Session B2-2

Rail Connection Viability for the Forest Product Industry in Southeast Mississippi

Marcus K. Measells[1], Stephen C. Grado[2], James E. Henderson[3], and Chad R. Miller[4]
mmeasells@cfr.msstate.edu

[1]Research Associate II, Department of Forestry, Mississippi State University
[2]Professor, Department of Forestry, Mississippi State University
[3]Assistant Extension Professor, Department of Forestry, Mississippi State University
[4]Assistant Professor, Department of Economic & Workforce Development, University of Southern Mississippi

Abstract

Mississippi State University and the University of Southern Mississippi evaluated the potential benefits and constraints related to establishing a rail line connecting Waynesboro and Lucedale in southeast Mississippi as it related to the forest products industry. The Mississippi Institute for Forest Inventory (MIFI) has documented a substantial forest resource to support current and new wood material-based industries in the region. Researchers conducted surveys and interviews of companies and regional experts to develop data used for economic impact modeling. The economic impact analysis was completed using both Regional Economic Models, Inc. (REMI) and Economic Modeling Specialists, Inc. (EMSI) models. Results indicated the new rail line will help the region be more competitive in attracting wood pellet and chip mill facilities, particularly if the Port of Pascagoula develops a new wood pellet handling facility. Improved freight connections would also help existing forest products industry, but these facilities would likely remain dependent on trucking for most shipments. Projected economic impacts were driven by three new potential industries with estimated investments of $165 million or more, creating over 1,000 construction-related jobs and providing over a $90 million stimulus to personal income in the region. These new investments, and lowered transportation costs of $10-12 per ton, will lead to the creation of an additional 218 permanent direct jobs and 123 secondary jobs resulting in over $1 million of additional annual state tax revenues by 2025. If successful, the rail connection has the potential to foster the competitiveness of the forest products industry in southeast Mississippi by providing efficient connections to the Port of Pascagoula and other destinations.

Background:

The Rail Association of East Mississippi (RAEM) proposed establishing the East Mississippi Intermodal Rail Corridor, a 56 mile rail line connecting Waynesboro and Lucedale, Mississippi. An earlier study by the Tioga Group (2010) proposed that the forest products industry would be the driving force for this rail line. To apply for additional public funding to establish the rail line, RAEM needed information in regards to southeast Mississippi as it related to the industry outlook for forest products generated, particularly as related to the bioenergy industry; an industry outlook for traditional wood products, wood processors, and wood producers; the major markets for wood products generated and modes used for shipping those goods; the economic benefits which could be bestowed on the forest products industry with access to short-line rail service, giving them more direct access to ports along the Gulf of Mexico and to Class I rail carriers; and rail access potential that could lead to an expansion of existing wood products-related industries and how rail access might encourage new forest industries. The Forest and Wildlife Center (FWRC) at Mississippi State University (MSU) and the University of Southern Mississippi's (USM) Department of Economic and Workforce Development and Center for Logistics, Trade, and Transportation developed a forecast analysis of potential usage and resultant economic impacts from this proposed rail line to answer these questions.

Methods:

To develop the necessary data and assumptions concerning how a railroad operation would benefit the region, the study team relied on interviews with key stakeholders to develop the required data necessary to adjust input-output models to estimate local economic benefits. The study area included Clarke, George, Greene, Jackson, Jones, Lauderdale, Perry, and Wayne Counties in Mississippi along with Choctaw and Washington Counties in Alabama (Figure 1). Forest industry representatives from the study area were surveyed in person for approximately 30 minutes each. In some cases, surveys were left with representatives to complete and send back to the FWRC. In addition to forest industry representatives, a number of other stakeholders (i.e., government officials, economic developers) were interviewed in person by USM. The economic impact analysis was completed using the Regional Economic Models, Inc. (REMI) and Economic Modeling Specialists, Inc. (EMSI) models. These models develop economic forecasts for job creation, wealth creation, and other related metrics based on assumptions. REMI uses a dynamic model of the entire regional economy. It includes hundreds of equations that describe cause-and-effect relationships in the economy. Whereas EMSI uses an input/output model which involves the flow of products from each industrial sector (i.e., the producer) to each of the industrial sectors considered as consumers.

