

OIL AND GAS CASE STUDY

ETHANOL MARKETER &
PRODUCER GAINS \$12M
IN ADDED PROFITS

**WITH RIVER LOGIC'S TRADING AND
LOGISTICS SOLUTION**

SUMMARY

A leading ethanol marketer and producer uses River Logic to optimize its commercial and operational planning decisions. Faced with an extremely complex logistics and inventory management challenge — something very common in the downstream oil and gas sector — and the desire to increase collaboration among operations and trading teams, the company now has a fully integrated planning solution.

The commodity trading and logistics optimization solution allows logistics planners to easily optimize transportation schedules and inventory management strategies for a given set of contracted demand and to re-optimize in light of strategic what-if scenarios. Similarly, traders are able to proactively identify market opportunities that go beyond traditional price arbitrage strategies and improve return on the firm's existing transportation and inventory assets.

Immediate results yielded \$12 million in profitability improvement opportunities related to current contract fulfillment, and the firm estimates total net-back gains of \$.01 to \$.02 per gallon, annually.

**IMMEDIATE RESULTS
YIELDED TOTAL
NET-BACK GAINS OF
\$.01-\$.02 PER
GALLON, ANNUALLY**



COMPANY OVERVIEW



A FORTUNE 500 INTERNATIONAL MANUFACTURER AND MARKETER

The company, a Fortune 500 international manufacturer and marketer of transportation fuels and other petrochemical products, produces and distributes large volumes of ethanol throughout the United States. The company operates multiple high-velocity production facilities, and its traders buy and sell future share contracts, which are typically fulfilled from regional third-party terminals.



THE CHALLENGE

Traders and logistics planners alike were under continual pressure to satisfy several complex inter-related supply and demand constraints intrinsic to their commodity-based business model, as illustrated in Figure 1 below, while executive management kept a careful eye on the firm's strategic objectives, which included overall portfolio

profitability and a total return on assets. Despite the extreme complexity of the combined logistics scheduling, inventory management, and market trading problem, traders and logistics planners had no cross-functional view of customer demand, product sourcing, storage, or transportation.



Figure 1: Supply and demand dynamics driving complexity in the company's logistics and inventory value chain.

THEIR COMPLEX LOGISTICS AND VALUE CHAIN NETWORK CAUSED THE FOLLOWING CHALLENGES:

INACCURATE REPRESENTATION OF CONSTRAINTS

The use of spreadsheets to model the value chain failed to properly represent the impact of constraints and decisions accurately.

MONEY LEFT ON THE TABLE

Spreadsheets made it impossible to analyze all possible decisions simultaneously, leading to suboptimal outcomes and money left on the table.

INEFFICIENCY

Spreadsheet manipulation and maintenance required significant time from planners and traders, thus limiting productivity and reducing collaborative analysis.

NO COLLABORATION

There was little to no collaboration in the ongoing planning processes; each trader developed his or her own insights via traditional arbitrage approaches that routinely failed to fully leverage the firm's transportation and inventory asset positions.

LACK OF AGILITY

Responses to unplanned events were inefficient and ineffective.



BECAUSE LOGISTICS AND INVENTORY VARIABLES AND CONSTRAINTS WERE NOT BEING APPROPRIATELY REPRESENTED WHEN MAKING TRADING DECISIONS, THE BUSINESS KNEW IT WAS LEAVING SIGNIFICANT NET-BACK DOLLARS ON THE TABLE.

This led them to seek out a solution that allowed them to:

- More easily identify and understand the complex trade-offs in their value chain
- Empower planners and traders with the knowledge needed to plan, execute, and track integrated commercial operations strategies aligned to corporate objectives
- Enable greater agility and collaboration within their commercial operations processes

They sought an agile, forward-looking planning solution that would enable them to see the millions of variables and constraints across their end-to-end business, while capturing data from existing resources, including their ERP, TMS, and Energy Trading & Risk Management system.

They selected River Logic because it was the only Prescriptive Analytics platform capable of meeting these needs while also enabling the type of cross-functional collaboration needed to finally put to rest the piles of spreadsheets upon which they'd so long been completely reliant.



THE SOLUTION

The River Logic solution is based on an Intelligent Model, as shown in Figure 2 below. The River Logic Intelligent Model establishes a realistic, digital representation of how the business works – including how it incurs revenue and cost – and then it applies prescriptive analytics to find ways of meeting all key objectives while respecting important cross-

functional limitations, such as customer SLAs and inventory holding capacity thresholds. Logistics planners, traders, and executive managers create and analyze unlimited what-if scenarios via River Logic’s cloud workspace, containing a series of editable master data input forms and embedded Microsoft Power BI reports.

