TSXV: NBM | OTC: NBMFF | April 2025

NEO BATTERY MATERIALS LTD.

The New Paradigm of High-Capacity Batteries with Silicon

Disclaimer: Forward-Looking Statements

This presentation contains "forward-looking information" within the meaning of the applicable securities legislation. All information contained herein that is not clearly historical in nature may constitute forward-looking information. Generally, such forward-looking information can be identified notably by the use of forward-looking terminology such as "plans", "expects" or "does not expect", "is expected", "budget", "scheduled", "estimates", "forecasts", "intends", "anticipates" or "does not anticipate", or "believes", or variations of such words and phrases or state that certain actions, events or results "may", "could", "would", "might" or "will be taken", "occur" or "be achieved".

Forward-looking information is subject to known and unknown risks, uncertainties and other factors that may cause the actual results, level of activity, performance or achievements of the Company to be materially different from those expressed or implied by such forward-looking information, including but not limited to: volatile stock prices; the general global markets and economic conditions; the possibility of write-downs and impairments; the risk associated with the research and development of advanced and battery-related technologies; the risk associated with the effectiveness and feasibility of technologies that have not yet been tested or proven on commercial scale; manufacturing process scale-up risks, including maintaining consistent material quality, production yields, and process reproducibility at a commercial scale; compatibility issues with existing battery chemistries and unforeseen the risks associated with entering into and maintaining collaborations, joint ventures, or partnerships with battery cell manufacturers, original equipment manufacturers, and various companies in the global battery supply chain; the risks associated with the construction, completion, and financing of commercial facilities including the Windsor and South Korean facilities; the risks associated with supply chain disruptions or cost fluctuations in raw materials, processing chemicals, and additive prices, impacting production costs and commercial viability; the risks associated with uninsurable risks arising during the course of research, development and production; competition faced by the Company in securing experienced personnel and financing; access to adequate infrastructure and resources to support battery materials research and development activities; the risks associated with changes in the technology regulatory regime governing the Company; the risks associated with the timely execution of the Company's strategies and business plans; the risks associated with the lithium-ion battery industry's demand and adoption of the Company's silicon anode technology; market adoption and integration challenges, including the difficulty of incorporating silicon anodes within battery manufacturers and OEMs systems; the risks associated with the various environmental and political regulations the Company is subject to; risks related to regulatory and permitting delays; the reliance on key personnel; liquidity risks; the risk of litigation; risk management; and other risk factors as identified in the Company's recent Financial Statements and MD&A and in recent securities filings for the Company which are available on www.sedarplus.ca.

Forward-looking information is based on assumptions management believes to be reasonable at the time such statements are made, including but not limited to, continued R&D and commercialization activities, no material adverse change in precursor prices, development and commercialization plans to proceed in accordance with plans and such plans to achieve their stated expected outcomes, receipt of required regulatory approvals, and such other assumptions and factors as set out herein. Although the Company has attempted to identify important factors that could cause actual results to differ materially from those contained in the forward-looking information, there may be other factors that cause results not to be as anticipated, estimated or intended. There can be no assurance that such forward-looking information will prove to be accurate, as actual results and future events could differ materially from those anticipated in such forward-looking information. Such forward-looking information has been provided for the purpose of assisting investors in understanding the Company's business, operations, research and development, and commercialization plans and may not be appropriate for other purposes. Accordingly, readers should not place undue reliance on forward-looking information. Forward-looking information is made as of the date of this presentation, and the Company does not undertake to update such forward-looking information except in accordance with applicable securities laws.

THE FUTURE IS ELECTRIC

In the business of making batteries run longer, charge faster, and cheaper with Silicon

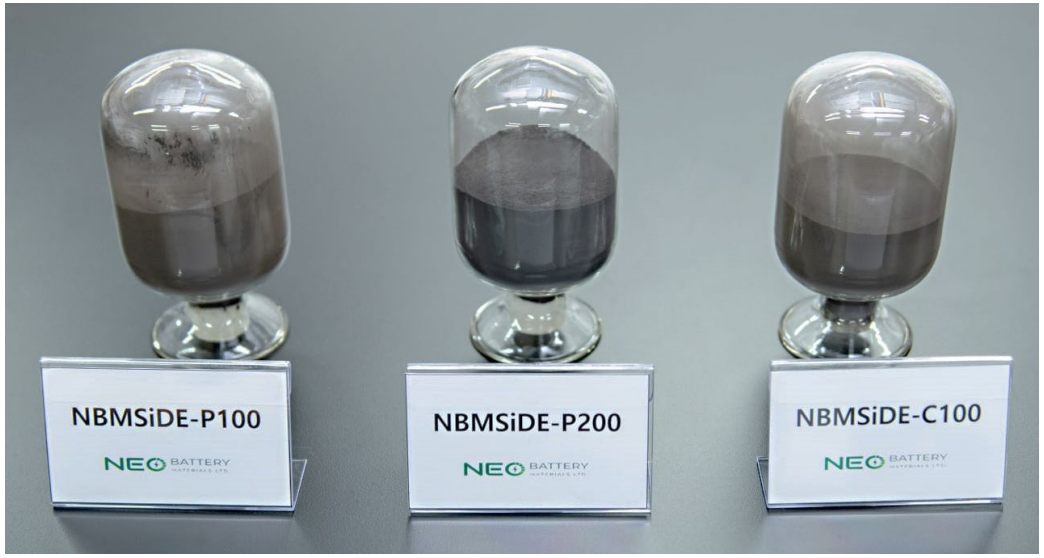
With the onset of electrification, global industries rely on innovations or a “**New Paradigm**” of high-performance battery materials to accelerate the rapid transition.

NEO Battery Materials’ Silicon Anode Technology aims to serve and transform EV, electronics, power tools, energy storage, eVTOL & aerospace systems – *Powering the future with unrivaled performance*.

Why Invest?

NEO BATTERY MATERIALS LTD. is the Forerunner for Cost-Effective, Long-Lasting Battery Technology

NBMSiDE® - Silicon Anode Material



- Low-Cost Manufacturing – Proprietary energy-efficient process enables Average Cost-Savings of >60%
- Performance Innovation – Industry-Leading battery capacity with high cycling stability capabilities
- Strong Partnership Network – Advanced agreements with Fortune 500, S&P 500, and Global-Tier battery value chain companies
- Scalable, CAPEX-Efficient Process – Ease to Scale-Up to commercial production based on automation and CAPEX-friendly equipment integration
- Diverse Downstream Target Markets – Planning aggregate capacity of 15,000 tons per year to become a Global Top 10 Supplier

Recent Key Developments

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Milestones Achieved & Plans Executed for Silicon Anode Commercialization

Operations

- Established Advanced Agreements towards Commercialization
- Secured Prominent Battery Industry Engineers, Directors & Advisors

Technology

- Expanded Production Capacity to 4,000 KG/yr → Target: 20,000 KG/yr
- P-300N: Extended Battery Capacity & Stability with Low-Cost Modification

Oct. 2024
1st JDA with Fortune 500 Company

Nov. 2024
Awarded as Consortia in $20M Project
Ministry of Trade, Industry and Energy

Jan. 2025
Windsor Announcement for Canada's 1st Silicon Anode Plant

Nov. 2024
Strategic MOU with Linde Korea (NASDAQ: LIN)

Dec. 2024
2nd JDA with Specialty Battery Cell Manufacturer

February. 2024
Collaboration with Rockwell Automation (NYSE: ROK)

Leadership with Proven Track-Record

NEO BATTERY MATERIALS LTD.

