

# Turning the Chasm into Opportunities: Li-ion Battery Materials Business Strategy

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# The EV market has entered a chasm due to a slowdown in uptake

## Market situation in key countries

**EV sales in 1H '24 fell short of forecast**  
 EV sales : 400K, Q4 '23 → 340K, Q1 '24 → 400K, Q2 '24

**'24 EV sales decline** due to sunseting of subsidies  
 Countries that have terminated subsidies:  
 Sweden ('22-end) / UK (early '23) / Germany ('23-end)

**Slowing rate of growth** due to economic slump and declining subsidies ('23~')

## Global EV sales

(Unit : 1K)



\* Source : SNE Research(March '24)

# While uncertainties persist, global policy likely to keep China in check



## November US presidential election

A Trump win will impact the market with shifting EV promotion policies



## Far-right advances in EU election

Election results could complicate climate policies, including the Green Deal

## Tariff hikes on Chinese EVs



25%



100%



10%

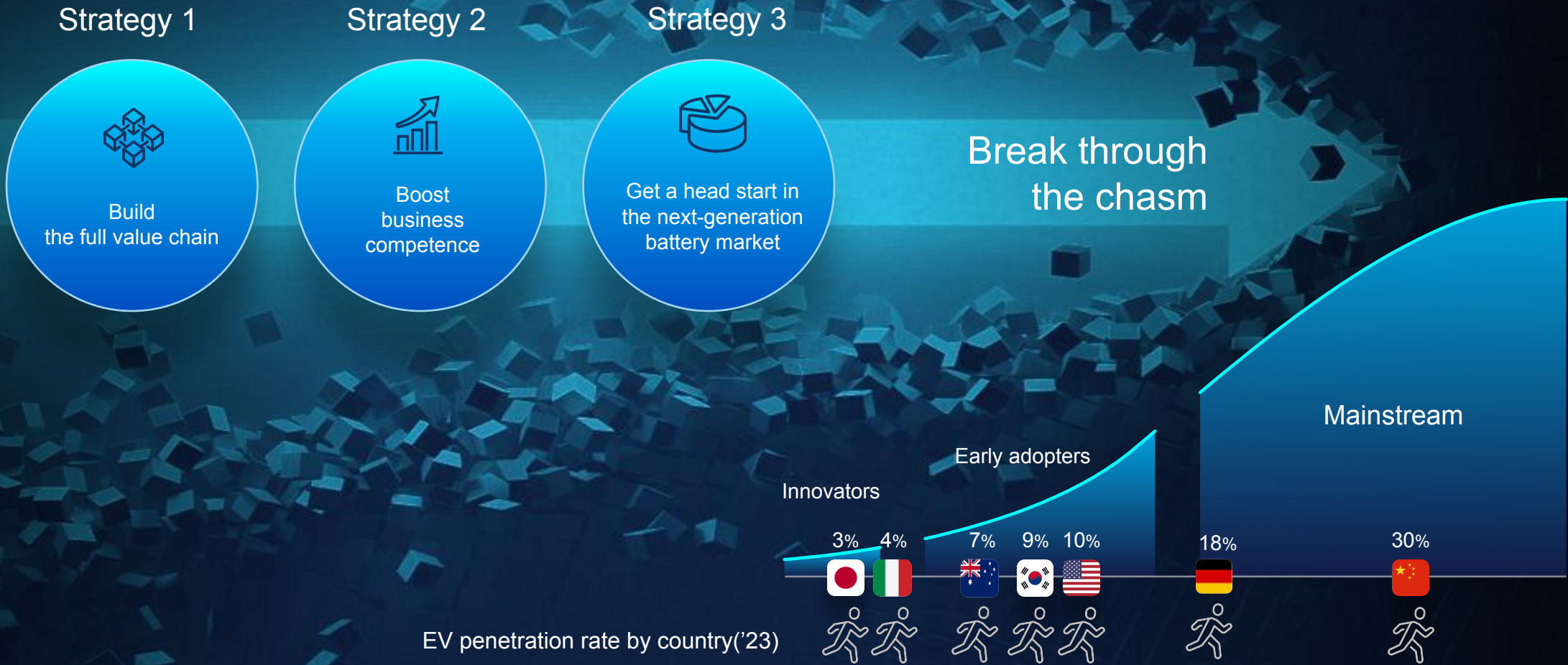


MAX. 46%



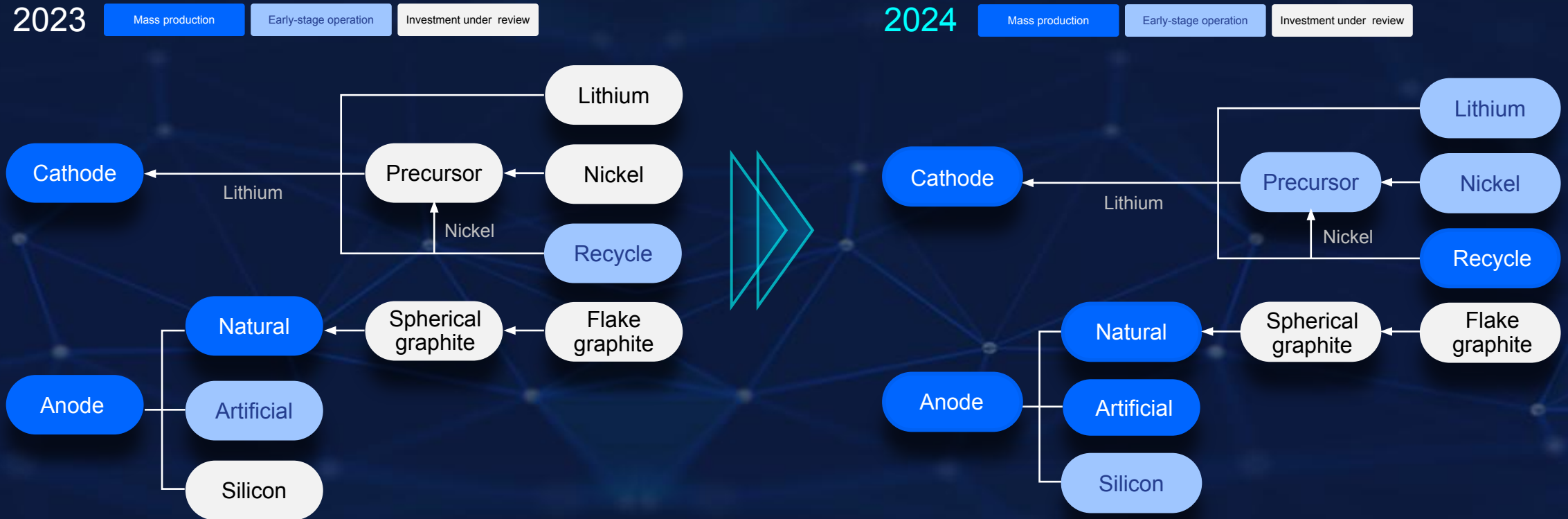
**Growing need to fortify Korea-Australia cooperation to build IRA-compliant battery materials supply chain**

# POSCO Group's strategy to address the market chasm



From raw to active materials, most projects come on line in '24  
 Global #1 steelmaker knowhow is shared across the group  
 to enhance efficiency`

