Abstract

Woody biomass has gained considerable attention in the US as a feedstock for producing renewable bioenergy. Nationwide, the pressure is mounting to meet increasing energy demands through renewable local resource mobilization rather than importing unsustainable fossil fuels. Michigan is no exception to this. The state is rich in forest resources that can be used for generating clean energy. However, the availability of woody biomass for bioenergy is determined, among other things, by the capacity of the logging sector and forest products industry within the state. Therefore, identifying the status of existing forest products sector, their strengths, limitations, and the challenges they face are critical for understanding both current and future role of these sectors in bioenergy supply chain. This study provides an insight into Michigan’s forest products sector and their perception towards wood-based bioenergy. Though the results indicate positive response towards the introduction of wood-energy facilities in the State, other broader issues such as sustained wood availability, retention and strengthening of the existing operations, and improving their efficiency are identified as critical factors that need consideration for promoting bioenergy in the future.

Introduction

A large forest resource base, good transportation system, and access to the Great Lakes makes Michigan ideal for promoting wood-based bioenergy. The total forest area in the state has increased by 1.4 million acres from 1980 to 2008 (fig 1) and the inventory data indicates greater wood accumulation than removal in recent years (fig 2). Despite these advantages, the availability of woody biomass for bioenergy is determined significantly by the capacity of the logging sector and forest products industry within the state.

Methods

A mail survey of all MI logging firms and primary forest products industry was conducted in the fall of 2008, and spring of 2009 respectively using the Tailored Design Method by Dillman. The overall response rates were 28% for the mill survey and 10% for the loggers’ survey.

Results

Status of MI logging firms

The average logging firm in MI has been in existence for approximately 29 years. More than half (60%) of them employed fewer than 5 individuals and were found to operate at 82% capacity in 2007. However, 75% are willing to expand the operation in future under favorable market conditions. Logging firms obtained 64% of their timber supply from nonindustrial private forest lands (NIPFs) and delivered the highest percentage (29%) of their output to pulp and paper mills and hardwood sawmills (29%). The majority of the sawlogs (90%) and pulpwood (72%) harvested were delivered within 90 miles of the logging site. Approximately 83% of the respondent logging firms left logging residues on site after harvesting.

Status of primary forest products industry in MI

Forty-six percent of the MI primary mills employed 5 or fewer individuals in 2007, whereas 10% employed more than 100 individuals. The average operating capacity of mills declined from 71% in 2007 to 63% in 2008. Approximately 40% of the wood used in 2007 came from NIPFs and 71% was delivered from within 90 miles distance of the mill site. The majority (97%) of the mill residue generated was utilized either by the mills themselves or sold to others for manufacturing purposes. Significantly higher number of respondent mills rated forest residues, mill residues, and non-merchantable timber as desirable wood use types for new facilities in their wood basket.

Discussion and Conclusion

Recent mill closures in MI have imposed considerable negative impacts on the logging sector and forest products industry, threatening their retention in some cases. Given this scenario, the introduction of new bioenergy market could be a promising step for boosting forest products sector and forest based economies. The positive attitude among loggers and primary mill managers towards wood-to-energy facilities and willingness to expand operation in case of favorable market are encouraging observations. However, current harvesting equipment and technology may not be efficient for collecting feedstock for these new facilities. Thus, exploring the equipment configurations and investment market across the state seems necessary before proceeding any further. Also, as reduced timber supply from both private and public lands was identified as barrier to increased harvesting, strategies to promote harvesting may be through timber sale aggregation in private lands or through increased allowable harvest from public lands seem necessary.