Highly Qualified Personnel from Battery Industry, Finance, Government & Academia

Spencer Huh

Director, President & Chief Executive Officer

TD BMO KOREA UNIVERSITY

Seok Hyung Lee

Independent Director

대한민국 법원 COURT OF KOREA

언론중재위원회 Press Arbitration Commission

서울대학교 SEOUL NATIONAL UNIVERSITY

Also From:

SAMSUNG SAMSUNG SDI

Massachusetts Institute of Technology

ExxonMobil

SK innovation

equinor

A123 SYSTEMS

McGill UNIVERSITY

UC San Diego

KITECH 한국생산기술연구원

HYU HANYANG UNIVERSITY SEOUL, KOREA

Dr. Dongmok Whang

Independent Director, Lead Scientific Advisor

SUNG KYUN KWAN UNIVERSITY

SAMSUNG ELECTRONICS

HARVARD UNIVERSITY

Kenneth Hoffman

Independent Director

McKinsey & Company

Bloomberg

millennium

DUKE FUQUA SCHOOL OF BUSINESS

Introduction: Lithium-Ion Batteries & Anodes

Problem with Lithium-Ion Batteries

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1. Limited Capacity

"Range Anxiety"

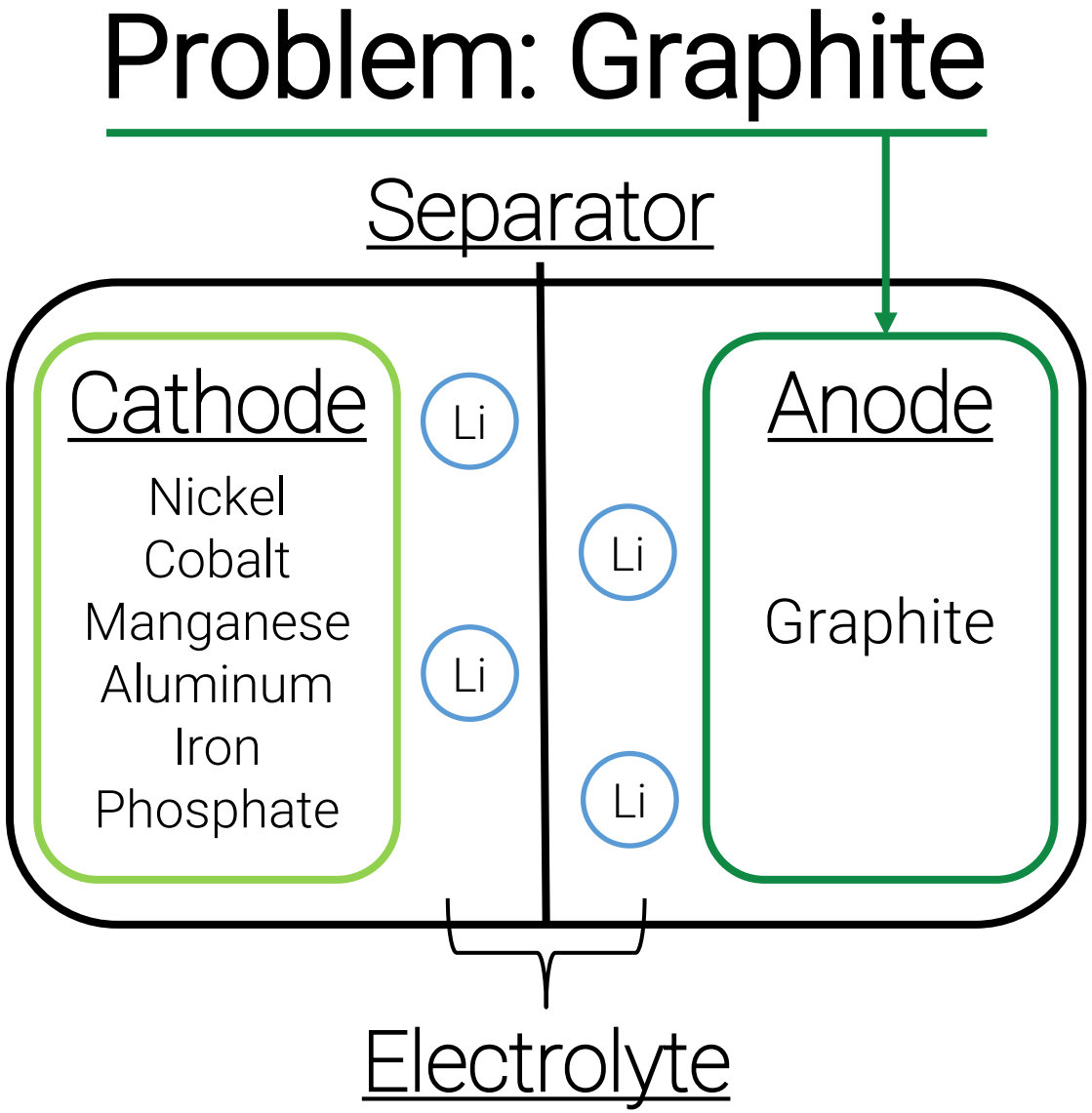
2. Slow Charging

Impatient with

Long Charging Times

3. High Cost

Need Competitive Prices



Introduction to Si-Based Anode Materials

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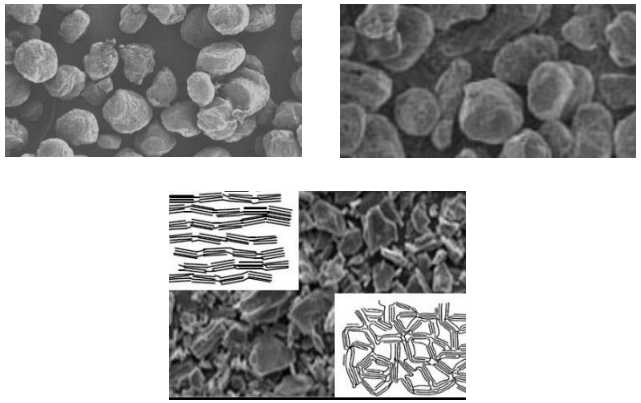
Anode Material Technological Growth & Trend

