innovation Hub

Burnaby, BC, Canada

25,000 sf

LFP, NMC, LNMO & other CAM

40 Patents Granted & 55+ Pending

- ✓ ideate & conceptualize
- ✓ prove & validate
- ✓ develop & evaluate

Commercialization Hub

Candiac, Québec, Canada

80,000 sf

- ✓ Only full scale LFP **plant and experienced** team outside Asia
- ✓ 200 tpa **expanding** to name plate capacity
- ✓ **Derisks** in full scale **production intent** equipment
- ✓ **Optimization** & training center for licensees & partners
- ✓ Product & plant **qualification**
- ✓ **Drives offtake** for small/large volume production & licensees




Partnerships

Carlo Valente, CFO—Nano One | Alex Holmes, COO—Nano One



Government Support

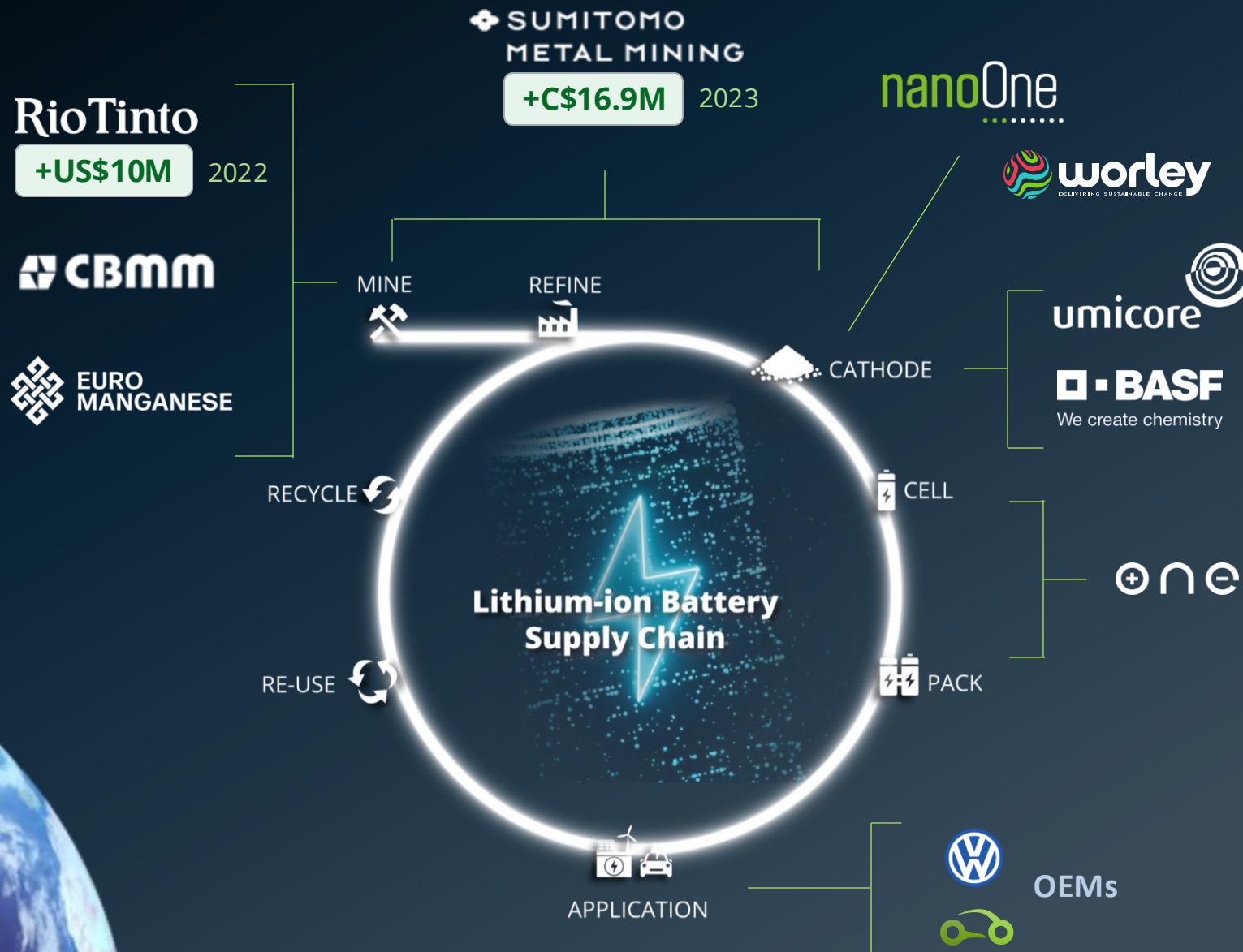
 **+US\$12.9M** 2024 Department of Defense

 **+C\$20+M** 2014-22



Partnerships around the supply chain

And planet.



A global growth strategy

Partnering with like-minded multi-national companies



Partnership: Zoom In



Nearly 50,000 experts in energy, chemicals and resources across 45 countries.

