



Critical Minerals Strategy and Value Chains

Course: Supply Security, Refining and Offtake



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Introduction:

Critical minerals strategy and value chains, covering supply security, refining and offtake, is the subject of this 1-week course for mining, ministry and investment teams, who build a Critical Minerals Value Chain Strategy for a case organisation. Bodies committing capital or policy to lithium, copper, nickel, graphite and rare earths often lack a tested view of which minerals matter, where refining margins sit and which deals reduce exposure to concentrated suppliers. Nominees already analyse mineral markets, projects or industrial policy, and work through case studies on market and deal data. CoreConcept Training Center delivers this critical minerals strategy course.

Course Objectives:

- Score minerals on a criticality matrix of supply risk and economic importance and set a priority list for the organisation
- Interpret demand outlook scenarios for lithium, copper, nickel, graphite and rare earths and test them against supply concentration
- Map a mineral value chain from concentrate to finished component and locate where refining and conversion margins are captured
- Structure offtake, prepayment and equity-for-supply terms that secure volumes while limiting price, counterparty and jurisdiction risk
- Design stockpile, traceability and responsible sourcing controls aligned with the OECD Due Diligence Guidance
- Prepare a value-chain localisation strategy that weighs incentives, local content, recycling and substitution risks

Target Audience:

- Mining company strategy and business development units responsible for commodity portfolio and growth decisions
 - Industry and mining ministry policy units responsible for mineral strategies, incentives and supply security
 - Sovereign fund and investment teams responsible for screening mining, refining and battery material assets
 - Commercial and marketing units responsible for concentrate and refined product sales and offtake negotiations
 - Industrial development units responsible for attracting refining, cathode, magnet and component manufacturing plants
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Course Outline:

Day 1: Criticality Assessment and Transition Mineral Demand Outlooks

- Criticality Matrix Scoring Supply Risk Against Economic Importance
- Critical Minerals List Methodologies Compared Across Three Jurisdictions
- Lithium, Nickel and Graphite Battery Chemistry Demand Drivers
- Copper and Rare Earth Magnet Demand Scenario Comparison
- Supply Concentration Index for Mining and Refining Stages

Day 2: Value Chain Mapping and Midstream Refining Economics

- Mine-to-Market Value Chain Map From Concentrate to Cell
- Conversion Cost Curve for Lithium Hydroxide and Carbonate
- Treatment and Refining Charges in Concentrate Pricing
- Rare Earth Separation and Magnet Alloy Margin Analysis
- Value Capture Benchmarking Across Refining and Manufacturing Stages

Day 3: Offtake, Equity-for-Supply and Midstream Investment Structures

- Take-or-Pay and Take-and-Pay Offtake Clause Selection
- Index-Linked Pricing With Floor and Ceiling Collars
- Equity-for-Offtake Minority Stake Deal Structuring
- Prepayment and Concessional Debt Packages for Midstream Plants
- Counterparty and Jurisdiction Risk Screening for Supply Deals

Day 4: Stockpiles, Traceability, Localisation and Disruption Risks

- Strategic Stockpile Sizing, Rotation and Release Rules
- OECD Due Diligence Guidance Five-Step Responsible Sourcing Review
- Chain-of-Custody and Mass Balance Traceability Data Models
- Localisation Incentives and Local Content Requirement Design
- Recycling, Substitution and Demand Destruction Risk Testing

Day 5: Case Study: Critical Minerals Value Chain Strategy

- Case Organisation Criticality Matrix and Mineral Priority List
 - Case Refining Investment Screen Using Conversion Cost Curves
 - Case Offtake and Equity-for-Supply Term Sheet Drafting
 - Case Stockpile, Traceability and Localisation Action Roadmap
 - Critical Minerals Value Chain Strategy Completion and Committee Defence
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Skills You Will Gain:

- Mineral Criticality Assessment
- Demand Scenario Interpretation
- Value Chain Mapping
- Refining Margin Analysis
- Offtake Term Structuring
- Supply Deal Risk Screening
- Responsible Sourcing Due Diligence
- Localisation Policy Design

Why Attend This Course:

- Deliver a Critical Minerals Value Chain Strategy for a case organisation to the investment committee, the ministry steering group or the executive board
- Judge which minerals, refining stages and supply deals deserve capital or policy support, using criticality scores and conversion cost evidence
- Avoid offtake terms that leave price risk unmanaged, stockpiles sized without release rules and supply chains exposed to traceability failures
- Share the criticality matrix, value chain map, term sheet checklist and due diligence review with strategy, policy and commercial colleagues

Conclusion:

Back at work, the participant hands the Critical Minerals Value Chain Strategy to the investment committee, the ministry steering group or the executive board. They use it to decide which minerals to prioritise, which refining or component plants to back, which offtake and equity-for-supply deals to negotiate and which stockpile and traceability controls to fund. After the first deal or policy measure under the strategy, the unit should compare secured volumes, realised margins and due diligence findings with the plan and refresh the criticality scores.

Frequently Asked Questions FAQ:

What should participants know before a critical minerals strategy and value chains course?

Participants should already work on mineral markets, mining or refining projects, investment screening or industrial policy. No geology or metallurgy degree is needed. A laptop with a spreadsheet application is used for the criticality matrix, cost curve and term sheet exercises.

How does critical minerals strategy and value chains differ from a mining overview or plant operations course?

This course decides which minerals matter, where refining value sits and how supply deals and policy tools secure them. A mining overview course explains the mine life cycle, and a plant operations course tunes crushing, flotation and leaching circuits.

Why does midstream refining matter so much in critical minerals value chains?

Refining and conversion are often more concentrated than mining, so control of hydroxide, sulphate, separated oxide or alloy capacity sets who captures margin and who faces supply interruption. A strategy that stops at the mine leaves the main exposure untouched.

What do participants take back from the critical minerals strategy and value chains course?

Participants take back a Critical Minerals Value Chain Strategy for a case organisation, with a criticality matrix, value chain map, refining investment screen, offtake term sheet checklist and a stockpile, traceability and localisation roadmap.
