

## May 2014 Montana Freight Rail Transportation Synthesis

By

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### Introduction

This report summarizes the 2012 Montana Freight Assessment Report and identifies strategies, timing, inter-firm collaboration, and specific markets or modes impacting these opportunities.

### Overview

As a land-locked state, access to intermodal shipping plays a critical role in Montana companies' ability to consistently transport goods at a competitive cost. Freight railroads in the United States are almost entirely privately owned and operated. In 2012 and 2013, U.S. railroads have reinvested around \$25.5 billion<sup>1</sup> of private non-governmental funds into new intermodal terminals, track upgrades, and other infrastructure projects covering nearly 140,000 miles of rail network. These investments have made rail intermodal more reliable and cost effective.<sup>2</sup>

In 2004, two out of three Montana intermodal facilities closed and only the Billings Intermodal Terminal (Billings) remained in operation. This terminal is not on an international intermodal train corridor and supports inbound shipments from the northwest, but has no outbound scheduled service because it is located on one of Burlington Northern Santa Fe's (BNSF) primary coal routes. Empty coal trains and intermodal containers move westbound and loaded coal trains and empty intermodal trains move eastbound on this corridor.<sup>3</sup>

The other current operational rail ports are the Port of Northern Montana in Shelby, and the Port of Montana in Butte. According to Larry Bonderud, Mayor of Shelby, the Port of Northern Montana is in the process of a \$21 million upgrade that will give it the ability to handle double stacked freight containers on the BNSF line. The expansion project is expected to be completed in Q4 2014. The Port of Northern Montana is also organizing and coordinating multiple conversations with various U.S. and international parties to aggregate freight volumes for inbound and outbound unit trains and container shipments to and from Montana. The Butte facility cannot accept unit trains since it is not located on an intermodal transportation network operated by BNSF or Union Pacific.<sup>4</sup>

### Montana Freight Assessment 2012 Summary

The objective of the 2012 Montana Freight Assessment report was to isolate viable options and market trends to detect opportunities for improving Montana's freight rates. The freight assessment resulted in the following hypothesis: to develop an integrated freight network so (Montana) exporters<sup>5</sup> could achieve transportation savings and logistics efficiencies. One way to attain these efficiencies was by creating

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<sup>1</sup> *Overview of America's Freight Railroads*. American Association of Railroads, April 2013.

<sup>2</sup> *Rail Intermodal Keeps America Moving*. American Association of Railroads, November 2013.

<sup>3</sup> *Current Facility Restraints to Montana Intermodal Service*.

[http://pnmshelby.com/Tiger%20III%20grant%20pdf/montana\\_ports.pdf](http://pnmshelby.com/Tiger%20III%20grant%20pdf/montana_ports.pdf)

<sup>4</sup> Montana Ports retrieved on 5/5/2014. [http://pnmshelby.com/Tiger%20III%20grant%20pdf/montana\\_ports.pdf](http://pnmshelby.com/Tiger%20III%20grant%20pdf/montana_ports.pdf)

<sup>5</sup> The term "exporters" refers to a company that exports their production output to distant markets, both domestic shipments outside the State of Montana and international destinations.

“anchor” shippers throughout the state. The anchor’s projected volumes combined with smaller shipper volumes could be leveraged to improve freight access, services and rates. The main obstacle identified was the cost of inland freight.

## **Barriers for Montana**

Montana shipping rates have historically been higher than neighboring states<sup>6</sup> due to limited trade lanes, access points, freight hubs, transloading facilities and equipment. This makes it difficult for Montana manufacturers and agriculture producers to successfully compete in the domestic or global marketplace. To revise or update current logistics processes, shipping service providers will need sufficient incentives to offset any perceived challenges or switching costs. Combining volume to create efficiencies and reduce costs requires an inland port or consolidation point with the capacity to support the volume necessary to provide sufficient return on investment to railroad companies and third party logistics providers capable of offering intermodal services.

## **Current Intermodal Facilities**

For railroad companies to offer intermodal services a minimum outbound volume of about 250 containers per train per week is needed.<sup>7</sup> In 2011, the Port of Northern Montana (Shelby) received a \$17 million federal grant to complete the construction of a Multimodal Hub Center by end of 2014. This project is currently on track to be completed on time. The Port of Northern Montana will be a fully functional inland intermodal port capable of accepting and delivering unit trains, containerized cargo, and large industrial equipment and materials. Once completed, this infrastructure will be instrumental in supporting regional economic growth. The Port of Northern Montana will join the Port of Montana in offering access to Class I rail<sup>8</sup> and warehousing services.

