

INVESTIGATIVE RESEARCH REPORT

Nano One Materials & LG Energy Solution

A Silent Partnership? — Evidence, Timelines and Strategic Analysis

Created: May 2026

Based exclusively on publicly available sources

⚠️ DISCLAIMER

This document does not constitute investment advice. All conclusions are based on publicly available sources and should be understood as working hypotheses. No official confirmation of a partnership between Nano One Materials and LG exists at the time of writing.

1. Executive Summary

This analysis examines, based exclusively on publicly available sources, whether a silent, long-term strategic collaboration exists between Canadian cleantech company Nano One Materials Corp. (TSX: NANO) and South Korean battery giant LG Energy Solution / LG Chem.

The research was built over several months through an investigative process. The result is a remarkably dense chain of circumstantial evidence spanning several independent areas:

- **LG's LFP process deficit:** LG's LPF is a vertically integrated conventional process — still producing wastewater, sulfate and using roller-hearth kilns. Nano One's One-Pot eliminates all of this. The ISBL licence package (H1 2026) makes One-Pot commercially straightforward for LG's new plants.
- **Anonymous JDA 2020:** All publicly known criteria of the anonymous Asian partner match LG Chem.
- **LNMO focus:** LG has held LNMO patents since 2012 — the exact material central to the 2020 JDA.
- **Seoul missions 2022 and 2024:** Nano One and LG were seated at the same table at the highest political level on multiple occasions.
- **JMBM connection:** LG was a known customer of Johnson Matthey Battery Materials — the same facility Nano One acquired in 2022.
- **Partner synchronicities:** Euro Manganese, CBMM, Saint-Gobain — all Nano One partners are directly relevant to LG's technology roadmap.
- **Pulead termination:** The cancellation of the China partnership in 2021 coincided precisely with the anonymous JDA timeline.
- **Korean patent:** Nano One had an M2CAM/One-Pot patent granted in South Korea — LG's home market — in April 2025.

2. Company Profiles

2.1 Nano One Materials Corp.

Exchange: TSX: NANO | OTCQB: NNOMF | Frankfurt: LBMB

Headquarters: Vancouver, Canada | Production: Candiatic, Quebec

Founded: 2012

Nano One is a Canadian cleantech company with a patented, scalable process for the low-cost production of high-performance cathode active materials (CAM) for lithium-ion batteries. Its core technology — the One-Pot process — combines the production of precursor CAM (pCAM) and CAM into a single step.

Key advantages of the One-Pot process:

- No separate precursor required — direct from metal salts
- Elimination of wastewater and ammonium/sodium sulfate by-products
- Up to 60% fewer GHGs (NMC), 50% fewer (LFP), 80% less process water
- Smaller physical footprint — lower capital costs
- Applicable to LFP, NMC, LNMO and other chemistries

In 2022, Nano One acquired the former Johnson Matthey Battery Materials (JMBM) facility in Candiac, Quebec for CAD 10.25M and converted it into a One-Pot demonstration plant. In August 2025, a proprietary agitator was installed in a 20,000-litre reactor, increasing throughput by approximately 50%.

2.2 LG Energy Solution / LG Chem

Headquarters: Seoul, South Korea

Exchange: KRX: 373220 (LG Energy Solution) | KRX: 051910 (LG Chem)

LG Energy Solution (LGES) is one of the world's largest manufacturers of lithium-ion batteries for EVs, energy storage systems and IT devices. LG Chem is its parent company and one of the world's leading cathode material producers.

Key LG positions relevant to this analysis:

- World's largest LMR IP portfolio (200+ patents, first since 2010)
- LNMO patents since 2012
- NextStar Energy (Windsor, Ontario): LFP cell factory in Canada
- LG Energy Solution Michigan: manufacturing and R&D sites since 2011
- LPF technology (precursor-free): mass production started March 2025

3. The Evidence Chain in Detail

3.1 The Anonymous JDA of August 2020 — The Origin

On August 10, 2020, Nano One announced a Joint Development Agreement (JDA) with an Asian cathode producer. The company deliberately remained anonymous.

