Diesel Sourcing Best Practices

April 2014



Executive Summary

Managing fuel requires organizations to leverage regional variations in pricing, understand the value chain and have flexible contracts.

- Regional Variation Pricing variation across regions has increased compared to historical averages allowing for consumers to create a value chain that arbitrages pricing differences and optimizes volume allocation
- Shale Oil Refinery Impact Pipeline infrastructure is lagging for cheaper sources of supply creating large regional differences in price and supply
- Fuel Value Chain Sourcing organizations that optimize the fuel value chain can leverage volume and cost to secure the best pricing and terms
- Terminal Fees Shifting pipeline demand increases the ability to negotiate non-regulated fees for pipeline terminals and other value-added services
- Contracting Levers Refinery and Midstream contracts can be optimized by benchmarking volume discounts, destination fees and volume incentives
- Fuel Sourcing Program Improvement Best-in-class fuel sourcing programs include an understanding of the fuel value chain, macroeconomic market changes and refinery engagement to secure the best total cost pricing for delivered diesel fuel



1. Fuel Sourcing Best Practices

- 2. Case Study Rail Industry: Benchmarking
- 3. Case Study Rail Industry: Methodology
- 4. Cost & Capital Partners Introduction



Engagement Overview Fuel Value Chain Review





Engagement Overview

Background

 A US Class 1 Railroad was not properly leveraging its fuel value chain

Approach

- Worked with Purchasing and Operations teams to map current and potential fuel value chains taking advantage of regional pricing and terminal fees
- Analyzed historical trends across fuel sources (e.g. US Gulf Coast vs. Group 3)
- Identified alternate fuel suppliers
- Initiated RFQ with refineries and pipelines
- Developed fuel sourcing strategy, process and dynamic savings scenario model

Results

- Annual savings of 1-2 MUSD from existing supplier footprint
- Further savings identified via alternate footprints



Fuel Review Process

Capital

A detailed review of the current situation enables dynamic scenario modeling and identification of savings opportunities.

Situation Analysis & Contract Review	Value Chain Analysis	Scenario Modeling	Strategy & Implementation Plan	RFQ
 Situation Analysis Current ordering process, invoice procedures and authority levels Spend & inventory analysis Historical pricing by region (e.g. Group 3, Gulf, Chicago) Contract Review Volume commitments, exclusivity clauses, penalties Fee benchmark (e.g. pipeline, terminal, storage, dye, lubricity) Payment terms Index (e.g. Argus, Platts) and region discount to index Lead times 	 Identify current supplier footprint Define required inventory levels by tank Review ordering process Review existing fuel transport methods per storage tank (e.g. truck, rail, pipeline) Identify alternate suppliers and transport methods Identify cost for current and alternate value chain steps 	 Develop baseline cost model Monthly volume by tank Volume by region Current cost per value chain step Develop cost model for alternate value chains Transportation method Cost per alternate value chain step Identify "breakeven" spread by region (e.g. Gulf, Group 3, Chicago) Complete dynamic model 	 Utilize model to determine savings opportunity by value chain option Stress test various spreads and economic conditions Review existing ordering process roles & responsibilities Develop responsibility matrix Define next steps and implementation roadmap 	 Identify long list of suppliers Develop RFQ document Volume thresholds Payment terms Desired index Index requirements Pricing formula Fee breakdown Distribute RFQ to suppliers Supplier clarification session

Supply Options

Refineries have a different selling price based on location (e.g. Group 3, Gulf Coast, Chicago, New York).





Dynamic Fuel Savings Scenario Model

A model was developed to determine savings opportunity by tank.

