



RETAC
Best Practices Sub-Committee

White Paper Overview
March 23, 2010



Best Practices RETAC Subcommittee Members

- Susan Arigoni, Xcel Energy, Inc
- Kent Smith, Arch Coal
- Henry Rupert, CSX Transportation, Inc
- Alan Shaw, Norfolk Southern Railway
 - Replaced by Joe Osborne, Norfolk Southern
- David Rohal, RailAmerica, Inc (former RETAC member)

Supply Chain Model



Best Practices

Balanced purchasing & receipts
Adequate stockpiles
Unload upon arrival
Diversified supply
Employ strong traffic team
Preventative maintenance
Communication-lead time for coal sourcing shifts

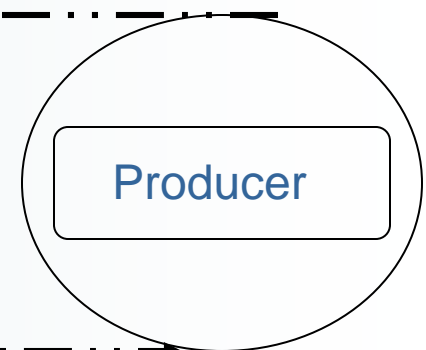
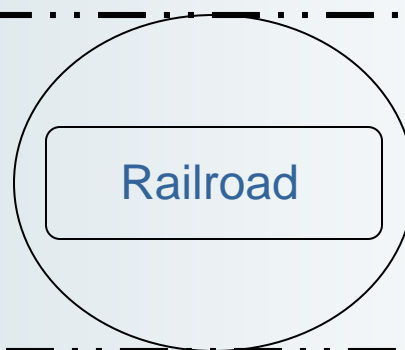
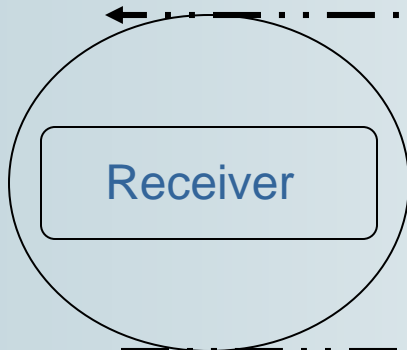
Supply/demand balance
Sufficient resources
Good execution (crews)
Ratable shipments
Maximize slots
Efficient scheduled network
Planned & coordinated maintenance

Balance production and sales
Loading on arrival 24/7
Computerized batch weigh
Adequate stockpiles at mine
Infrastructure for unit trains

Increase

Reliability

Decrease



Coal not available
Spikes in demand
Shifting coal sources
Forced outages
Limited unloading schedules
Unloading equipment breakdowns

Scheduling conflicts
Source change/lane shift
Lane congestion
Mechanical breakdowns
Curfews
Interchange coordination

Production problems
Staging limitations
Coal quality deviations
Coal availability

Problems



Productivity & Alignment Opportunities

- Physical Infrastructure
- Communication & Tactical Execution
- Strategic Practices
- Operating Practices



Key Observations

- Best practices that impact reliability can be identified for each of the participants within the energy supply chain
- Optimization occurs when individual participants work together to improve reliability of the overall supply chain
- Implementation of best practices should lead to lower direct or indirect costs for participants
- Identification of best practices is easier than practical application – this will take commitment from participants ushered through forums like RETAC and other industry-wide groups.

Best Practices Alignment Matrix



	Best Practice	Operating Practices	Physical Infrastructure	Communication & Tactical Execution	Strategic Practices
Receiver	Adequate receiver stockpile targets				■
	Receiver unloads upon arrival	■	■		
	Diversified supply sources	■			■
	Receiver employs strong traffic team	■			
	Preventive maintenance on coal handling equipment	■			
	Adequate space for stockpile		■		
Railroad	Receiver communicates lead time on incidents impacting delivery		■	■	■
	Balanced purchasing month-to-month				■
	Railroad maximizes slots	■	■	■	
	Efficient ratable railroad network	■		■	
	Capacity supply/demand balance			■	■
Mine	Mines load on arrival 24/7	■	■		
	Adequate pile or uncovered coal at mine	■	■		
	Mine computerized batch weigh		■		
	Coal marketing balances production and sales			■	■



Implementation of Best Practices

- Improved reliability of energy products
- Decreased direct costs of supply chain
- Communication and tactical execution best practices may be easiest to implement



Implementation Issues

- Cost and benefits may be unaligned
- Implementation of a practice that benefits one participant may be at the expense of others
- Knowledge and awareness of best practices



Railroad Perspective

The three railroad best practices and implementation difficulty are:

- **Maximize Slots** - The ability of transportation providers to maximize capacity is dependent on overall demand, other limiting factors such as sidings, grade and traffic density. Railroads maximize capacity by operating the largest trains possible in each available slot. Customers help by scheduling and operating the largest trains possible for the slot.
- **Efficient Railroad Network** - Efficiency is improved by effective execution of operating plans, having sufficient resources to support business levels and maintaining the physical plant in good operating condition. As an open enterprise, efficiency is impaired when demand increases rapidly or during period of high volatility.
- **Capacity Supply/Demand Balance** - Unplanned shifts in demand that impact the density of traffic either result in inefficient operations or stranded assets. Long term forecasts and business are important to insure sufficient physical plant is available. Joint tactical planning and order management activity are also important.



Producer Perspective

The four producer best practices and implementation difficulty are:

- **Mines load on arrival 24/7** - For larger mining operations this can be accomplished fairly easily however smaller operations can be constrained by manpower or budget issues.
- **Adequate pile or uncovered coal at mine** - Usually directly related to the mining region. In the PRB adequate amounts of pit inventory are fairly simple to maintain. In other regions topography can severely limit the amount of inventory space available. Increasing the storage capacity can require major capital investments. The predictable, reliable deliveries of rail equipment can assist mining operations in maintaining adequate levels of inventory.
- **Mine computerized batch weigh** - Typically simple to implement however some operations may have difficulty obtaining an adequate return on the capital required to install a system. Topography can also have a major impact on the capital required.
- **Coal marketing balances production** - fairly easy to accomplish however even mines with extensive exploratory drilling often encounter geological issues that can alter production.



Receiver Perspective

The eight receiver best practices and implementation difficulty are:

- **Adequate stockpile targets** – Can be modeled using plant specific variables such as cycle time, outage rates
- **Receiver unloads upon arrival** – Difficult or easy based on crew schedules and permits
- **Diversified supply source** – Ideal but may not be cost effective
- **Employs strong traffic team** – Easy with training and experience
- **Preventative maintenance on coal handling equipment** – Subject to budget constraints
- **Adequate stockpile space** – Dependant on plant location and available space
- **Communicate lead time on incidents restricting delivery** – Easy if communication processes between parties are clear and followed
- **Balanced purchasing month-to-month** – Easy to plan, sometimes difficult to implement due to generation uncertainty



Next Steps: Periodic Review of Best Practices White Paper by Future RETAC Committee Members

- All parties have reputations for continuous process improvement
- What is a best practice today may become obsolete



Best Practices Sub-Committee

