

**Researcher**

Dr. Pasi Lautala  
 Research Assistant Professor  
 Director  
 Rail Transportation Program  
 Michigan Tech  
 Transportation Institute

ptlautal@mtu.edu  
 906.487.3547

**Sponsor**

Michigan Economic Develop-  
 ment Corporation

**Project Title**

FBSCC Transportation  
 Research Study

**Project Manager**

Department of Chemical  
 Engineering, MTU  
 David Shonnard  
 Co-investigator

# Project Summary

Technology Transfer Outreach Publication

## Michigan Economic Development Corporation Forestry Biofuel Statewide Collaboration Center (MI)

The Michigan Economic Development Corporation (MEDC) assists and helps businesses to grow within Michigan. In their goal to strengthen Michigan's economy and business sector, MEDC is looking to the biomass market to help promote jobs and a sustainable energy resource. Among Michigan's greatest potential for a sustainable energy lies within the 19 million acres of natural forests. The forest products industry has grown during the last century to take advantage of this abundant supply of wood. This project will address the research needs for an efficient harvesting, wood processing, and transportation supply chain for forestry biomass production. Research tasks are focused on providing the most advanced knowledge possible for supplying high quality wood to energy producing plants located within Michigan borders.

## Transportation Research

The objective of this project is to assist in identifying and evaluating the capability of the state of Michigan's transportation system to deliver biomass feedstock to a factory gate. The evaluation will include an assessment of current road, rail and marine transportation infrastructure in Michigan. In addition to mapping the physical location of the transportation infrastructure, an effort will be made to incorporate other relevant information that could affect the productivity of the supply chain, such as seasonal highway weight restrictions, location, capacities, multi-modal challenges and condition of truck/rail landings, yards, docks and access roads. This task will also identify the quantities and proper types of transportation equipment available within the state. As a final step, the team will identify synergies and challenges between modes for efficient use of a multi-modal transportation network.



## Rail Transportation Program

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## University Facts

Total Enrollment	6,550
Graduate Enrollment	916
Number of Faculty	417
Placement Rate	95%

Michigan Tech is located in Houghton, MI on the south shore of Lake Superior. This rural area is known for natural beauty, pleasant summers, abundant snowfall, and numerous all-season outdoor activities. In addition, the University maintains its own downhill and cross-country ski facilities and golf course. There are numerous cultural activities and opportunities on campus and in the community. Michigan Tech has also been rated as one of the safest college campuses in the United States, and the local community provides excellent resources conducive to an outstanding quality of life.

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## Methodology

- Evaluation and mapping of the current transportation infrastructure within the State of Michigan, including road, rail and water transportation.
- Identify infrastructure and operational challenges for road, rail, marine and multi modal transportation
- Create cost gradient maps of transportation prices
- Identify equipment quantities and types within the State of Michigan
- Determine best practice for biomass transportation alternatives In Michigan
- Understand economic and environmental impacts of various system alternatives.
- Provide multi-modal scenarios to help understand system capabilities.

## Anticipated Research Findings

The results from this project will be used in a larger simulation and modeling effort to create cost and transportation factors for an entire supply chain for Michigan and the Great Lakes Region. Our findings will provide information on infrastructure, asset availability, and will reveal potential obstacles and transportation cost tradeoffs. In addition, environmental impacts of the forest biomass feedstock supply chain will be evaluated for fossil energy consumption and greenhouse gas emissions for all supply chain scenarios.

## Benefits

This research will be completed by April 2011. The final product will be a narrated report that outlines the following: inventory of relevant transportation infrastructure, evaluation of available assets for feedstock transportation, transportation service capabilities of each mode and cost gradient maps presenting prices of transportation to proposed facility gates. The supply chain simulation and optimization conducted by parallel projects will assist to develop efficient and sustainable feedstock supply chain to their facilities.

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