

# London 121 Mining Conference

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Korea Zinc Co., Ltd.

2026.05

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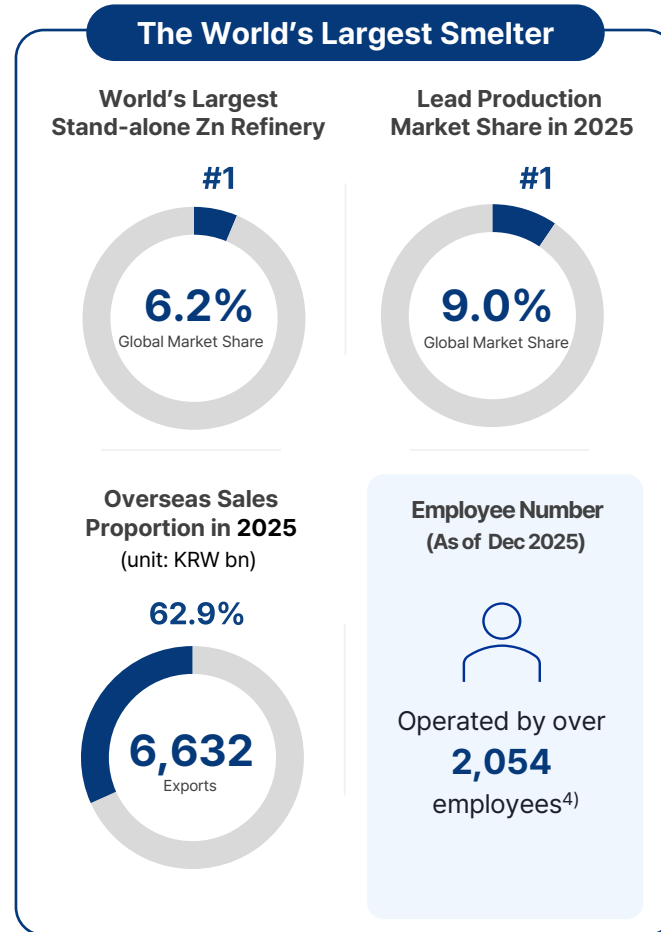
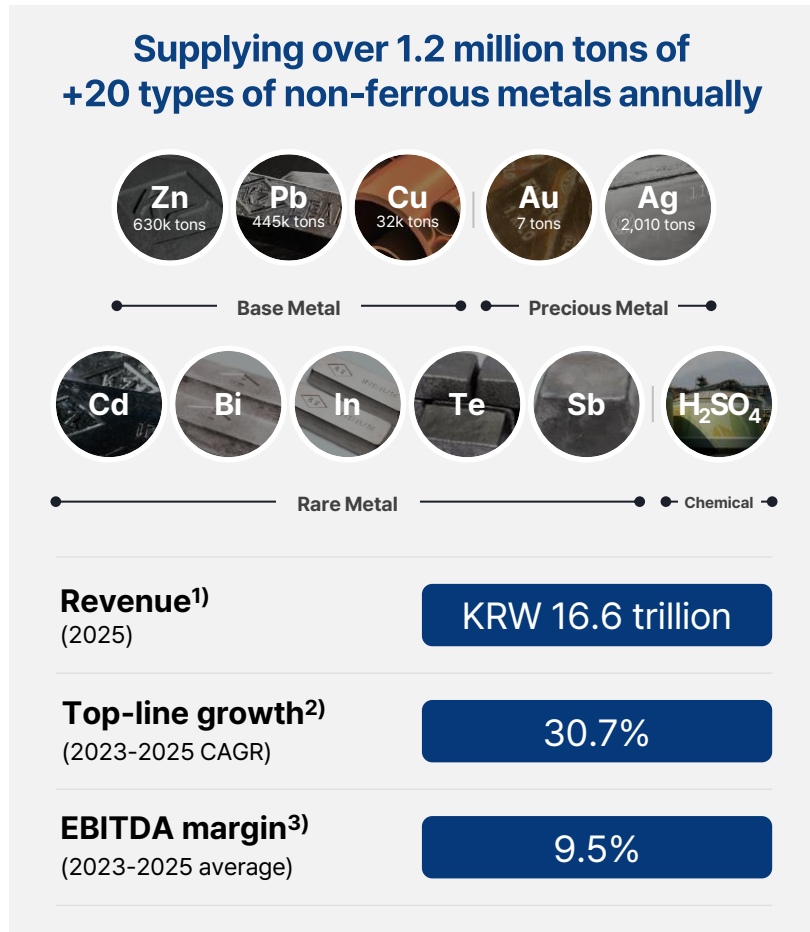
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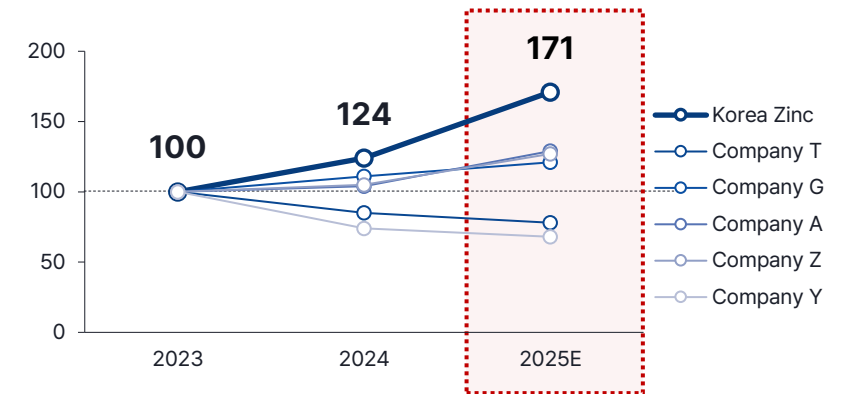


# 1. Company Overview\_ Snapshot

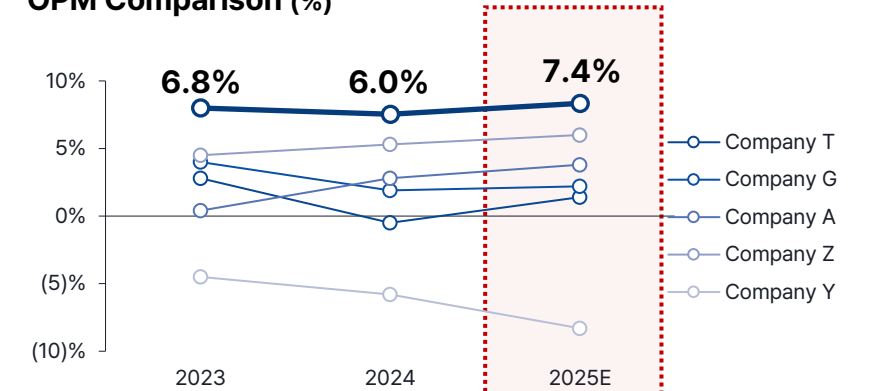
- Korea Zinc is a company with a proud 51-year history as a global leader, producing over 1.2 million tons annually around 20 types of non-ferrous metals—more than half of which are critical metals—while adhering to the highest standards of environmental responsibility.



**Net Sales Growth Comparison** (indexed=2023)



**OPM Comparison (%)**



1) Korea Zinc's consolidated basis revenue  
 2) CAGR of KZ's consolidated basis revenue between 2023-2025  
 3) Average of Korea Zinc's consolidated basis EBITDA margin between 2023-2025  
 4) Korea Zinc employees only (excluding subsidiaries)

# 1-1. Company Overview\_ Business Area

- Korea Zinc sits at the nexus of strong geopolitical and macroeconomic tailwinds, with its world-class, market-leading smelting, resource-recycling, and eco-friendly metal platform, positioned to harness elevated activity across base metals, precious metals, rare metals, and to capture value from any sustained upcycle in these markets.

## Smelting Platform

### Onsan Refinery(Korea)

- Korea Zinc's Onsan Refinery is one of the world's largest and most advanced integrated metals complexes.
- Leveraging its world-class refining, resource-recycling and eco-friendly metal platform, the Onsan site has capacity of approximately 630k tons of zinc, 450k tons of lead, 33k tons of copper, 2k tons of silver and 223k tons of high-purity sulfuric acid annually.

### Sun Metals Corporation(Australia)

- SMC operates a traditional zinc refinery with an annual production capacity of 260k tons, supported by a 26-year operating track record.
- The refinery originally started with an annual capacity of 190k tons of zinc, and, following an expansion project completed in 2023, has increased its zinc production facilities to reach the current 260k tons annually.

## U.S. Strategic Smelting Platform

### Project Crucible(U.S.)

- Construction is scheduled to commence in 1Q 2027, whilst commercial operations targeted for 1Q 2029
- The U.S. smelter is designed at approximately 50% of the capacity of the Onsan Refinery, incorporating Onsan's core metallurgical technologies and operational know-how.
- The facility will produce 13 non-ferrous metals, 11 of which are designated as critical minerals by the U.S. government, and thus, help the U.S. diversify critical minerals supply-chain.
- Total investment is estimated at \$7.4 billion while over 90% of the investment will be funded by the U.S. government and strategic investors.
- The facility will act as the central hub for secondary feedstock, creating end-to-end integration and system-wide operational synergies with PedalPoint.
- The Project is expected to generate an EBITDA margin of approximately 17-19% over the project life.

## Troika Drive Initiatives

### Resource Recycling - PedalPoint(U.S.)

- PedalPoint operates as a networked platform across North America, aggregating and pre-processing electronic waste into stable, high-quality feedstock.
- PedalPoint is also advancing a partnership with Alta Resource Technologies with the objective of commencing commercial production of magnet-grade rare earth materials in 2027.

### Renewable Energy - Ark Energy(Australia)

- Ark Energy is a renewable energy solutions provider engaged in the development and operation of renewable energy projects, as well as green hydrogen initiatives.
- Ark Energy owns a 30% stake in the MacIntyre Wind Farm in Queensland, with a generation capacity of 923.4MW.

### Secondary Battery Materials - KEMCO/KPC/KZAM(Korea)

- Korea Zinc is also building an integrated secondary battery materials value chain, spanning KEMCO(nickel sulfate), KPC(battery precursors) and KZAM(copper foil), with downstream expansion into battery recycling operations.

# 1-2. Company Overview\_ Key Milestones

- Founded in 1974, Korea Zinc has evolved from a 50,000-ton-per-year zinc smelter into an integrated non-ferrous refining complex producing over 20 metals with annual output of approximately 1.2 million tons, underpinned by strong operational execution and a record of profitability for 103 consecutive quarters since quarterly reporting became mandatory.

## Foundation & Core Smelting Development

(1974~1999)

- 1974** Established Korea Zinc Co., Ltd.
- 1978** Construction of Zinc Refinery (Zinc 50ktpa)
- 1986** Construction of Lead Refinery (Lead 35ktpa)
- 1992** Construction of DRS Lead Refinery (Lead 135ktpa)
- 1994** Construction of Direct Leaching Factory for Zinc Concentrate
- 1995** Construction of Fumer Plant
- 1997** Established SMC, Australian Zinc Smelting Subsidiary

\* Capacity increased from initial 190 ktpa to Current 260 ktpa

## Global Expansion & Portfolio Diversification

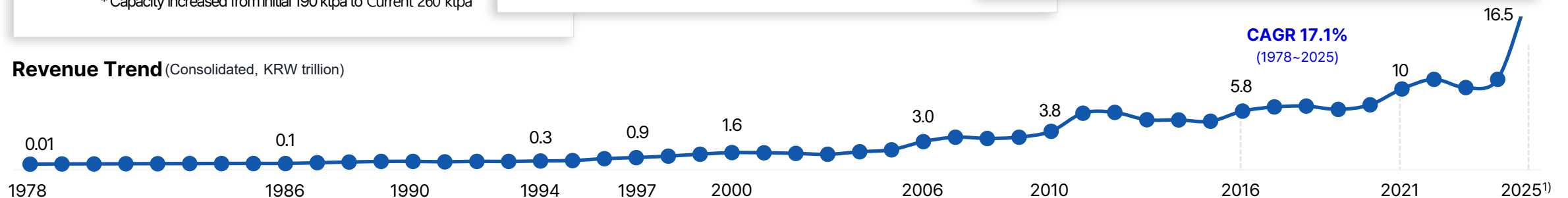
(2000~2017)

- 2000** Construction of TSL Plant
- 2004** Construction of Copper Refinery (Copper 20kpa)
- 2015** Construction of the 2<sup>nd</sup> Non-ferrous Metal Complex (Lead 420ktpa)
- 2016** Acquired Zinc Oxide Corporation
- 2017** Established Zinc Oxide Corporation Vietnam
- 2018** Construction of #10 Zinc Electrolysis Plant (Zinc 650ktpa)  
Commissioning of Onsan ESS (150,000 kWh)  
Construction of SMC Solar Farm (124 MW)

## Energy Transition & Troika Drive (2018~ )

- 2020** Construction of LNG Combined Cycle Power Plant; Established KZAM, KZ's battery materials subsidiary
- 2021** Established Ark Energy in Australia; Acquired Epuron, a renewable energy developer
- 2022** Acquired Igneo Holdings (U.S.), An electronic waste recycling corporation
- 2023** Began the Construction of an All-in-One Nickel Refinery
- 2024** Acquired Kataman Metals, Techno Rescue, 30% stake in MacIntyre Wind Farm<sup>2)</sup>
- 2025** Acquired MDSi<sup>3)</sup>  
**Announced U.S. Integrated Smelter Investment ("Project Crucible")**

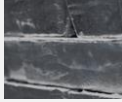




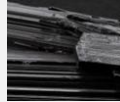
































## Revenue Trend (Consolidated, KRW trillion)



1) Korea Zinc's consolidated basis revenue, 2) Acquired through Korea Zinc's subsidiary Ark Energy, 3) Stands for Management Data Systems International