Present

Graphite

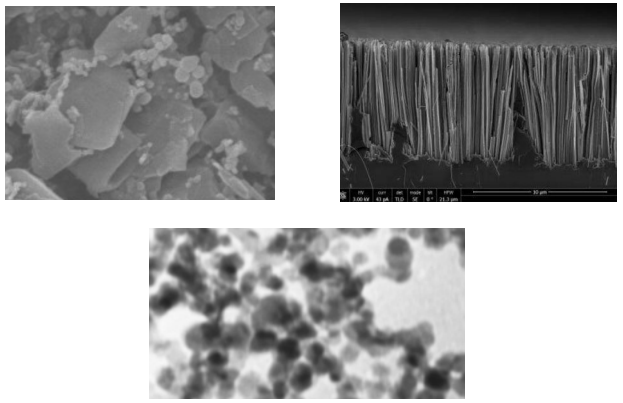


360 mAh/g

Reversible capacity

Present to Near Future

Graphite + Silicon

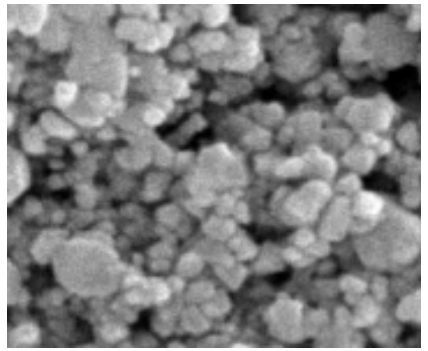


400 ~ 1,200 mAh/g

Si 5% ~ 50%

Future

Pure 100% Silicon



> 2,500 mAh/g

Image Source: Hi Research, Gan et al., Phys, U.S. Research Nanomaterials

Solution: Integrate Silicon with Graphite

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Solution: Silicon

Ultra-Fast Charging

9x More Capacity

$| Cost Reduction

The Silicon Benefit

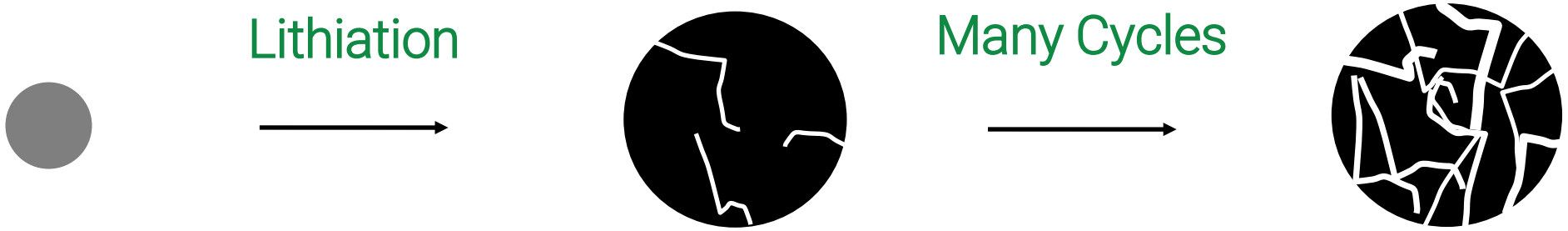
10% Silicon Added →

- 30 - 60% Increase in Anode Capacity
- 20 - 40% Decrease in Weight

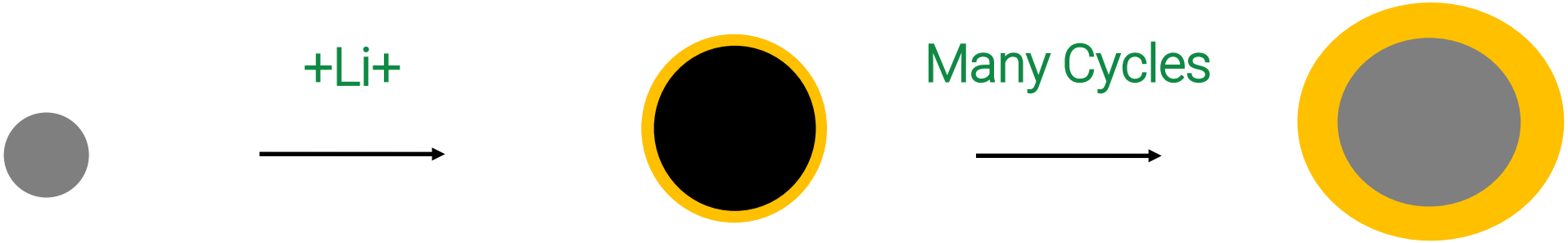
Image Source: Tesla Battery Day

Critical Problem of Silicon Anodes

Volume Expansion-Induced Pulverization



Unstable SEI Layer Growth



Delamination

Silicon Anode: Technology Options

Different Methodologies to Resolve Volume Expansion Problem

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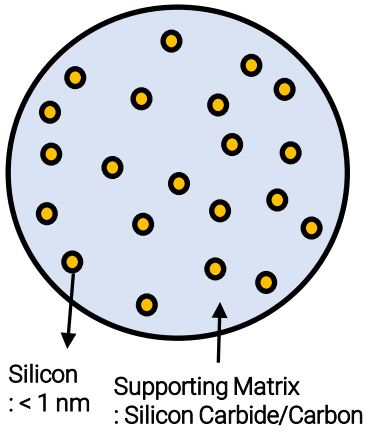
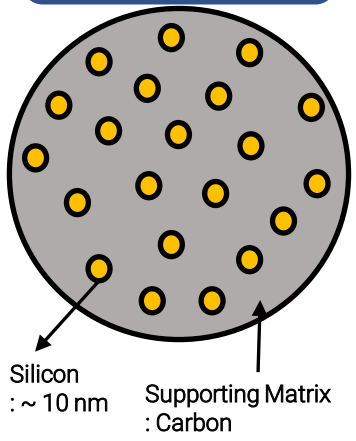
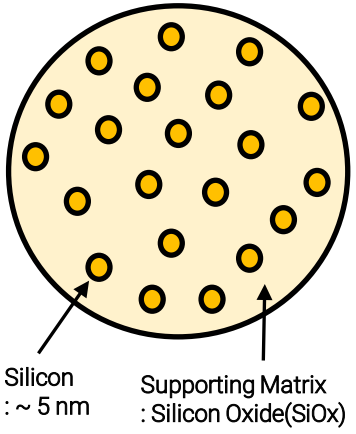
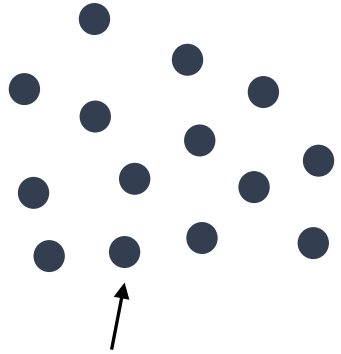
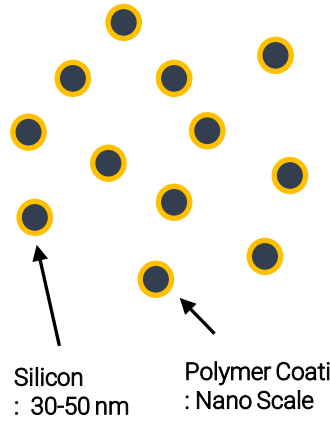
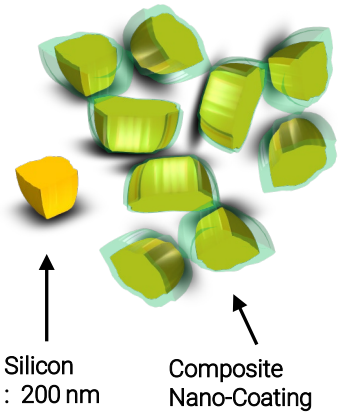
NBMSiDE®

Performance Levels: High / Mid / Low

	Silicon Carbide	Silicon/Carbon Composite	Silicon Oxide (SiOx)	Silicon Nanoparticles	Polymer-Coated Si Nanoparticles	Composite-Nanocoated Metal Silicon
						
Process Method	Chemical Vapor Deposition	Mechanical Pulverization & Vacuum	Thermal Plasma Deposition	Laser Synthesis	Emulsion Solution Process	Mechanical Polishing with Solution Process
Capacity	Mid 1330 mAh/g	Mid 1450 mAh/g	Mid 1330 mAh/g	High 3300 mAh/g	High 2600 mAh/g	High ~2000 mAh/g
ICE	High 91.8 %	Mid 84.0 %	Mid 84.2 %	Low 77.0 %	Mid 86.0 %	Mid > 85.0 %
Cycle Life / Volume Expansion	High	Low	Low	Mid	High	High
Features	• Ease of Control in Silicon Particle Size • Uniform Silicon Dispersion • Dry Process	• Difficult to Control Silicon Particle Size • Non-Uniform Silicon Distribution • Complex Wet Process	• Low Electrical Conductivity • Expensive Manufacturing Process	• Low Process Ease • Poor Dispersion of Silicon Particles • Expensive Manufacturing Process • Relatively Large Particle Size	• Uniform Silicon Dispersion • Complex Wet Process • Inexpensive Manufacturing Process (No High Temperature, Pressure, or Vacuum)	• Simple Wet Process (Grinding & Coating) • Inexpensive Manufacturing Process (No High Temperature, Pressure, or Vacuum) • Difficult for Uniform Coating
Cost Effectiveness	Low	Low	Mid	Low	Low	High