Interviews and surveys, supplemented with secondary research, were used to gather data on direct projections and the models were then utilized to determine indirect projections. Direct projections included volume of wood product movement via rail along the proposed corridor; emerging markets and projected volumes for wood products from the region; operational and logistical requirements for the industry; potential impact on production costs (i.e., lower transportation costs for inputs, lower transportation costs for finished goods) for the forest product companies in the region; potential number of wood hauling trucks and road distance displaced if the new rail line was established; potential number and sizes of projected company expansions; and potential number and sizes of new wood products companies attracted to the

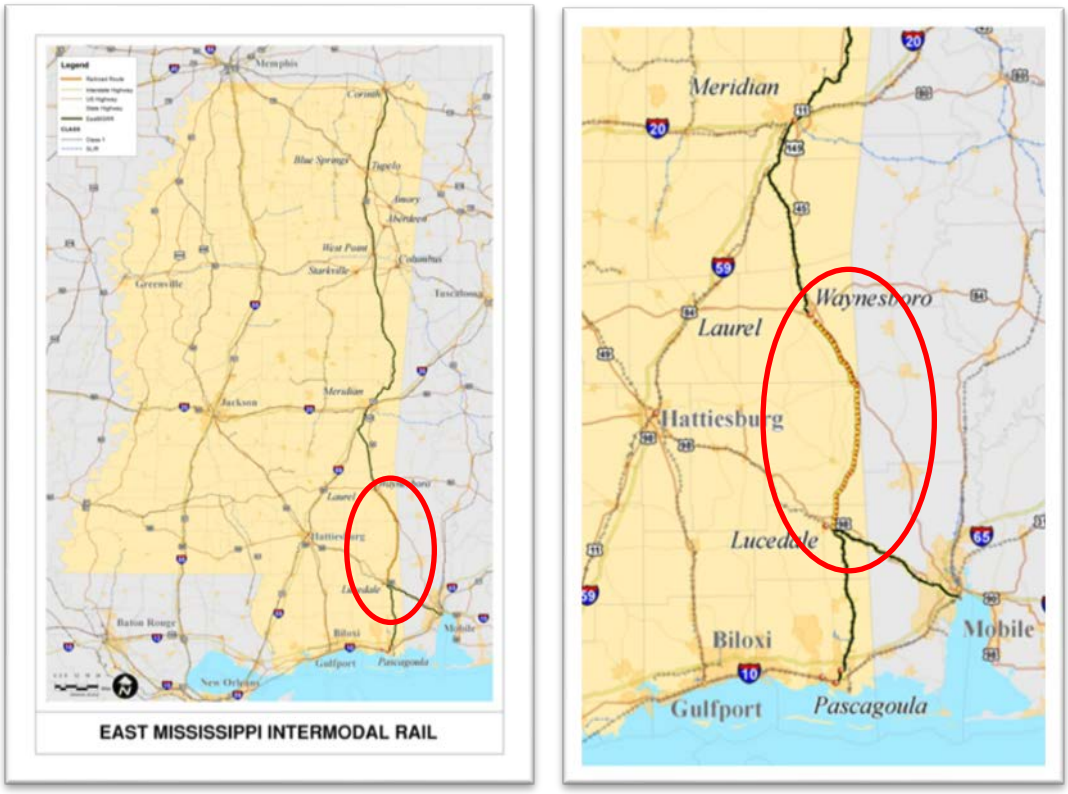

Figure 1: The proposed East Mississippi Intermodal Rail line linking Waynesboro and Lucedale, Mississippi.

area. Indirect projections included total economic impacts in terms of output, jobs, and wages; and state government fiscal impacts.

Results and Discussion:

Numerous forest industry facilities in the region closed in the recent past due to tough economic conditions. Of the 25 facilities in operation, seven completed a survey for a response rate of 28.0%. However, a number of forest industry representatives were unable, unwilling, or forbidden to provide detailed answers to the survey because of company policies and procedures. As expected, all seven mills receive 100% of their raw materials via truck shipments. Of the 25 mills in operation, only 10 have a rail spur directly into their facility. Only two forest industries indicated they currently use rail to deliver their final products to customers. One industry indicated that only 10% of their domestic shipments were via rail while the second indicated that approximately 65% of shipments were via rail.

