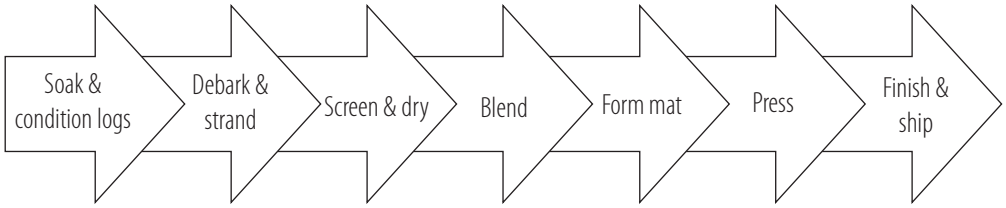
Reconstituted Wood Products

Sub-sector Description

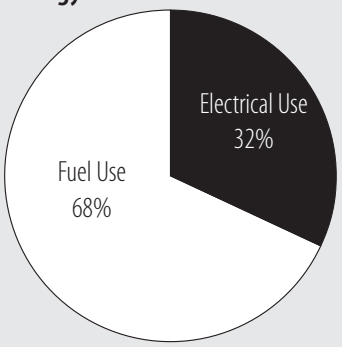
Facilities in this sub-sector manufacture reconstituted wood products. Products can include hardboard, particleboard, insulation board, medium-density fiberboard, wafer-board, and oriented strandboard.

Facility Type	SIC	NAICS	
Reconstituted wood products	2493	321219	

Process Information



Energy Use[1]



Benchmarks

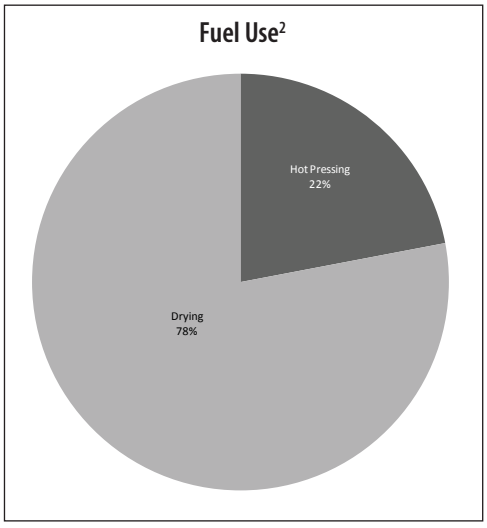
Thermal and electrical benchmarks were unable to be reliably derived from facility-specific energy use, sales, employee numbers, and area data. For more information about the benchmarking study that MnTAP conducted and how to determine if your facility may have energy efficiency opportunities remaining, view the report Web pages at http://www.mntap.umn.edu/resources/DOC/index.html.

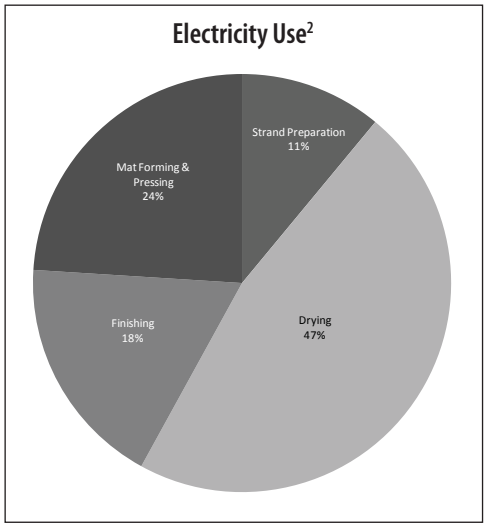
Savings Potential

Opportunities and technologies for energy conservation were identified for facilities within this sub-sector. Industry case studies and reports of implementation were used to determine what opportunities may be available and achievable savings from those opportunities. However, additional energy conservation measures may apply to your facility. The tables on Page 2 of this summary reflect a number of energy conservation measures available for this sub-sector.

Estimated Electric Savings: 17%

Energy Use Footprints





Fuel Savings Estimate and Opportunities

MnTAP researched and analyzed this sub-sector for an electric utility. Therefore, fuel savings opportunities and an estimate of potential savings were not identified as part of MnTAP's industrial energy efficiency study.

Electric Savings Estimate and Opportunities

Improvement / Opportunity	Estimated Payback	Reported Savings	Overall Savings
Process Improvements and Optimization			
Utilize energy-efficient belts and other improved mechanisms[3]	1-2 years	0-3%	
Install compressor air intakes in coolest locations[4]	< 1 year	0-1%	
Use ASDs to replace mechanical drives[5]	2 years	1-4%	
Replace hydraulic / pneumatic equipment with electric equipment[6]	< 1 year	2-5%	
Eliminate damper induced airflow restrictions, install new high efficient fan motors at lower power and reduce fan speed[7]	< 1 year	3-8%	
Install a compressor control sequencer to maximize efficiency of multiple compressor system[8]	2-5 years	1-2%	
Fix compressed air leaks to allow reduction in pressure[9]	< 1 year	1-2%	
Use more aspen and less maple and birch species (uses less electricity at waferizer)			
TOTAL ELECTRIC SAVINGS ESTIMATE			**17%**