Publicly known criteria of the anonymous partner vs. LG Chem:

Criterion	Nano One's Requirement	Does LG Chem fit?
Origin	Asian, outside China	☑ Yes — South Korean
Company size	Multi-billion-dollar corporation	☑ Yes — global battery giant
Focus material	LNMO (High Voltage Spinel)	☑ Yes — patents since 2012
Desire for anonymity	Competitive protection	☑ Yes — consistent with LG culture
Technology area	One-Pot process for LNMO	☑ Yes — LPF since 2025
Does Sumitomo fit?	Alternative candidate	✗ No — no LNMO focus

JDA phase progression:

- August 2020: JDA signed — LNMO, outside China, anonymous partner
- April 2021: Phases 1 and 2 successfully completed and validated by both parties
- Next steps: scaling, economic analysis, commercialisation planning

3.2 LG's LNMO Patent Portfolio — Direct Technological Overlap

LG Chem / LG Energy Solution holds multiple patents on LNMO cathode materials — exactly the material central to the 2020 anonymous JDA:

- US Patent US9780359B2: LNMO electrode production, filed 2012, granted 2017
- Originally held by LG Chem Ltd., transferred to LG Energy Solution in 2021
- World's largest LMR portfolio: 200+ patents, first filed in 2010

Sumitomo Metal Mining — the other plausible candidate for the anonymous partner — has demonstrably no focus on LNMO research. This substantially strengthens the LG hypothesis.

3.3 The JMBM/Candiac Connection — LG as Historical Customer

In November 2022, Nano One acquired the JMBM facility in Candiac, Quebec:

- Purchase price: CAD 10.25M
- Including: 46-person team with approximately 400 years of collective LFP experience
- LG Energy Solution was a known customer of Johnson Matthey Battery Materials
- Nano One thereby implicitly inherited an established customer relationship with LG

Important: Nano One converted the facility to its own One-Pot process — the old JMBM production line was discontinued. A direct continuation of the JMBM supply relationship to LG in its old form was therefore no longer possible. A new, deeper technological collaboration is all the more likely.

3.4 The Seoul Trade Missions — Nano One and LG at the Same Table

November 2022: Mission with Minister François-Philippe Champagne

Official Canadian government documents confirm:

- Minister Champagne met LG Energy Solution bilaterally in Seoul
- At the Canada-Korea Business Roundtable, Nano One Materials officially participated
- Other Korean participants: Samsung, POSCO, Hanwha, SK Inc.
- Champagne had personally negotiated the NextStar deal (LG + Stellantis, Windsor)

Significance: Nano One and LG were in the same room at the highest political level — not a chance encounter.

April 2024: Mission with Minister Mary Ng

- Dan Blondal, CEO of Nano One, officially participated in the Team Canada Mission in Seoul
- Over 240 people from 160+ Canadian companies
- LG Energy Solution's CAD 5 billion investment in Canada (NextStar Windsor) was explicitly on the agenda

3.5 Technological Convergence — One-Pot and LPF

In March 2025, LG Chem became the first Korean company to begin mass production of LPF (LG Precursor Free) cathode materials. The structural comparison with Nano One's One-Pot process is striking:

Feature	Nano One — One-Pot	LG Chem — LPF
No precursor	☑ Direct from metal salts	☑ Direct from metal salts
No wastewater	☑ Fully eliminated	☑ Fully eliminated
Lower CO ₂ footprint	☑ Up to 60% less	☑ Substantially reduced
No separate precursor plant	☑ Core advantage	☑ Explicitly stated

Material types	LFP, NMC, LNMO	High-Nickel, Mid-Nickel
Development start	From 2019 (pilot phase)	2023, 'at customer request'

LG Chem stated it began LPF development in 2023 'at customer request' — to free South Korea from its dependence on the Chinese-dominated precursor supply chain (China holds ~90% of the global precursor market). The sequence: Nano One's One-Pot JDA (2020–2021) → LG announces precursor-free technology (2023) → LG starts mass production (March 2025).

3.6 The Pulead Termination — Strategic Pivot

The timeline of the Pulead partnership and its termination is central to the LG hypothesis:

Date	Event	Significance
Jan. 2019	Nano One + Pulead JDA signed (LFP, China)	China strategy
Dec. 2019	Milestone: engineering report incl. licence model	China strategy
Aug. 2020	Anonymous JDA: Asian producer outside China (LNMO)	LG hypothesis core
Apr. 2021	JDA phases 1 & 2 completed and validated	LG hypothesis strengthened
Nov. 2021	Nano One terminates Pulead. Focus shifts to North America/Europe	Strategic pivot to LG

Dan Blondal stated in November 2021 (COP26): 'Nano One is shifting its LFP strategic direction away from China and Pulead to opportunities outside of China.' Simultaneously licensing technology to Pulead in China AND building a western LFP partnership with LG would be strategically contradictory. The Pulead termination was likely a prerequisite for the deepened LG collaboration.