Primary reasons given for not using rail were lack of availability, timing issues, and that market conditions and shipping rates dictated use of trucks. One representative indicated he checks shipping rates for truck and rail transportation on a daily basis and that the majority of times trucking was the least expensive alternative. However, when shipping distances exceed 500 miles, he indicated that rail was the preferred method. Three of the seven firms indicated they exported finished products (only two use rail for shipping) while the majority deliver finished products within the eastern and central portions of the U.S.

Rail transportation had limited use by forest industry within this region primarily because there was poor access to a rail line. The two firms that use rail have direct access and indicated they used rail because rates for longer distances eliminated the use of truck transportation. One firm indicated that the ramp or spur they use was very busy and affects the time it takes to process their shipments. One firm indicated they would be willing to ship via rail if it connected with Norfolk Southern's Crescent Corridor line. Four others indicated that a local access, or intermodal facility, within 20 miles would increase the odds their company would use rail. However, they also stated it would depend on costs to ship via rail. In general, existing and new industries would need access to the rail link via an intermodal facility or direct rail access from their facilities.

All firms indicated that transportation costs were a major competitive issue for forest industry. A major concern for company representatives was costs associated with having rail access and how much it would cost to ship via rail. It was evident that firms not in close proximity to a rail line were not as willing to consider using rail for shipments, stating they would still have to use truck transportation to access the rail line. Another concern of forest industry was the timely delivery of materials to their customers. Several indicated they were not certain rail shipments would be timely enough to meet their customer demands.

The majority of forest industry representatives indicated there was potential to attract new forest industries to the region if the rail line was established. However, only four thought it would lead to current forest industry expansions. Of note, the potential advent of biomass for energy was not paramount in their thought processes.

South Mississippi's non-forestry stakeholders are collectively supportive of the proposed short-line rail project. There were several themes throughout the interviews that led to the inference that stakeholders believe in the positive impacts the rail extension would provide to their respective region. Some individuals and groups believe specific transportation savings would occur, while others were unable to accurately calculate savings. In addition, most stakeholders could foresee that various industries both inside and outside forest industry sectors could and would be recruited to their areas if this railroad link was established. Many key stakeholders stressed the importance of the forest industry to this region. Several key stakeholders also indicated that the rail line would help their area in current efforts to recruit wood pellet plants as well as chip mills. The growth of interest in the region for wood pellet plants was being driven by demand from Europe so efficient access to seaports was a major site location factor.

A common theme or issue brought up in many stakeholder interviews was poor access to the Port of Mobile's Theodore Terminal and the Port of Pascagoula. Alabama has not improved its section of Highway 45 that connects the region to the Port of Mobile and railroad connections are not efficient. Current rail access does not allow trains to have direct access to the Port of Pascagoula from the RAEM region due to the lack of a rail link. Today, these shippers are forced to take alternate routes to go around and down to the Ports for shipping. With the proposed rail line, these counties would avoid the detouring that ultimately raises their transportation costs. In addition, the Port of Pascagoula was cited for its potential opportunities for wood product exporting because the Port can accept non-containerized products whereas the Port of Gulfport is focusing on containerized traffic. The Port of Pascagoula is planning to add facilities to handle 500,000 to 1,000,000 tons of wood pellets per year. Ten million dollars of the $30 million project cost will be funded by a state bond issue. The port and primary user will provide the remainder. This new facility would make the Port of Pascagoula more attractive to

wood pellet manufacturers shipping overseas. This makes the proposed rail line even more desirable to these stakeholders.

Holistically, the project is viewed as positive and productive as stakeholders see it as a utility that could create economic development. Stakeholders have particular interest in biomass industries and have continued to recruit such industries to their respective regions. It is believed that the short-line railroad would help recruitment efforts of biomass industries and other related industries due to transportation cost savings and access to other major rail lines. A consensus 7 to 10% cost savings in general is expected for most counties and industries if a majority of products currently shipped by truck were transferred to rail. There is great potential for other industries to be recruited that are related to the wood products sectors, as cited by a number of stakeholders.