POSCO Group's battery materials value chain



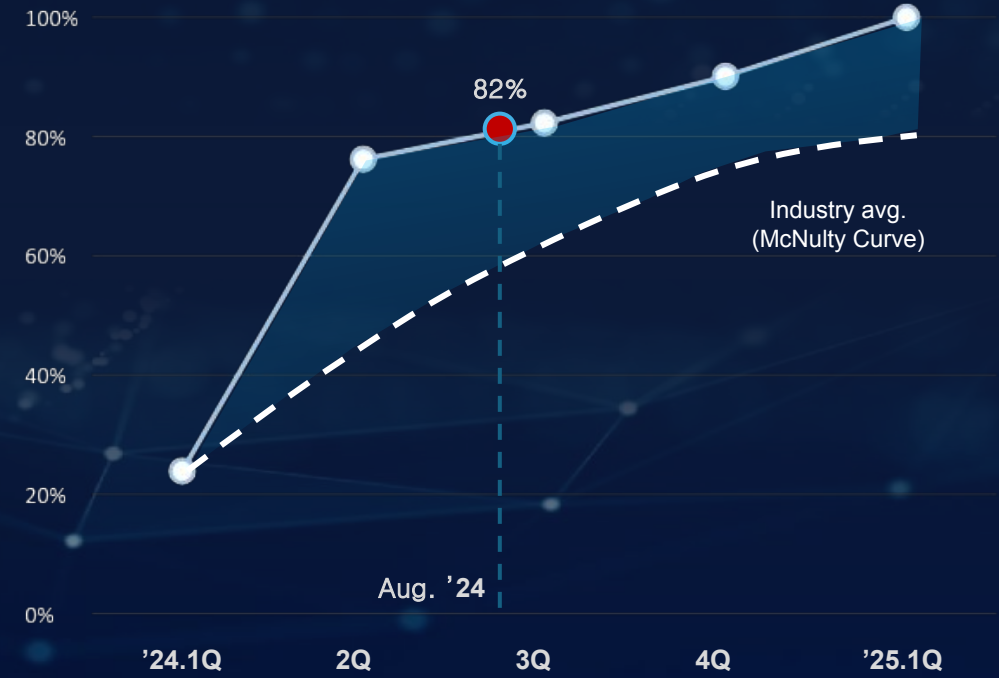
# [Hard Rock] Using Australian spodumene, commercial production and product certifications have commenced

P-PLS (hard rock lithium)



- Nov. '23**  
Construction of POSCO-type process plant completed (21.5Kt)
- Apr. '24**  
**Inaugural shipment**
- Nov. '24**  
Construction of conventional process plant completed (Causticization, +21.5Kt)
- Feb. '25**  
POSCO-type process plant fully operational
- Sep. '25**  
Conventional process plant fully operational

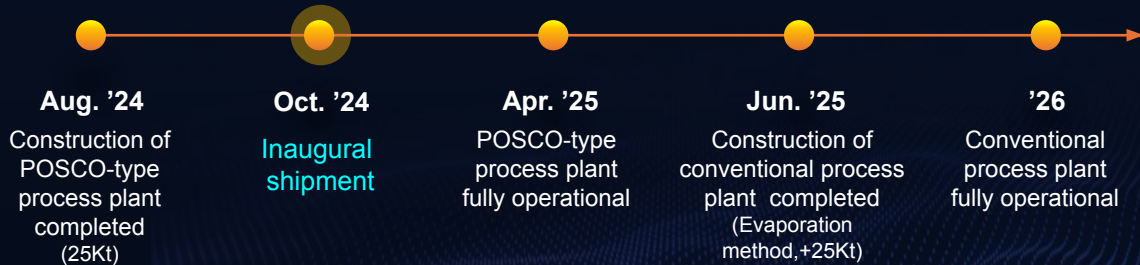
POSCO-type plant operation rate (%) (tallied at quarter-end)



※ Product certification has commenced:  
P-Future M (May '24~), Major Korean cell makers (Jun. '24~)