3.7 Partner Synchronicities — Five Independent Strands

3.7.1 Single-Crystal Cathodes

- June 2020: Nano One announces breakthrough in coated single-crystal NMC811 cathodes (4x cycle life improvement)
- 2021: LG Chem begins internal single-crystal research 'at customer request'
- June 2023: LG Chem starts mass production of single-crystal high-nickel cathodes in Cheongju — the first Korean company to do so

3.7.2 CBMM / Niobium Coating

- May 2021: Nano One + CBMM launch JDA for niobium-coated single-crystal cathodes
- February 2022: Phase 1 complete — niobium coating on NMC811 validated
- 2023: Phase 2 complete — Ni>90% NMC with M2CAM technology validated
- CBMM manager noted: 'We see new market opportunities and already have established customers in the battery supply chain'

3.7.3 Euro Manganese

- October 2021: Nano One + Euro Manganese JDA (LNMO and Ni-rich NMC)
- May 2023: LG Chem announces development of manganese-rich (Mn-Rich) cathodes
- 2025: GM + LG Energy Solution announce joint LMR cell commercialisation (mass production from 2028)

- Euro Manganese has five anonymous MOUs with major customers — LG could be one of them

3.7.4 Saint-Gobain

- December 2018: Nano One + Saint-Gobain JDA for high-temperature processing
- Focus: optimisation of thermal firing process — central to both One-Pot and single-crystal production
- Saint-Gobain is a world leader in high-temperature industrial furnaces — required for both One-Pot and LG's single-crystal manufacturing

3.7.5 Sumitomo Metal Mining

- September 2023: Nano One + Sumitomo: JDA + CAD 16.9M investment (4.9%)
- Sumitomo's focus: NCA and solid-state batteries — not LNMO
- Sumitomo is effectively ruled out as the anonymous 2020 JDA partner — strengthening the LG hypothesis

3.8 LG's LFP/LMR Cell Plants — Cathode Demand and Realistic Scenarios

A critical detail for assessing any potential collaboration between Nano One and LG: LG's currently retooled or newly planned plants are without exception CELL PLANTS — they produce battery cells and PURCHASE cathode material as a feedstock. They do not produce cathodes.

LG Plant	Type	Chemistry	Status / Cathode Demand approx.
Holland, Michigan	Cell plant	LFP ESS	Active since May 2025 → 30+ GWh by end 2026 → ~45,000 tpa cathode
NextStar Windsor, Ontario	Cell plant	LFP ESS	Active since Dec. 2025 → ~5 GWh → ~7,500 tpa cathode
Spring Hill, Tennessee	Cell plant (LG+GM JV)	LFP ESS	\$70M retool, production from Q2 2026 → ~7,500 tpa cathode
Lansing, Michigan	Cell plant	LFP (Tesla)	Planned from H2 2027 → 50 GWh → ~75,000 tpa cathode
Ochang/Cheongju, Korea	Cell plant	LFP ESS	From 2027, 1 GWh start → ~1,500 tpa cathode
Ultium Cells USA (LG+GM)	Cell plant	LMR	Pre-production end 2027, mass from 2028 → LMR cathode needed!

Against this, the hard reality of Nano One Candiatic (as of February 2026):

- Pilot line: ~200 tpa — operational, for customer sampling and initial small commercial sales
- Demonstration line: manual operation, automation underway — target ~800 tpa in H1 2027
- First commercial agreements: targeted by end of 2026

The conclusion is unambiguous: Nano One cannot supply LG's cell plants as a direct mass supplier of LFP cathode in the foreseeable future. The cathode demand for Holland Michigan and Windsor alone exceeds Candiac's capacity by a factor of 60–100.