Based on interviews, there is not expected to be any net reduction in truck usage that would result in lower carbon emissions, energy efficiency, lower road maintenance, and highway safety. Any displacement in trucks hauling wood products from the region would be made up for by trucks serving new facilities that are projected to be attracted to the region. A major issue that was uncovered concerned the interconnections between the short-line railroad with the port rail as well as with major Class 1 railroads. Because of numerous connections, it may become too costly for most industries to ship products via railroad.

The supporters of the rail line envisioned that the new rail line would rely heavily on woody materials, primarily targeted at the emerging bioenergy industry. According to the April 2012 Forisk Consulting Wood Bioenergy Report, the projected annual wood demand in 2022 for the South would be 61.2 million green tons of woody materials. They also projected a total of 143 bioenergy facilities located in the southern U.S. More specifically, there is potential for 42 electric, 22 combined heat and power (cogeneration), 10 thermal, 21 liquid fuel, and 48 pellet plant facilities to be in operation by 2022. Timber Mart-South (2012) suggested that U.S. biomass cogeneration projects compete with other fuel alternatives which have seen their costs decrease the first quarter in 2012. This makes biomass cogeneration projects economically less appealing compared to other fuel sources. In addition, biomass transportation fuel projects must successfully switch from the success of laboratory tests to large-scale commercial production before it will be an economically viable alternative (Timber Mart-South 2012). Biomass still remains uncompetitive with other fuel options at this time.

The major demand for wood pellets originate from foreign countries, primarily Europe and the Far East. European demand is estimated to be 25 million tons through 2020 with projections of it reaching 100 million afterward. This demand is there because European utilities are required to meet government carbon emissions standards for their coal-burning plants that U.S. utilities are not currently required to meet. The Far East market is developing and projected to demand up to 15 million tons by the mid-2020s. Timber Mart-South (2012) indicated that U.S. pellet production is still dependent on European markets. This demand could slacken in three to five years if, as some industry analyst claim, European pellet imports from Africa, South America, Russia, and Asia become cheaper than those from the U.S. or Canada (Dorminey 2012). In addition to the foreign markets, the U.S. market will continue to grow as more companies and homeowners switch technology for heating their businesses and homes. Additionally, if an updated U.S. Federal Renewable Energy Standard is approved, the domestic demand for pellets will substantially increase. This is expected to also increase the demand for U.S. bioenergy producing facilities. Thus, wood pellet markets from Mississippi have been growing, but numerous factors could significantly impact where wood pellets would be shipped.

Based on the production of existing and projected wood pellet and bioenergy facilities that would potentially use the proposed rail line along with the rail-car capacities, there is potential to move 4,500 carloads per year via rail. Based on construction of three additional facilities (2 pellet and 1 chip mill) producing 150,000 tons per year per facility, another 5,475 railcars would be needed to transport the pellets and/or chips. While the bioenergy sector is believed to be the driving force for the proposed rail line, the traditional wood products sector must also be considered for this link. The proposed rail line will see little use from the existing pulp and paper industry as the current pulp and paper industry is already serviced by existing rail lines. Based on rail-car capacities and forest industry survey responses, it is estimated that from the current traditional forest products companies with potential direct rail access to the proposed rail line, 20% of forest products produced will be shipped via rail on the proposed rail link. This would result in 2,433 rail cars per year via the proposed rail line. The rail usage from pellets, wood chips, and traditional wood products totals 12,408 carloads per year which is below the Tioga study estimates of 15,000 rail carloads of forest products (Tioga 2010). However, if capacity driven production rates surpass 20%, as indicated by some industry advocates, carloads could surpass 15,000. In addition, if the housing market rebounds and trucking costs increase substantially in the future, rail usage may increase. However, at this current time, traditional forest products industries rely on trucking to reach the majority of their customer base which is located within a 500 mile radius of their facilities.