Source: Nature Energy, 2021, 6, 2, 1164 – 1175

Silicon Anode Market

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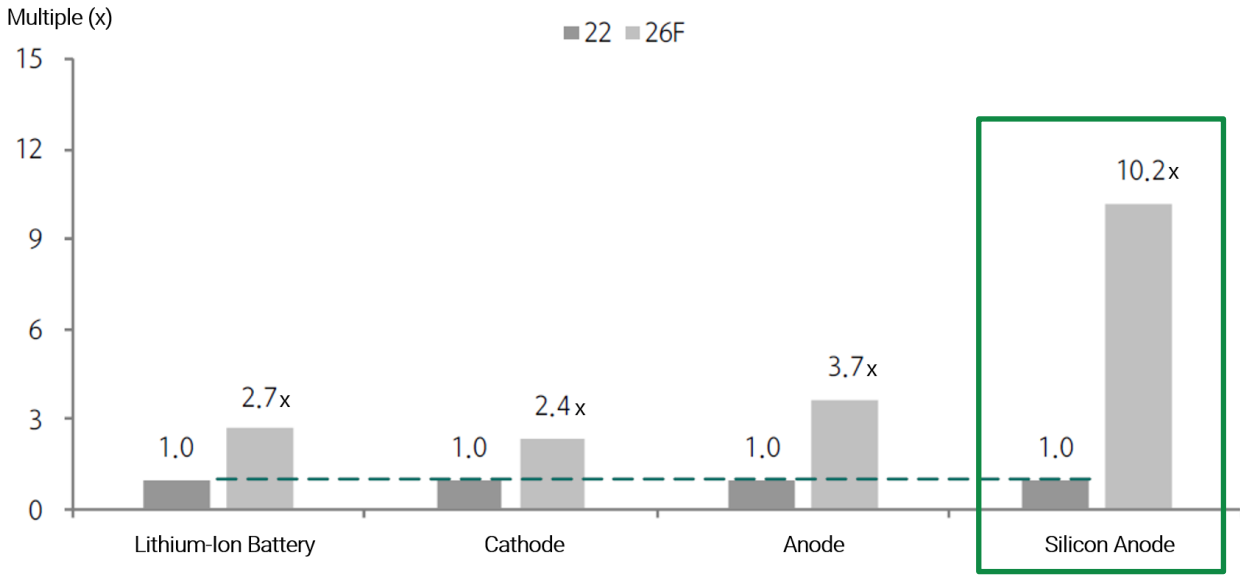
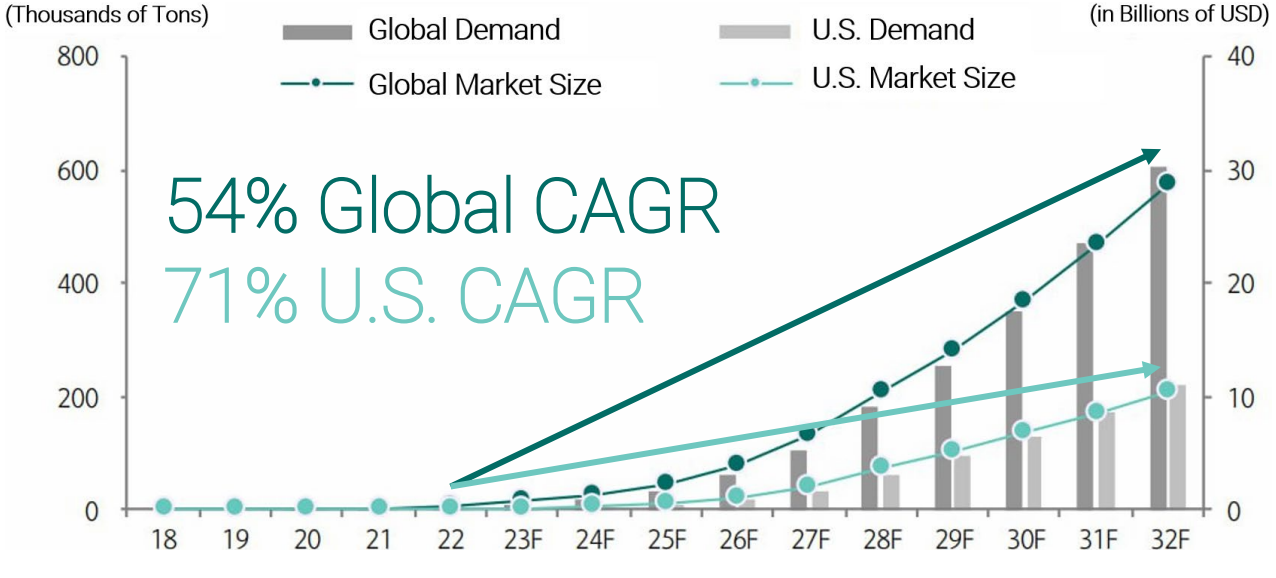
The Only Short & Mid-Term Solution to Boost Battery Capacity

Market Size Growth per Value Chain Component



Global/U.S. Silicon Anode Market Size & Demand Forecast



Implementation Issues

1. Volume Expansion
2. Expensive Manufacturing
3. High-Cost Inputs

Source: SNE Research, Hana Securities

NBMSiDE® - NBM Technology Advantage

NBMSiDE®: Manufacturing Advantage

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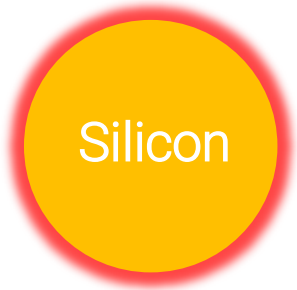
>60% Cost Reduction through NEO's Transformative Material & Process

NEO BATTERY MATERIALS LTD.
One-Step Nanocoating Process

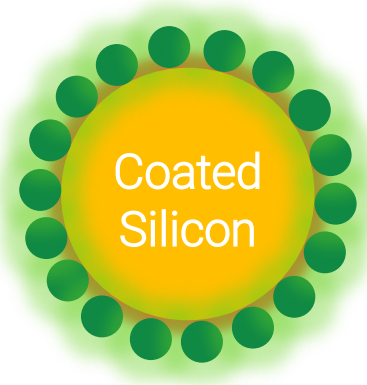
Silicon
Raw Material

- Energy-Efficient & Carbon-Friendly
- Room Temperature & No Complex Processing



Mixing/Milling → Nanocoating →

NBMSiDE®
Silicon Anode



11 IPs
Issued & Pending for Process & Materials

40 to >70%
More Capacity vs. Competitors

Low
Cost Raw Materials

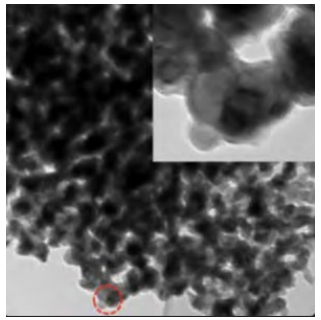
NBMSiDE Characteristics – In Comparison

NEO BATTERY MATERIALS LTD.

	NBMSiDE®	SiO_x	Si-C
Raw Materials	Metallurgical Grade Silicon General Polymers General Solvents	Silicon Oxide Silicon (Nano) High-Purity Metal Catalysts	Silane (Gas) Porous Carbons *Carbon Composite
Process-to-Product	Pulverization (25 °C, 1 atm) → Polymer Coating (25 °C, 1 atm)	Vaporization / Catalytic Vacuum Deposition (1,500 °C, 0 atm) → Chemical Deposition (Carbon Coating) (> 900 °C)	Pyrolysis (Carbon Scaffold) (> 1,000 °C) → Thermal Deposition on Substrate (~900 °C, 0 atm)
Characteristics	• Low Raw Material Price • Mass-Producible • STP Synthesis Process • High Capacity	• High Temperature • Expensive Raw Materials • High Cycle Stability	• Complicated Process • More Expensive Raw Materials • High Cycle Stability
Price Range	>60% Reduction/kg	60 to >100 $/kg	

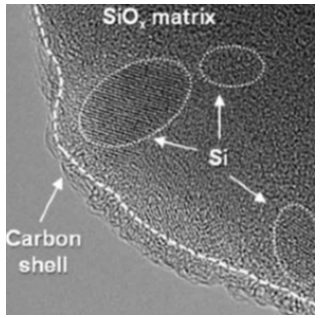
Silicon Anode: Cost Comparison

Estimated Competitor Price & Capacity



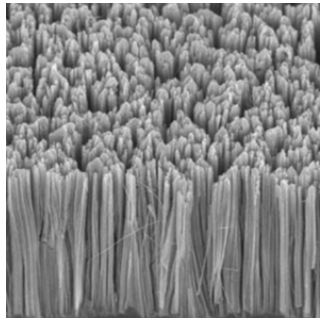
Silicon Carbon (Si-C)

>80 USD/kg
~1,450 mAh/g



Silicon Oxide (SiOx)

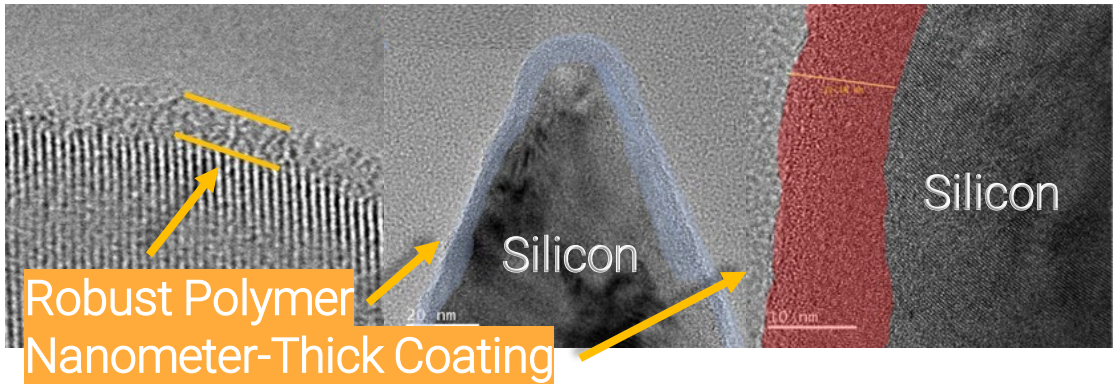
>60 USD/kg
~1,300 mAh/g



Silicon Nanowire (SiNW)

>100 USD/kg
~1,800 mAh/g

NBMSiDE® Price & Capacity



Composite-Nanocoated Silicon

>60% Cost Reduction
~2,000 mAh/g

Source: Tesla Battery Day, Shinhan Securities, NBM's Estimates

Commercialization Keyword: Coulombic Efficiency

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Critical Threshold for Commercialization: How Much Lithium Ions Kept Alive During Charge/Discharge

