

## Operational Due Diligence Of Leading Dry Ice Manufacturer: Rapidly Pinning Down Capacity/CapEx, Manufacturing Cost, And Distribution Situation And Opportunities

**The Challenge:** Our client, a mid-market PE firm, was in a competitive auction for one of the largest manufacturers and distributors of dry ice products in the U.S. The target had recently grown its manufacturing operations through the addition and/or expansion of plants in support of its projected 8% CAGR revenue growth. With its 8 manufacturing plants, ~40 branch locations, and ~200-vehicle delivery fleet, the target operated a complex route-based hub-and-spoke distribution system to enable direct delivery of its highly-perishable dry ice products to its diverse customer base in protein processing, food distribution, labs and medical, in-flight, and other industries. To better understand the true operational capabilities of this family-owned business and to identify and quantify potential operational cost saving opportunities ahead of our client's auction bid, Gotham conducted a 2-week operational due diligence focused on the target's capacity and CapEx situation, manufacturing costs, and distribution and branch operations.

**Rapid Operations Assessment Of Branch-Based Business:** Despite limited access to both the target's operations (brief site visits to one plant and one branch) and management (one 2-hour conference call), and our unfulfilled data request, Gotham was able to establish a reliable fact base on the target's operations by leveraging our experience in branch-based operations as we performed detailed analysis of available financial and asset data provided in the data room. Gotham reallocated costs reported in the target's complex financials (over 100 P&Ls recorded at the plant area and branch level) to create a clean split between production and distribution costs. We then broke out costs into increasingly granular levels (e.g., plant/warehouse, plant-to-customer, plant-to-branch, branch, branch-to-customer) for each plant, branch, and route, and established operational benchmarks based on the target's best-performing facilities. Although management had not indicated any explicit operations improvement plans, this fact base and Gotham's extensive knowledge of family-owned businesses allowed us to quickly identify and quantify margin improvement opportunities.

### Sufficient Capacity At Target's 8 Manufacturing Plants To Meet 5-Year Demand Forecast With No Major CapEx Risk

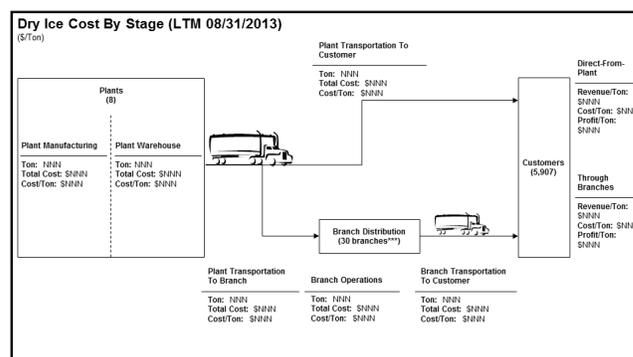
To assess the target's capacity and CapEx situation, Gotham created a plant-by-plant profile of 150+ pieces of production equipment (worth close to \$100MM), leveraging and reconciling available information from several data room asset files. We analyzed plant-level production data for each of the target's production processes (LCO2 production, dry ice production, and CO2 gas recovery), and modeled and tested capacity utilization constraints on current and projected peak demand levels through hypothetical operational scenarios. Gotham deemed overall capacity to be sufficient to meet projected peak volumes; however, we did identify a shortfall in gas recovery capacity at one plant (requiring \$2MM in CapEx), which was subsequently acknowledged by the target. Additionally, Gotham assessed the reliability risk associated with each plant's production equipment through analysis of equipment-level maintenance costs and replacement value – we found minimal risk of required replacement CapEx, with only 2 plants currently utilizing equipment with maintenance cost-to-value ratios above reliability threshold standards.

### \$3-6MM Margin Opportunity, Primarily Through Improved Distribution Practices And Pricing

Our analysis of manufacturing process efficiencies indicated minimal opportunity to reduce target's production costs. However, on the distribution side (plant warehouses, branch operations, and delivery truck fleets at plants and branches), we found several margin improvement opportunities of consequence because distribution was a key driver of the target's profitability (pricing set as a function of distribution costs). Our analysis of distribution cost structures included a branch-level view of route profitability, driver utilization and truck efficiency, and a delivery optimization model to account for order size, delivery cost, product cost, and sublimation loss. Gotham found that:

- Target's high variability in warehouse costs presented an opportunity to bring high-cost facilities in sync with internal benchmarks through best practices
- Roughly half of the target's deliveries accounted for only 4% of total volume, clogging the delivery system with small orders, with sales of these smaller sized deliveries generally not covering their delivery costs (even at premium pricing); additional analysis of the target's pricing practices (by order size) identified significant pricing variability in these low-volume orders, suggesting an opportunity to drive margin improvement through price increases (to the average) on underpriced orders
- Driver utilization and truck efficiency were below benchmarks on several delivery routes, indicating a savings opportunity through optimized routing at the target's branches and reduced delivery frequency through greater coordination between Sales and Logistics.

In total, Gotham identified \$3-6MM in unplanned margin improvements, obtainable through disciplined distribution and pricing practices.



**The Outcome:** As a result of Gotham's plant- and branch-level assessment of the target's operations and financials, our client had a solid understanding of the target's operational capabilities, its capacity to support growth, and its margin improvement opportunities, enabling our client to move forward with a competitive bid in what was a hotly contested auction.