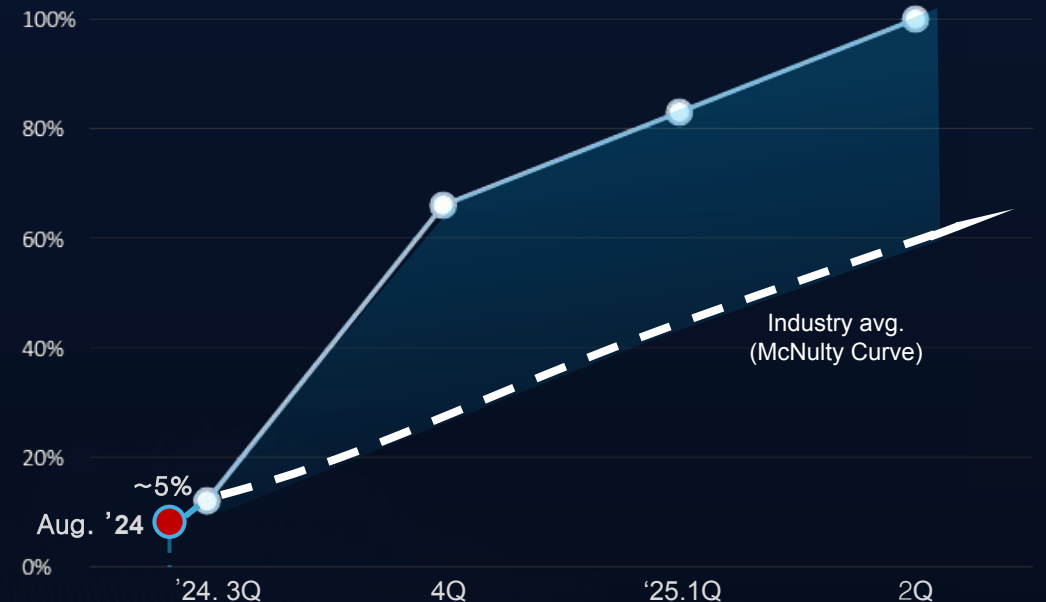
# [Brine] Applying P-PLS operational experience to enhance ramp-up efficiency

P-Argentina (brine lithium)



POSCO-type plant operation rate (%)

(tallied at quarter-end)



※ Product certification has commenced:  
 P-Future M (Sep. '24~), global cathode producers (Nov. '24~)

# Use the chasm to our advantage by acquiring prominent assets and expanding business



## Hard Rock

Australia: Increase capacity in partnership with miners, e.g. Pilbara Minerals  
Explore new mines in Canada, Brazil and across Africa



## Brine

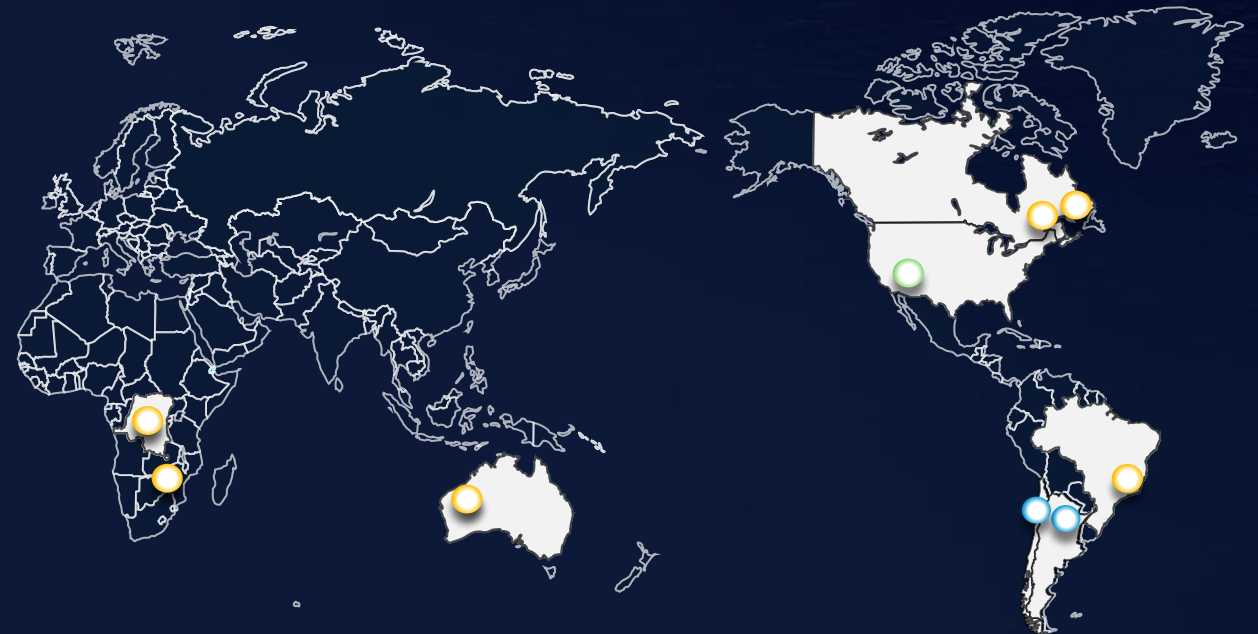
Phase 3 brine project expansion in Argentina  
Acquire additional JV brine assets in Chile