The Gate to Full Cell Operation

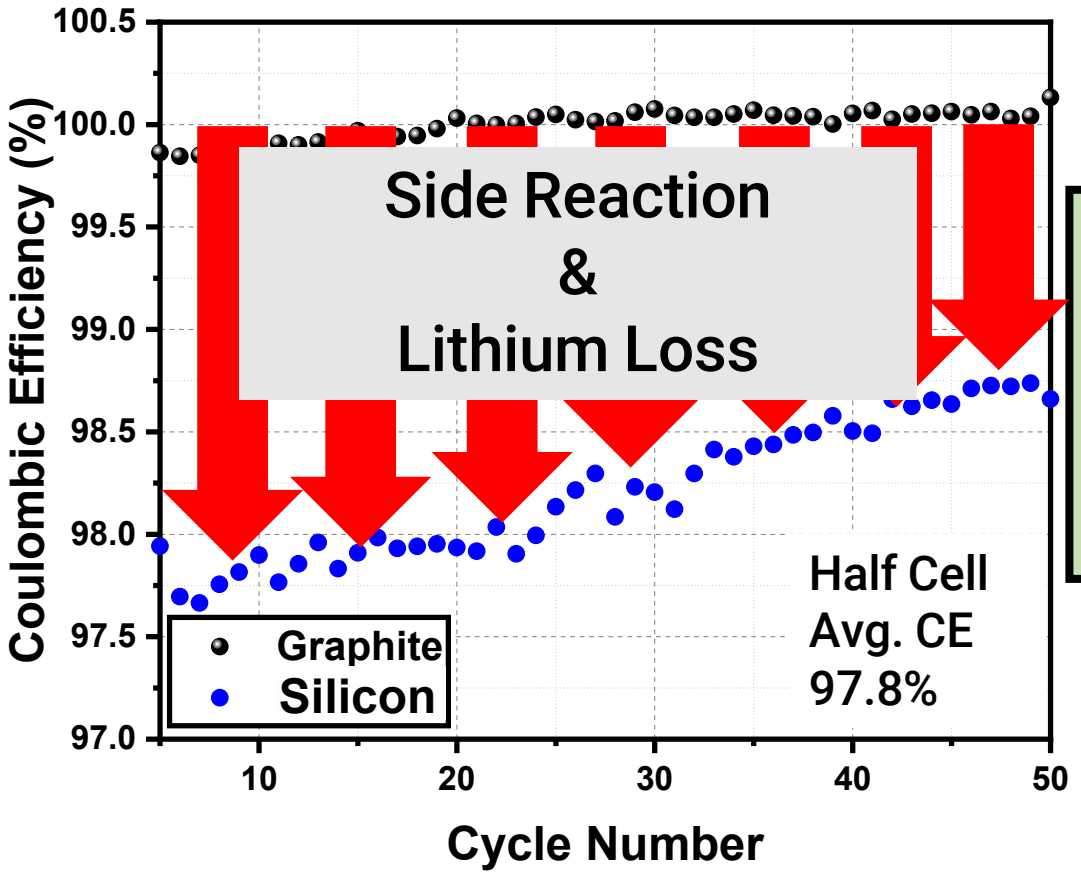
- Representative Characteristic for Li-ion Loss per Cycle
- Critical for Full Cell Operation – Under Limited Amount of Li-ions

When Cathode Capacity = 100 mAh/g, CE=100%,

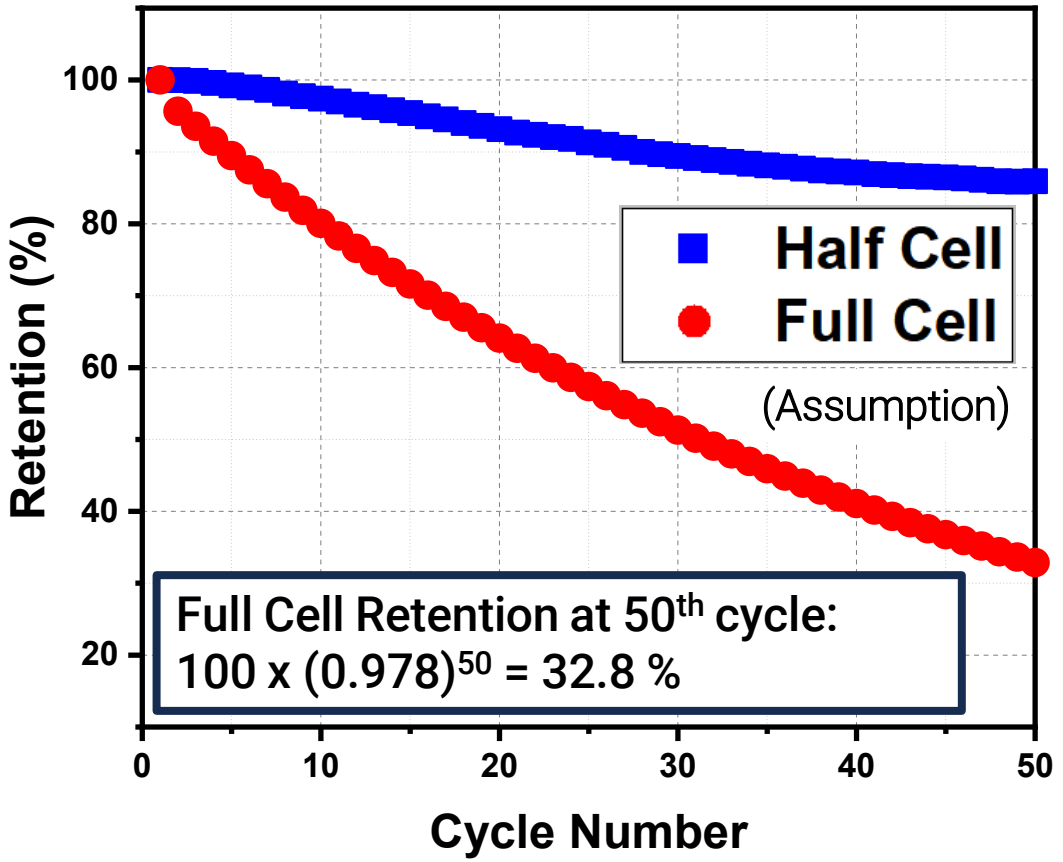
Full Cell Capacity at Nth Cycle = 100 x (Anode CE)^{N} (mAh/g)

Ex1) Anode CE 99.0% → Cell capacity 60 mAh/g at 50th cycle

Ex2) Anode CE 98.0% → Cell capacity 36 mAh/g at 50th cycle



When Applied to Full-Cell



P100: Well-Controlled Precursor for Coating

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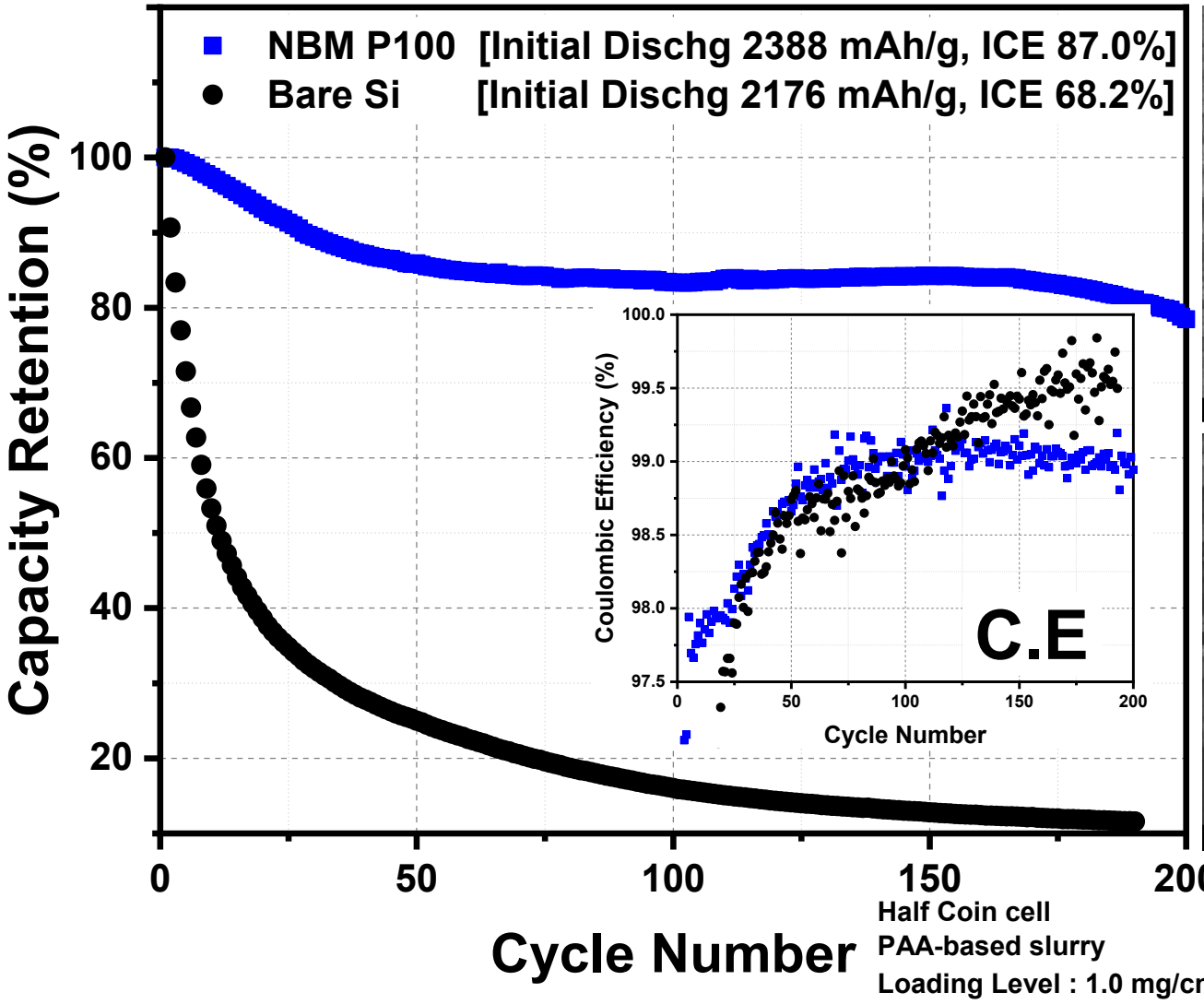