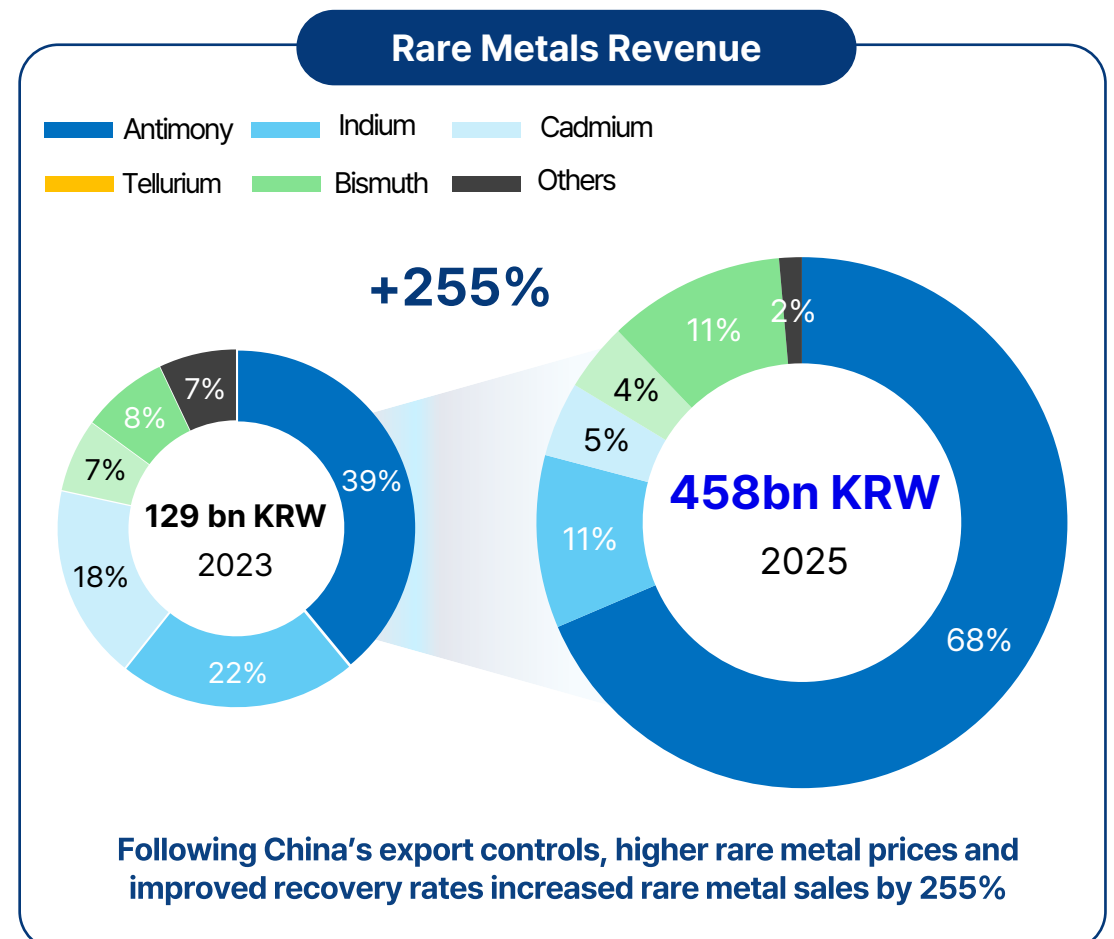
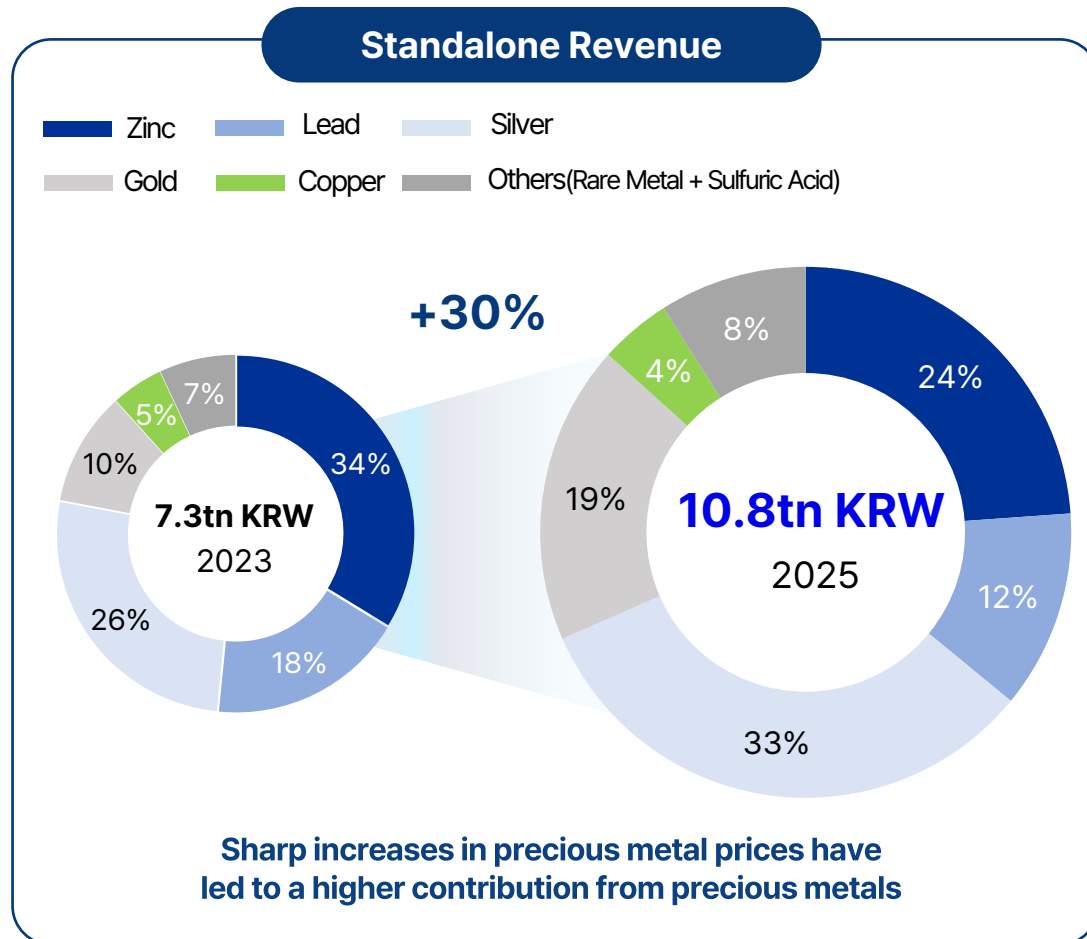
# 1-3. Company Overview\_Products

- Korea Zinc produces a total 22 types of products, spanning base, precious, rare metals and semiconductor-grade sulfuric acid.
- Major products are indispensable inputs across key industries such as artificial intelligence, defense, electric vehicles, and batteries.

	Base Metals			Precious Metals		Rare Metals				Others	
											
	Zinc	Lead	Copper	Silver	Gold	Antimony	Indium	Bismuth	Cadmium	Tellurium	Sulfuric Acid
2025 Production Volume	845,645 Tons <small>Including SMC</small>	413,721 Tons	33,001 Tons	2,090 tons	12.5 tons	4,501 tons	97 tons	1,145 tons	3,345 tons	248 tons	194,900 tons
End-Use Markets											
											
											

# 1-4. Company Overview\_ Revenue Breakdown

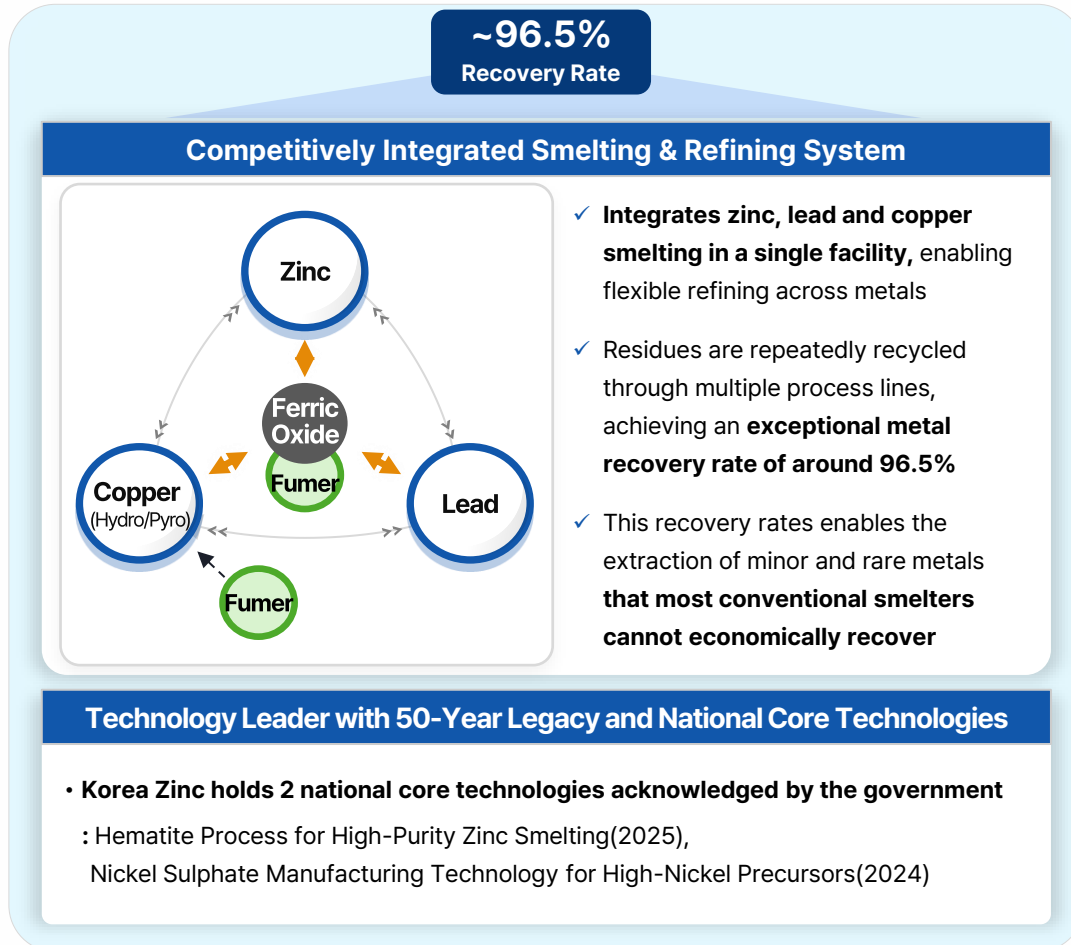
- Recent increases in precious and rare metal prices have raised their share within the product portfolio, contributing to a more resilient revenue structure
- Rare metals in particular delivered strong performance supported by supply constraints following China's export controls.



# 1-5. Company Overview\_ Competitive Advantages

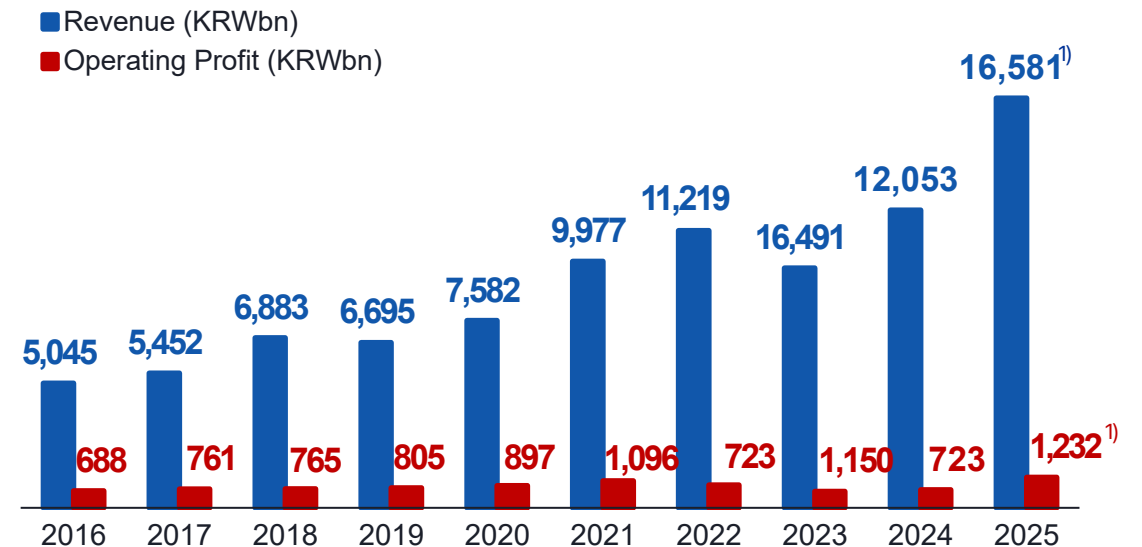
- Korea Zinc is a reliable and resilient supplier, uniquely positioned to provide a diversified range of critical metals to global supply chain.

## Integrated Process with Distinctive Technological Advantage



## Robust & Resilient Financial Performance

*Demonstrating consistent growth and a long-standing record of sustained profitability within the industry*

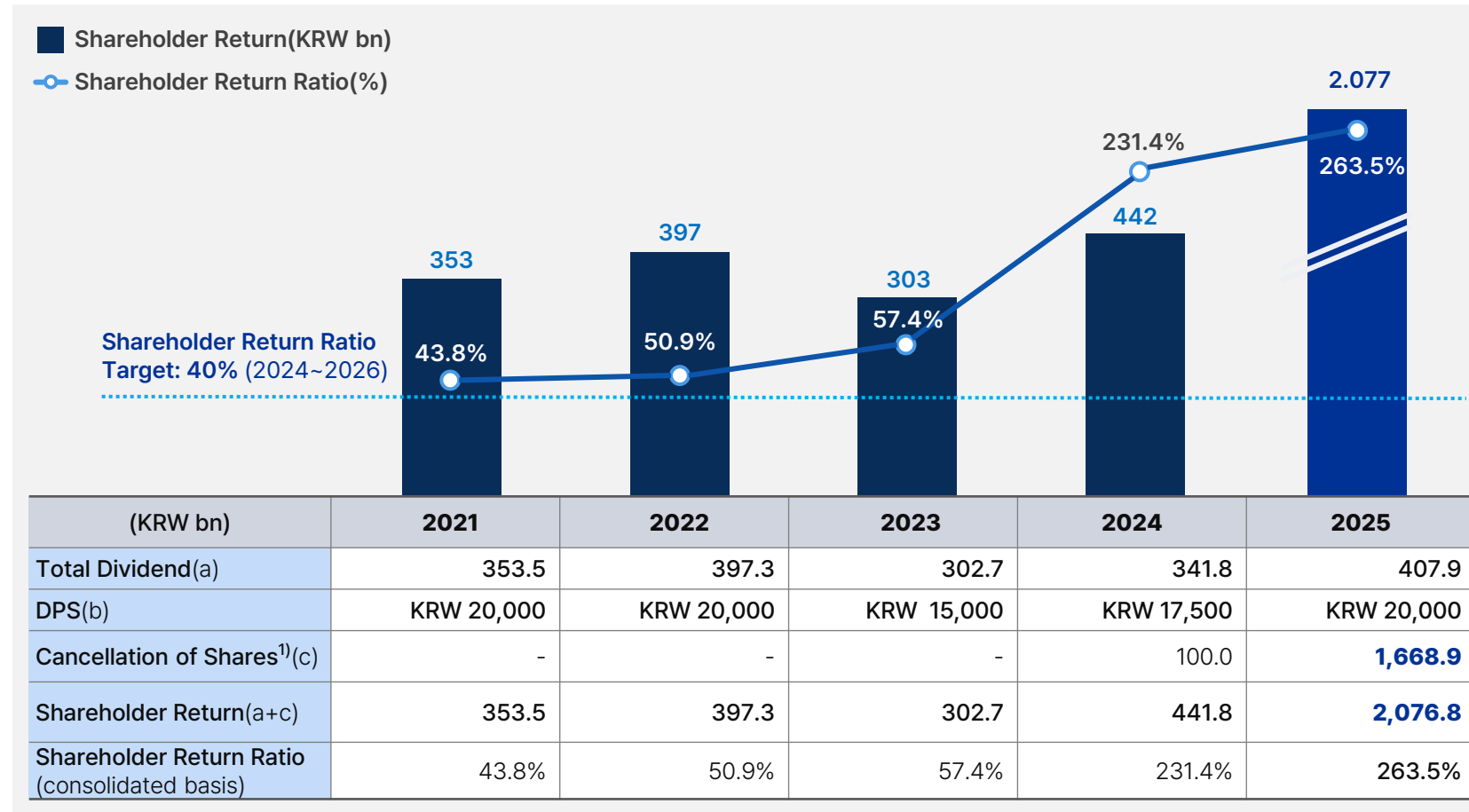


- Since 2018, revenue more than doubled, translating into mid-teens CAGR
- Despite metal price volatility, cyclical market conditions, and record-low treatment charges that have driven many smelters into economic difficulties, the Company has maintained stable profitability by its technological edge and well-balanced, multi-metal product portfolio (base/precious/minor/rare metals)

1) Korea Zinc's consolidated basis revenue

# 1-6. Company Overview\_ Shareholder Return

- Shareholder return policy raised from 30% dividend payout ratio to maintaining 3-year average shareholder return rate above 40%. \* dividends + share cancellation
- 2025 dividends meet the requirements of the ongoing taxation reform for high-dividend companies, under which qualifying shareholders benefit from a reduced separate tax rate (up to 30%) instead of the comprehensive income tax rate (up to 45%).



1) Treasury share cancellation reflected based on the actual completion date

## Shareholder Return Highlights

### Shareholder Return Ratio

- **3-year average shareholder return rate above 40%** (Consolidated basis, 2024-2026)
  - Target to maintain reserve ratio below 8,000%
- **Cancellation plan of 2,040,030 treasury shares acquired through 2024 tender offer**
  - 680,010 shares were cancelled each in June/Sep/Dec

### Dividends

- **Agenda item to change the dividend record date, was approved at the 2025 AGM**
  - **To enhance the predictability of dividends, the 2025 dividend amount and record date were pre-determined by the Board on November 5**
    - **Dividend Per Share : KRW 20,000 won**
    - **Dividend Record Date : Dec 31, 2025**
- \* Dividend received final approval at General Meeting of Shareholders

## 2. Business Highlights

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- **Growth Driver : Silver, Copper and Rare Metals**
- U.S. Strategic Smelting Platform - Project Crucible
- Troika Drive Initiatives

## 2-1. Growth Driver\_ Silver

- Silver is being re-rated as a strategic metal, underpinned by strong industrial demand, structural supply deficits, and policy dynamics.
- KZ produces over 5% of global silver supply, with its profit contribution expected to continue increasing through 2026.

