



# Baotou 500,000 T/Y Water Slag & 500,000 T/Y Steel Slag Resource Utilization Project

Industrial solid-waste recycling into low-carbon cementitious materials and metals

|                                                                                                                    |                                                                                                             |                                                                                          |
|--------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| Total Investment<br><b>RMB 304.725 million</b><br>Including construction investment, interest, and working capital | Annual Processing Capacity<br><b>1,000,000 tons/year</b><br>500,000 t/y water slag + 500,000 t/y steel slag | Full Production Year Revenue<br><b>RMB 221.035 million</b><br>Excluding policy subsidies |
| After-tax IRR (Base)<br><b>59.46%</b><br>Feasibility study restoration                                             | After-tax Static Payback Period<br><b>2.90 years</b><br>Base case                                           | After-tax IRR (Downside)<br><b>29.38%</b><br>No subsidies, stressed prices and costs     |

## Project Overview

The project is located in the Industrial Park of Kundulun District, Baotou, and plans to process 500,000 tons/year of blast furnace water slag and 500,000 tons/year of steel slag, totaling 1 million tons/year. The project will produce all-solid-waste alkali-activated low-carbon cementitious materials, iron concentrate, rare earth concentrate, other valuable metal concentrates, and recover iron scrap from the water slag line. It also generates solid waste treatment income. The construction investment is RMB 285.0 million, with a 12-month construction period and an operation ramp-up of 20%, 40%, 60%, 70%, and 80% over five years. The project is currently at the financial evaluation stage, supporting bank fixed asset loans and financing due diligence. The feasibility study base case shows strong profitability and debt service metrics, while the downside scenario confirms basic debt solvency under stress.

## Technology & Competitive Edge

- Uses all-solid-waste alkali-activated technology to produce low-carbon cementitious materials from slag.
- Recovers iron concentrate, rare earth concentrate, and other valuable metals, enhancing resource efficiency.
- Processes 1 million tons/year of solid waste, addressing environmental liabilities while generating revenue.
- Revenue diversified across cementitious materials (63.7%), iron concentrate (18.1%), and treatment income (18.1%).

- Base case after-tax IRR of 59.46% and payback of 2.90 years indicate strong economic viability.

## **Market & Business Model**

- Revenue streams include sales of cementitious materials, iron concentrate, rare earth concentrate, and treatment fees.
- Cementitious materials, iron concentrate, and solid waste treatment income account for ~99.9% of revenue.
- Policy subsidies of RMB 5 million/year are listed separately and excluded from downside repayment sources.
- Downside scenario stresses prices, costs, and capacity ramp-up, yet maintains minimum DSCR of 1.10x.
- Bank financing recommended with phased disbursement, cash flow collection, and post-loan monitoring.

## **Scope of Works & Project Status**

- Construction investment of RMB 285.0 million covers equipment, installation, and infrastructure.
- Project includes processing lines for water slag and steel slag, and product recovery systems.
- Construction period is 12 months, followed by a five-year ramp-up to full capacity.
- Maintenance operation investment of RMB 10 million/year in Years 2-5 is included in cash flow.
- Financial model restored from feasibility study Appendices 1-13; base case metrics verified.

## Key Financials

|                                        |                                               |
|----------------------------------------|-----------------------------------------------|
| Total Investment                       | <b>RMB 304.725 million</b>                    |
| Capital                                | <b>RMB 94.725 million (31.1%)</b>             |
| Loan                                   | <b>RMB 210.0 million (68.9%), 5-year term</b> |
| Full Production Year Operating Revenue | <b>RMB 221.035 million</b>                    |
| Full Production Year Net Profit        | <b>RMB 154.915 million</b>                    |
| After-tax Project IRR (Base)           | <b>59.46%</b>                                 |
| After-tax NPV (7.5%)                   | <b>RMB 375.733 million</b>                    |
| After-tax Static Payback Period        | <b>2.90 years</b>                             |
| Minimum DSCR (Base)                    | <b>1.59x</b>                                  |

### Investment Highlights

- Base case after-tax IRR of 59.46% and NPV of RMB 375.733 million demonstrate strong returns.
- Downside scenario still yields after-tax IRR of 29.38% and minimum DSCR of 1.10x, indicating basic debt solvency.
- Revenue concentrated in three main streams: cementitious materials, iron concentrate, and treatment income.
- Phased disbursement and cash flow collection recommended to mitigate construction and market risks.

### Key Risks

- Revenue concentration: ~99.9% from three products; price or demand shifts could materially impact cash flow.
- Cost assumptions: feasibility study material and energy costs may be understated; independent verification needed.
- Policy subsidies: RMB 5 million/year not approved or contracted; excluded from downside repayment sources.

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