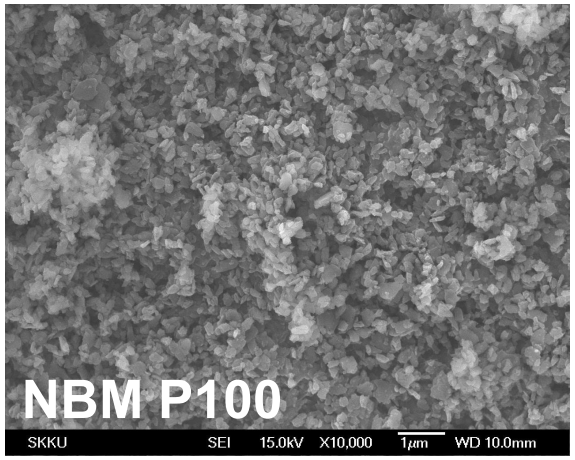

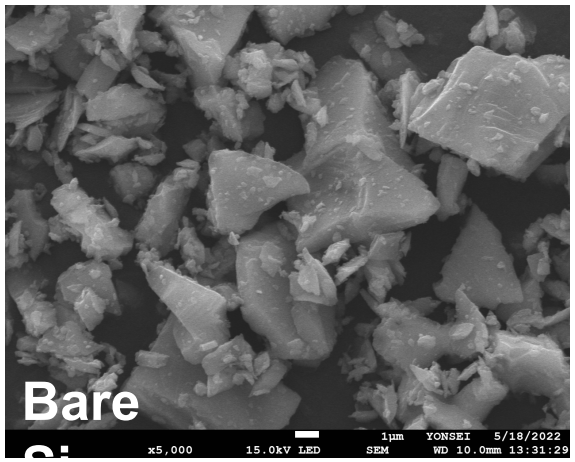

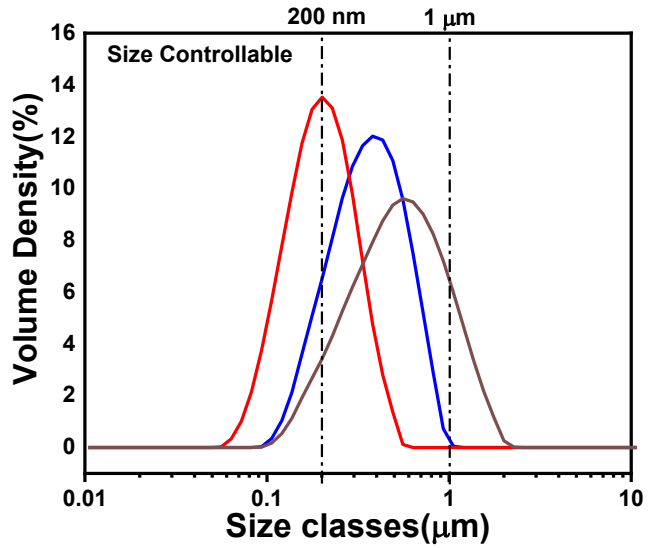

- **High Producibility**
- **Size Control through:**
  - **Precise Pulverization**
  - **Size Classification**
- **Compatible with Polymers**
- **Thin Oxide Layer Protection**

P200 (2023): Development of Coating Tech

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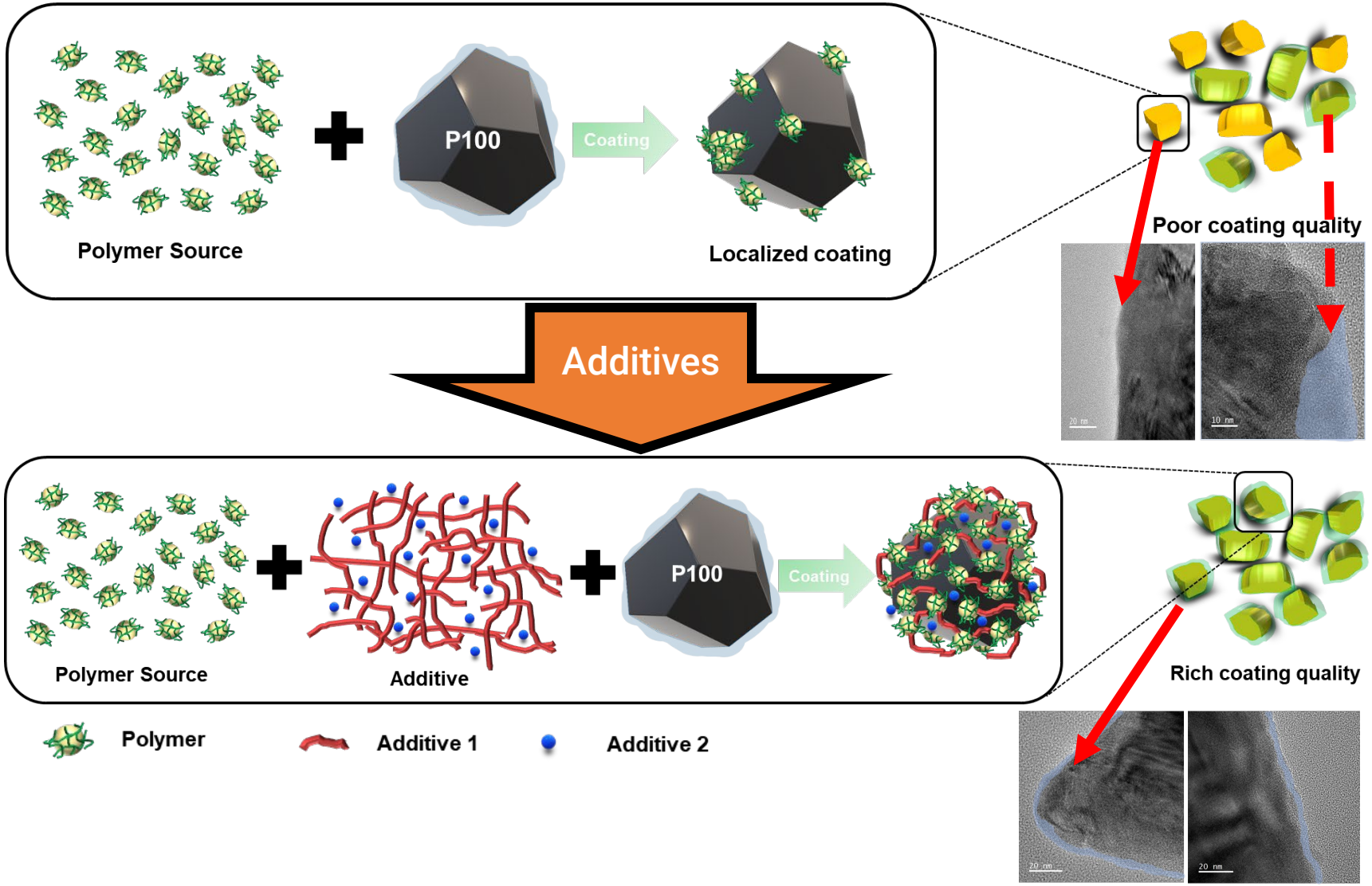
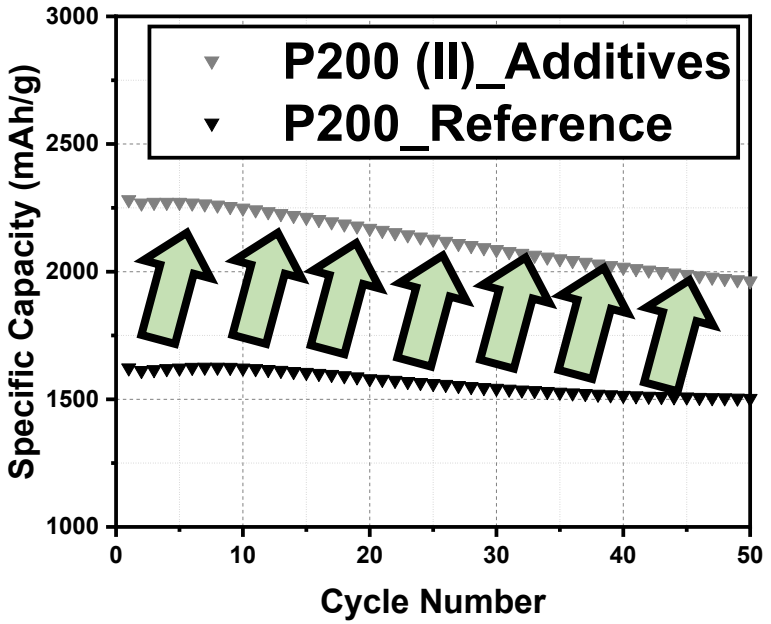
Concept Schematic Design with Surface Polarity Control