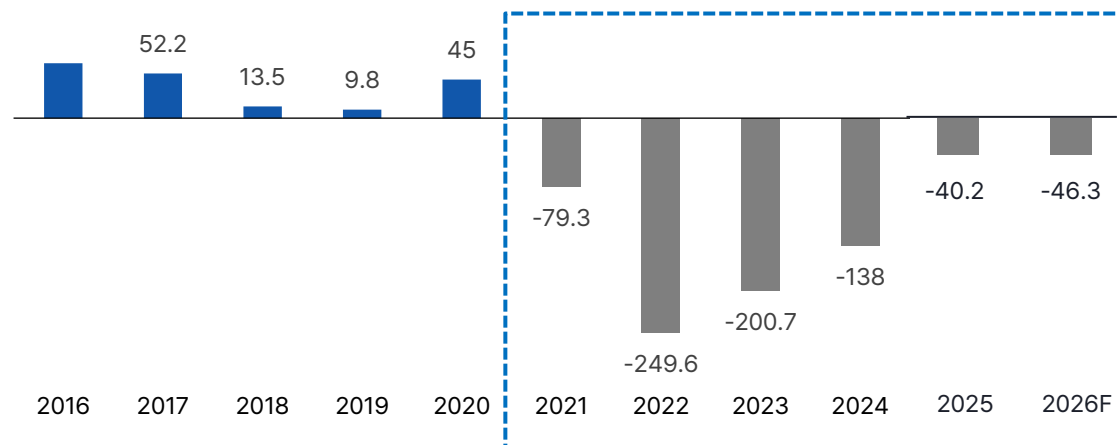
### Market Outlook

- **Silver surged c.150% in 2025 and hit \$117 per ounce in 2026**
  - Increased demand amid rising geopolitical risks and a weaker dollar
  - Stronger industrial demand from solar, batteries, data centers, and AI
- **Silver market has faced 20% structural supply deficit of annual demand**
  - 70% of silver is produced as by-product of copper/zinc/gold, limiting flexible supply
  - China's silver export controls is expected to further reduce global supply

### Strategic Positioning

- **As of 2025, the company holds a global silver market share of over 5%, giving it significant earnings leverage to silver price trends**
  - Korea Zinc maximizes profitability through industry-leading recovery rates
- **Profit contribution of silver is expected to further increase**
  - Each \$1/oz movement in silver prices is estimated to affect operating profit by approximately KRW 10–12 billion.<sup>2)</sup>

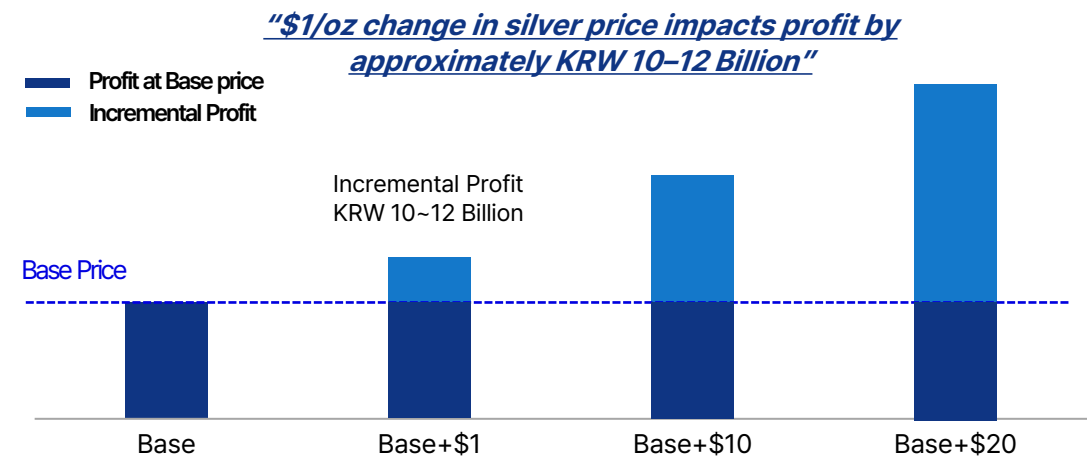
Silver Supply Deficit<sup>1)</sup> (Million ounces)



1) Metal Focus, Silvery Survey

2) Estimate assumes that the exchange rate and other variables remain unchanged

Silver Profit Sensitivity Analysis



## 2-2. Growth Driver\_ Copper

- Copper is entering a period of structural supply deficit, driven by rising demand from AI, defense applications, and humanoid robotics.
- KZ is positioned as a strategic copper producer, ensuring stable supply through recycled copper production and expanded capacity.

### | Market Outlook

- **Global copper demand is projected to grow at around 3% p.a., from approximately 28Mt in 2025 to about 42Mt by 2040**
  - **Expansion of AI data centers and robotics** is driving copper demand
  - AI data centers are expected to **add around 400 thousand tons of annual copper demand over the next decade**, while humanoid robots are also expected to see strong medium- to long-term growth
- **Tight concentrate supply and low inventories are expected to underpin prices**
  - Mine development(10-15 years) and various constraints keep supply tight

### [ Mid to long-term demand by new growth sector ]

Key Sector	Volume	Mid to Long Term Demand
<b>AI, Data Center</b>	2,000~10,000 ton per site <sup>1)</sup>	Data centers and power grids are expected to grow at <b>an average annual rate of 5~7% through 2040</b>
<b>Humanoid Robot</b>	5~8 kg per robot <sup>2)</sup>	Assuming one billion units deployed by 2050, copper demand is estimated at 5~8 million tons
<b>Industrial Robot</b>	1~30 kg per robot <sup>2)</sup>	Expected to grow at an average annual rate of 3~5% through 2040

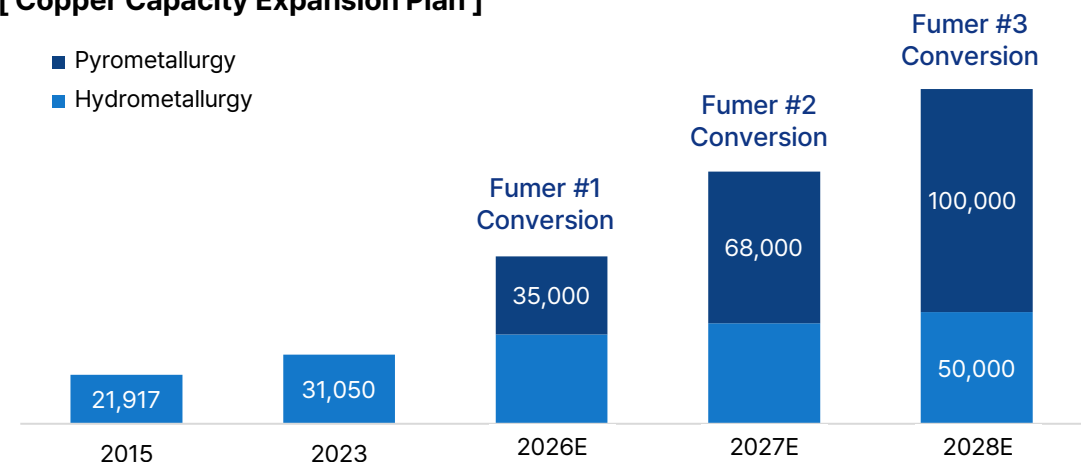
1) S&P Global, "Copper in the Age of AI" (2026)

2) Morgan Stanley, "Mapping a Potential ex-China Rare Earths Supply Chain" (20250625), S&P Global – Copper supply-demand imbalance

### | Strategic Positioning

- **Korea Zinc begins full-scale copper production with #1 conversion of Fumer**
  - Copper is expected to reach 33,000 tons in 2025 and 55,000 tons in 2026(+67% YoY)
  - Annual capacity of ~150,000 tons targeted by 2028 with Fumer #3 conversion
- **Enhanced profit leverage through recycling-based operations**
  - The company produces copper using by-products and recycled scraps
  - KRW 40 billion profit is expected when copper price remain at \$12,000 per ton

### [ Copper Capacity Expansion Plan ]



## 2-3. Growth Driver\_ Rare Metals

- Critical metals essential for AI, and defense face growing supply-security risks due to China’s market dominance and export controls.
- KZ aims to enhance North American supply security and capture meaningful profit through its U.S. smelter and recycling subsidiaries.

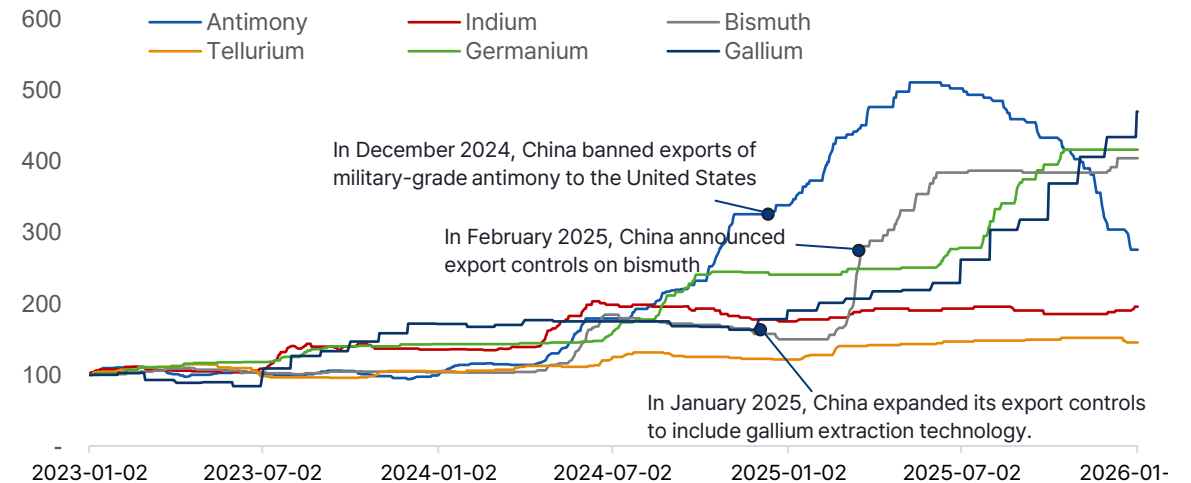
### Market Outlook

- **Megatrends such as AI and robotics are driving a sharp increase in demand for rare metals, while diversification of supply remains limited.**
- **Supply risks are rising due to geopolitical constraints.**
  - China controls over 90% of rare metals used in electronics and semiconductors
  - Gallium and germanium are essential for semiconductors, data centers, and defense industries, with China accounting for 90% of refining capacity
  - China began implementing export controls on rare metals to the U.S. in 2025, which have been partially eased by the end of 2025

KZ Products		China Export Control	U.S. Import Reliance	Key Demand Sectors
Indium	In	○	100%	Displays (ITO), InP high-speed Communication Chips
Antimony	Sb	○	85%	Ammunition, flame-retardant, batteries, missiles
Bismuth	Bi	○	89%	Special alloys, pharma, electronics, and certain defense compounds
Tellurium	Te	○	N/A	CdTe solar cells, specialized semiconductors
Palladium	Pd	X	36%	Semiconductors, electronic components, catalysts (for data centers/ telecom equipment)
Gallium	Ga	○	100%	High-efficiency power chips and 5G/radar high-frequency chips (for data centers, 5G/6G, radar)
Germanium	Ge	○	>50%	Infrared sensors, night vision systems, optical fibers, and satellite/defense optics
Cadmium	Cd	Some CdTe	N/A	Solar power, specialty alloys, safety components

### Strategic Positioning

- **Korea Zinc is positioned as a “reliable multi-metal supplier” for Korea–U.S. economic security by diversifying critical mineral production bases across Korea/Australia/U.S. while leveraging recycling capabilities**
  - Korea Zinc currently produces 12 of the 60 “critical minerals” designated by the United States, including antimony and bismuth, and plans to expand to 14 by 2028 by adding gallium and germanium
- **Rare metals are produced as by-products, enabling structurally strong margins**
  - Export controls sharply increased rare metal prices and GPM recorded 81%



## 2. Business Highlights

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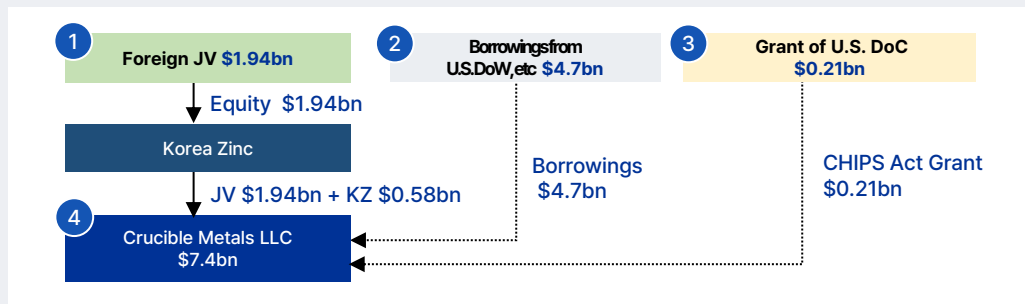
- Growth Driver : Silver, Copper and Rare Metals
- **U.S. Strategic Smelting Platform** - Project Crucible
- Troika Drive Initiatives

# 1. U.S. Strategic Smelting Platform\_ Overview

- Korea Zinc plans to build an integrated smelter in the United States, in partnership with the U.S. government, to diversify global supply chain risks, respond to growing demand for non-ferrous metals and critical metals, and secure sustainable mid-to long-term growth
- U.S. smelter will involve a total investment of approx. \$7.4 billion, including capital from the U.S. government and investors, and is targeting trial operations in 2029 to produce 13 non-ferrous metals, including 11 critical metals, as well as semiconductor-grade sulfuric acid

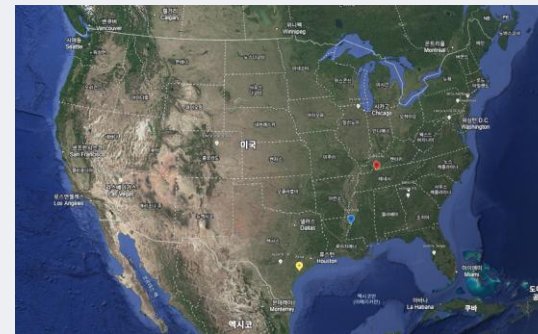
## Investment Overview

- 1. Project Name:** **Project Crucible** (hereinafter "Crucible")
- 2. Purpose**
  - Leveraging over 50 years of unmatched non-ferrous smelting technology and global market leadership, the Company aims to replicate **its world-class Onsan Smelter operating model in the U.S. at approximately 50% of its scale**
  - **In line with U.S. efforts to build "Ex-China" supply chains**, the Company, as a reliable smelting partner, is securing a strategic production base in the U.S.
- 3. Production :** 3 types of non-ferrous metals(535k)  
2 types of precious metals(1k), 8 types of rare metals(5.1k)
- 4. Total Investment Amount: \$ 7.4bn** \* Including financial cost, to be implemented in phases from 2026 to the end of 2029
- 5. Structure of the investment**



**6. Expected Profitability**(avg 2030~2050): Approx. 17~19% EBITDA margin

## U.S. Smelter Site

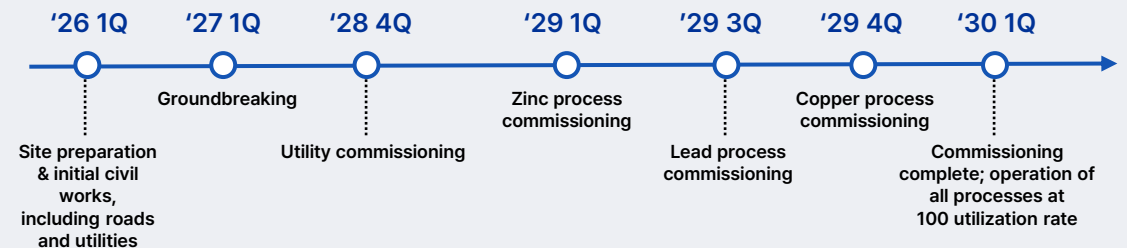


- **Location :** Clarksville, Tennessee, U.S
- **Area :** Approximately 160 acres
- **Plans to utilize** the Nyrstar smelter site

