RETAC

Best Practices Sub-Committee

White Paper Overview

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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

**Problems**
- 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

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

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

**Reliability**
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

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<th>Operating Practices</th>
<th>Physical Infrastructure</th>
<th>Communication &amp; Tactical Execution</th>
<th>Strategic Practices</th>
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<td>Diversified supply sources</td>
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<td>Receiver employs strong traffic team</td>
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<td>Receiver communicates lead time on incidents impacting delivery</td>
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<td>Coal marketing balances production and sales</td>
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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, ratable 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