This gives rise to three realistic scenarios — in descending order of immediacy:

Scenario	Description	Timeframe
1. Technology licensing	LG licences One-Pot via the ISBL package (ready H1 2026) and builds its own large-scale LFP cathode plant — Morocco, Korea or USA. Nano One earns licence fees.	2026–2028 — most probable scenario
2. Qualification supplier	Nano One's 200 tpa pilot line supplies A/B/C sample material for LG's qualification process. Large cell producers are already active according to the 2026 Corporate Update.	Possibly already underway — end of 2026
3. LMR technology partner	One-Pot LNMO/LMR expertise for LG + GM Ultium Cells LMR programme. Nano One's 2020 JDA focused precisely on LNMO — the LMR precursor chemistry.	Pre-production end 2027, mass from 2028

4. Solid-State Batteries and Commercialisation

4.1 Nano One and the University of Michigan

In February 2021, Nano One announced positive results from a collaboration with the University of Michigan (UM):

- Partner: Prof. Richard Laine, Department of Materials Science and Engineering
- Nano One's HVS (LNMO) materials performed excellently with innovative solid-state electrolytes derived from agricultural waste
- Multiple UM research groups explored solid-state battery components, designs, interfaces and cell assembly
- LG Energy Solution Michigan operates manufacturing and R&D sites in Michigan — geographic proximity to UM

LNMO/HVS is particularly well-suited to solid-state batteries because it does not expand or contract, thus avoiding mechanical stress at the cathode-electrolyte interface — a critical challenge for other cathode materials.

4.2 Worley / Comprimo — Commercialising the One-Pot Process

In May 2024, Nano One and Worley Chemetics (Canadian subsidiary of Worley Ltd.) signed a Strategic Alliance Agreement and License Agreement:

- Goal: jointly develop, market and license One-Pot cathode plant designs (CAM packages)
- License term: up to 20 years
- 'Design-once-build-many' strategy — design once, replicate globally
- Target markets: North America, Europe, Indo-Pacific and further regions globally

For potential licensees such as LG, this means: the entire One-Pot plant build — including engineering, permitting and operational optimisation — can be sourced through a single, turnkey package. LG could thereby build its own cathode plants in Korea, Morocco or the US under Nano One's technology — fully FEOC-compliant.

5. The Proprietary Agitator and the Korean Patent

5.1 The New Agitator — The Heart of the One-Pot Process

In August 2025, Nano One installed a custom-designed proprietary agitator in its 20,000-litre One-Pot reactor in Candiac. Highlights:

- Throughput increase: approximately 50%
- Enhanced mixing dynamics, heat transfer and reaction time
- Manufacturer: leading German specialist in mixing technologies
- Geopolitical logic: deliberately non-Chinese — following China's July 2025 export restrictions on LFP manufacturing equipment
- Funding: NRC IRAP, Investissement Quebec, Technoclimat, and US Department of Defense (DoD)
- Template: representative of all future One-Pot commercial-scale licence plants

The DoD funding is significant: Nano One actively targets defence and military applications — a market where LG Energy Solution is also present.

5.2 The Korean Patent — Direct Protection in LG's Home Market

The following patents were granted and/or allowed in 2025:

Patent No.	Country	Date	Content
US 12,319,590 B2	USA	3 June 2025	Improved LFP synthesis method
CA 3,068,797	Canada	3 April 2025	LFP cathode material synthesis
TW I887600	Taiwan	21 June 2025	LFP via metal feedstocks
KR 10-2791544	KOREA	1 April 2025	M2CAM NMC — sulfate-free One-Pot process
US 12,355,063	USA	8 July 2025	LNMO high-voltage battery

Korean Patent KR 10-2791544 is particularly significant: patents are filed in markets where a company either needs protection from imitation or intends to license — or both. South Korea is the home market of LG Chem and LG Energy Solution. Total portfolio: 52 granted patents, 1 allowed, 54 pending across jurisdictions worldwide.

6. Geopolitical Context — FEOC and Morocco

6.1 The FEOC Problem

The US Inflation Reduction Act (IRA) defines 'Foreign Entities of Concern' (FEOC): companies with at least 25% Chinese, Russian, Iranian or North Korean government involvement in voting rights, board seats or equity.