References

1 IAC Industrial Assessments; DOE, http://iac.rutgers.edu/database/
2 Adapted from "Energy Demand in Wood Processing Plants." J. Li, M. McCurdy, S. Pang. (2006)
3 IAC Industrial Assessments; DOE, http://iac.rutgers.edu/database/findassessment.php?ID=OR0332
4 IAC Industrial Assessments; DOE, http://iac.rutgers.edu/database/findassessment.php?ID=ME0172
5 IAC Industrial Assessments; DOE, http://iac.rutgers.edu/database/findassessment.php?ID=DS0168
6 IAC Industrial Assessments; DOE, http://iac.rutgers.edu/database/findassessment.php?ID=WI0183
7 "Forest Products: Improving Several Fan-Driven Systems in an Oriented Strand Board Manufacturing Facility"
8 "Energy Efficiency Opportunities in the Solid Wood Industries." Carroll-Hatch (International) LTD, January 1996.
9 "Status of Energy Use in The Wood Products Sector." J. Meil, L. Bushi, P. Garrahan, et. al., March 2009.

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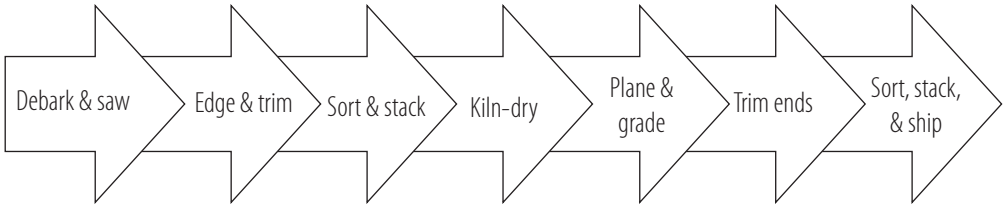
Primary Sawmills

Sub-sector Description

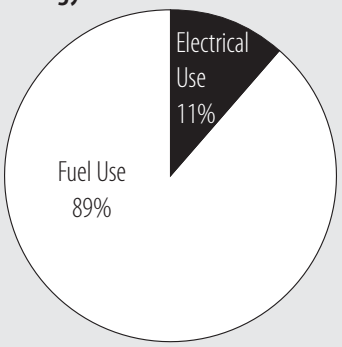
Sawmills primarily saw dimension lumber, boards, beams, timbers, poles, ties, shingles, shakes, siding, and wood chips from logs or bolts. The facilities may also plane rough lumber that is made on-site with a planing machine to achieve smoothness and uniformity of size.

Facility Type	SIC	NAICS	
Sawmills	2421	321113	

Process Information



Energy Use[1]



Benchmarks

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Savings Potential

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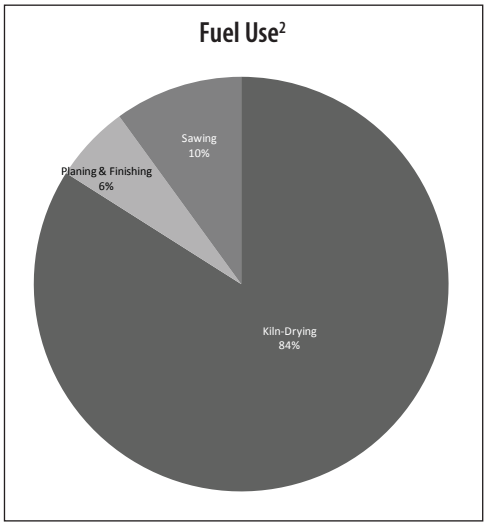
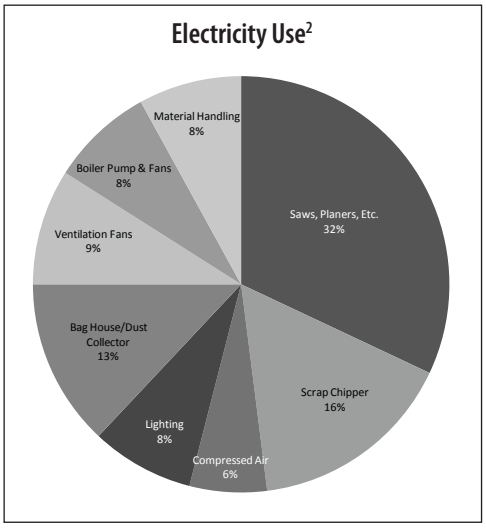
Estimated Electric Savings: 19%

Energy Use Footprints





Fuel Savings Estimate and Opportunities

MnTAP researched and analyzed this sub-sector for an electric utility. Therefore, fuel savings opportunities and an estimate of potential savings were not identified as part of MnTAP's industrial energy efficiency study.