### Key Characteristics of the Site

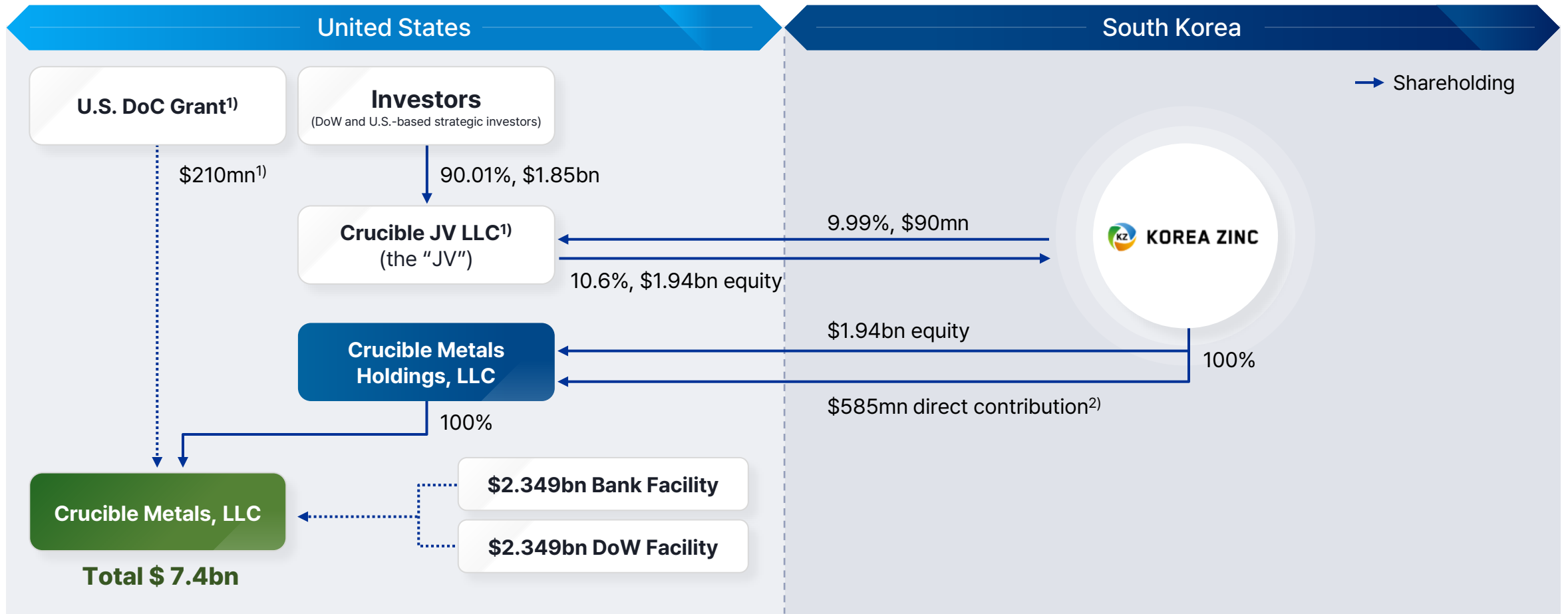
- 1. Favorable Geology and Drainage**
  - Enhanced execution certainty, as evidenced by the existing smelter's operating track record and the results of detailed geological surveys
- 2. Stable Logistic Infrastructure**
  - Efficient transportation of raw materials and finished products enabled by a multimodal logistics network based on waterways and rail
- 3. Strong industrial infrastructure and highly competitive workforce**
  - Operational efficiency driven by low-cost power and a skilled smelter workforce

## Estimated Timeline



## 2. U.S. Strategic Smelting Platform\_ Simplified transaction and financing structure

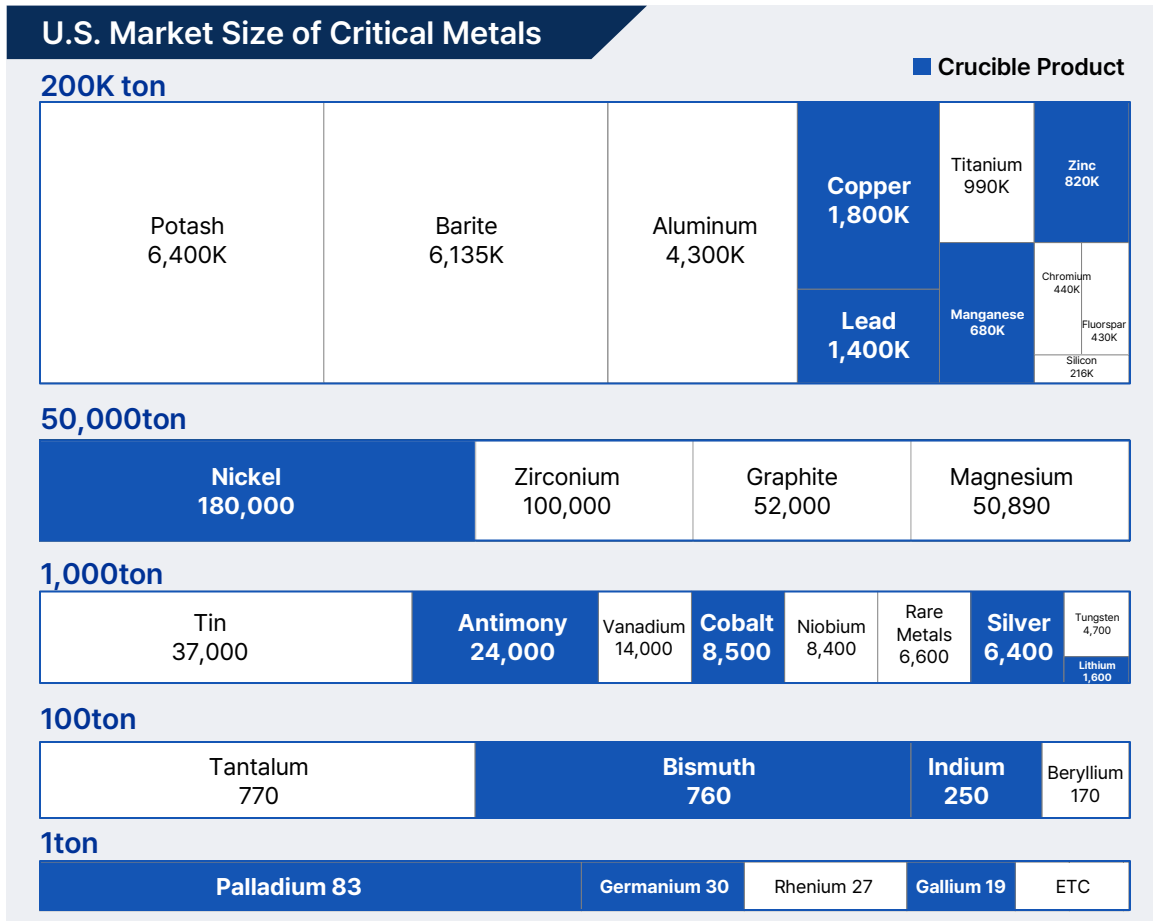
- U.S. government-led JV will raise approximately \$1.94 billion, and Korea Zinc will contribute a total of \$2.52 billion to Crucible Metals Holdings LLC by combining the JV proceeds with its own equity investment of \$0.58 billion
- Over 90% of the approximately \$7.4 billion project cost will be funded by the U.S. government and strategic investors through a \$4.7 billion U.S. DoW loan and a \$0.21 billion CHIPS Act grant, enabling the company to minimize its financial burden while maintaining operational control and technology leadership



Note: 1) The \$210mn CHIPS Act grant funding must be contributed directly to the Project company under U.S. law. In return, DoC will hold a membership interest in the JV proportionate to its grant contribution, which, in economic substance, represents an equity interest in Korea Zinc indirectly through the JV structure; 2) To occur sequentially

### 3. U.S. Strategic Smelting Platform\_ U.S. Market for Critical Metals

- United States, driven by its data center, AI, semiconductor, and defense industries, is the world’s largest market for critical metals, which offers significant potential for business expansion and the need for early positioning. Over the longer term, a U.S. production base supports metal supply into wider North American markets, while mitigating non-financial risks such as geopolitical volatility, export controls, and logistics disruptions
- Crucible plans to strengthen its strategic role in the U.S. supply chain diversification by producing 13 non-ferrous metals, including 11 of the 60 U.S. critical metals



#### Key Products and Production Capacity

(Unit: Ton)		U.S. Market Demand	Crucible	U.S. Import Dependency
		A	B	%
Zinc	Zn	820,000	300,000	73%
Lead	Pb	1,400,000	200,000	28%
Copper	Cu	1,800,000	35,000	45%
Silver	Ag	6,400	1,056	64%
Gold	Au	200	5.9	N/A <sup>2)</sup>
Indium	In	250	108	100%
Antimony	Sb	24,000	2,597	85%
Bismuth	Bi	760	442	89%
Tellurium	Te	N/A	112	N/A <sup>2)</sup>
Palladium	Pd	83	0.1	36%
Gallium*	Ga	19	54	100%
Germanium*	Ge	33	44	>50%
Cadmium	Cd	N/A	2,046	N/A <sup>2)</sup>

1) USGS 2025 Mineral Commodity Summaries

\* Gallium and germanium demand in the U.S. is expected to reach at least 50 tons per year by 2030 due to surging defense-related demand. Reflecting this trend, the company plans to produce 54 tons of gallium and 44 tons of germanium annually starting in 2030.

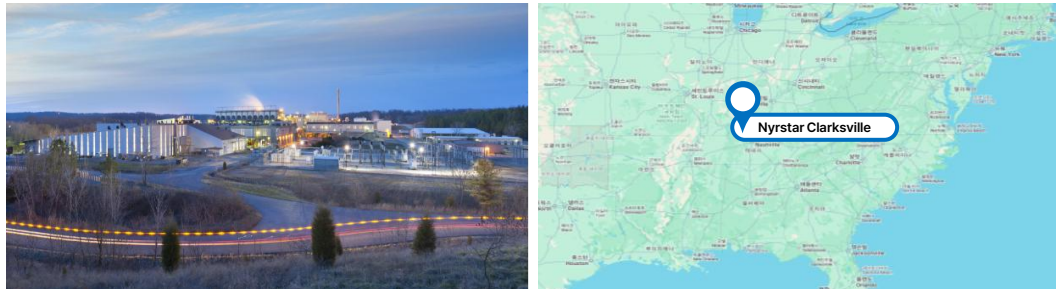
# 4. U.S. Strategic Smelting Platform\_ Nyrstar USA Acquisition

- Crucible Metals acquired Nyrstar USA to enable the efficient development of a new U.S. smelter. Through this acquisition, the company secured an optimized site with low-cost power, strong logistics infrastructure, a skilled workforce, and additional value creation from by-products in the pond cake
- Metals contained in the pond cake are difficult to recover using conventional smelting technologies, but Korea Zinc can recover them using the company's technology

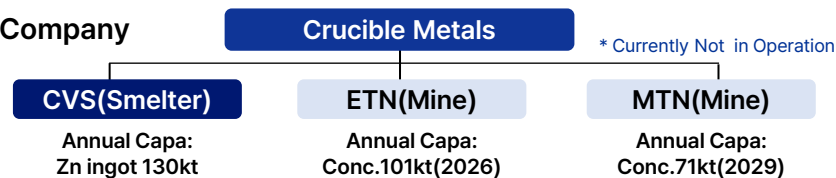
## Nyrstar USA Acquisition

### 1. Nyrstar USA Smelter

- **Established in 1978, and the smelter is in Clarksville, Tennessee, as the only zinc smelter in the U.S. with a production capacity of 130 ktpa**
- Previously produced zinc, zinc alloys, sulfuric acid, cadmium, and germanium
- Nyrstar USA operates two mines(ETN and MTN) and one smelter(CVS)
- **A substantial quantity of recoverable valuable metals, including germanium, gallium, zinc, and lead, remains in the untreated pond cake**



### Structure of the Company



### 2. Key Characteristic of the Site

Favorable Geology and Drainage

Stable Logistic Infrastructure

Strong industrial infrastructure and highly competitive workforce

### 3. Benefits of the Acquisition

#### 1) Cost savings through secured land and power infrastructure

- Approx. 368 acres of industrial land(including 196 acres immediately available)
- 161 kV high-voltage transmission lines, and an on-site substation

#### 2) Reduction of Capital Expenditure(CAPEX)

- Savings through reuse of existing facilities, including rail, port, concentrate storage, conveyors, and sulfuric acid tanks

#### 3) Additional Value Through Recovery From Residual By-Products

- Metal recovery from pond cake is expected to generate extra profits

#### 4) Stable Raw Material Supply Base

- Medium- to long-term raw materials secured from MTN zinc ores and germanium and gallium from smelting residues

# 5. U.S. Strategic Smelting Platform\_ Operational Plan

- U.S. smelter will leverage existing Nyrstar mines and smelter, preemptively mitigating procurement cannibalization with the Onsan smelter while enhancing operational stability and resource utilization, thereby improving the efficiency and execution capability of the U.S. smelter project
- By fully leveraging U.S. government policy and permitting support, the company aims to accelerate the execution and completion of the project, thereby enhancing its medium- to long-term growth and profitability

## Operational Plan

### 1) Raw Material Sourcing

*Utilization of existing Nyrstar mines(MTN & ETN) and procurement from new mines in North America(U.S./Mexico)*

- Zinc : ~25% U.S., ~30% Mexico, ~45% others
- Lead : ~30% Mexico, ~20% Peru, ~15% U.S., ~35% others
- Secondary feed : Cu scrap(Americas, EU) and smelting by-products



### 2) Process / Workforce / Infrastructure

*Leverage Nyrstar expertise and infrastructure to ensure stable operations and shorten ramp-up*

- 1. Process: Adoption of domestically proven processes**
  - Apply proven Korea-based processes; deploy engineers for early commissioning
- 2. Workforce: Retention of existing workforce**
  - Retain existing Nyrstar staff and supplement via Career Skills programs
- 3. Utilities: Utilization of existing transmission lines**
  - Utilize existing 2x161kV transmission lines to enable early commissioning

## U.S. government Incentives and Support

### [U.S. Government Incentives]

Category	Benefits	Description
Financial	<b>IRA Tax Credits</b>	• 10% tax credit on manufacturing costs for critical metals produced in the U.S. under IRA Section 45X
	<b>Bonus Depreciation (OBBBA)</b>	• Immediate expensing of CAPEX for U.S. manufacturing facilities, significantly reducing initial tax burden
	<b>Low-interest Policy Financing</b>	• Government-led low-interest financing (U.S. 10-year Treasury + 175 bp); * Approx. 50–125 bp below conventional financing
Strategic	<b>Strengthened U.S. Government Partnership</b>	• 'Competitive advantage in long-term offtake agreements as a "trusted and reliable supplier" • Accelerated entry into national strategic industries, including defense-related sectors

\* Tax Incentives / Grants and Power Cost Savings

**Government Support & Tax Benefits<sup>1)</sup>**

**\$1,442mn**

Tennessee State: \$860mn  
IRA: \$582mn

**Total Power Cost Savings<sup>2)</sup> (30-year total)**

**\$4,830mn**

Clarksville 4.179 ¢ /kW vs. Onsan 12.8 ¢ /kW

Approx. 3x ↓

1) Simple sum without considering present value; state tax benefits include local tax incentives

2) Assumes annual power consumption of 1,848,870 MWh, based on a Clarksville electricity rate of 4.179¢/kWh vs Onsan rate (KEPCO tariff) of 12.8¢/kWh

## 2. Business Highlights

---

- Growth Driver : Silver, Copper and Rare Metals
- U.S. Strategic Smelting Platform- Project Crucible
- **Troika Drive Initiatives**

# 1. Troika Drive Initiatives\_ Business Overview

- Troika Drive is a new growth engine that improves the competitiveness of our core smelting operations while expanding our business portfolio
- Growth priorities can be adjusted with the evolving operating environment, including U.S. smelter and mid- to long-term capital allocation



## Resource Recycling Business

Generating new value by recycling E-waste, solar panel waste, and EAF\* dust, Providing a reliable source of feedstock to recover valuable metals