The establishment of a railroad link can improve economic competitiveness and resulting economic impacts of forest product companies in a number of ways including lowering production costs (i.e., lower input transportation costs, lower finished goods transportation costs), enabling company expansions, and attracting new forest product companies to the region. Based on the economic impact analysis using EMSI/REMI, the establishment of a rail line connecting Waynesboro and Lucedale, Mississippi that provides competitive rates for moving forest products more efficiently to the Port of Pascagoula could lead to the creation of 218 new direct jobs in the forest products sector paying an average salary of $44,321 each and another 123 indirect jobs by 2025. This would result in an estimated $883,944 annual increase in state tax revenues. There could be as much as $165 million in new investments attracted to the region and this could create over 600 temporary construction-related jobs. This forecast is based on two major predicted changes to the forest products industry derived from surveys and interviews. The first is a potential reduction in production costs due to lower transportation costs and the second is due to the potential attraction of new industries to the region.

According to MIFI data, a total of 175.4 million tons of standing timber is available in the RAEM region which could support three additional biomass facilities. The region currently grows 2.11 more tons/year than it harvests annually. Presently, it should be noted that the majority of materials the pellet and other bioenergy plants primarily use are by-products of other forest industry mills (i.e., saw dust, wood chips). Given this information, it could be possible for up to five plants to locate in the area. However, a conservative estimate is that three new facilities could be attracted to the RAEM region.

Through conducting two economic analyses with REMI and EMSI, both programs delivered similar results. Because EMSI does not have a time dimension available, it is difficult to adequately and accurately compare the two analyses. Thus, employment numbers were broken down in the REMI results to attempt to compare to the EMSI numbers. By breaking down the construction and post-construction phases of the economic analysis with REMI, it was noticed that job creation during the construction phase amounts to approximately 1,153 jobs on

average, while post-construction phase jobs amount to roughly 324 jobs on average. The EMSI long-term impact, or post-construction phase, shows 303 jobs created verses REMI's 324. The short-term job creation for EMSI shows approximately 1,427 verses REMI's average of 1,153.

Conclusions:

The construction of the rail line would have a significant economic impact to a region of the state that needs economic assistance. The region currently has close to a 10% unemployment rate with 13,045 people unemployed. It is estimated that an efficient rail connection to the Port of Pascagoula will create over 300 direct and indirect permanent, well-paying jobs in the economy and improve the competitiveness of companies in the region. Over 1,000 construction jobs will be supported during the construction of the railroad and the anticipated new facilities to export wood chips and pellets. State revenues from the forest industry jobs are expected to bring the state over one million dollars in annual additional tax revenue based on the REMI model.

Customers frequently do not understand the process of shipping via rail. Often times they come to the process with unrealistic expectations that are either based upon trucking experience or other transportation modes. The short-line and other railroads have in recent times made concerted efforts to explain rail service to new customers to prepare them for the realities of shipping by rail. Additional outreach and education on behalf of the RAEM would be needed to further enhance the viability and potential usage of the proposed rail line.

The proposed rail line if connected to the Mississippi Export Rail could provide efficient access to the Port of Pascagoula. It is imperative that economic developers, railroad officials, and members of RAEM work together to make the process as efficient and economically viable for all businesses wanting to ship products via rail from their facilities to the Ports. Part of this can be accomplished through reasonable trackage right rates and transfer fees.

The success of railroads depends upon having a large changing customer base preferably representing as many different industries as possible. Based on the study of the forest industry it is apparent that expansion into other sectors is important for the success of the rail link. Other industries beyond wood and paper in the region include poultry, oil and gas, chemical and potentially other related industries which could grow from those industries. Similar education and outreach as described for forest industry would also be applicable here.

Literature Cited:

Dorminey, Bruce. 2012. US Biomass: Where Do All the Wood Pellets Go? Renewable Energy World.com Accessed June 2012. http://www.renewableenergyworld.com/rea/news/article/2012/06/where-do-all-the-wood-pellets-go?cmpid=rss.

Forisk Consulting, LLC. 2012. Wood Bioenergy US. April 2012, Vol. 4, Issue 4.

Tioga Group, Inc. 2010. East Mississippi Rail Corridor Preliminary Market Feasibility Assessment Draft Report. Prepared for Waggoner Engineering, Inc. Philadelphia, PA.

Timber Mart-South. 2012. Timber Mart-South Market News Quarterly: Abridged Version: The Journal of Southern Timber Market News. 1st Quarter 2012. Vol. 17, No. 1-A.