



LONGMAN GROUP

INTEGRATED ENERGY ECOSYSTEM

Feasibility Study & Investment Roadmap

A paradigm Shift in Coal-Power, Clean energy, & AI Ecosystem

Private and Confidential

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01. STRATEGIC VISION: A NEW PARADIGM IN ENERGY PRODUCTION



Visualization of the circular value chain at the heart of LONGMAN GROUP's Integrated Energy Ecosystem.

The LONGMAN GROUP Integrated Energy Ecosystem transcends traditional linear energy models. By fusing advanced pyrolysis, AI-driven data analytics, and sustainable power generation, we've created a closed-loop system that maximizes resource efficiency and minimizes environmental impact.

CORE COMPONENTS



PYROLYSIS PLANT

Zero-waste coal conversion with ultra-low emissions, converting raw materials into high-value products.



DATA CENTER

AI-driven computational hub powered by clean on-site energy, optimizing real-time operations.



POWER BLOCK

Next-gen generation utilizing pyrolysis byproducts to deliver reliable, low-carbon electricity.



LOGISTICS

Integrated transport network ensuring seamless, efficient supply chain management.

02. EXECUTIVE SUMMARY: THE \$3.88B NPV THESIS

Annual EBITDA	After-Tax IRR	Net Present Value (NPV)	Payback Period
\$675.5M	64.58%	\$3.88B	2.55 Years

PROJECT HIGHLIGHTS

-  **Strategic Location:** ensuring proximity to energy demand centers and logistics hubs.
-  **Innovative Tech:** Integration of Pyrolysis, Gas-Fired Power, and Tar Hydrogenation for high-efficiency energy conversion.
-  **Green Credentials:** Zero direct coal firing operation, significantly reducing environmental impact and aligning with global sustainability goals.



Sovereign-backed demand with a guaranteed PPA from the national grid, indexed to FX/CPI for financial stability.

03. STRATEGIC ALIGNMENT & POLICY TAILWINDS

project will be a execution of national development strategy, perfectly aligned with the country's pressing needs and global trends, bridging energy security, environmental recovery, and the digital economy.



air quality crisis, driven by raw coal combustion, is a national priority that our project directly addresses.”



National Policy & Regulatory Security

Directly supports country's "New Recovery Policy" to eliminate energy dependency, ensuring a stable Grid PPA framework for long-term operations.



Solving Environmental Crisis

Tackles the capital's reliance on 1.2M tons of raw coal annually, which causes extreme winter smog. Provides a clean, sustainable fuel alternative aligned with national environmental mandates.



Powering the Global AI & Digital Economy

Sits at the intersection of energy security and the global AI infrastructure race, delivering ultra-low-cost, stable baseload power critical for data centers and AI computing demands.

04. TECHNICAL ARCHITECTURE: THE CIRCULAR VALUE EXTRACTION



The SH4080 II pyrolysis ovens form the project's industrial backbone, enabling a closed-loop process that converts raw coal into a suite of high-value, market-ready products with zero waste.



01. RAW MATERIAL INPUT

11.2 Mt/a of raw coal is processed annually, with 10.08 Mt allocated to advanced pyrolysis, ensuring optimal feedstock efficiency and minimal waste.



02. CORE ENGINE: PYROLYSIS

50 SH4080 II industrial ovens act as the heart of the operation, thermochemically converting block coal into multiple high-value intermediate products.



03. INTERMEDIATE PROCESSING

Net coal gas powers the on-site plant; coal tar undergoes hydrogenation to produce clean liquid fuels and chemical precursors, closing the loop.

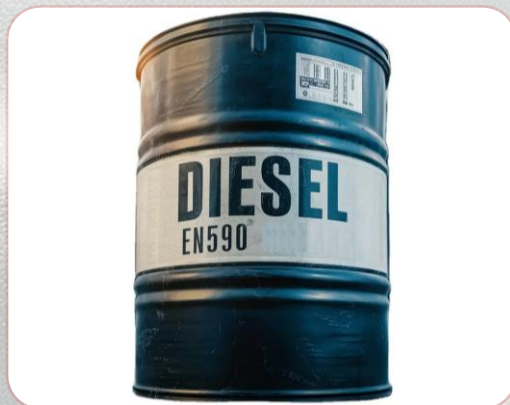


04. FINAL HIGH-VALUE OUTPUTS

Zero-waste production yields clean semi-coke, EN590-compliant diesel, premium road asphalt, and surplus electricity for the grid.