\* Electric Arc Furnace



## Secondary Battery Materials Business

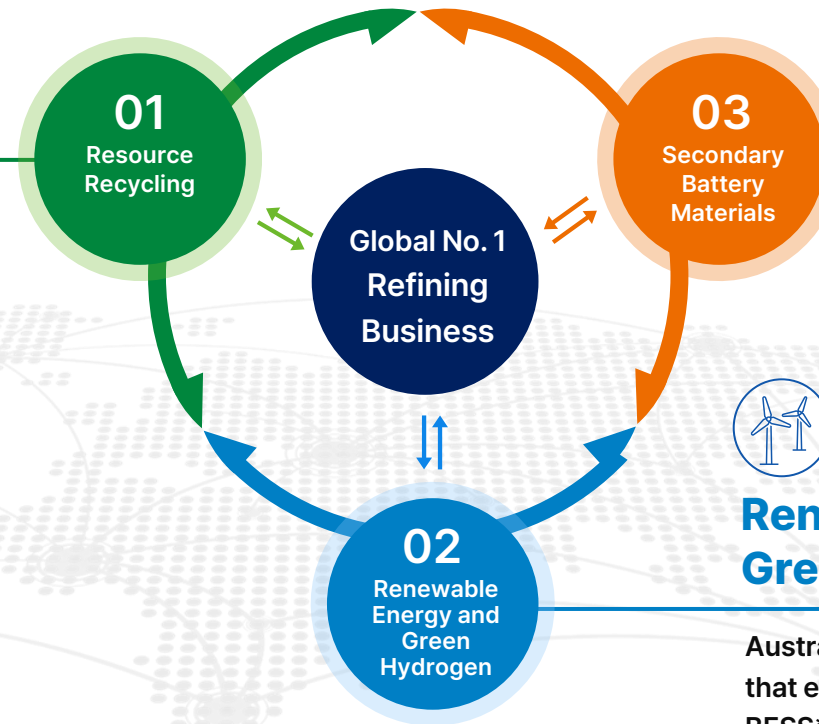
Building a full value chain encompassing nickel sulfate, precursors, copper foil production, and battery recycling



## Renewable Energy and Green Hydrogen Business

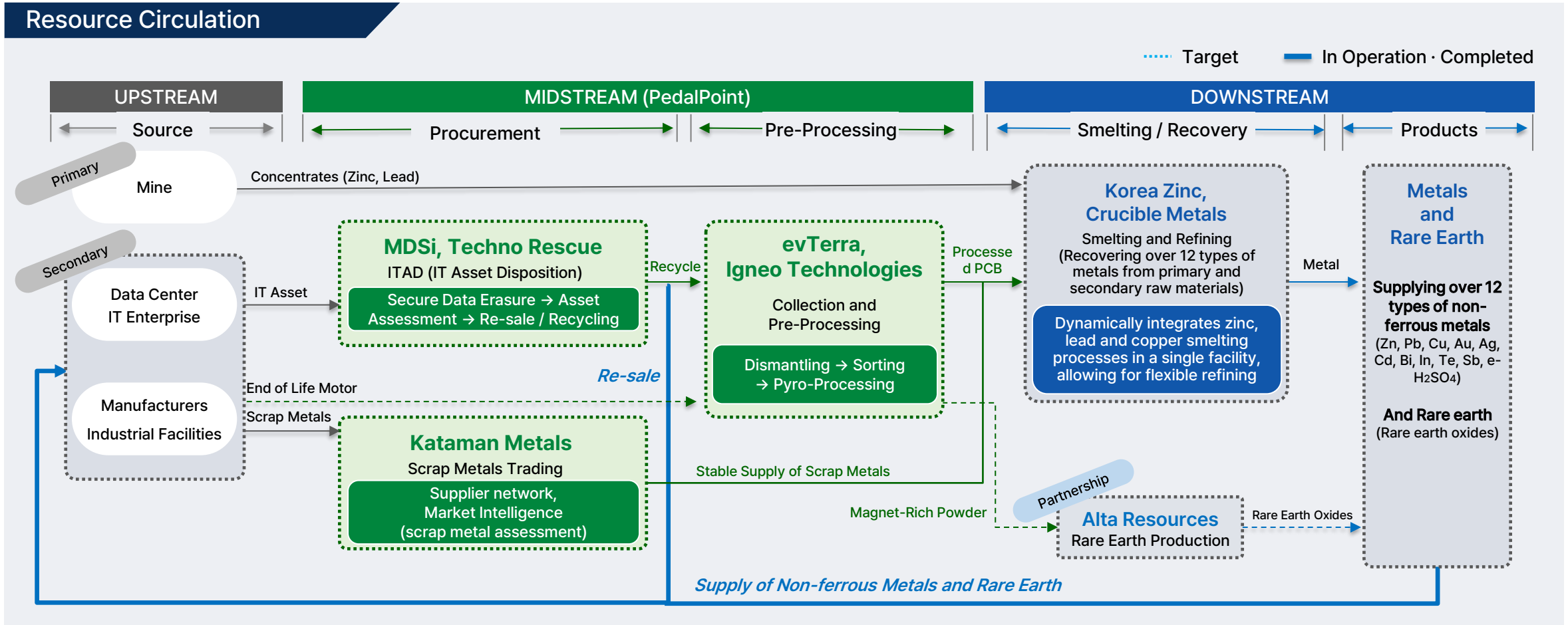
Australia-based renewable energy solutions provider that engages in utility-scale wind / solar farms, BESS\* projects and green hydrogen production, pursuing 100% green metals with zero carbon emissions

\* Battery Energy Storage Systems



## 2. Troika Drive Initiatives\_ Resource Recycling

- The resource recycling business, anchored by PedalPoint in the U.S., is building an end-to-end circular value chain from collecting e-waste, end-of-life batteries, and other waste streams to metal recovery
- Based on a stable supply of high-quality secondary feedstock, the copper-centric model linked to the Onsan Smelter is expected to expand into critical metals and rare earths, with synergies from the U.S. smelter supporting mid- to long-term revenue growth

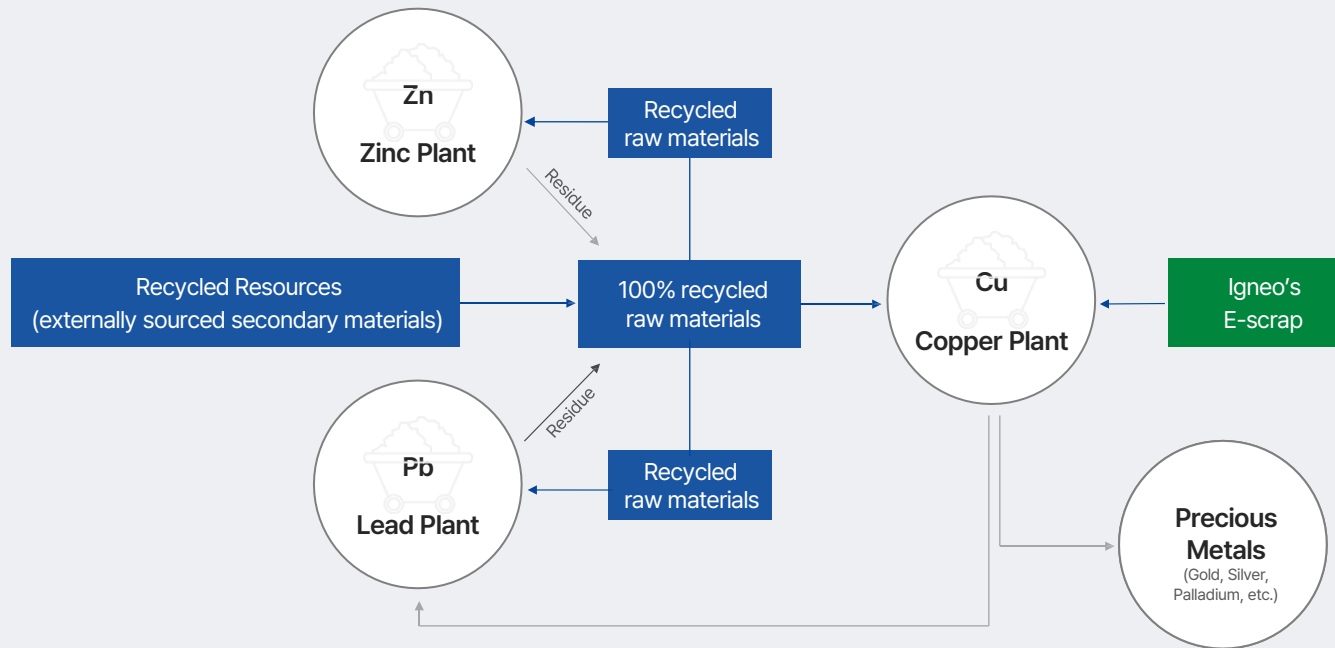


# 3. Troika Drive Initiatives\_ PedalPoint

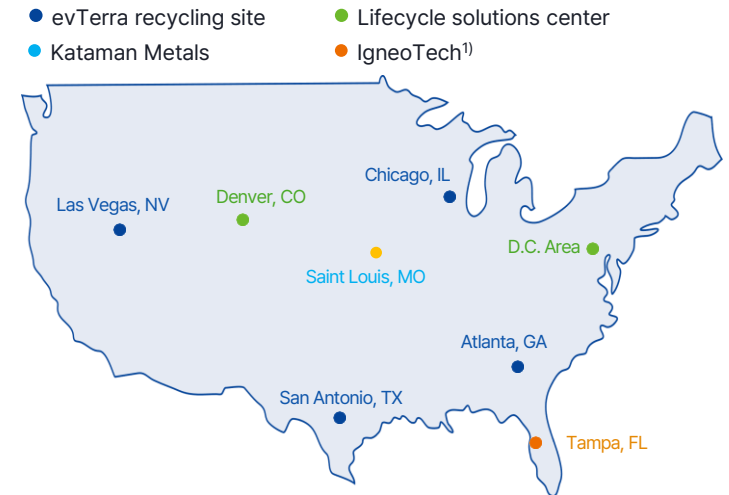
- PedalPoint is the recycling pillar, operating a networked platform across North America that aggregates and pre-processes e-waste, spent batteries, and end-of-life solar panels into stable, high-quality, traceable feedstock

## Circular-economy model for PedalPoint Holdings

- PedalPoint Holdings' circular economy network consists of evTerra recycling sites (e-waste collection), Lifecycle solutions centers (IT asset disposal), Kataman metals (scrap-metal trading platform), and IgneoTech (e-waste to metal concentrate conversion)
- Recovered materials are delivered as feedstock to the copper smelting process and used as raw materials for electrolytic copper production by smelters (e.g., Onsan refinery)



## U.S. network overview



1) Since 2014, Igneo France (engaging in metal recovery) is also a subsidiary of Korea Zinc

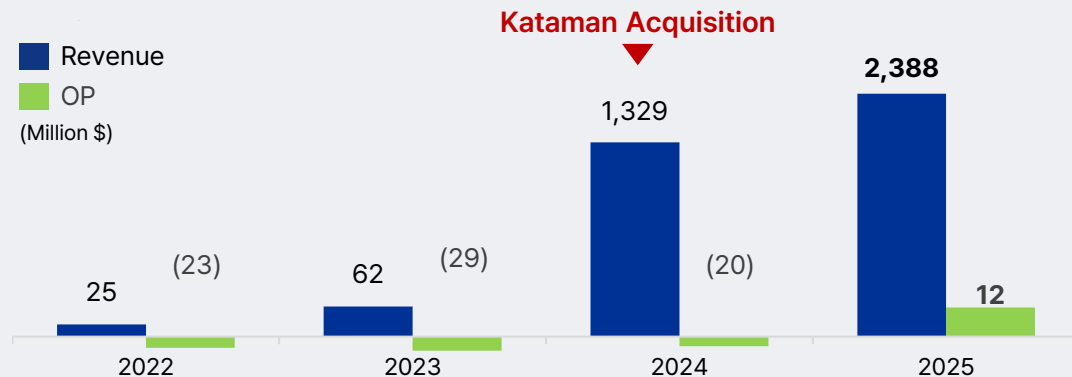
# 4. Troika Drive Initiatives\_ PedalPoint

- With the copper dry smelting facilities at the Onsan Smelter scheduled to come onstream in 2026, we will continue our efforts to secure a stable supply of various secondary raw materials, including copper scrap, to accommodate the resulting increase in copper production
- At the same time, we aim to establish a sustainable, circular resource feedstock system and, by linking this with the future U.S. integrated smelter, further enhance the scalability and synergies of the business

## Operation Status

- **U.S. e-waste processing: ITAD, PCB scrap collection, and pre-processing**  
- Providing end-to-end lifecycle solutions (collection-pre-processing-metal recovery-productization)
- **Expansion of secondary feedstock sourcing: end-of-life solar panels/wafers (silver, copper), spent batteries (lead, nickel, etc.)**
- **Copper scrap sourcing via subsidiary Kataman Metals (global metal trader)**  
- Differentiated capabilities focused on secondary materials (annual handling volume: ~300 kt)
- **1H Operating profit turned positive, driven by higher PCB processing and strong Kataman performance**
- **Stronger waste sourcing & streamlined cost structure enhanced profitability**

### [PedalPoint Earnings Trend]



## Business Strategy

- 1. Stable copper scrap procurement by expanded e-waste volume**  
- Expansion of e-waste volume in the U.S. ensures stable procurement and prepares for the 2026 full-scale operation of Onsan copper smelter

### [PedalPoint's Contribution on Copper Production]

		Target		Capacity		
		2025	2026(E)	2027	2028	2029
KZ	MT	33,001	<b>53,600</b>	93,750	150,000	150,000
PP Contribution	MT	1,200	<b>14,000</b>	16,000 ~18,000	17,000 ~20,000	18,000 ~21,000
Ratio	%	3.6%	<b>26%</b>	18~20%	11~13%	12~14%

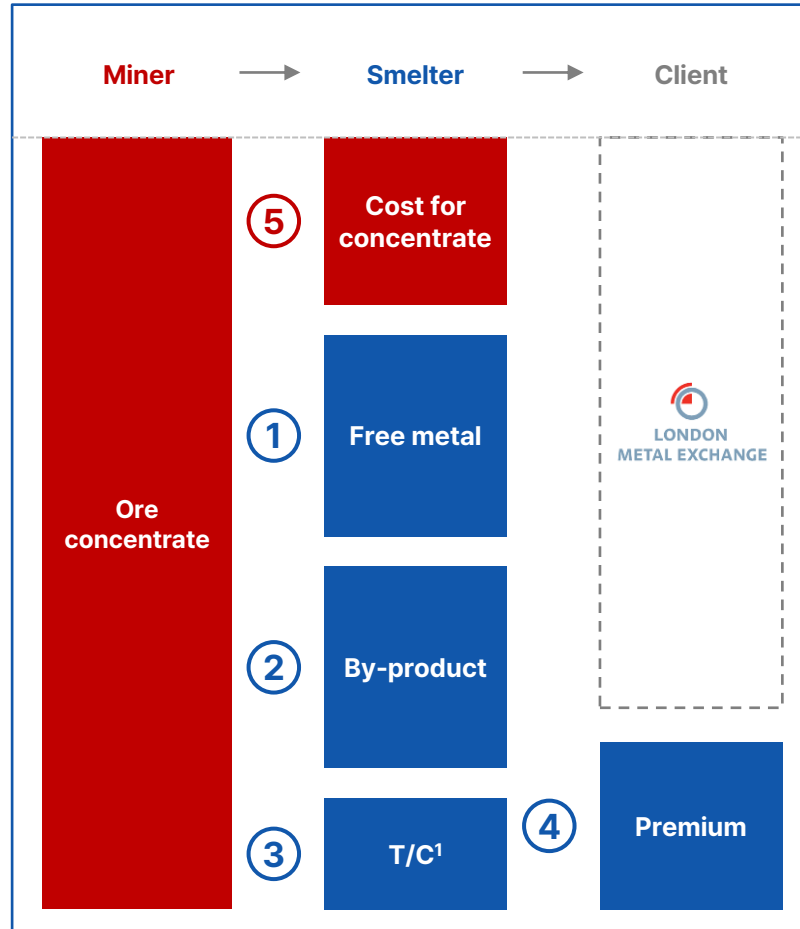
- 2. Expansion and diversification of secondary raw material supply**  
- Increased volumes of waste solar panels/lead-acid batteries/black mass lead to higher production of lead, silver, copper, antimony, and nickel etc.
- 3. Synergies with the U.S. integrated smelter(Project Crucible)**  
- Establishing a U.S.-based recycling supply chain by utilizing PedalPoint's collected and pre-processed recycled feedstock as smelter feedstock