LG's Morocco project with Huayou (China) is directly affected:

- LG Chem + Youshan (Huayou's subsidiary): planned LFP cathode plant in Morocco (50,000 tpa)
- Goal: supply the North American market via the US free trade agreement with Morocco
- Problem: if Huayou holds majority control, materials are NOT IRA-eligible
- Consequence: the entire strategic rationale of the Morocco project would collapse

Nano One as a solution:

- Nano One is Canadian — no FEOC risk whatsoever
- One-Pot process is Western IP — no Chinese dependency
- Candiatic facility produces IRA-compliant cathode materials
- Worley/Comprimio licence package enables construction of FEOC-free plants worldwide

6.2 LG's Strategic Need for Western Technology

Three central strategic reasons why LG requires a Western cathode technology such as Nano One's One-Pot:

- IRA compliance: Chinese precursor dependency threatens IRA subsidy eligibility in North America
- Supply chain resilience: China controls ~90% of the global precursor market — a critical strategic risk
- Geopolitical security: China imposed export restrictions on LFP manufacturing equipment in July 2025

7. Legal Framework — NDA and Disclosure Requirements

A key question is whether a silent collaboration between Nano One and LG would be permissible under Canadian securities law without requiring public disclosure.

7.1 Disclosure Requirements under TSX Regulations

Scenario	Disclosure Required?	Explanation
JDA with anonymous partner + NDA	Existence of JDA only	Exactly how Nano One handled 2020
Technology use without licence fees in JDA	Not mandatory	No cash flow = no 'Material Change'
Partner identity (LG)	Not required	NDA protects anonymity
Commercial licence agreement with fees	Mandatory disclosure	Significant revenue impact = 'material'
Joint venture formation	Mandatory disclosure	Structural change to the company

The construct of a silent collaboration — Nano One granting LG use of its One-Pot patents under a JDA with an NDA, with the goal of subsequent commercial licensing — is entirely legal under Canadian law and not mandatorily subject to disclosure as long as no material cash flow occurs.

The public announcement would only come once a commercial licence agreement or joint venture is signed — and that would be a material share price catalyst for Nano One.

8. Complete Master Timeline

Date	Event	Relevance to LG Hypothesis
Dec. 2018	Nano One + Saint-Gobain: JDA high-temperature processes	Process foundation
Jan. 2019	Nano One + Pulead: JDA (LFP, China)	China strategy
Aug. 2020	Anonymous JDA: Asian producer outside China (LNMO)	LG hypothesis core
Jun. 2020	Nano One: single-crystal NMC811 breakthrough (4x cycle life)	Direct LG relevance
Apr. 2021	Anonymous JDA: phases 1 & 2 validated	LG hypothesis confirmed
May 2021	Nano One + CBMM: niobium single-crystal JDA launched	LG roadmap relevant
Oct. 2021	Nano One + Euro Manganese: JDA (LNMO + NMC)	LG's Mn-Rich roadmap
Nov. 2021	Nano One terminates Pulead. Focus: North America/Europe	Strategic pivot to LG
Feb. 2022	CBMM phase 1 complete: NMC811 single-crystal validated	LG single-crystal 2023
Jun. 2022	Rio Tinto invests CAD 10M (4.9%) in Nano One	Strategic capital raise
Nov. 2022	Nano One acquires JMBM Cadiac (LG was JMBM customer)	Direct LG connection
Nov. 2022	Champagne + Nano One + LG: Seoul Business Roundtable	Highest political level
Jun. 2023	LG Chem: mass production of single-crystal high-nickel starts (first Korean company)	Nano One technology?
Aug. 2023	LG Chem announces precursor-free cathode technology (LPF)	Identical to One-Pot
Sep. 2023	Nano One + Sumitomo: JDA + CAD 16.9M investment	Sumitomo ≠ 2020 partner
Apr. 2024	Dan Blondal at Seoul trade delegation (LG on agenda)	Second Seoul mission
May 2024	Nano One + Worley/Comprimo: Strategic Alliance + Licence Agreement	Commercialisation
Mar. 2025	LG Chem: LPF mass production — vertically integrated conventional process, still with wastewater/sulfate (not One-Pot)	One-Pot as superior licence alternative
Apr. 2025	Korean Patent KR 10-2791544: M2CAM One-Pot sulfate-free	Protection in LG's home market
Aug. 2025	Proprietary agitator in 20,000L reactor (DoD-funded, German mfr.)	Scaling platform

2026+	Nano One: first commercial LFP supply agreements targeted	Announcement expected?
2027–28	LG + GM: LMR cell mass production in USA planned	Euro Manganese relevant

9. Rio Tinto — The Raw Materials Anchor of the Ecosystem

Rio Tinto is not merely a financial investor in Nano One — it is the strategic raw materials anchor of the entire Western battery supply chain ecosystem and uniquely completes the connection chain to LG Energy Solution.