BNSF has committed to operating one intermodal train per week, and conversations about intermodal service between BNSF and the Port of Northern Montana are ongoing. Inbound container volume is forecasted to carry energy equipment and supplies to support traditional and renewable energy projects while outbound trains would be transporting regionally manufactured goods and containerized agricultural commodities to international markets. Combined these volumes are expected to provide the freight velocity needed to support rail services at the inland Port of Northern Montana.

## **Opportunities for Montana**

1. Ocean container companies: A strategy used by shipping associations is to focus on developing new or stronger relationships with existing shipping service providers and other export promotional organizations. One key factor towards obtaining access to intermodal and improved contract rates will require successful recruitment of and a willingness to participate by ocean container companies.
2. Agriculture and Manufacturing: An opportunity emerges with the export of pulse crops and value-added food product to fulfill the demand from emerging economies. Roughly 80% of Montana's 1 billion dollar per year wheat crop leaves the U.S. for export to Asia through Portland, Oregon by rail.<sup>9</sup>

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<sup>6</sup> Railroad Rates and Services Provide to Montana Shippers, A report prepared for the State of Montana, February 2009- page 1

<sup>7</sup> 2012 Intermodal freight assessment report

<sup>8</sup> There are seven large Class I railroads that account for 69 percent of freight rail mileage and 94 percent of revenue.

<sup>9</sup> Western growers trying to get grain to market fear they'll be shut out as oil and coal companies increasingly turn to rail to transport energy. Lindsey Konkell. March 7, 2014 retrieved on 5/7/14. <http://www.dailyclimate.org/tdc-newsroom/2014/03/grain-trains-energy-squeeze>

Buyers prefer this transportation mode as a means to mitigate risk and protect their cargo from source to destination.

3. Wood Products Industry: A global market focus for Montana's wood products presents the opportunity to combine and leverage additional freight volume. This will require local or regional intermodal and logistics services to fully realize export gains.
4. Match – Back: Transportation costs, capacity and sustainability considerations are increasing the value of rail and intermodal solutions. Freight cargo can economically be transloaded<sup>10</sup> or consolidated within a 250 mile radius of an intermodal or multimodal facility. According to BNSF, transloading near ports is efficient and therefore an opportunity for growth arises by matching containers in urban centers with areas producing agricultural exports, a process referred to as "match-back".
5. Third party logistics (3PL): 3PL providers link shippers to shippers and focus on collaborative distribution<sup>11</sup> by bringing technology, a carrier base and customer lists to streamline and develop long term partnerships. According to the North Dakota Port Services and BNSF, 3PL service providers must play an integral role in developing a more robust freight environment in Montana. In view of that, stakeholders should collaborate to create a business model outlining the feasibility of establishing consolidation points in Montana. A successful model must demonstrate sufficient domestic cargo on key trade lanes to make it viable. Some proposals could include running piggyback trailers by rail to intermodal hubs, and arranging regional deliveries to larger metro areas and distribution facilities.
6. The Bakken and Three Forks shale oil production: The transportation of crude oil by rail in the U.S. has surged in the last decade. The American Association of Railroads' 2012 annual report of hazardous materials transported by rail said "crude oil traffic has increased by 443% since 2005."<sup>12</sup> In the past three years the crude oil production from the Williston Basin area has more than tripled. This rise has impacted BNSF's loading of crude oil from 50,000 barrels of oil (bbl) per day to 650,000 bbl (a 1,300% increase). BNSF now offers 11 originating unit-train terminals, the most rail loading capacity in the Williston Basin. Each unit train has the capacity of hauling 84,000 bbl of crude with a combined capacity around 1.2 million bbl per day. BNSF plans to serve more than 50 crude oil destinations by the end of 2014.
  - 6.1. Opportunities and benefits: The oil and gas industry is challenged by the limited storage capacity available at production locations. Producers cannot slow down or turn off production levels once extraction has begun without incurring undesirable costs. Typically, pipelines are built in areas where oil is being extracted to help facilitate its transportation but because of the rapid industry growth in Montana and North Dakota, the infrastructure is absent. Therefore, greater reliance is placed on road and railway as the primary transportation mode.<sup>13</sup>

The nation's railroad network is geographically more extensive than the oil pipeline network and better equipped to ship crude oil from new areas of production to refineries nationwide. While there are about 57,000 miles of crude oil pipeline in the U.S., there are nearly 140,000 miles of railroad.<sup>14</sup> Some immediate benefits railways provide when transporting crude oil include:

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<sup>10</sup> The term "transload" refers to transferring cargo from bulk cars to containers or vice versa.