# Appendix

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# [Appendix] Company Overview\_ Business model

■ Miner's share    
 ■ Smelter's share    
 [---] Market price

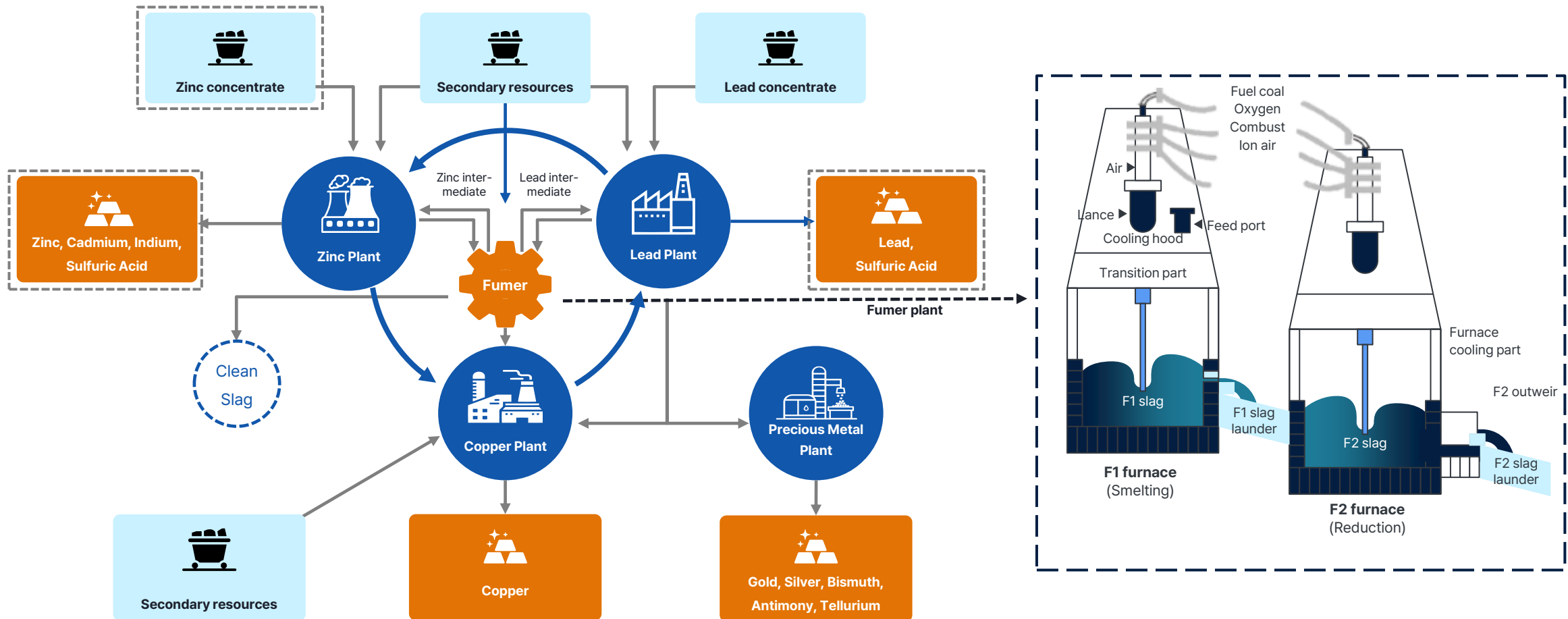


No.	Item	Description
①	<b>Free metal</b>	<ul style="list-style-type: none"> <li>Smelters with high recovery rate than predetermined payable rates recognize excess amount extracted as "Free metal" revenue</li> <li>- If payable for gold is 0.4t and smelter recovers 0.5t, 0.1t corresponds to the free metal revenue</li> </ul>
②	<b>By-Product</b>	<ul style="list-style-type: none"> <li>Other metals extracted during the process (ex. Cu, Ag, Au, Sb recovered from Zn &amp; Pb concentrate)</li> <li>Remainder after paying miner the 'payables'</li> </ul>
③	<b>Treatment charge (T/C)</b>	<ul style="list-style-type: none"> <li>A negotiated fee paid to smelters or refiners for converting metal concentrates, serving as a contractual adjustment to reflect processing costs and market dynamic</li> <li>- Difference between market price and cost paid to miners</li> </ul>
④	<b>Premium</b>	<ul style="list-style-type: none"> <li>Excess amount over market price</li> <li>Highly dependent on market dominance and transportation costs, product quality, and track record of production stability</li> </ul>
⑤	<b>Cost for concentrate</b>	<ul style="list-style-type: none"> <li>Actual payments made to the miners</li> <li>- Cost for concentrate = (Content × Payable × LME price × Foreign exchange rate) – T/C</li> </ul>

# [Appendix] Rare Metals\_ Maximizing profitability through integrated production process

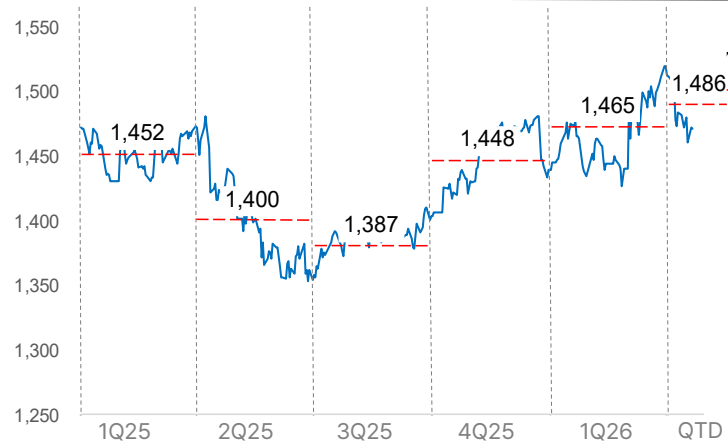
- Integrated non-ferrous metal refinery will have an integrated process that dynamically integrates zinc, silver and copper smelting processes in a single facility, allowing for maximized metal recovery rate.

## Overview of Onsan refinery's Non-ferrous Metal Refinery Process

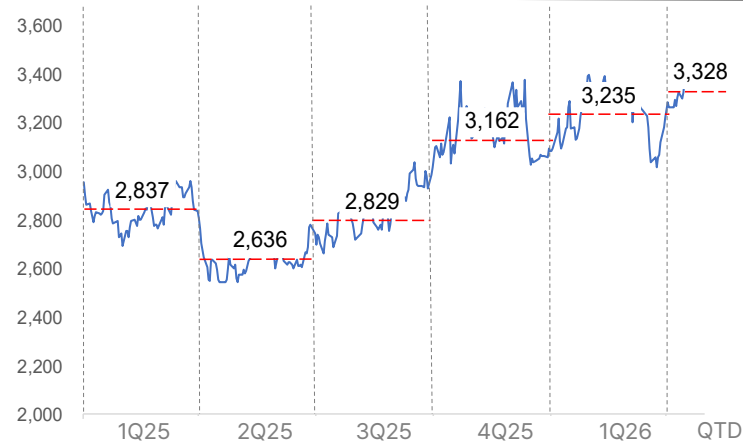


# [Appendix] Metal Prices & FX

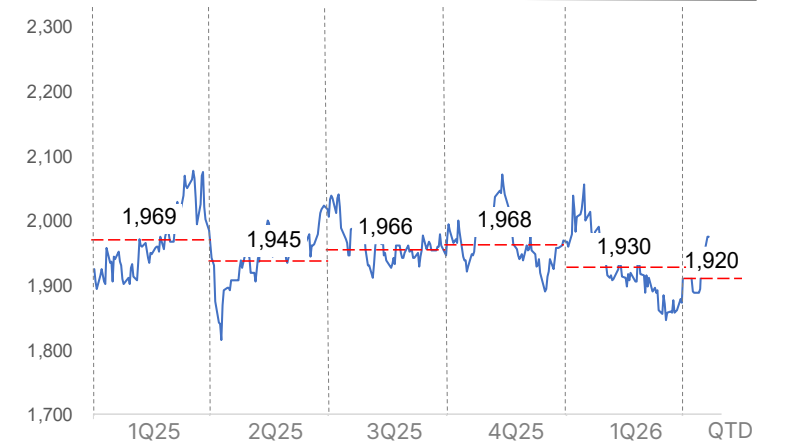
## USD/KRW(Avg.)



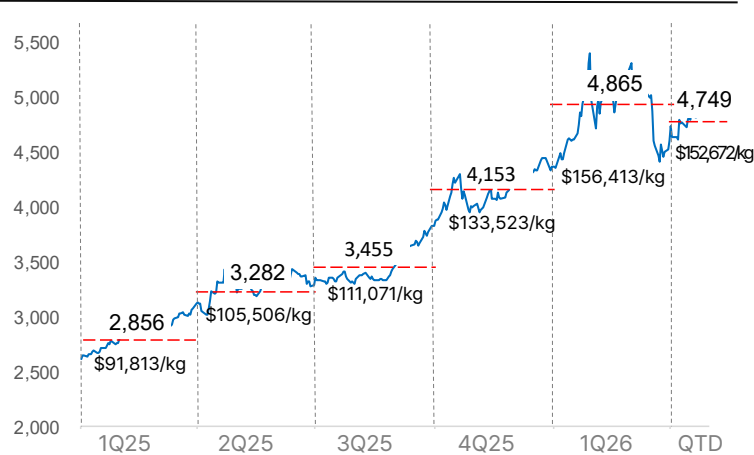
## Zinc(USD/MT)



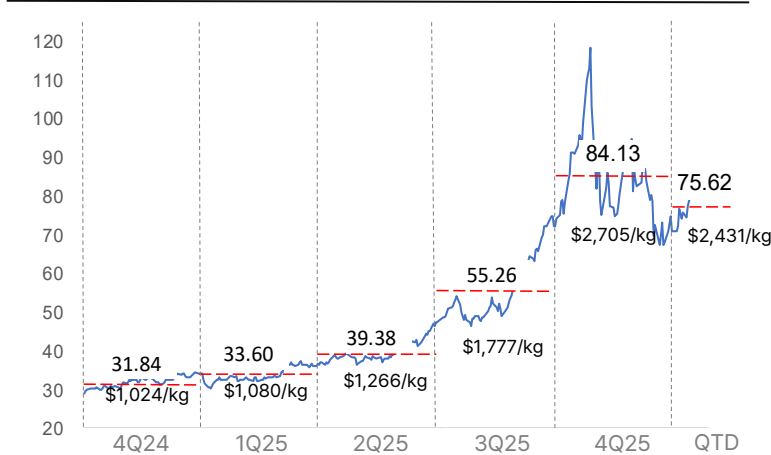
## Lead(USD/MT)



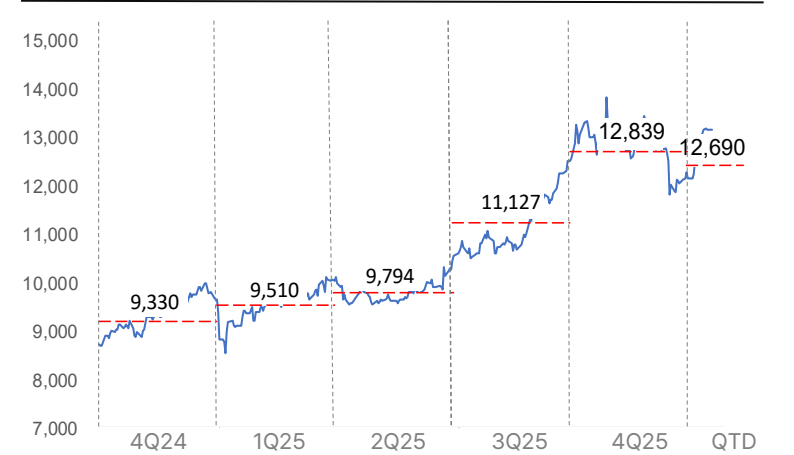
## Gold(USD/oz)



## Silver(USD/oz)

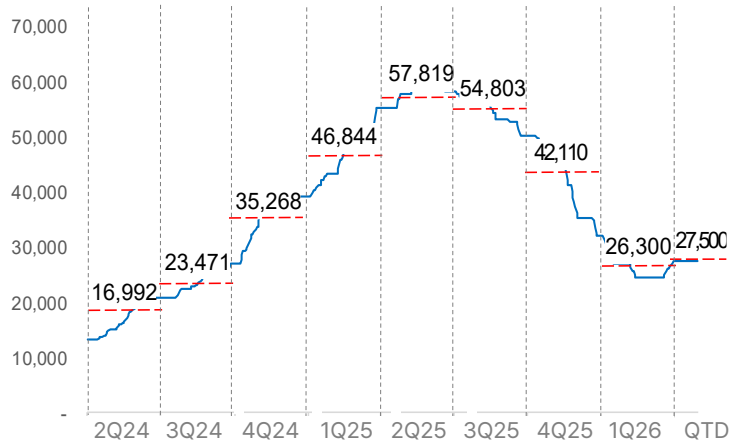


## Copper(USD/MT)

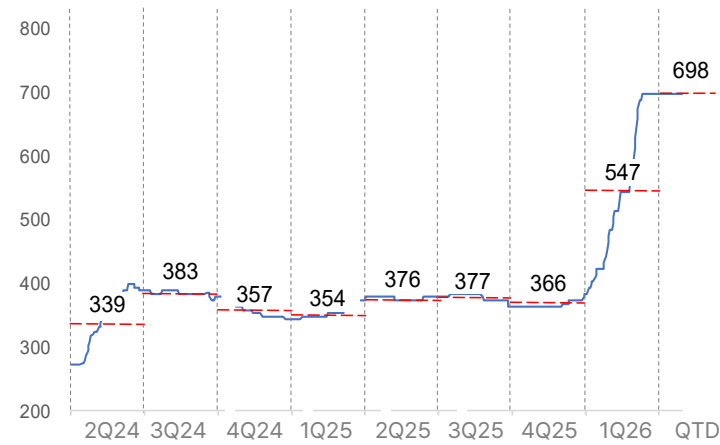


# [Appendix] Metal Prices & FX

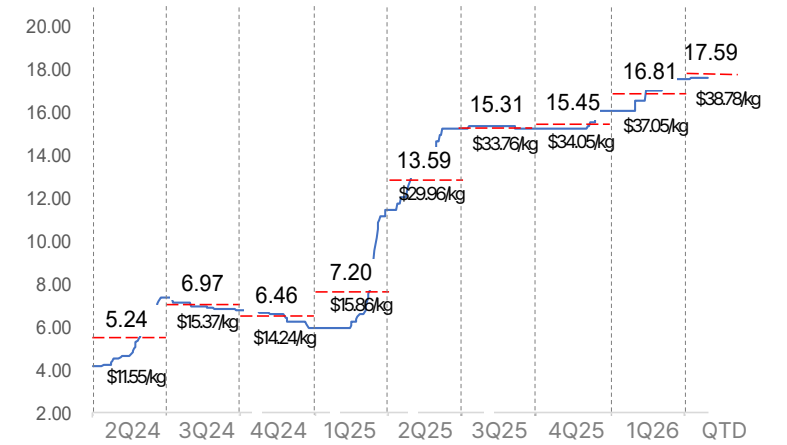
## Antimony(USD/MT)



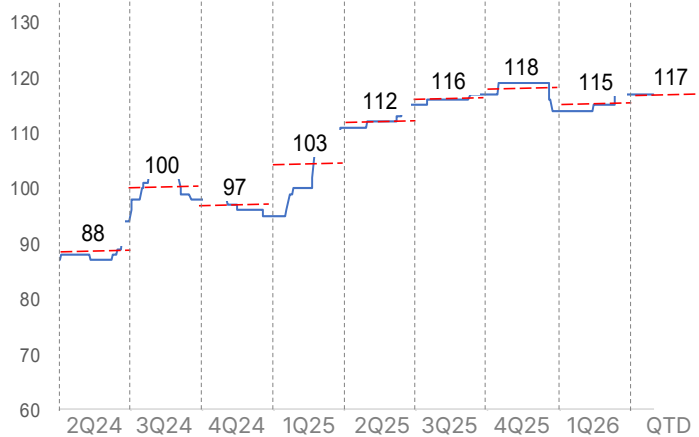
## Indium(USD/kg)



