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MBK addresses and narrows the gaps between current operational data and Technoeconomic Analysis (TEA) assumptions by integrating a rigorous, real-time data infrastructure into every level of the project's design and validation process. Here's how MBK bridges that critical gap, a key concern for carbon investors, registries, and certification bodies:

How MBK Narrows Gaps Between Current Data and TEA Assumptions

Digital MRV Architecture (IBM Hyperledger Fabric)

- MBK deploys a blockchain-enabled MRV system that captures real-time operational data, including temperature, throughput, feedstock moisture, carbon conversion rates, and energy balances.
 - This system eliminates the need for modeled estimates by providing registry-grade, timestamped datasets that inform the TEA with live performance inputs.
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2. Predictive Maintenance + AI Analytics

- Integration with ABB robotics and AI diagnostics ensures continuous monitoring and forecasting of system efficiency, downtime, and process variability.
 - These performance insights are incorporated into TEA models, enhancing assumptions such as:
 - Energy consumption per ton of biochar
 - Labor and maintenance intervals
 - Equipment uptime and degradation rates
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3. Onsite Pilot Validation + Feedstock Characterization

- MBK has partnered with companies that conducted controlled preprocessing trials to validate the efficiencies of biomass-to-biochar conversion and energy recovery ratios.
 - Detailed moisture, density, and yield data on bamboo, forestry, and agricultural waste feedstocks have been benchmarked against TEA projections.
 - This reduces uncertainty margins for both CAPEX optimization and LCA values.
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4. Stacked Certification Alignment (Verra, Puro.Earth, Gold Standard)

- MBK's methodology mapping aligns with VM0044 emission factor assumptions and Puro.Earth biochar durability modeling, both of which are underpinned by registry-approved TEA benchmarks.
 - These frameworks provide a harmonizing reference between real-world results and modeled assumptions.
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5. Third-Party Review & Calibration

- MBK involves Technical Advisor, and Consulting Services early to review TEA inputs and validate operational assumptions.
 - This third-party involvement ensures that both MBK and its credit buyers are aligned on performance expectations and financial viability before full-scale operations begin.
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Summary Statement:

MBK doesn't just build to meet TEA assumptions; it bridges the gap with live, auditable data streams, AI-predicted performance metrics, and cross-referenced registry standards. This ensures that our carbon credit delivery and financial models reflect reality, not theory.