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Average Spread	Та	ink 1	Tank 2	Tank 3	Tot	al Monthly	То	tal Annual	Volume Scenario		Tank 1	Tank 2	Tŕ	ank 3 To	otal
(10.00)	\$ 1	153,000	\$ 112,500	\$ 100,000	\$	365,500	\$	4,386,000	Breakeven Gulf minus Group 3 (c	cents)	-	-4	-2.5	0	
(9.50)	\$ 1	L40,250	\$ 105,000	\$ 95,000	\$	340,250	\$	4,083,000	Total Monthly Volume		3,000,000	2,00	00,000	1,000,000	6,000,000
(9.00)	\$ 1	L27,500	\$ 97,500	\$ 90,000	\$	315,000	\$	3,780,000	Baseline Group 3 % of Total		85	%	75%	100%	
(8.50)	\$ 1	L14,750	\$ 90,000	\$ 85,000	\$	289,750	\$	3,477,000	Baseline Group 3 Volume		2,550,000) 1,50)0,000	1,000,000	5,050,000
(8.00)	\$ 1	L02,000	\$ 82,500	\$ 80,000	\$	264,500	\$	3,174,000	Baseline Gulf % of Total		15	%	25%	0%	
(7.50)	\$	89,250	\$ 75,000	\$ 75,000	\$	239,250	\$	2,871,000	Baseline Gulf Volume		450,000) 50)0,000	-	950,000
(7.00)	\$	76,500	\$ 67,500	\$ 70,000	\$	214,000	\$	2,568,000							
(6.50)	\$	63,750	\$ 60,000	\$ 65,000	\$	188,750	\$	2,265,000		Manth	hly Fuel Coving	a hu Tank			
(6.00)	\$	51,000	\$ 52,500	\$ 60,000	\$	163,500	\$	1,962,000		wont	niy Fuel Saving	s by Tank			
(5.50)	\$	38,250	\$ 45,000	\$ 55,000	\$	138,250	\$	1,659,000	\$400,000						
(5.00)	\$	25,500	\$ 37,500	\$ 50,000	\$	113,000	\$	1,356,000							
(4.50)	\$	12,750	\$ 30,000	\$ 45,000	\$	87,750	\$	1,053,000	\$350,000						
(4.00)	\$	-	\$ 22,500	\$ 40,000	\$	62,500	\$	750,000	\$200,000						
(3.50)	\$	2,250	\$ 15,000	\$ 35,000	\$	52,250	\$	627,000	\$300,000						
(3.00)	\$	4,500	\$ 7,500	\$ 30,000	\$	42,000	\$	504,000	ن \$250,000						
(2.50)	\$	6,750	\$ -	\$ 25,000	\$	31,750	\$	381,000	se s						
(2.00)	\$	9,000	\$ 2,500	\$ 20,000	\$	31,500	\$	378,000	³ \$200,000 + + + + + + + + + + + + + + + + +						
(1.50)	\$	11,250	\$ 5,000	\$ 15,000	\$	31,250	\$	375,000	ŧ	_					
(1.00)	\$	13,500	\$ 7,500	\$ 10,000	\$	31,000	\$	372,000	≗ \$150,000 →						
(0.50)	\$	15,750	\$ 10,000	\$ 5,000	\$	30,750	\$	369,000							11 C - 1
-	\$	18,000	\$ 12,500	\$ -	\$	30,500	\$	366,000	\$100,000						
0.50	\$	20,250	\$ 15,000	\$ -	\$	35,250	\$	423,000	\$50,000				أللعت		
1.00	\$	22,500	\$ 17,500	\$ -	\$	40,000	\$	480,000	\$50,000						
1.50	\$	24,750	\$ 20,000	\$ -	\$	44,750	\$	537,000	s			╷ <mark>┛╷┛╷┛╷┛╷┚</mark>	↓ਸ਼ੵਸ਼ੵਸ਼		
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3.00	\$	31,500	\$ 27,500	\$ -	\$	59,000	\$	708,000))		Sr	read			
3.50	\$	33,750	\$ 30,000	\$ -	\$	63,750	\$	765,000			5	n cau			
4.00	\$	36,000	\$ 32,500	\$ -	\$	68,500	\$	822,000		Ta	ank 1 💻 Tank 2	Tank 3			
4.50	\$	38,250	\$ 35,000	\$ -	\$	73,250	\$	879,000							
5.00	\$	40,500	\$ 37,500	\$ -	\$	78,000	\$	936,000							

Illustrative



RFQ Development

A formal RFQ was developed and a purchasing process was defined for sustainable management of the fuel program.

RFQ & Process Development

RFQ

- Refineries contacted to verify ability to supply diesel
- RFQ developed with multiple pricing options

Internal Process

- Interviews held with all stakeholders
- Process mapped and overlapping responsibilities flagged
- Developed responsibility matrices for annual, monthly and daily duties

Fuel Responsibility Matrix

Item	Purchasing Manager	Purchasing Director	Purchasing AVP	Purchasing VP	CFO	AVP Mechanical	coo
Annual							
Analyze historical spread (Gulf vs. Group 3)	R	S	I	I.	I	-	-
Determine annual fuel level	С	I.	I	T	I.	R	А
Develop annual fuel plan (e.g. shipments by month)	R	S	S	А	I.	T	T
Monthly							
Compare historical spread to current	R	S	I	T	-	-	-
Task 1	R	S	А	T	-	T	T
Task 2	R	S	A	I	I	I	I
Task 3	R	I	А	T	-	I	-
Daily							
Task 1	R	I	I	T	-	T	-



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Case Study: Rail Industry Diesel Fuel Purchasing

As the largest cost item for carriers, comparing diesel purchasing effectiveness provides insight into performance gaps and achievable targets.

- Regional USL Price Volatility ULS Diesel pricing volatility across regions has increased as supplies from shale oil and lower energy affect costs and available capacity
- Shale Oil Refinery Impact Pipeline infrastructure is lagging the cheaper sources of supply creating large regional differences in price and supply
- Fuel Value Chain Sourcing organizations that optimize the fuel value chain can leverage volume and cost to secure the best pricing and terms
- **Benchmark Methodology** Cost & Capital Partners combines analysis of fuel data, carrier financial reports, information from the Surface Transportation Board and the Energy Information Agency to normalize diesel fuel prices for carriers to create a side-by-side comparison of fuel sourcing programs for US operations of major carriers
- Fuel Sourcing Program Improvement Best-in-class fuel sourcing programs include an understanding of the fuel value chain, macro-economics market changes and refinery engagement to secure the best total cost pricing for delivered diesel fuel



Net Impact of US Fuel Sourcing Program

Annual per gallon sourcing performance compared to median \$/gal.