## Geothermal Brine

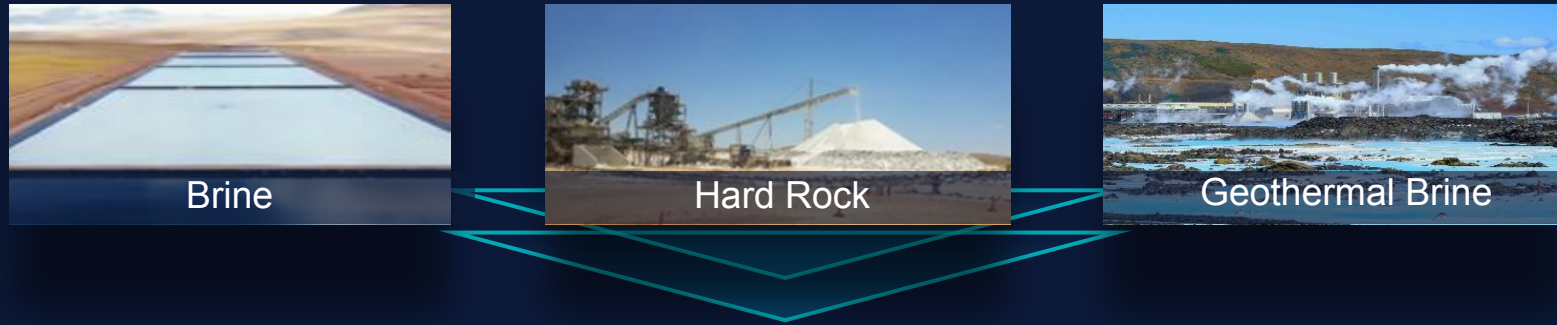
Acquire new lithium resources in North America

Diversify raw materials sourcing





# Differentiated technology and diverse lithium resources to stimulate business expansion



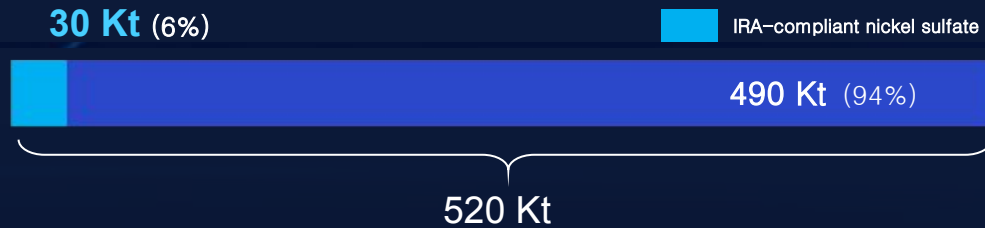
	Mechanism	Advantages	Operations
<p><b>POSCO-type Process (BPED*)</b></p>	Electrochemical reaction	<p><b>Sustainable and proprietary</b></p> <p>Waste generation and freshwater use cut by 50% and 40%, respectively</p>	<p>P-PLS (Plant 1)</p> <p>P-Argentina (Phase 1)</p>
<p><b>Conventional Process (Causticization, evaporation method)</b></p>	Chemical reaction	<p><b>Commercially proven technology</b></p>	<p>P-PLS (Plant 2)</p> <p>P-Argentina (Phase 2)</p>
<p><b>DLE (Direct Lithium Extraction)</b></p>	Adsorption	<p><b>Suitable for low-grade Li resources</b></p>	<p>For new acquisition salt lakes</p> <p>Geothermal brine under consideration</p>

\* Bi-polar Electro-Dialysis

# Building IRA-compliant nickel production system and developing technologies that mitigate carbon and cost profiles

## IRA-compliant nickel production

- In '23, a mere 6% of the global nickel supply was IRA-compliant
- Australian ore meets IRA standards