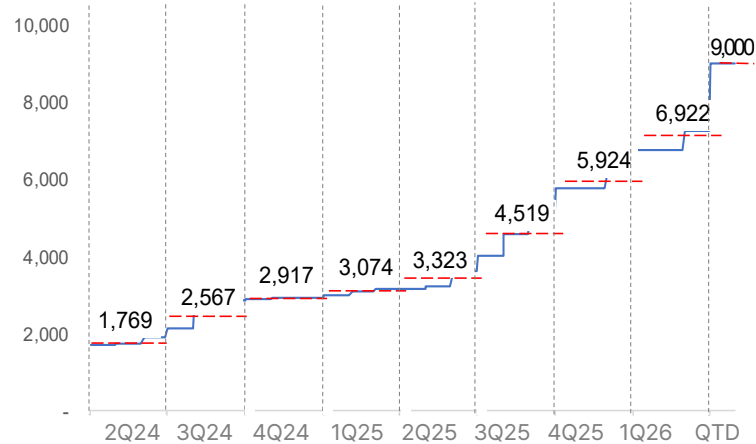
## Bismuth(USD/lb)



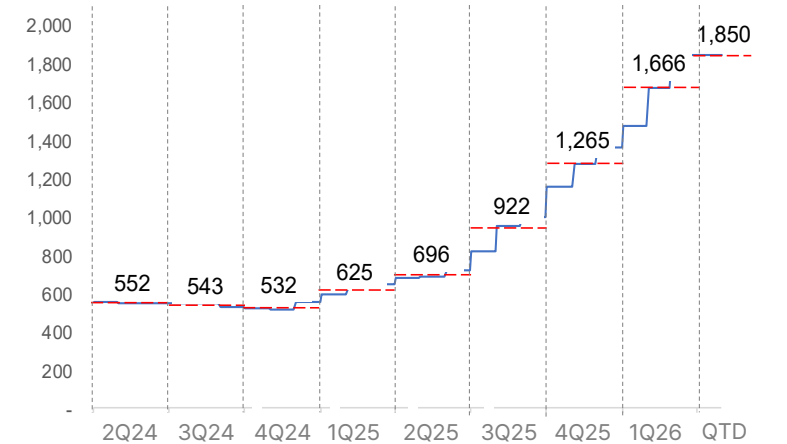
## Tellurium(USD/kg)



## Germanium(USD/kg)

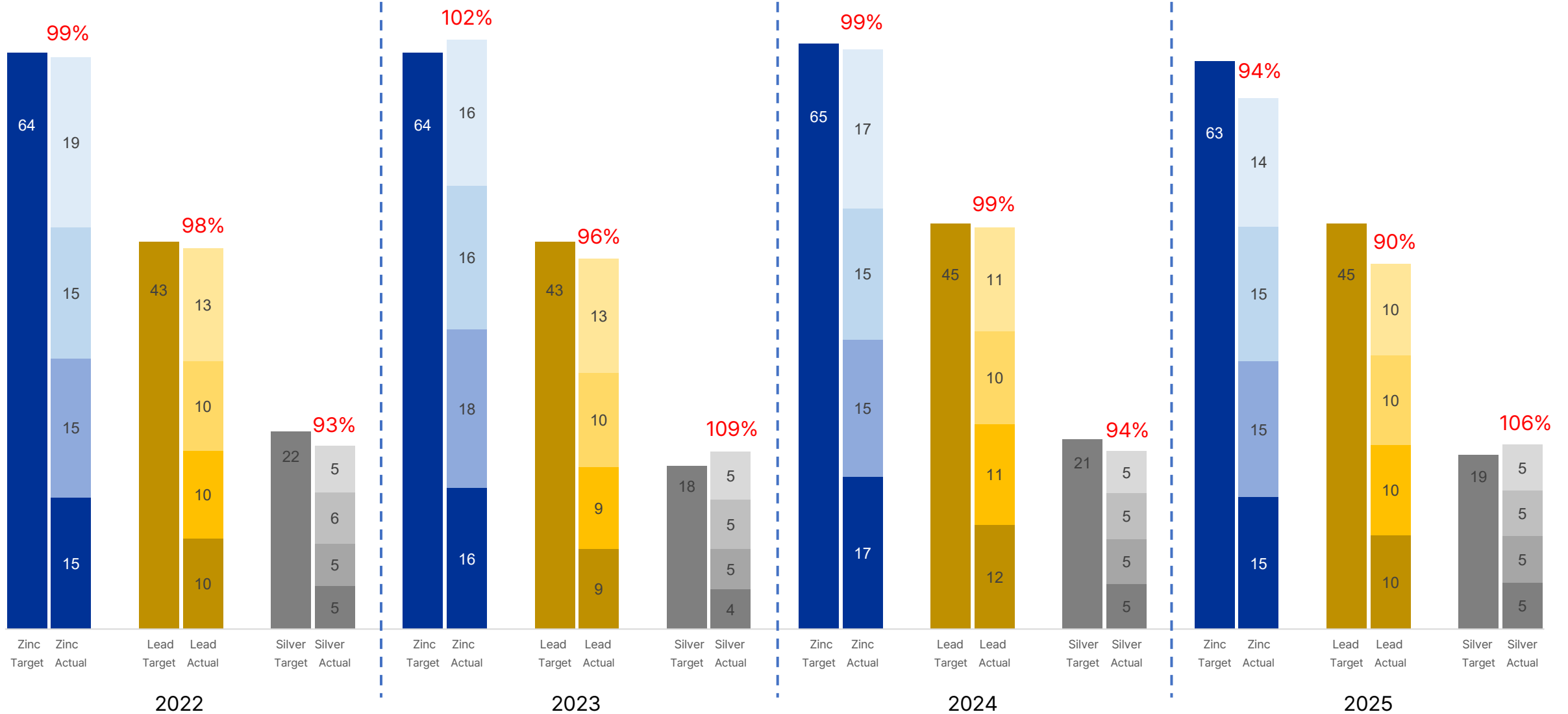


## Gallium(USD/kg)



# [Appendix] Sales Volume Target and Actual

Unit : 10kt(Zinc, Lead), 100t(Silver), %(Actual/Target)



# [Appendix] Sales Volume by Metals

## KZ (Standalone)

bn KRW	Category	4Q24	1Q25	2Q25	3Q25	4Q25	QoQ	YoY
<b>Zinc(MT)</b>	Domestic	67,885	63,163	62,761	70,517	<b>63,010</b>	-10.6%	-7.2%
	Export	108,102	83,326	87,890	79,464	<b>79,364</b>	-0.1%	-26.6%
	Total	175,987	146,489	150,651	149,981	<b>142,374</b>	-5.1%	-19.1%
<b>Lead(MT)</b>	Domestic	33,115	30,415	31,094	29,183	<b>31,549</b>	8.1%	-4.7%
	Export	81,801	74,037	68,961	70,328	<b>69,770</b>	-0.8%	-14.7%
	Total	114,916	104,452	100,054	99,511	<b>101,319</b>	1.8%	-11.8%
<b>Silver(KG)</b>	Domestic	6,110	12,560	12,310	11,910	<b>33,430</b>	180.7%	477.1%
	Export	458,156	502,100	507,857	488,678	<b>477,811</b>	-2.2%	4.3%
	Total	464,266	514,660	520,167	500,588	<b>511,241</b>	+2.1%	+10.1%
<b>Gold(KG)</b>	Domestic	1,953	2,475	2,225	2,430	<b>3,250</b>	33.7%	66.4%
	Export	-	200	575	1,150	-	-	-
	Total	1,953	2,675	2,800	3,580	<b>3,250</b>	-9.2%	66.4%
<b>Copper(MT)</b>	Domestic	5,015	6,028	5,948	5,270	<b>5,140</b>	-2.5%	2.5%
	Export	2,280	2,277	2,135	2,854	<b>3,229</b>	13.1%	41.6%
	Total	7,296	8,305	8,084	8,124	<b>8,369</b>	3.0%	14.7%

# [Appendix] Sales Revenue by Metals

## KZ (Standalone)

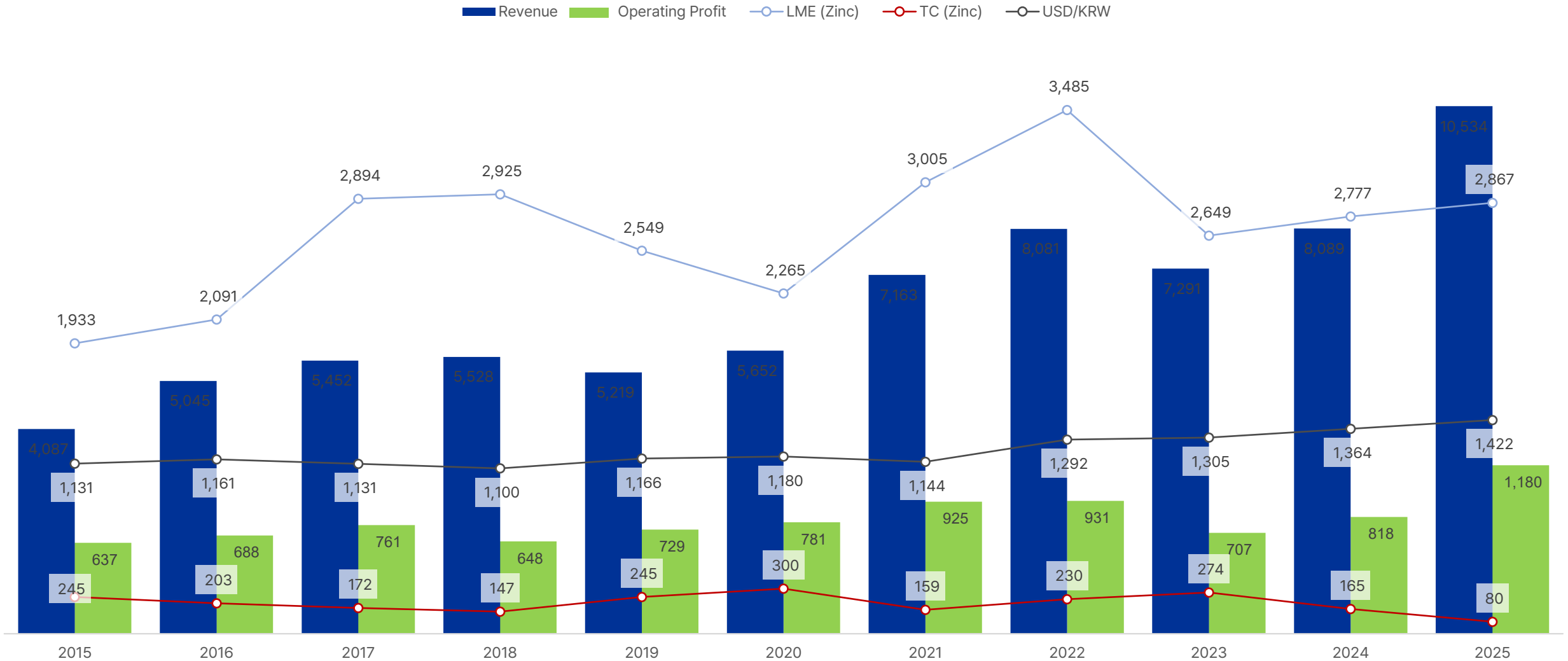
Unit : billion won

Products	Category	4Q24	1Q25	2Q25	3Q25	4Q25	QoQ	YoY
<b>Zinc</b>	Domestic	295	283	262	285	<b>293</b>	2.8%	-0.7%
	Export	478	373	358	324	<b>377</b>	16.2%	-21.2%
	Total	773	656	620	609	<b>670</b>	9.9%	-13.4%
<b>Lead</b>	Domestic	103	97	99	89	<b>102</b>	14.2%	-1.3%
	Export	261	242	218	221	<b>226</b>	2.5%	-13.4%
	Total	364	339	317	310	<b>328</b>	5.8%	-10.0%
<b>Silver</b>	Domestic	8	19	19	22	<b>80</b>	268.0%	839.0%
	Export	633	728	753	806	<b>1,051</b>	30.5%	66.0%
	Total	641	747	772	827	<b>1,131</b>	36.7%	76.3%
<b>Gold</b>	Domestic	233	330	331	372	<b>630</b>	69.5%	170.4%
	Export	-	28	84	176	-	-	-
	Total	233	358	415	548	<b>630</b>	15.0%	170.4%
<b>Copper</b>	Domestic	64	81	79	72	<b>83</b>	16.5%	29.9%
	Export	30	31	29	39	<b>51</b>	31.6%	73.9%
	Total	94	112	108	111	<b>135</b>	21.8%	43.8%
<b>Others</b>	<b>Category</b>	153	177	230	205	<b>182</b>	-11.2%	19.1%

# [Appendix] Zinc TC & Earnings

## Benchmark TC, FX & OP(Standalone)

(bn KRW, USD/t)



Source: Bloomberg, Metal Bulletin  
TC (Zinc) : Asian Benchmark T/C

# [Appendix] Financials

## Income Sheet (Consolidated)

(bn KRW)	4Q24	1Q25	2Q25	3Q25	4Q25	QoQ	YoY
<b>Sales</b>	3,413	3,833	3,825	4,160	<b>4,767</b>	14.6%	39.7%
<b>Gross Profit</b>	243	406	390	373	<b>616</b>	57.9%	148.4%
<b>Operating Profit</b>	120	271	259	273	<b>429</b>	57.0%	257.0%
<i>OPM(%)</i>	<i>3.5%</i>	<i>7.1%</i>	<i>6.8%</i>	<i>6.6%</i>	<b>9.0%</b>	<i>2.4%p</i>	<i>5.5%p</i>
<b>EBITDA</b>	208	365	353	366	<b>522</b>	43%	151%
<b>Net Profit</b>	-246	162	330	71	<b>221</b>	212.7%	TTB*

## Balance Sheet (Consolidated)

(bn KRW)	4Q24	1Q25	2Q25	3Q25	4Q25	QoQ	YoY
<b>Assets</b>	14,792	14,383	14,838	15,773	<b>20,346</b>	29.0%	37.5%
Current Assets	7,567	6,963	7,285	7,962	<b>12,049</b>	51.3%	59.2%
Cash and	894	577	740	653	<b>3,451</b>	428.5%	286.1%
Financial instruments							
Short-term Investments*	1,721	1,003	921	782	<b>1,038</b>	32.7%	-39.7%
Inventories	3,780	4,031	4,388	5,148	<b>6,206</b>	20.6%	64.2%
Non-current Assets	7,225	7,420	7,553	7,811	<b>8,297</b>	6.2%	14.8%
<b>Liabilities</b>	7,197	6,729	6,983	7,738	<b>9,145</b>	18.2%	27.1%
Current Liabilities	6,366	6,116	4,971	5,408	<b>6,103</b>	12.8%	-4.1%
Non-current Liabilities	831	614	2,013	2,330	<b>3,042</b>	30.6%	266.2%
<b>Shareholder's Equity</b>	7,595	7,654	7,855	8,035	<b>11,201</b>	39.4%	47.5%

\* Including Short-term Financial Instruments, TTB = Turn To Black

## Korea Zinc (Standalone)

PL(bn KRW)	4Q24	1Q25	2Q25	3Q25	4Q25	QoQ	YoY
<b>Sales</b>	2,258	2,389	2,461	2,609	<b>3,075</b>	17.9%	36.2%
<b>Gross Profit</b>	267	352	333	293	<b>484</b>	65.2%	81.1%
<b>Operating Profit</b>	187	273	266	235	<b>405</b>	72.3%	117.1%
<i>OPM(%)</i>	<i>8.3%</i>	<i>11.4%</i>	<i>10.8%</i>	<i>9.0%</i>	<b>13.2%</b>	<i>+4.2%p</i>	<i>+4.9%p</i>
<b>EBITDA</b>	239	333	327	295	<b>447</b>	51.1%	84.8%
<b>Net Profit</b>	-104	206	328	78	<b>164</b>	110.6%	TTB*

