

Tumed Right Banner, Baotou, Inner Mongolia

2 Million Tons/Year Coal Gangue Solid Waste Resource Utilization Project

Valuation Report

I. Valuation Purpose and Method

This valuation report aims to provide value reference for bank financing and potential equity cooperation of the "2 Million Tons/Year Coal Gangue Solid Waste Resource Utilization Project in Tumed Right Banner, Baotou, Inner Mongolia".

This valuation adopts the Discounted Cash Flow - Free Cash Flow to Firm (DCF-FCFF) model under the internationally accepted Income Approach. This method predicts the future free cash flow to firm generated by the project and discounts it at the Weighted Average Cost of Capital (WACC) to obtain the project's Enterprise Value (EV), and then derives the Equity Value.

II. Core Valuation Assumptions and Parameter Setting

1. Forecast Period and Perpetual Period Assumptions

- **Explicit Forecast Period:** Set as the first 5 years of project construction and operation (consistent with the financial model calculation period, i.e., Year 1 to Year 5).
- **Perpetual Period:** Assume the project reaches a stable state in Year 5 and enters the perpetual operation period from Year 6 onward. Based on the principle of conservatism, the perpetual growth rate (g) is set at 0.00%.

2. Determination of Weighted Average Cost of Capital (WACC)

The WACC calculation formula is:

$$WACC = K_e \times W_e + K_d \times (1-T) \times W_d$$

The parameters are set as follows:

- **Risk-free Rate (R_f):** Referencing the current 10-year treasury bond yield, taken as 3.00%.
- **Market Risk Premium ($R_m - R_f$):** Referencing historical data of China's A-share market, taken as 6.00%.
- **Industry Beta Coefficient (β):** Referencing the unlevered Beta of listed companies in the environmental protection and solid waste treatment industry and adjusting for capital structure, taken as 1.20.

- **Specific Risk Premium (R_s):** Considering that new projects have certain market development and operational risks, taken as 2.00%.

- **Cost of Equity (K_e):** Based on the Capital Asset Pricing Model (CAPM):

$$K_e = R_f + \beta \times (R_m - R_f) + R_s = 3.00\% + 1.20 \times 6.00\% + 2.00\% = 12.20\%$$

- **Cost of Debt (K_d):** According to the project financing plan, the pre-tax loan interest rate is 4.50%. The corporate income tax rate (T) is 25%, so the after-tax cost of debt is:

$$4.50\% \times (1-25\%) = 3.38\%$$

- **Target Capital Structure:** Set target asset-liability ratio (W_d) at 40.00%, target equity ratio (W_e) at 60.00%.

Comprehensive calculation:

$$WACC = 12.20\% \times 60\% + 3.38\% \times 40\% = 8.67\%$$

III. Free Cash Flow (FCFF) Forecast

Free Cash Flow to Firm (FCFF) = EBIT - Income Tax + Depreciation & Amortization (D&A;) - Capital Expenditure (CAPEX) - Working Capital Increase (ΔWC)

Based on the financial evaluation model, the FCFF forecast for the explicit forecast period (Years 1-5) is as follows (Unit: RMB 10,000):

Year	Description	EBIT	FCFF
Year 1	Construction period	—	-124,164.00
Year 2	Operation, 60% load	45,837.80	43,333.00
Year 3	80% load	63,787.65	57,638.71
Year 4	100% load	81,837.60	71,176.17
Year 5	100% load	81,837.60	71,561.73

Note: Year 1 has no operating profit and incurs huge capital expenditure of RMB 1,241.64 million. Year 2 NOPAT is RMB 343.7835 million after tax, plus D&A; of RMB 101.8353 million, minus working capital increase of RMB 12.2888 million.

Using the mid-year discount assumption, discount the above FCFF at WACC of 8.67%. The total present value of FCFF for the explicit forecast period (Years 1-5) is RMB 683.6529 million.

IV. Terminal Value and Enterprise Value Calculation

1. Terminal Value (TV) Calculation

Using the Gordon Growth Model to calculate terminal value:

$$TV = FCFF_{\text{perpetual}} / (WACC - g) = 71,561.73 / (8.67\% - 0.00\%) = 825,394.81 \text{ (RMB 10,000)}$$

Discount the terminal value to the base date (discount factor 0.6879), obtaining the Present Value of Terminal Value (PV of TV) of RMB 5,677.8909 million.

2. Enterprise Value (EV)

Enterprise Value = Total PV of FCFF in explicit forecast period + PV of Terminal Value

$$EV = 68,365.29 + 567,789.09 = 636,154.38 \text{ (RMB 10,000)}$$

3. Equity Value

Equity Value = Enterprise Value - Interest-bearing Debt + Surplus Cash and Non-core Assets

Based on conservative principles, deduct all interest-bearing debt of RMB 855.848 million initially planned for the project, assuming no surplus cash.

$$\text{Equity Value} = 636,154.38 - 85,584.80 + 0 = 550,569.58 \text{ (RMB 10,000)}$$

V. Valuation Conclusion

Based on the DCF income approach model calculation, under the established assumptions, the intrinsic value assessment of the 2 Million Tons/Year Coal Gangue Solid Waste Resource Utilization Project in Tumed Right Banner, Baotou, Inner Mongolia after operation is as follows:

Valuation Indicator	Value
Project Enterprise Value (EV)	Approximately RMB 6.362 billion
Project Equity Value	Approximately RMB 5.506 billion

Conclusion and Recommendations:

The planned total investment of this project is approximately RMB 1.281 billion, while the assessed enterprise value is as high as RMB 6.362 billion, with a value creation multiplier (EV/Investment) of approximately 5x. This fully demonstrates that the project, relying on core technologies such as advanced physical field mineral separation and supercritical thermal cracking, has achieved deep resource utilization and high value-added conversion of coal gangue (such as kaolin, mullite, and other products), with extremely high commercial economic value and investment return potential.

For bank financing, the project's intrinsic value far exceeds the planned loan amount (RMB 856 million), with a Loan-to-Value ratio ($LTV = \text{Loan}/EV$) of only 13.45%, possessing an extremely high safety margin and belonging to high-quality credit assets.

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