<sup>11</sup> Collaborative distribution service is defined as: Identifying and matching compatible customers, redefining shared shipping services and building national platforms for more intense cooperation among shippers.

<sup>12</sup> Lac-Mégantic train crash a wake-up call for U.S. rail safety, Megan Fitzpatrick, CBC News. Retrieved 4/17/14. <http://www.cbc.ca/news/world/lac-m%C3%A9gantic-train-crash-a-wake-up-call-for-u-s-rail-safety-1.2567112>

<sup>13</sup> Montana faces growth and economic opportunities retrieved on May 6, 2014. <http://keystone-xl.com/keystone-xl-oil-pipeline-montana-faces-growth-and-economic-opportunities-kxl-transcanada/#sthash.DICB6JcD.dpuf>

<sup>14</sup> U.S. Rail Transportation of Crude Oil: Background and Issues for Congress. Frittelli & Parfomak, Congressional Research Service Report R43390. February 6, 2014.

- **Flexibility** to respond quickly to marketplace changes
- **Time-to-market** placement of crude to the most advantageous destination
- **No diluent** level is necessary with moving heavy bitumen crude by rail versus a 30% required diluent level with pipeline distribution<sup>15</sup>
- **Cost-effective alternative**, new rail capacity can be added at the originating and terminating facilities relatively quickly, 12-18 months, with expenditures in the millions while new pipeline construction expenditures range in the billions.

The most controversial project to date is the fourth and final phase of the Keystone XL pipeline originating from Hardisty, Alberta Canada, passing through Montana, and South Dakota to reach Steele City, Nebraska. However, **even if the Keystone XL pipeline is built, the growth in production is projected to exceed the capacity of the Keystone.** Therefore, an opportunity exists for rail and pipeline operators to become partners in the energy transportation segment.<sup>16</sup>

6.2. *Criticisms and safety concerns*: According to Edward Hamberger, president and CEO of the Association of American Railroads, “from 2000 to 2012, the train accident rate fell 42%, the rail employee injury rate fell 50%, and the grade crossing collision rate fell 44%”. In 2012 the Federal Railroad Administration (FRA) implemented the **Bakken Rail Accident Mitigation Project** (RAMP) to address the risk of transporting the Bakken crude by rail by requiring safety inspections of hazardous materials, increased law enforcement patrols at grade crossings and expanded educational outreach to motor carriers.

The July 6, 2013 derailment in Lac-Mégantic, Quebec prompted concerns regarding the transportation of crude oil via railroad, specifically with the in-use design of rail cars and the potential need to redesign or replace current legacy fleet. Regulators and the U.S. public are on high alert after crude oil transported by rail accidents in Virginia and North Dakota. In direct response the following organizations issued regulations or warnings:

- U.S. Department of Transportation (DOT) safety alert warning identifying Bakken crude oil as more flammable than traditional heavy crude oil.<sup>17</sup>
- FRA Emergency Order No 28 requires railroads to properly secure rolling equipment, using locks and the reverser on a locomotive, communicating between train dispatchers and crew, recording information, and daily job briefings.(effective 9/1/13)
- FRA and PHMSA<sup>18</sup> “**Bakken Blitz**” verifies crude oil is properly classified in accordance with federal regulations. Operation activities involve unannounced spot inspections, data collection, and sampling at strategic terminal and transloading locations that service crude oil.<sup>19</sup>
- PHMSA, FRA, and Transport Canada DOT 111 anticipated in 2015 outlining new standards for DOT 111 (AAR 211) non-pressurized tank cars handling hazardous materials, specifically cars transporting Class 3 PG (Packing Group) I and II denatured ethanol and crude oil.<sup>20</sup>

<sup>15</sup> [http://www.bnsf.com/employees/communications/railway-magazine/pdf/winter\\_2013.pdf](http://www.bnsf.com/employees/communications/railway-magazine/pdf/winter_2013.pdf)

<sup>16</sup> *Busting bottlenecks in the Bakken*. Phil Davis, The Federal Reserve Bank of Minneapolis. Published April 23, 2013, retrieved on April 21, 2014. [https://www.minneapolisfed.org/publications\\_papers/pub\\_display.cfm?id=5083&](https://www.minneapolisfed.org/publications_papers/pub_display.cfm?id=5083&)

<sup>17</sup> *U.S. Rail Transportation of Crude Oil: Background and Issues for Congress*. Frittelli & Parfomak, Congressional Research Service Report R43390. February 6, 2014.