AUD9B market cap
AUD1.5B battery materials division
Proven process know-how and track record across 100's of mining, battery active materials, recycling, and first-of-a-kind projects.

[worley.com/-/media/files/worley/investors/results-and-presentations/2024/wor-investor-day-presentation-may2024.pdf](https://www.worley.com/-/media/files/worley/investors/results-and-presentations/2024/wor-investor-day-presentation-may2024.pdf)

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A Flexible Business Model

Nano One's Patent Wall 40 Patents Globally, 55+ pending

License Model

Modular Design-Once-Build-Many
accelerated growth strategy

- ✓ IP + engineering + equip.
- ✓ \$/kg royalties
- ✓ Continuous innovation
- ✓ Greater market share
- ✓ Low capital intensity
- ✓ Faster adoption

Independent Manufacturing

Leverage existing assets
and know-how

- ✓ First revenue
- ✓ Derisk
- ✓ Train
- ✓ Innovate

Joint Venture

- ✓ Shared risks
- ✓ Shared profit
- ✓ Royalties

(12) United States Patent
Franeza-Kullberg

(54) COMPLEXIONABLE PROTECTIVE
FORMULATION METHODS FOR
INDUSTRIAL PRODUCTION OF
ULTRAFINE POWDERS AND
NANOPOWDERS OF LITHIUM
OXIDES FOR BATTERY APPLICATIONS

(71) Applicant: Nano One Materials A
(U.S.A.)

(72) Inventor: Teresta Franeza-Kullberg
(U.S.A.)

(73) Assignee: Nano One Materials A
(U.S.A.)

(*) Notice: Subject to any disclaimer,
patent is extended or not
U.S.C. 154(b) by 35 days.
This patent is subject to
disclaimer.

(21) Appl. No. 14/854,667

(22) Filed: Sep. 15, 2015

(65) Prior Publication Data

US 2016/003482 A1 Jan. 14, 2016

Related U.S. Application Data

(62) Division of application No. 13/842,533

15, 2013, now Pat. No. 9,159,999

(51) Int. Cl.

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H01M 4/16 (2006.01)

H01M 4/25 (2010.01)

H01M 4/30 (2010.01)

H01M 4/38 (2006.01)

C01G 25/45 (2006.01)

C01B 35/12 (2006.01)

C01B 35/20 (2006.01)

C01B 35/26 (2006.01)

C01G 7/02 (2006.01)

C01G 19/02 (2010.01)

H01M 10/052 (2006.01)

C01G 45/12 (2006.01)

C01G 51/00 (2006.01)

H01M 4/11 (2010.01)

H01M 4/16 (2010.01)

U.S. Cl.

H01M 4/06 (2013.01)

C01G 25/45 (2013.01)

C01B 35/12 (2013.01)

C01B 35/20 (2013.01)

C01B 35/26 (2013.01)

C01G 7/02 (2013.01)

C01G 19/02 (2013.01)

H01M 10/052 (2013.01)

C01G 45/12 (2013.01)

C01G 51/00 (2013.01)

H01M 4/11 (2013.01)

H01M 4/16 (2013.01)



Engineering design & facility CAM package for rapid deployment of One-Pot technology

Design-Once-Build-Many Global Growth Strategy

Jointly develop, market, and license CAM packages

- ✓ Nano One's One-Pot process
- ✓ IP Rights
- ✓ Modular 12.5ktpa line
- ✓ Key Proprietary Equipment
- ✓ Plant Layout
- ✓ Detailed Process Design

- Eliminate waste & custom engineering
- Reduce cost, risk, time to FID and permits
- Accelerate adoption & time to market
- Flexible siting
- Modular and scalable
- Address ESS & EV sectors globally

Changing How the World Makes **Battery Materials**, *together*





Production

Nano One **Cadiac**

operational excellence



40 Patents Granted & 55+ Pending



Only LFP pilot & team outside Asia



World class know-how



OEM certification knowhow (IATF ISO)