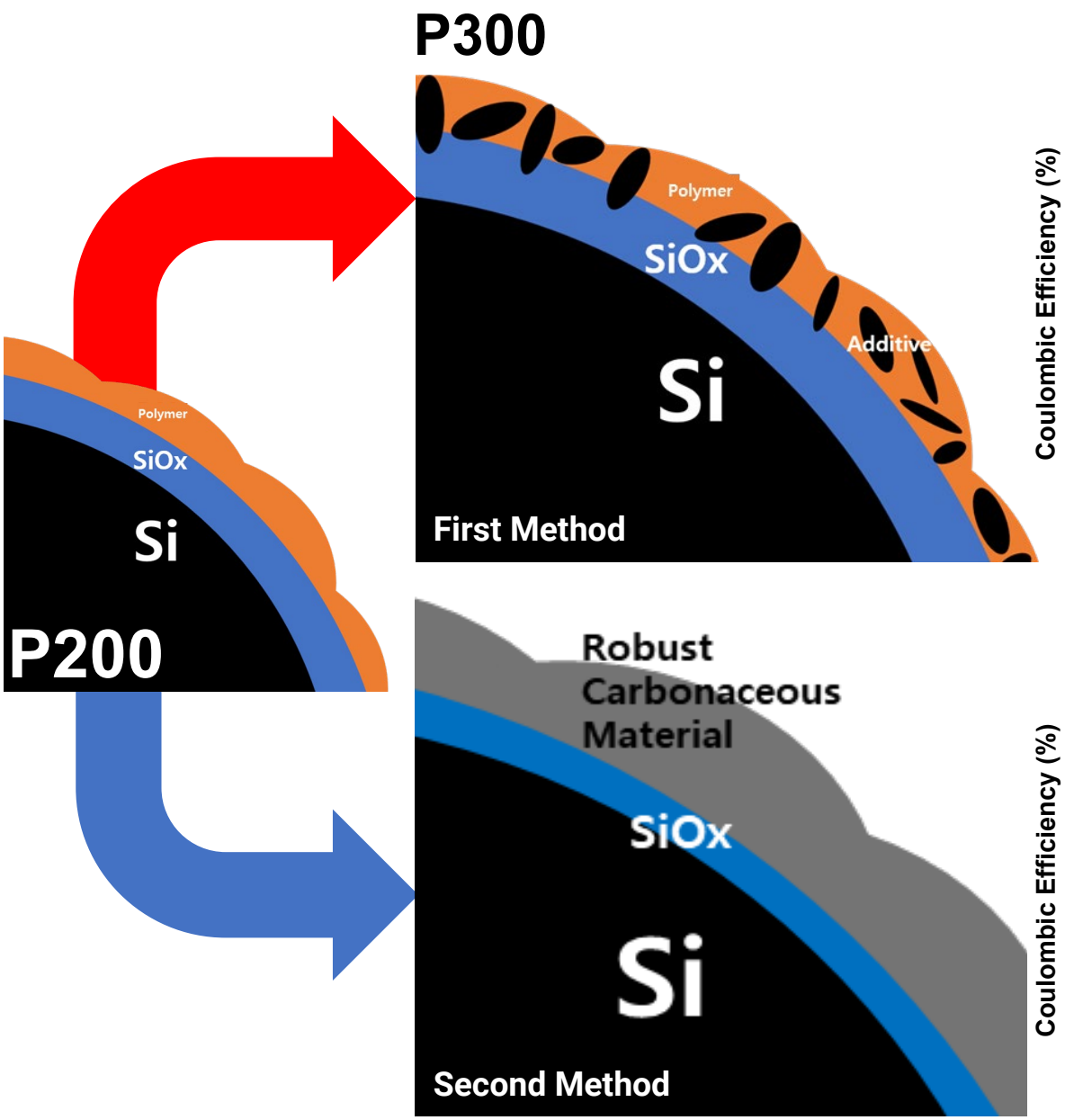
Enhancement on Polarity of Surface / Increased Adhesion on Silicon-Polymer Interface

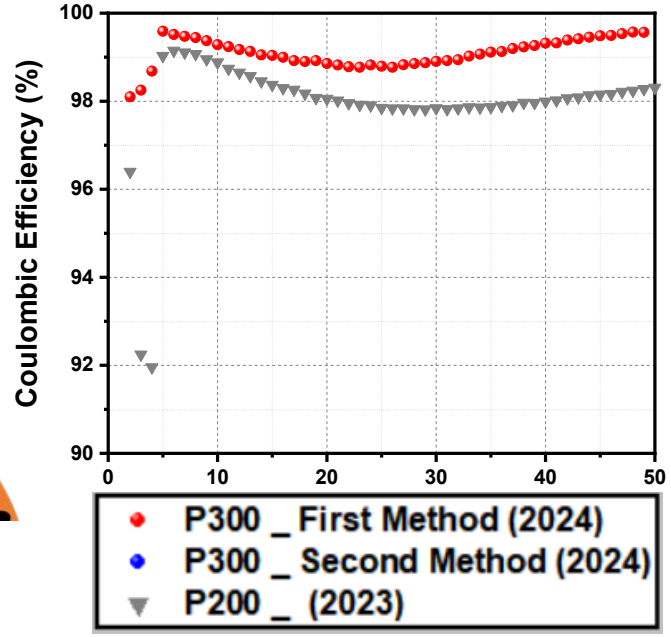




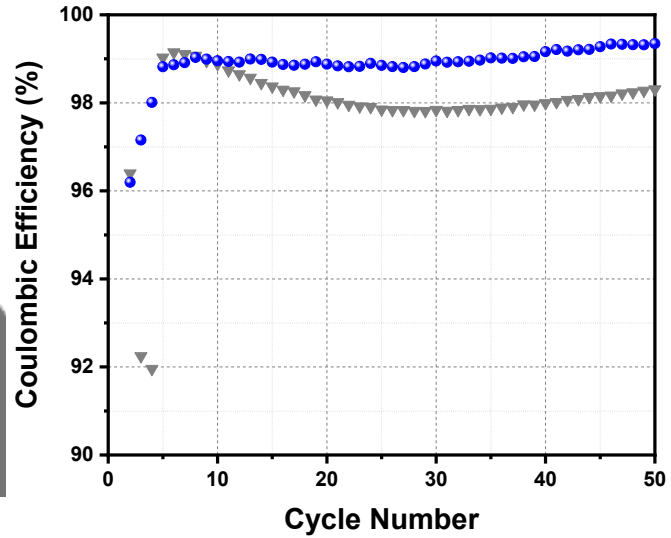
- ❖ **Uniform & Thin Coatings**
- **Coating Uniformity Enhanced**
- **Dead-Weight Reduced**
- **Si Raw Surface Exposure Mitigated**