9.1 The Strategic Partnership — What Is Officially Confirmed

In June 2022, Rio Tinto and Nano One entered into a strategic partnership:

- Rio Tinto invested US\$10M (4.9% stake) as a strategic equity investment
- Supply of iron and lithium products as raw material inputs for Nano One's One-Pot process
- Iron powder from Rio Tinto Fer et Titane (RTFT) in Sorel-Tracy, Quebec — just a few kilometres from Candiac
- Contribution of know-how from Rio Tinto's Critical Minerals and Technology Centre
- Rio Tinto received 1,000,000 share purchase warrants as consideration for technical support services

9.2 The Lithium Qualification — Direct Flow into Nano One's Process

The critical step: Rio Tinto's lithium is already being actively used for customer validation work:

- Lithium carbonate from the Fenix site (Salar del Hombre Muerto, Argentina): a 10-tonne C-sample already processed by Nano One for pilot and customer validation work
- Lithium carbonate from Rio Tinto's Olaroz and Rincon operations: progressing through Nano One's qualification protocol from kilogram-scale A-samples to tonne-scale C-samples
- The phrase 'customer validation work' is significant: one or more of Nano One's customers are already actively testing this Rio Tinto lithium

9.3 The Chile Connection — Rio Tinto Beats LG

The most striking detail of this entire research:

- July 2024: Both Rio Tinto and LG Energy Solution submitted proposals for the Altoandinos lithium project in Chile — directly competing for the same lithium source
- 2025: Rio Tinto was selected as the preferred partner for the Salares Altoandinos project — defeating LG Energy Solution in the process
- Result: Rio Tinto controls one of the largest lithium sources that LG itself had been targeting

The strategic logic: if Nano One is indeed LG's cathode partner, and Rio Tinto becomes Nano One's lithium supplier — then LG has gained indirect access, via this route, to exactly the lithium it could not secure directly in Chile.

9.4 The Complete Western Battery Ecosystem

Rio Tinto completes the picture — from mine to cell, fully Western, fully IRA-compliant:

Role	Company	Contribution	Location
Raw Materials	Rio Tinto	Lithium (Argentina) + Iron (Quebec)	Argentina / Quebec
Manganese	Euro Manganese	High-purity manganese for LNMO/LMR	Czech Republic
Niobium	CBMM	Niobium coating for single-crystal CAM	Brazil
Process Technology	Nano One	One-Pot CAM production (LFP/NMC/LNMO)	Candiac, Quebec
Engineering	Worley / Comprimo	Plant design + sulfur recovery	Canada / Global
High Temperature	Saint-Gobain	Firing process optimisation	France / Global
Cell Production	LG Energy Solution	LFP/NMC/LNMO cells (Windsor + Korea)	Canada / South Korea
Vehicles	GM + other OEMs	LMR cells from 2027/28	USA / Global

Rio Tinto is transforming itself from a pure commodity supplier into a strategic enabler of downstream technology adoption. With governments in Canada, the US and Europe now deploying subsidies to localise cathode and battery manufacturing, Nano One and Rio Tinto are jointly positioned at the intersection of policy, technology and industrial strategy.

10. Further Evidence and the Strategic Network

10.1 Sodium-Ion Batteries — One-Pot Is Chemistry-Agnostic

A previously overlooked aspect of the Nano One / LG connection concerns sodium-ion batteries (NIBs) — the next major technology wave after lithium.

Dan Blondal stated as early as 2017 in an interview with Juan Carlos Zuleta (Seeking Alpha) that Nano One's technology is adaptable 'to both advanced Li-ion battery technologies as well as all-solid-state lithium batteries and other ion batteries.' The One-Pot process is fundamentally chemistry-agnostic — the core principle of direct synthesis from metal feedstocks without a precursor works in theory for sodium cathodes as well.