- In-house supply of **+20K** tons of IRA compliant nickel

<p><b>Smelter</b> SNNC, Matte</p> <p>Jan. '24 : construction completed</p>		
<p><b>Refinery</b> POSCO, Nickel Sulfate</p> <p>Q3 '24: Initial batch production</p>		

## Low-carbon / cost cutting technologies

**Leaching** • AAL\* allows easier tailings treatment and lower CO<sub>2</sub> emissions

\* AAL: Atmospheric Acid Leaching

**As-is** high pressure and temperature

**To-be** atmospheric pressure and temperature

**Refining** • Process configuration is optimized and streamlined to reduce cost

**[Leaching]** As-is: 2 stages → To-be: 1 stage

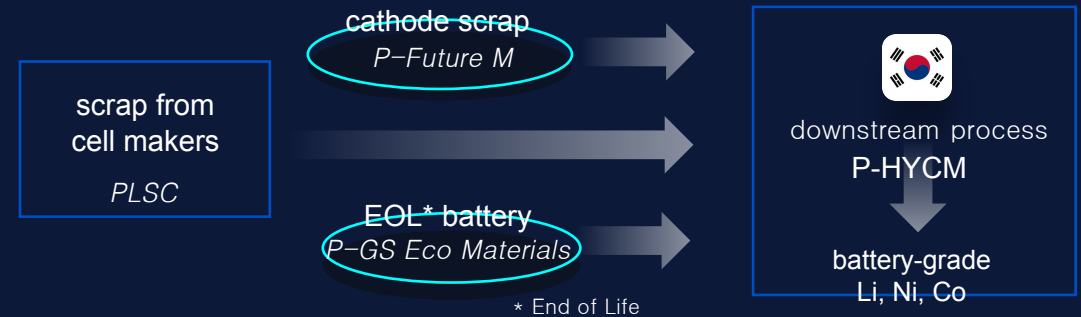
**[Solvent extraction]** As-is: 10 machines → To-be: 30% fewer machines