Impact of Purchase Volume on Savings

2013 per gallon sourcing performance compared to average Class I \$/gal.



Observations

- Volume has a small correlation with purchasing performance
- Key factors include infrastructure to efficiently deliver fuel (i.e. pipeline, proximity to refinery capacity)
- NS has the most efficient fuel sourcing program
- KCS fuel sourcing performance is nearly in line with UP and BNSF with a fraction of their fuel spend
- CP, CSX and CN lag their peers



Carrier Annual Ranking

Carriers are ranked based on normalized ULSD price per gallon delivered.

	2007	2008	2009	2010	2011	2012	2013	7 Year Average
NS	1	1	1	2	3	1	1	1.4
UP	4	4	2	3	2	2	2	2.7
BNSF	3	5	6	1	1	3	3	3.1
KCS	5	7	5	6	4	4	4	5.0
CSX	2	2	4	5	5	5	5	4.0
Grand Trunk (CN)	6	3	3	4	6	6	6	4.9
SOO Line (CP)	7	6	7	7	7	7	7	6.9



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Diesel Price Variation by Region

Geography determines pricing and needs to be normalized to compare carriers.





Benchmark Company Operations by Region

Where a carrier operates determines where it can source diesel.

	PADD 1 East Coast	PADD 2 Midwest	PADD 3 Gulf Coast	PADD 4 Rocky Mountain	PADD 5 West Coast
BNSF	0%	30%	10%	20%	40%
UP	0%	30%	10%	20%	40%
NS	65%	25%	10%	0%	0%
KCS	0%	40%	60%	0%	0%
CSX	65%	25%	10%	0%	0%
Grand Trunk (CN)	0%	80%	20%	0%	0%
SOO Line (CP)	0%	100%	0%	0%	0%



Normalized 2013 US Fuel Benchmark

Fuel price paid per gallon is normalized as if each carrier purchased from the same region to compare actual diesel purchasing efficiency.



Reported and Normalized Fuel Price

Observations

- Normalized diesel rates compare the organizational effectiveness and refinery engagement to deliver the best pricing
- Best in class fuel sourcing includes the following levers:
 - Refinery engagement
 - Logistics economies of scale
 - Regional competition
 - Market driven intelligence



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Cost & Capital Partners Introduction

- Cost & Capital Partners focuses on the two most critical levers for shareholder value today - Cost Efficiency and Capital Efficiency
 - Cash should be treated as the valuable resource it is
 - Spend management preserves cash
 - Capital efficiency frees cash trapped in traditional operations
- We deliver results not just recommendations, each and every time
 - We stand behind our recommendations and prefer to be involved in implementation
 - We conduct negotiations on behalf of our clients
 - We are passionate about our work and the results
 - We work with our clients to implement the changes required to improve the business





Sourcing Toolbox

Cost	& Capital deploys the follo	wing tools to engage dire	ct and indirect suppliers.
	Internal Analytics	Plan Development	Supplier Engagement
Tactical	Benchmarking	Leverage Development	"Should-Cost" Buildup
	Cost Analysis	Strategic Supplier Program	Contracting
	Risk Assessment	Target Setting	Fact-Based Negotiations
	Metrics and Reporting	Supplier Footprint	Supply Base Management
	Market Analysis	Value Engineering	Risk Management
Strategic	Value Stream Mapping	Supply Vision	Value Chain Optimization



Railroad Category Experience

Cost & Capital delivers savings across many railroad spend categories.

Mechanical	Engineering	Services	Corporate
ULS Diesel	Rail	Scrap Pickup	Travel
Pipeline	Turnouts	MoW	IT Services
Wheelsets	Frogs	Derailment	IT Software
Spare Parts	Retarders	Inspection	Printing
Repower / Overhaul	Signaling	Security	Office Supplies
Car Repair	Tie Plates	Crew Transport	
Truck Freight	Concrete Ties	Facility Management	
UTEX	Spikes		
DTL			
PTC			
Batteries			



Building Blocks

Sourcing organization hierarchy of development

Prioritized Approach

- Comprehensive supply-chain engagement requires a structured approach
- To ensure alignment and consistency each element must build upon its predecessor
- Sustained organizational change only occurs through active management to achieve the desired state





Development Steps

Sourcing organization levels of integration and value





Support Approach

Transformation work streams

Transformation requires process, supplier, and resource management.





Supplier Engagement

Four principles of effective supplier engagement

Maximizing supplier contracts requires detailed spend analysis and situational awareness to motivate the supply base and identify the best value.

Supplier Engagement Key Points

Maximizing contract value requires detailed understanding of the four engagement principles:

- Leverage Understanding market dynamics and the state of competition can drive the tone and approach of the negotiations
- Costs Assessing the supplier's marginal and total cost to deliver sets target pricing and identifies productivity targets
- Usage Quantified usage data provides insight into volume incentives, features and offerings actually consumed
- History Supplier contracts are often predicated on achieving quality, service and volume incentives and should be audited







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