LG's sodium-ion roadmap is now concrete and publicly confirmed:

- March 2025: LG Energy Solution presents its sodium-ion battery roadmap at InterBattery 2025 in Seoul
- Target: commercialisation of first-generation sodium-ion batteries by 2027 (lead-acid replacement, 12/24V automotive, UPS systems)
- November 2025: LG Chem + Sinopec (China) sign JDA to jointly develop sodium cathode and anode materials
- January 2026: LG Energy Solution officially names 'development of materials and manufacturing processes for commercial sodium battery production' as a 2026 business objective

The pattern is identical to the lithium path: LG starts with a Chinese partner (here Sinopec) — and will strategically require a Western, FEOC-free alternative. Nano One's One-Pot process could play the same role for sodium-ion cathodes as it does for lithium cathodes. This may be the next chapter of the collaboration — following the expected official confirmation of the lithium partnership.

10.2 Anthony Tse — The Hub of the Strategic Network

The appointment of Anthony Tse as Chairman of Nano One's Board of Directors in October 2024 is arguably the most strategically significant single event in Nano One's history — connecting all key players of this ecosystem in one person.

Role	Company	Relevance
Chairman	Nano One Materials	Direct leadership role — key position
Board Director	Li-Cycle / Glencore Battery Recycling	Bridge to the recycling loop

Former CEO / MD	Galaxy Resources → Allkem → Arcadium → Rio Tinto	Direct path to Rio Tinto (Nano One's investor); Asian customers in Japan & Korea
Executive Chairman	Li-FT Power (Lithium, NWT/Quebec)	Canadian lithium raw materials network
Senior Advisor	EMR Capital (global natural resources PE)	Institutional capital markets network

The critical connection: Anthony Tse built Galaxy Resources into a top-5 global lithium producer. Galaxy became Allkem, Allkem became Arcadium — which Rio Tinto acquired for USD 6.7 billion in March 2025. Rio Tinto had already invested in Nano One in June 2022. Tse's appointment as Nano One Chairman in October 2024 may have been a strategic decision to anchor the existing connection between Nano One and Rio Tinto's newly acquired lithium portfolio at board level.

Dan Blondal explicitly praised Tse at his appointment for his 'strong familiarity with the Asian battery ecosystem' — a precise formulation pointing to existing relationships with Korean and Japanese battery manufacturers.

10.3 Li-Cycle Insolvency and Glencore Battery Recycling — The Loop Lives On

In May 2025, Li-Cycle filed for insolvency. This appeared to threaten the planned Canadian recycling loop (NextStar Windsor → Li-Cycle → Nano One → new cathodes). The reality is surprisingly positive:

Glencore acquired Li-Cycle's key assets on 8 August 2025 for USD 43.6 million and immediately rebranded the company as 'Glencore Battery Recycling' (GBR). The acquisition includes:

- Spoke facilities in Ontario (Canada), Arizona, Alabama, New York and Germany
- The Rochester Hub project (still under construction) for refining black mass into battery-grade metals
- Li-Cycle's complete IP portfolio
- Ajay Kochhar (Li-Cycle co-founder) joined Glencore to head its battery recycling unit

Before: Li-Cycle (insolvent)	Now: Glencore Battery Recycling
Financially fragile, USD 2B market cap at peak	Financially stable — Glencore with ~USD 60B market cap
Insolvent, operations largely suspended	Glencore continues operations under GBR
Ontario spoke: uncertain	Ontario spoke: acquired and active
Rochester Hub: paused since 2023	Rochester Hub: Glencore planning resumption

10.4 The Failed Rio Tinto / Glencore Merger — A Strategic Opportunity for Nano One

In January 2026, merger talks between Rio Tinto and Glencore became public. On 5 February 2026, Rio Tinto confirmed the breakdown — it had 'determined that it could not reach an agreement that would deliver value to its shareholders.' Rio Tinto wanted to retain both the chairman and CEO roles in the merged entity; Glencore considered its copper business substantially undervalued.

The failure is strategically more advantageous for Nano One than a successful merger would have been — because two separate, complementary raw material streams now emerge:

- Rio Tinto (standalone): fresh lithium from Argentina + iron from Quebec → One-Pot LFP/NMC in Candiatic
- Glencore Battery Recycling (Ontario): recycled nickel/manganese/cobalt from black mass → M2CAM NMC in Candiatic

Rio Tinto CEO Simon Trott confirmed after the merger collapse that Rio Tinto is focusing on critical minerals — including its growing lithium platform (Arcadium/Allkem, Rincon, Altoandinos). The Nano One investment (4.9%) and ongoing lithium qualification work remain completely intact.