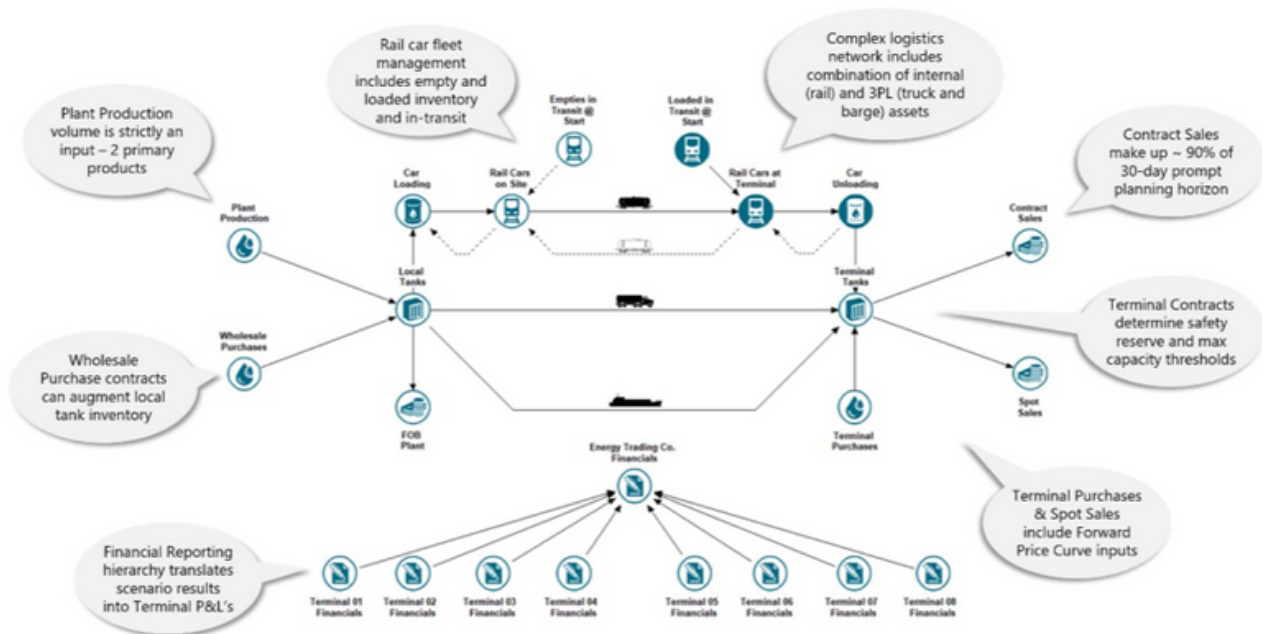


Figure 2: River Logic's digital twin modeling establishes a realistic representation of how the end-to-end business works.

THE FIRM WAS ABLE TO MEET ALL OF THE FOLLOWING TECHNOLOGY NEEDS WITH RIVIR LOGIC'S SOLUTION

A DIGITAL TWIN

An Intelligent Model that can easily be expanded or modified to meet business needs

INTEGRATED FINANCIAL MODELING

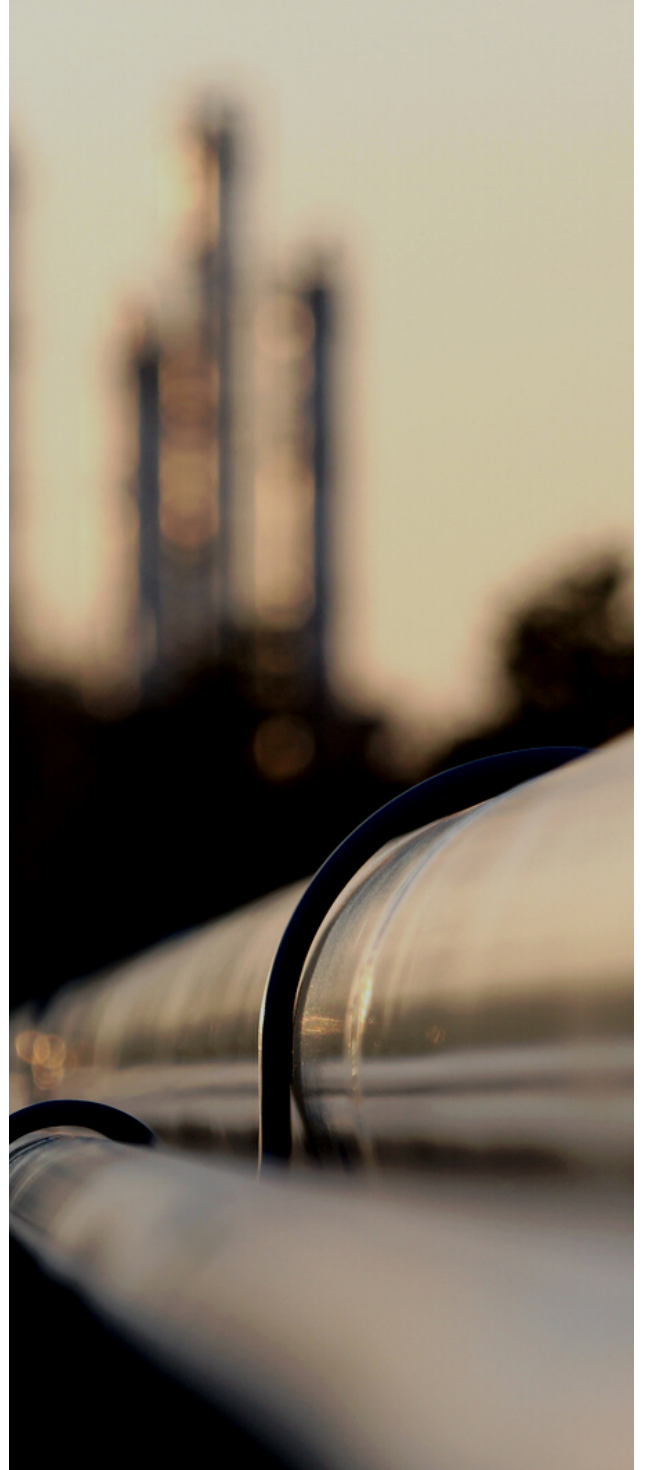
Ability to not only manage but optimize the complex inter-related constraints of the business, including contractual, physical, and financial