05. PRODUCTS & TARGET MARKETS

The LONGMAN GROUP ecosystem generates a diversified portfolio of products, ensuring revenue stability and reducing exposure to single-commodity market volatility.



Key high-demand products driving energy transition.



Power (640MW)

Supplied to National Grid, AI Computing Centers, and Industrial Parks.



Clean Semi-Coke

6.1M tons/year replacing raw coal in residential districts.



EN590 Diesel

445.9k tons/year substituting imported diesel for heavy mining transport.



Industrial Byproducts

Asphalt and fine coal supporting domestic infrastructure and industries.

SYNTHESIS INSIGHT: This diversified product mix across essential power, municipal heating, and heavy industrial fuels ensures revenue stability, effectively insulating the asset from the volatility of single-commodity markets.

06. THE ECOSYSTEM ANCHOR: STRATEGIC POWER OFF-TAKE

The project's revenue is secured through a multi-layered power off-take strategy, providing a "bulletproof" revenue protection mechanism with diversified channels ensuring long-term stability.



01 / Grid PPA (32.3%) – 1.41 B kWh/a

Sold to the Central Energy System at 6.36¢/kWh, with CPI/FX indexation guaranteeing stable real-USD returns and long-term revenue security.

02 / AI Computing Center (45.5%) – 2.0 B kWh/a

Direct supply at 3.5¢/kWh powers high-performance green AI infrastructure, ensuring globally elite competitiveness and ultra-low operational costs.

03 / Industrial Park (22.2%) – 0.97 B kWh/a

Supplied to a planned heavy industrial park at 3.8¢/kWh, fostering a self-sustaining ecosystem that drives local economic growth and industrial synergy.

07. THE COST COMPRESSION ENGINE



The project's profitability is uniquely driven by treating coal gas as an internal byproduct rather than a market-priced fuel, creating a structurally protected cost advantage.

01 / BYPRODUCT PARADIGM

5.867 B Nm³ of coal gas is transferred internally at a steeply discounted rate of **0.5¢/Nm³**. This creates a massive arbitrage opportunity when selling power at market rates.

02 / UNIT GENERATION COST

Total annual cost: \$82.13M | Annual generation: 4.392 B kWh.
Resulting in a fully-loaded unit cost of **1.870 ¢/kWh**—a globally disruptive benchmark.

IMPACT: This ultra-low cost structure is the cornerstone of sustainable, industry-leading profitability.

08. ENVIRONMENTAL DOMINANCE & ESG IMPACT

LONGMAN GROUP is committed to environmental stewardship, setting new standards for the energy industry through innovative solutions and sustainable practices.

AIR QUALITY (UB SMOG REDUCTION)

Achieving **>80% reduction** in SOX & PM emissions by replacing raw coal with 6.1 million tons of Clean Semi-Coke in Ulaanbaatar's ger districts, directly addressing a critical national health crisis.

EXTREME WATER CONSERVATION

Reducing water makeup by **>85%** via ACC technology, eliminating traditional wet cooling. 100% of makeup water is sustainably sourced from existing mine drainage, preserving precious freshwater.

ZERO LIQUID DISCHARGE (ZLD)

Advanced evaporation and crystallization systems enable **100% phenol wastewater recycling**, ensuring no harmful runoff and full compliance with global sustainability benchmarks.



Our state-of-the-art wastewater treatment facility embodies ESG leadership, ensuring complete water recycling and zero discharge—turning industrial byproducts into a sustainable resource for the future.

09. PROJECT CAPEX & RESILIENT INFRASTRUCTURE

The \$800 million CAPEX is strategically allocated to build a resilient infrastructure capable of withstanding climate conditions, including temperatures as low as -40°C, ensuring uninterrupted operations and long-term sustainability.

CAPEX BREAKDOWN



RESILIENT INFRASTRUCTURE



A site can be connected to the national grid, enabling efficient, year-round transport of raw materials and finished products.

- **-40°C Winter Resilience**
Auto-drain manifolds & anti-freeze systems ensure operation in extreme cold.
- **Integrated Logistics**
30km heavy-duty roads & insulated pipelines for water and utilities.