10.5 The Fully Updated Western Battery Ecosystem

With all new findings incorporated, the complete picture of the Western battery ecosystem — from mine to cell and back — looks as follows:

Level	Company	Contribution	Location
Lithium (virgin)	Rio Tinto (Arcadium/Rincon)	Li ₂ CO ₃ for One-Pot LFP/NMC	Argentina
Iron (virgin)	Rio Tinto Fer et Titane	Iron powder for One-Pot LFP	Sorel-Tracy, QC
Manganese	Euro Manganese	High-purity Mn for LNMO/LMR	Czech Republic
Niobium	CBMM	Nb coating for single-crystal CAM	Brazil
Recycled metals	Glencore Battery Recycling	Ni/Mn/Co from black mass → M2CAM	Ontario, CA
Process IP	Nano One Materials	One-Pot + M2CAM: LFP/NMC/LNMO	Candiatic, QC
Engineering	Worley / Comprimo	Plant design + sulfur recovery	Canada / Global
High temperature	Saint-Gobain	Firing process optimisation	France / Global
Cell production	LG Energy Solution	LFP/NMC/LNMO cells (LPF)	Windsor + Korea
Sodium (future)	LG Chem (+ Sinopec)	NiB cathodes from 2027 — One-Pot compatible?	Korea / China
Vehicles / ESS	GM + other OEMs	LMR cells from 2027/28	USA / Global

Network anchor	Anthony Tse	Chairman Nano One + Director GBR + ex-CEO Galaxy/Rio Tinto line	Global
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11. Overall Assessment and Conclusion

11.1 What Is Established

The following facts are directly supported by public primary sources:

- Nano One has actively pursued JDAs with global cathode producers since January 2019
- The anonymous JDA of August 2020 exists and focuses on LNMO outside China
- LG Chem holds LNMO patents since 2012 and LMR patents since 2010
- Nano One and LG were in the same room in Seoul in November 2022 and April 2024
- LG Chem launched LPF cathode mass production in 2023 — a vertically integrated conventional process that fundamentally differs from Nano One's One-Pot (Blondal, 2026).
- Nano One has held a granted patent in South Korea (M2CAM NMC) since April 2025
- Nano One's agitator upgrade (August 2025) is co-funded by the US DoD

11.2 What Is Inference

The following points are logically consistent conclusions but not proven facts:

- LG Chem is the anonymous Asian partner from the August 2020 JDA
- LG's LFP process deficit (wastewater, sulfate, conventional kilns) makes Nano One's One-Pot attractive for new plants — LG has a clear motive to licence the ISBL package.
- The Pulead termination was a direct strategic consequence of the LG partnership
- The Korean patent is preparation for a commercial licence agreement with LG

11.3 Probability Assessment

Hypothesis	Assessment
LG is the anonymous 2020 JDA partner	Very high — all public criteria met; no other candidate fits better
LG's LFP is based on Nano One's One-Pot	High — structural identity and chronological sequence support this
Commercial licensing in the near future	Medium to high — Korean patent, Worley alliance and Candiac scaling point to this
Nano One as LFP supplier for NextStar/LG Windsor	Medium — geographically and strategically logical, but LG has established supply chains

11.4 What Could Disprove the Hypothesis

- An official announcement naming a different Asian (non-Chinese) company as the anonymous JDA partner
- A large-volume cathode supply agreement between LG and a different Western supplier
- A closure or fundamental repositioning of Nano One's Candiatic facility

11.5 Closing Assessment

The totality of the evidence — technological convergence, geographic presence, political accompaniment, patent landscape, timeline synchronicity and strategic logic — paints an extraordinarily coherent picture. Each individual piece of evidence could be coincidence. Together they form a chain of circumstantial evidence that can hardly be accidental.

Should an official LG–Nano One partnership be confirmed, it would be a remarkable example of how a small Canadian cleantech company with groundbreaking technology built a strategic collaboration with one of the world's largest battery manufacturers in silence — while public awareness had not yet caught on.

The signs were all there.

12. Sources (Selection)

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