P300 (2024): Two-Way Coating Method





- High Capacity (~2,800mAh/g)
- High Cycling CE (~99.5%)
- High ICE (>88.0%)
- Polymeric Layer Protection



- Stable Cycling CE
- Ease to Engineer the Surface
- Shell Layer Protection

P300N (2025): Composite Layer Coating

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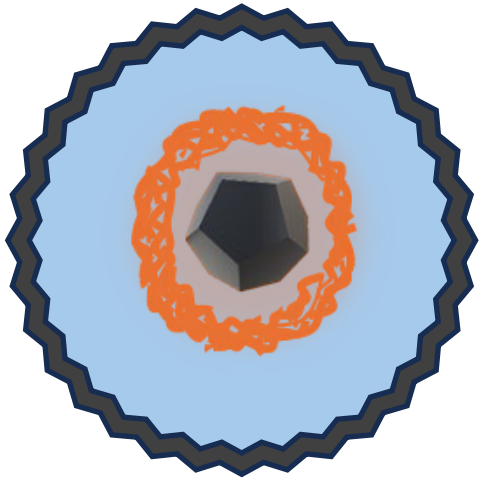
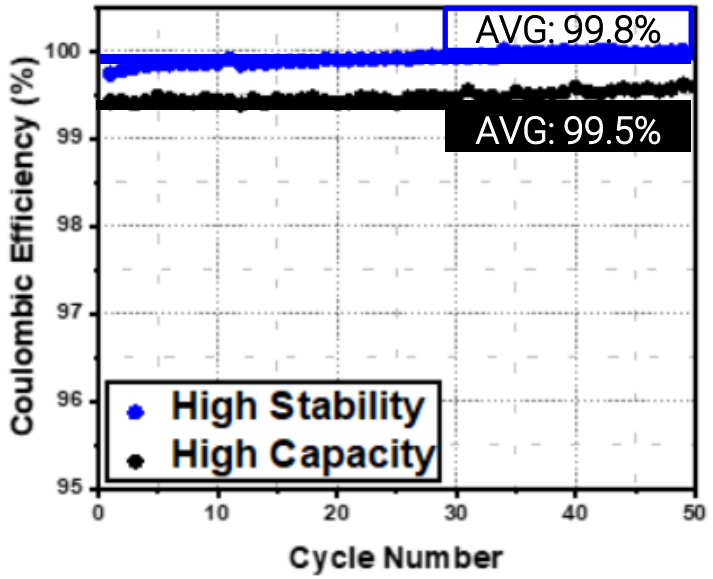
P300N



- Silicon
- Polymer
- Additive
- Composite

- Strengthened Composite Layer Coating Network
  - Additives: Enhancing Conductivity, Supporting Polymer Matrix
- Simple, Feasible & Cost-Effective Process
- Ease-to-Scale-Up For Mass Production



Performance Implication

❖ **Exceptional, Industry-Competitive** 50-Cycle AVG Coulombic Efficiency in 100% Silicon Half-Cell Strongly Indicates/Implies:

1. High Cycling Stability **in Larger-Scale Full-Cell Batteries** for 300+ & 500+ Cycles
2. High Capacity & Cycling Stability in Silicon/Graphite Mixed Anode
3. Expediting **Scale-Up & Go-to-Market** Timelines

Commercialization Plans

Next Steps: Larger-Scale Battery Testing

Industry-Standard Validation Pathway

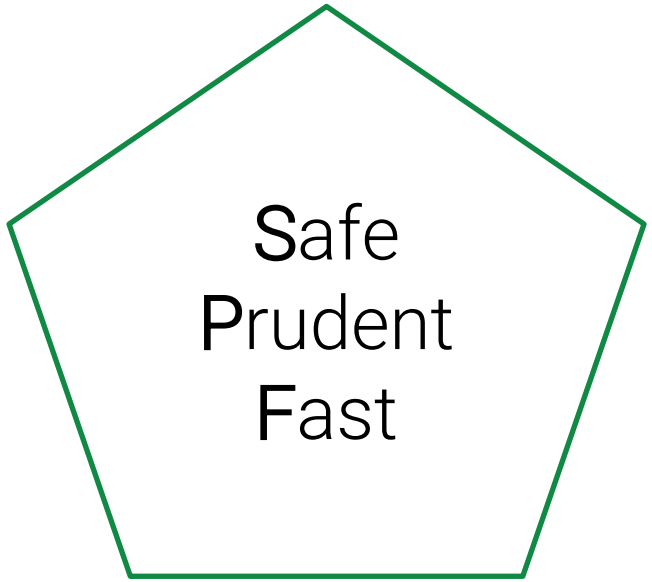
1. Coin Half-Cell (Anode-Only)	2. Coin Full-Cell (Cathode & Anode)	3. Single-Layer Full-Cell	4. Multi-Layer Full-Cell
Completed with Highest Performance Achieved with P-300N	In Progress with Graphite-Silicon Mixed Anodes + NCM Cathode	Planned and In Preparation for Testing Internally & with Global Battery Supply Chain Player	
Production Scale-Up Completed from Lab-Scale to 4,000 Kilograms per Year Capacity		In Progress to Scale-Up to 20,000 KG per Year for Mass-Producibility Testing	
		Expected Testing & Validation through Electronics or IT Integration	

5-Pillared Strategy for GTM

Pursuing 5-Pillared Strategy as a Safe, Prudent & Fast Route-to-Commercialization

Pillar 2
Advancing Evaluations with Partners

Pillar 1
Expanding Battery Supply Chain Network



Pillar 3
Best-Performance R&D Optimization

Pillar 5
Pursuing Value-Added Battery Projects

Pillar 4
Securing Advanced Agreements

NBM Silicon Anode Global Expansion Plan

NEO BATTERY MATERIALS LTD. Aims to Become Among the Top 10 Suppliers of Silicon Anode Materials

CA. NEO Battery Materials

Construct Phase I 240 Ton Plant in Windsor, Ontario with 5K Ton Expansion Capacity

KR. NBM Korea Co.

Scaling to 20,000 KG Pilot Capacity with Planned 5K Ton Final Capacity for South Korean Commercial Plant

US. NBM America LLC

Exploring Options in Ohio or Arizona to Target US Department of Energy and Defense Grants

EU. Europe

Considering Multiple Locations for Commercial Plant Expansion with Potential JV Partners

Commercial Plant Phased Expansion

Phase Expansion Timeline	Phase I	Phase II	Phase III	Phase IV
Maximum Annual Production Capacity (in tonnes per annum)	240 TPA	1,000 TPA	2,500 TPA	5,000 TPA

11 Acres

Secured for Silicon Anode Production

1.7M – 3.3M

# of EVs Supplied at Phase IV Capacity

80K – 160K

# of EVs Supplied at Phase I Capacity

~150 GWh

Of Batteries Supplied with Phase IV

2025/26 Strategic Goals & Key Catalysts

NEO BATTERY MATERIALS LTD.

Anticipated Milestones to Advance into Next Stages of Commercializing Tech

Technology

a. Equipment Integration for Production Expansion of P-300N

b. Larger-Scale/Near-Commercial Full Cell Tests to Validate Long-Term Cycling Performance

c. Continuous Product Optimization for Performance & Costs

Partnerships

a. Securing Advanced Agreements, Including Joint Development, Offtakes, and Strategic Investments, with Global Battery Cell Manufacturers, EV Automakers, & OEMs

b. Developments with Current MOU & JDA Partners

Commercialization

a. Scale-Up to 20 Tons/Yr by EOY for Mass-Producibility Testing for Economics & Quality

b. Phase I Construction of Commercial Facility to Commission 240 Tons/Yr

Share Performance & Structure

Financial Overview

(as of April 30, 2025)

Current Share Price	$ 0.66
52-Week Low	$ 0.06
52-Week High	$ 1.10
Basic Shares Outstanding	119,157,756
Warrants	12,260,835
Options	11,195,000
Fully Diluted Shares Outstanding	142,613,591
Market Capitalization (Basic)	$ 78.64M
Market Capitalization (FDSO)	$ 94.12M

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NEO BATTERY MATERIALS LTD.