<sup>18</sup> US Department of Transportation Pipeline and Hazardous Materials Safety Administration (PHMSA)

<sup>19</sup> *Federal Railroad Administration’s Action Plan For Hazardous Materials Safety*. August 2, 2013 retrieved on April 21, 2014. <http://www.fra.dot.gov/Elib/Details/L04721>

<sup>20</sup> *Re-inventing the DOT 111*. William C. Vantuono, Editor-in-Chief Railway Age Magazine. February 07, 2014. Retrieved on April 21, 2014 <http://www.railwayage.com/index.php/safety/re-inventing-the-dot-111.html>

- 6.3. Burlington Northern Santa Fe (BNSF): The BNSF rail network spans over 1,000 miles in the Bakken region and is the only rail carrier serving all of the nation's western shale regions.<sup>21</sup> In 2013 \$115 million was allocated to Montana for maintenance, safety, and rail capacity expansion projects to its core network and related assets.<sup>22</sup> Expansion projects include 3 new unit train staging tracks 3 miles east of Glasgow and new machine vision technology to detect damaged equipment in Miles City. The maintenance program will include more than 2,300 miles of track surfacing and undercutting work, replacement of nearly 100 miles of rail and about 310,000 ties, and significant signal upgrades for federally mandated positive train control.<sup>23</sup> BNSF also plans to spend approximately \$1 billion on locomotive, freight car and other equipment acquisitions to be used in this region. In personal conversations with BNSF, MWTC confirmed BNSF is doubling down in the Bakken oil fields by continuing to invest in rail improvements and updates, including laying down double track, opening new crude oil transload facilities, and hiring more Montana workers in 2014.

## Conclusion

Fulfilling global demand is the best option for Montana exporters to achieve new growth opportunities. Varying and fragmented industries, expansive geographic areas, a relatively low statewide population density, and limited networks prohibit or limit collaboration among shippers to identify or gain freight efficiencies.

The recommendations from the 2012 Montana Freight Assessment report continue to be relevant in 2014 in aiding Montana manufacturers and producers increase export opportunities and gain freight efficiencies:

1. Leveraged approach: Montana companies must understand, utilize and leverage state resources/ networks and national organizations to take advantage of global opportunities.
2. Education: A proactive education program on container shipping and logistics processes and opportunities can prepare Montana companies to take advantage of container and/or intermodal shipping once available and to recognize gains in the global market demands for exports.
3. Targeted strategy/ business plan: Clear and focused strategies will improve interaction between modes and industries by attracting 3PL and will assist in developing an integrated freight network.
4. Support activities: Establishing a freight association, task force, or network lead by private industry that will provide:
  - Customers with a large variety of transportation alternatives
  - Tools for automated contract management systems
  - Capability to locate experienced foreign buyers interested in establishing ongoing trade relationships
  - A platform for continuous sharing of information, ongoing learning, and networking

The Keystone XL pipeline impasse increased the Bakken region's dependence on rail for movements of crude oil. With U.S. energy production on the rise and manufacturing returns, the railroads are in a prime position to capture market share.<sup>24</sup> The position of the rail companies, with new investment and interests to support export growth and the surge of oil and gas developments, creates an opportunity for new business models benefiting shippers, rail companies and service providers. An integrated intermodal

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<sup>21</sup> <http://www.bnsf.com/customers/oil-gas/ship-drilling-materials-benefits.html>

<sup>22</sup> [http://www.joc.com/rail-intermodal/class-i-railroads/bnsf-railway/bnsf-railway-details-capital-investments-montana-and-north-dakota\\_20130816.html](http://www.joc.com/rail-intermodal/class-i-railroads/bnsf-railway/bnsf-railway-details-capital-investments-montana-and-north-dakota_20130816.html)

<sup>23</sup> <http://www.bnsf.com/media/news-releases/2013/august/2013-08-15b.html>

<sup>24</sup> <http://www.inboundlogistics.com/cms/article/rail-trends-recap-shared-strategies-mixed-signals/>

freight network<sup>25</sup> increases the flexibility within the supply chain, serving the interests of the rail companies and shippers.

The volume needed to support a long term successful intermodal strategy and activity should not be dependent on any one industry. Integrated freight networks can provide flexibility for service providers to support rural networks and support or develop logistics services in areas not currently or poorly serviced. New infrastructure investments within the state and by stakeholders create opportunities to present new business models that strategically align with transportation and service providers.

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<sup>25</sup> An intermodal freight network is defined as a logistically linked system using two or more transport modes with a single rate in which the cargo does not need to be handled, just the load unit i.e. pallet or container