# Leverage recycling operation to diversify sourcing and to enter European / North American markets

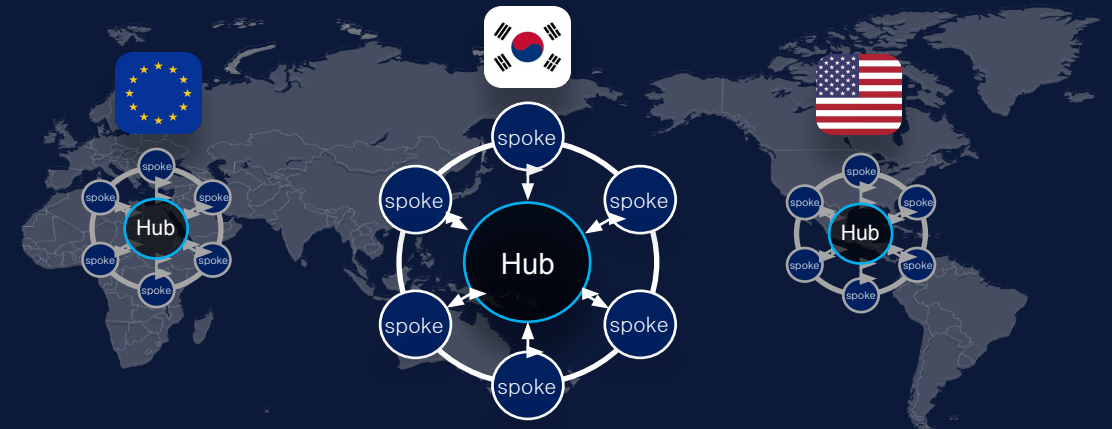
P-HYCM



## Diverse sources of raw materials



## Build regional spoke and hub network

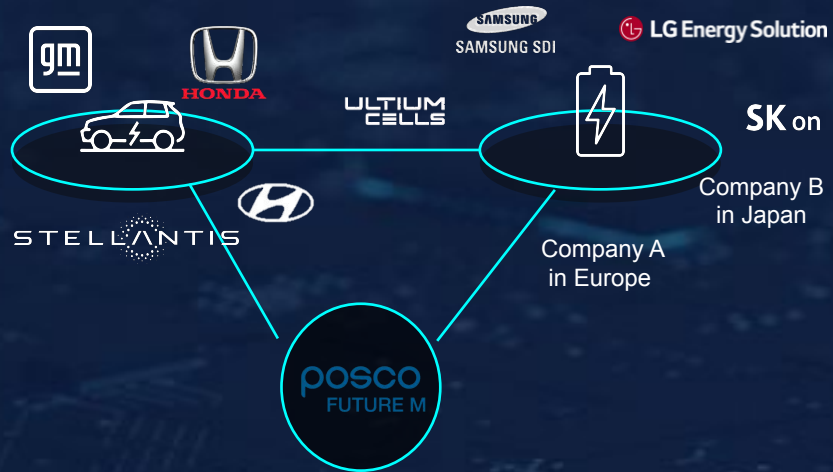


- May '23: P-HYCM initial batch production (6kt)
- '23.E: Ramp-Up
- Feb. '24: 100% acceptance rate achieved
- Jul. '24: 96% operation rate reached
- '25.E: Expand sales to electrolyte / cathode producers

# Diversify cathode customer base and product portfolio

## Cooperate with global OEMs and cell makers

- Establish stable customer base



## Build a broad product portfolio

- Serve all car segments from entry to premium level



**Be first to market cost-competitive mid-Ni products**

**Two-track LFP strategy : 1) Exclusive technology; 2) JV with global partners**

# Full anode line-up to offer IRA-compliant products



## Natural Graphite

- Offtake for Australian and African flake graphite
- Construction of spherical graphite / acid treatment facilities in Korea completed ('26)



## Artificial Graphite

- Achieve maximum productivity ('24)
- Enter countries with low electricity costs ('26)



## Silicon

- Develop low-cost SiOX
- [P-Silicon Solution] SiOx capacity of 550 tpa  
[P-Future M] Si-C production by '26

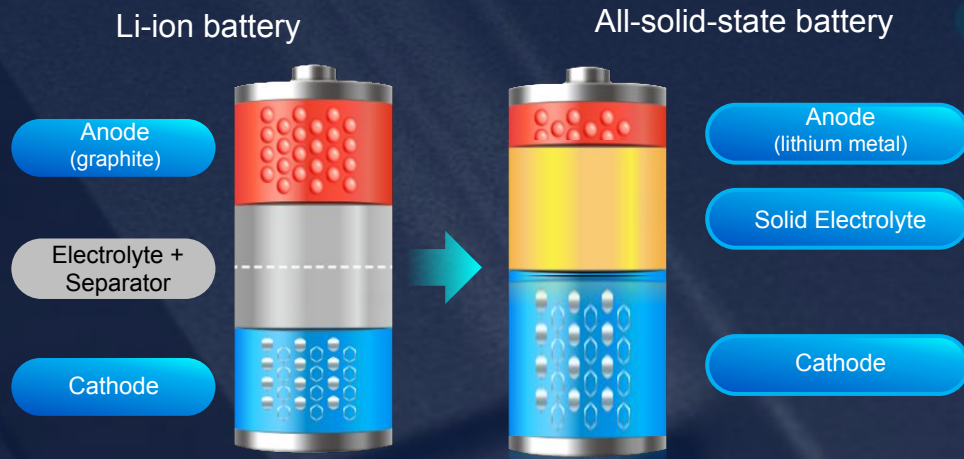
※ Equity ownership : P-Silicon Solution (100% owned by POSCO Holdings)

The world's unique source of  
non-FEOC,  
IRA-compliant  
anodes

# All-solid-state battery market likely to take off from '27

## Market Outlook

- Commercialization of all-solid-state batteries in '27
  - Market share in '32 expected to range between 1.8~3.6%