## SMC

PL('000 USD)	4Q24	1Q25	2Q25	3Q25	4Q25	QoQ	YoY
<b>Sales</b>	109,116	213,796	190,747	277,597	<b>285,846</b>	3.0%	162.0%
<b>Operating Profit</b>	-25,454	-1,750	948	6,341	<b>17,395</b>	174.3%	TTB*
<i>OPM(%)</i>	<i>NM.</i>	<i>NM.</i>	<i>0.5%</i>	<i>2.3%</i>	<b>6.1%</b>	<i>+3.8%p</i>	TTB*
<b>Net Profit</b>	-19,396	14,619	-18,493	2,649	<b>9,183</b>	246.6%	TTB*

## KZ Trading

PL(bn KRW)	4Q24	1Q25	2Q25	3Q25	4Q25	QoQ	YoY
<b>Sales</b>	310.8	308.5	334.5	374.9	<b>374.6</b>	-0.1%	20.5%
<b>Operating Profit</b>	8.4	2.9	-3.4	12.3	<b>19.0</b>	54.5%	126.2%
<i>OPM(%)</i>	<i>2.7%</i>	<i>0.9%</i>	<i>NM.</i>	<i>3.3%</i>	<b>5.1%</b>	<i>+1.8%p</i>	<i>+2.4%p</i>
<b>Net Profit</b>	14.0	2.3	-0.6	-0.3	<b>1.1</b>	TTB*	-92.1%

## Steel Cycle Corporation

PL(bn KRW)	4Q24	1Q25	2Q25	3Q25	4Q25	QoQ	YoY
<b>Sales</b>	46.4	61.6	57.0	53.3	<b>76.2</b>	43.1%	64.2%
<b>Operating Profit</b>	4.0	3.4	5.6	1.3	<b>4.9</b>	279.4%	23.0%
<i>OPM(%)</i>	<i>8.6%</i>	<i>5.6%</i>	<i>9.8%</i>	<i>2.4%</i>	<b>6.5%</b>	<i>+4.0%p</i>	<i>-2.2%p</i>
<b>Net Profit</b>	3.2	4.5	7.1	0.6	<b>3.9</b>	562.9%	23.1%

# [Appendix] Rare Metals Supplier

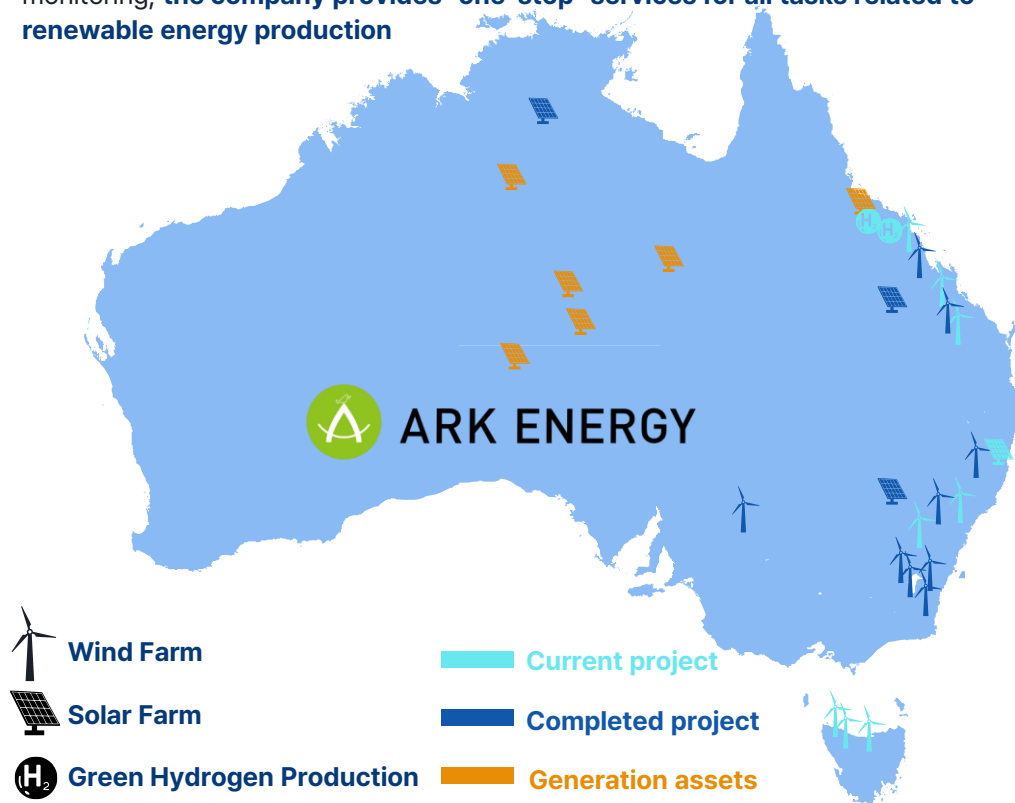
Category	Company	Country	EBIT	Antimony	Bismuth	Gallium	Germanium	Indium
China	Vital Materials Co., Limited	China	N/A	0	0	0	0	0
	Aluminum Corporation of China Limited (SEHK:2600)	China	4,820,583			0		
	Baiyin Nonferrous Group Co., Ltd. (SHSE:601212)	China	427,309	0	0			0
	China Copper Corporation Limited	China	1,986,491				0	
	Henan Yuguang Gold&Lead Co.,Ltd. (SHSE:600531)	China	222,686		0			
	Huludao Zinc Industry Co.,Ltd. (SZSE:000751)	China	56,636	0				0
	Inner Mongolia Xingye Silver & Tin Mining Co.,Ltd (SZSE:000426)	China	357,523		0			
	Jiangsu Boqian New Materials Stock Co., Ltd. (SHSE:605376)	China	26,613		0			
	Jiangxi Copper Company Limited (SEHK:358)	China	1,958,026		0			
	Optics Technology Holding Co.,Ltd (SZSE:300489)	China	41,918			0	0	
	Shandong Humon Smelting Co., Ltd. (SZSE:002237)	China	134,490		0			
	Shenzhen Zhongjin Lingnan Nonfemet Co. Ltd. (SZSE:000060)	China	332,946	0			0	0
	Sihuan Zinc & Germanium Technology Co., Ltd.	China	26,063				0	
	Yunnan Chihong Zinc & Germanium Co., Ltd. (SHSE:600497)	China	327,428				0	
	Yunnan Lincang Xinyuan Germanium Industry Co.,LTD (SZSE:002428)	China	18,243	0		0	0	0
	Yunnan Tin Company Limited (SZSE:000960)	China	456,007	0				0
Zhuzhou Smelter Group Co.,Ltd. (SHSE:600961)	China	247,646	0	0			0	
<b>HK Listed</b>	United Company RUSAL, International Public Joint-Stock Company (SEHK:486)	Russia	4,055,309			0		
Non-China	Industrias Peñoles, S.A.B. de C.V. (BMV:PE&OLES *)	Mexico	2,417,817		0			
	Minsur S.A. (BVL:MINSURI1)	Peru	1,634,752	0	0			0
	Aurubis AG (XTRA:NDA)	Germany	1,242,196		0			
	Korea Zinc Company, Ltd. (KOSE:A010130)	South Korea	801,323	0	0	0	0	0
	Mitsui Mining & Smelting Co., Ltd. (TSE:5706)	Japan	584,958		0			
	Dowa Holdings Co., Ltd. (TSE:5714)	Japan	253,151	0		0		0
	Mitsubishi Materials Corporation (TSE:5711)	Japan	177,535		0			
	Toho Zinc Co., Ltd. (TSE:5707)	Japan	14,390		0			
	LT Metal Co.,Ltd.*	South Korea	36,643	0				0
	Dowa Metals & Mining Co., Ltd. *	Japan	31,802	0	0			0
	Buss & Buss Spezialmetalle GmbH*	Germany	8,047	0		0	0	0
	Torecom Ltd. *	South Korea	7,135	0				0
MCP Group SA*	Belgium	31	0	0	0	0	0	

1) S&P Capital IQ  
2) Processing or secondary(recycling) company

- An Australia-based renewable energy solutions provider engaged in utility-scale wind and solar projects, green hydrogen production, and battery energy storage system (BESS) developments.

## Renewable asset portfolio across Australia

- Korea Zinc operates a **large-scale solar power plant in Australia** through its subsidiary **Ark Energy**, a specialist in renewable energy and green hydrogen
- From asset development requiring high expertise to operation and performance monitoring, **the company provides "one-stop" services for all tasks related to renewable energy production**



## Key assets overview

### MacIntyre Wind Farm



- Capacity: 923.4MW (Ark Energy's 30% pro-rata capacity: 277.0MW)
- Initial Operation: October 2024 (27 turbines)
- Commercial Operation Date: Mid-2026
- Location: Southwest of Warwick, Queensland
- Produces Enough Electricity to Power Approximately 630,000 Households
- Project Components: 162 turbines

### Sun Metals Solar Farm



- Capacity: 124MW (100% owned)
- Commercial Operation Date: 2018
- Location: Near SMC Refinery
- Design Life: 25 years
- Number of Solar Panels: 1,260,000
- Percentage of SMC's Power Supply: 25%

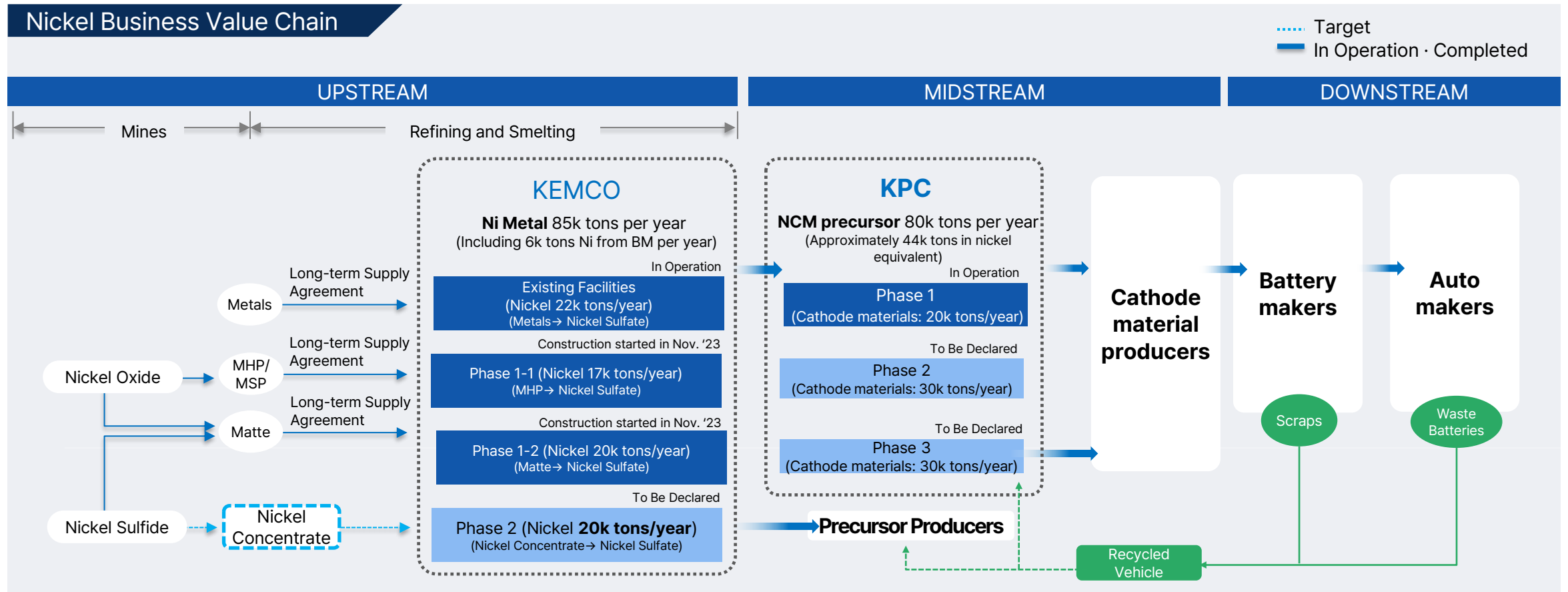
### Richmond Valley Battery ESS Project



- In December 2023, Ark Energy signed a Long-Term Energy Service Agreement (LTESA) with the New South Wales (NSW) state government in Australia for a Battery Energy Storage System (BESS)
- In March 2025, Ark Energy and Hanwha Energy signed a supply agreement for the Richmond Valley BESS project, aimed at grid stabilization and energy trading using a Battery Energy Storage System (BESS) with a power capacity of 275MW and a storage capacity of 2,200MWh

# [Appendix] TD Business\_ Secondary Battery Materials Business





- Building a fully integrated value chain spanning nickel sulfate, battery precursors, copper foil production, and battery recycling.

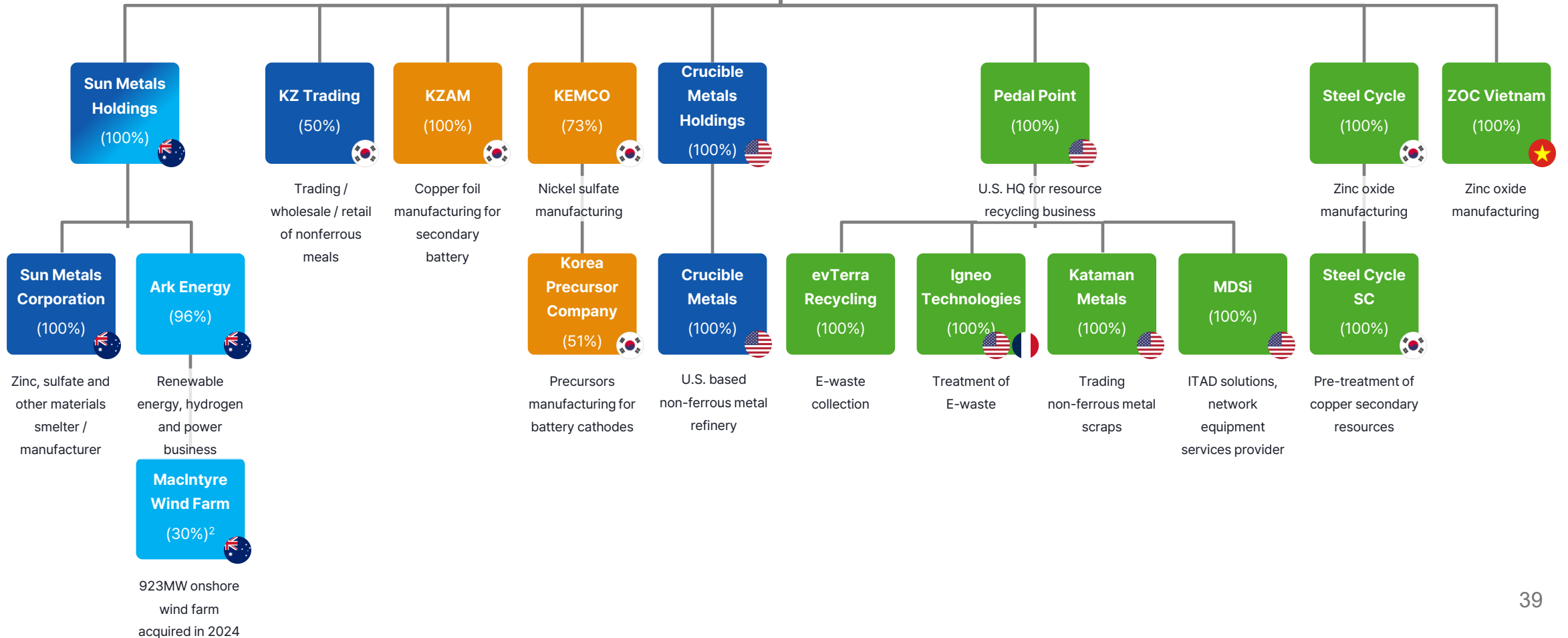


1) Securing non-China raw materials given the elevated geopolitical tension and trade conflicts  
 \* Nickel refinery +43kt Ni capacity accounts for 4.9% of global nickel production for battery use in 2026 (Source: Wood Mackenzie)

# [Appendix] Korea Zinc and Subsidiaries



-  Smelting
  -  Renewables & Hydrogen
  -  Secondary battery materials
  -  Resource recycling
- (%) equity stake





**World's Leading  
Green Energy and Material Provider**

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