10. PRODUCT PORTFOLIO & ANNUAL REVENUE MODEL

Generating a diversified annual revenue stream of **\$923.62 million**

EN590 Diesel Fuel

\$356.72M (38.6%)

Clean Semi-Coke

\$336.52M (36.4%)

Grid PPA Power

\$90.15M (9.8%)

AI Computing Power

\$70.00M (7.6%)

Industrial Power

\$37.03M (4.0%)

Asphalt & Fine Coal

\$33.02M (3.6%)

SYNTHESIS TAKEAWAY: Physical commodities (Diesel & Coke) account for **over 75%** of total revenue, providing a rock-solid financial foundation. The low-cost power (1.87¢/kWh) enables disruptive opportunities in AI and grid energy, creating a balanced growth model.



11. INVESTMENT RETURNS & 20-YEAR CASH FLOW

The project's financial model demonstrates exceptional returns and resilience, underpinned by robust cash flow generation and a proven operational framework.

Annual EBITDA

\$675.51 M

Project IRR (After-tax)

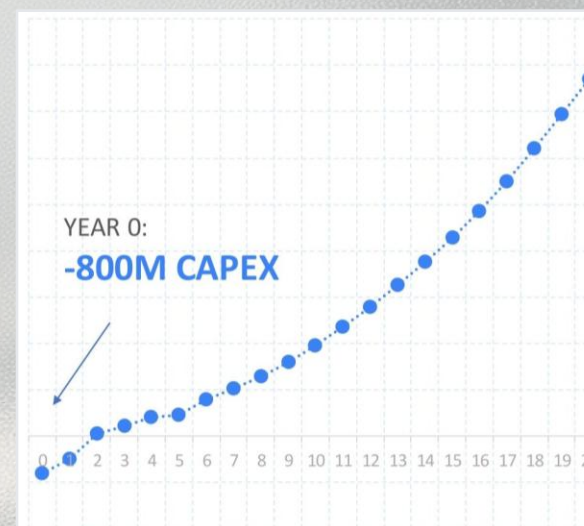
64.58%

NPV (10% Discount)

\$3.88 B

Payback Period

31 Months



CASH FLOW TRAJECTORY

The integrated asset's margins generate sufficient free cash flow to retire the \$800M CAPEX within 31 months of commercial operation, followed by sustained high profitability over the project's 20-year lifecycle.

These metrics confirm the project's financial robustness, offering rapid capital recovery and consistent returns that outperform industry benchmarks.

STRATEGIC VALUE: Early cash flow positivity mitigates investment risk and ensures long-term dividend sustainability, making it a compelling opportunity for institutional investors.

12. PROJECT MILESTONES & CAPITAL READINESS

The LONGMAN GROUP project is de-risked and primed for immediate syndicate capital deployment, with key milestones already achieved or in advanced stages, ensuring a solid foundation for rapid execution.



Strategically resource-rich landscape, the project benefits from optimal geographic positioning and robust infrastructure, laying the groundwork for sustainable energy and technological integration.

ACHIEVED MILESTONES

- **NI 43-101 Resource Report:** Comprehensive technical report fully completed, verifying resource quality and reserve estimates.
- **270MW Commercial PPA:** Definitive offtake agreement secured with the National Dispatching Center.

ONGOING & UPCOMING

- **Environmental Clearance:** Finalizing the Detailed Environmental Impact Assessment for regulatory approval.
- **AI Data Center:** engineering design completion for 150MW AI infrastructure integration.

13. SUMMARY: INVESTMENT SYNTHESIS

The LONGMAN GROUP Integrated Energy Ecosystem represents a unique investment opportunity, combining de-risked innovation, sovereign alignment, and unrivalled financial returns to create a sustainable, high-growth asset with unmatched competitive advantages.

THE UNFAIR ADVANTAGE



De-Risked Innovation

A circular, multi-product biochemical refinery model replaces linear extraction, ensuring long-term resource efficiency and adaptability.



Sovereign Alignment

Strong state policy backing, guaranteed off-take agreements, and hard-currency indexing mitigate geopolitical and market risks.



Unbeatable Cost

Producing power at 1.87¢/kWh – a globally unbeatable cost structure that underpins exceptional profit margins.



Unrivalled Yields

\$3.88 Billion NPV, a 64.5% after-tax IRR, and a rapid 31-month payback period for investors.



Ecological Supremacy

Eradicating urban smog with strict Zero Liquid Discharge (ZLD) standards, aligning with global sustainability goals.

**The project is open for syndication and strategic partnerships –
join us in shaping the future of sustainable energy.**



THANK YOU

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