Full scale equipment



Product & validation



2000+ tpa launch pad

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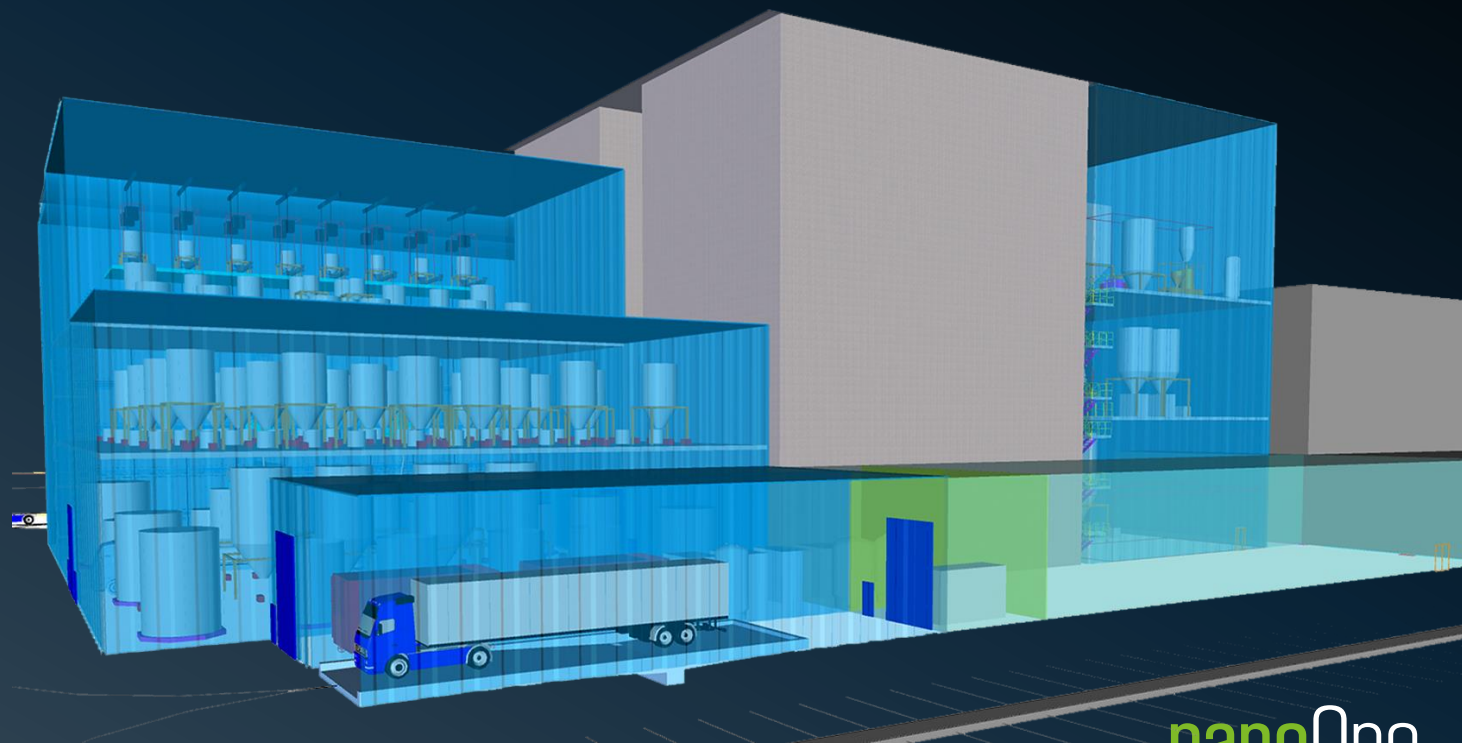


LFP Development Project

FEL-3 for a first-of-a-kind 25,000 tpa LFP facility

Operating entity to be independent of Nano One

- License One-Pot Technology
- Nano One supports project to FID
- Offtake support from Candiac
- Training support from Candiac
- Joint Venture with partner



Recent Progress

- ✓ **US Department of Defense Awards Nano One \$12.9M USD**
Supports capacity expansion at Candiac LFP production and Burnaby R&D facilities.
- ✓ **25,000 tpa LFP development project**
Advancing site selection, feasibility study and partners.
- ✓ **Partnership agreement with Worley**
Jointly develop, market and deploy CAM Packages for rapid deployment of Nano One's One-Pot process technology through licensing.
- ✓ **Repeat One-Pot trials**
15m³ existing commercial scale & 2m³ pilot scale reactors.
- ✓ **LFP out for 3rd party qualification**
Automotive, ESS, defense and industrial sector customers.
- ✓ **One-Pot conversion & ongoing optimization**
*Continued One-Pot trials, product and process optimization.
FEL-3 (feasibility study) progressing.*





Changing How The World Makes Battery Materials

Thank you

Platform technology for LFP, NMC, LNM, and other Cathode formulations.

One-Pot process lowers cost, complexity, carbon intensity, & GHGs

M2CAM eliminates large volumes of wasteful byproducts.

Coated Single Crystal Cathode adds durability/range/charge/life.



LEARN MORE
nanoOne.ca

Nano One® Materials Corp. (Nano One) is a clean technology company changing how the world makes cathode active materials for lithium-ion battery applications in electric vehicles, stationary energy storage, and consumer electronics

HEADQUARTERS	British Columbia, Canada (c. 2011).
MARKET CAP.	C\$77M (USD\$57M) as of 2024-09-10
CAPITAL STRUCTURE	Fully Diluted Shares Outstanding: 115,054,534 as of 2024-09-10
BUSINESS MODEL	License – Royalty / Independent Production / Joint Venture.
PATENTS	40 in US, Canada, Japan, Korea, China, Taiwan and 55+ pending.
LEADERSHIP	Experts in financing, capital growth, technology, chemistry, engineering, batteries, and IP.
PARTNERSHIPS	Rio Tinto, Sumitomo, Worley, BASF, Umicore, VW, O.N.E., and more.