A VIEW INTO MARGINAL OPPORTUNITIES

Ability to proactively identify and quantify marginal opportunities that go beyond traditional price arbitrage

PERFORMANCE MANAGEMENT

Complete performance management with the ability to create optimized logistics schedules, inventory management strategies, and trade execution playbooks; track progress against plan; and manage the planning process with easy-to-use workflows



REAL-TIME, OPTIMIZED ANSWERS

All plans now reflect the real-time reality of the company. Scenarios can be quickly modified to represent market changes or new internal constraints, helping the company see immediate value by answering new, previously unanswerable questions.



THE FIRM IS NOW ABLE TO ANSWER VALUABLE QUESTIONS LIKE:

1. If we have a plant outage or capacity reduction, how should we re-optimize the logistics plans? What are the costs? Which, if any, risk mitigation strategies should we pursue?
2. Which products, customers, and contracts make us the most money? What is the best way to expand our positions in these markets?
3. When and where do we have excess transportation capacity and what does that mean for our potential return on assets relative to the current forward price markets?
4. When commodity prices fluctuate, where are the opportunities to trade based on profit and our current positions?

THE IMPACT

The company is now able to optimize logistics plans given the demand that's under contract, and then quickly identify opportunities to better monetize transportation and inventory.

This information is then sent to traders in near real-time, so they can make more informed market decisions considering the unique opportunities afforded by the company's optimized supply chain, resulting in significant competitive advantage in the ethanol market.

FROM A FINANCIAL PERSPECTIVE, IMMEDIATE RESULTS INCLUDE \$12 MILLION IN PROFITABILITY IMPROVEMENT OPPORTUNITIES ON CURRENT CONTRACT FULFILLMENT, AND THE FIRM ESTIMATES TOTAL NET-BACK GAINS OF \$.01 TO \$.02 PER GALLON, ANNUALLY.

The company is currently analyzing the following scenarios on a daily basis using River Logic's commodity trading and logistics solution:

- Contract Profitability
- Optimized Contract Fulfillment
- Plant Closure / Temporary Shutdown

In the future, they plan to look at the following scenarios:

- Delivery Day: Understand the cost of delivering on a specific day vs. a delivery window
- Unplanned Outages: Understand the cost of unplanned plant outages and quickly re-optimize to adapt to changes; identify if outages should be addressed with ST or OT labor
- Fleet Size: Understand the optimal fleet size to serve current and potential demand
- Asset Utilization: Identify under-utilized assets to evaluate future strategies
- Contracts: Understand the impact of new contracts (purchase/trans/sales/etc.)





ABOUT RIVER LOGIC

River Logic has been a global innovator in prescriptive analytics (optimization) since 2000. Its platform — designed for business users — enables enterprise-wide optimization, collaborative planning and performance management, all delivered through a revolutionary user experience. By understanding how to best utilize cross-functional resources and manage trade-offs, companies can make more impactful decisions.

River Logic goes to market primarily through partner organizations like PwC, Deloitte, Microsoft, and West Monroe Partners, helping them develop high-value solutions that monetize their industry expertise. Recent clients include Unilever, BHP Billiton, the Russian Post, Boise Cascade, McKee Foods, and Yorkshire Water. Typical client value-add ranges from 10% in cost reduction to 2-5% of sales in additional profit. River Logic strives to help every customer achieve at least 10X return on investment, but it is common for customers to see even higher returns.

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