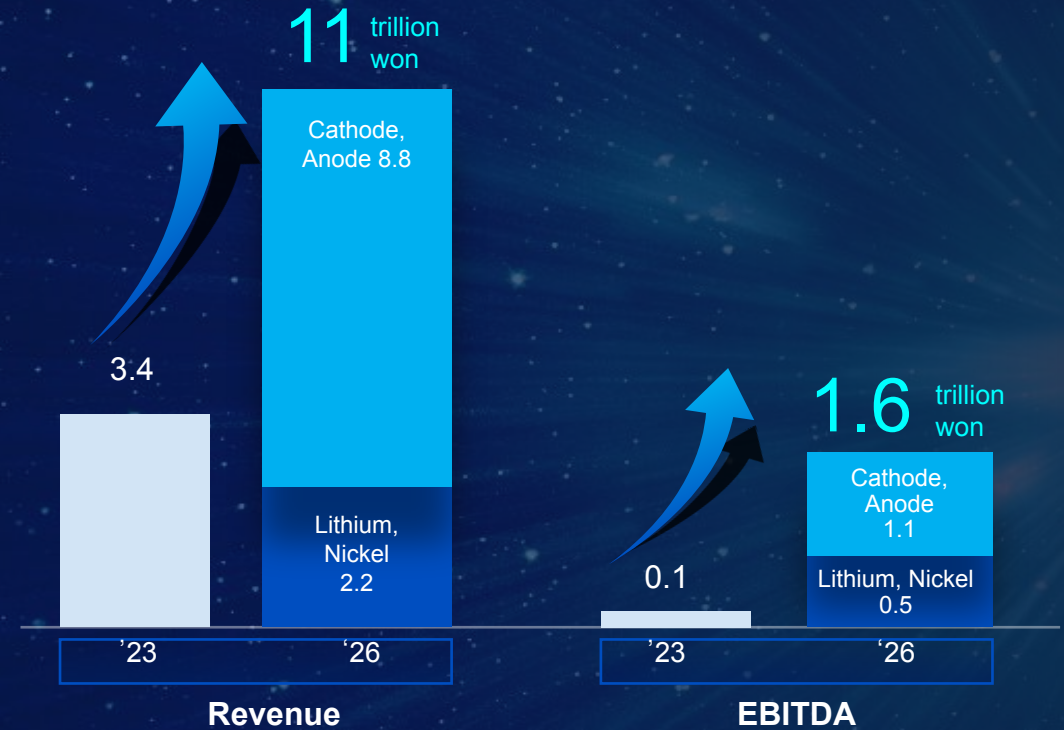
## Group-wide Product Development

- POSCO Holdings (demo plant)
  - **Wide-width\* manufacturing technology** modeled on steel electroplating \*width:100→600mm
- P-JK Solid Solution (in operation)
  - Produces **cost competitive sulfide-based materials** (scale-up by '26)
- POSCO Holdings (demo plant)
  - **Homogeneous protective coating** prevents interfacial side reactions

Offer full range of key materials for all-solid-state battery to gain global leverage

# POSCO Group's strategy to stay competitive

- 01. Build competencies across the full value chain
- 02. Acquire quality assets (salt lakes, mines)
- 03. Get a head start in the next-generation battery market



※ Based on simple summation, before offsetting inter-affiliate transactions  
 ※ Recycling revenues and EBITDA are included in figures pertaining to lithium & nickel  
 ※ For '26 projections, US\$ 16,100/ton lithium price, US\$ 17,375/ton nickel price and exchange rate of USD/KRW=1,192 were applied.  
 - Price estimates were made by POSRI using data from WoodMac and Fastmarkets, among other indices.

## I. Strengthen collaboration with Pilbara Minerals

- Review collaboration to expand P-PLS and Pilbara Minerals' production capacity

## II. New equity investments in Australian lithium mines

- Take advantage of the market chasm to invest in quality lithium assets

## III. Establish IRA-compliant graphite supply chain

- Explore options to invest in natural graphite in collaboration with Australian miners

## IV. Produce battery-grade nickel sulfate using Australian ore

- Establish in-house nickel processing facility that uses IRA-compliant Australian nickel sulfide



An aerial view of a modern city skyline, likely Sydney, Australia, featuring a waterfront with a marina and several prominent skyscrapers. The sky is blue with scattered white clouds. The text is overlaid on the image in white, with some words in green and blue.

Australia and POSCO Group are  
**ideal partners**  
to address the market chasm and  
to collaborate as **global leaders**  
in the battery materials supply chain.

Thank you for your attention.