Electric Savings Estimate and Opportunities

Improvement / Opportunity	Estimated Payback	Reported Savings	Overall Savings
Process Improvements and Optimization			
Utilize energy-efficient belts and other improved mechanisms[3]	1-2 years	1-3%	
Size electric motors for peak operating efficiency[4]	1-2 years	4-6%	
Use most efficient type of electric motors[5]	3.5 years	0-2%	
Use multiple speed motors or ASDs for variable pump, blower and compressor loads[6]	1-2 years	3-8%	
Install a compressor control sequencer to maximize efficiency of multiple compressor system[7]		1-3%	
Fix compressed air leaks to allow reduction in pressure[7]	< 1 year	2-3%	
TOTAL ELECTRIC SAVINGS ESTIMATE			**19%**

References

1 IAC Industrial Assessments; DOE, http://iac.rutgers.edu/database/

2 "Status of Energy Use in The Wood Products Sector." J. Meil, L. Bushi, P. Garrahan, et. al., March 2009.

3 IAC Industrial Assessments; DOE, http://iac.rutgers.edu/database/findassessment.php?ID=SU0246

4 IAC Industrial Assessments; DOE, http://iac.rutgers.edu/database/findassessment.php?ID=OR0166

5 IAC Industrial Assessments; DOE, http://iac.rutgers.edu/database/findassessment.php?ID=OR0463

6 IAC Industrial Assessments; DOE, http://iac.rutgers.edu/database/findassessment.php?ID=MA0496

7 "Energy Efficiency Opportunities in the Solid Wood Industries." Carroll-Hatch (International) LTD, January 1996.

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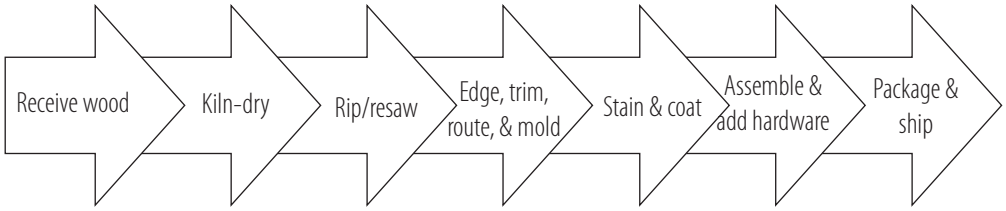
Secondary Millwork

Sub-sector Description

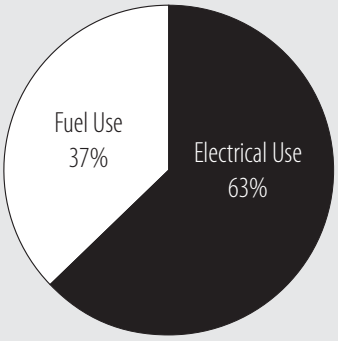
In this sub-sector, facilities manufacture a variety of wood products: hardwood and softwood cut stock and dimension stock (i.e., shapes); wood windows and doors; and other millwork including wood flooring. Equipment used in these facilities includes woodworking machinery such as jointers, planers, lathes, and routers to shape wood.

Facility Type	SIC	NAICS	
Secondary Millwork	2431	321214	

Process Information



Energy Use[1]



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Savings Potential

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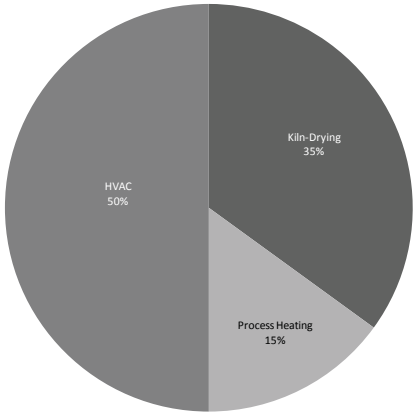
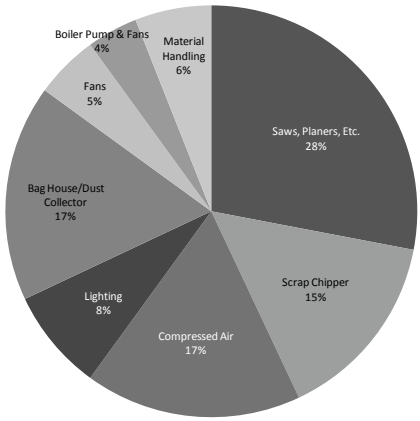
Estimated Electric Savings: 16%

Energy Use Footprints

Fuel Use[2]



Electricity Use[2]



Fuel Savings Estimate and Opportunities

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Electric Savings Estimate and Opportunities

Improvement / Opportunity	Estimated Payback	Reported Savings	Overall Savings
Process Improvements and Optimization			
Utilize energy-efficient belts and other improved mechanisms[3]	1-2 years	1-2%	
Reduce the pressure of compressed air to the minimum required by repairing leaks[4]	< 1 year	4-6%	
Switch radial fan from "dirty" air side to "clean" air side backwardly inclined fan in low pressure sawdust conveying system, reduce motor size and flow[5]	1-2 years	2-4%	
Use multiple speed motors or ASDs for variable pump, blower and compressor loads[3]	1-2 years	1-3%	
Install a compressor control sequencer to maximize efficiency of multiple compressor system		1-2%	
TOTAL ELECTRIC SAVINGS ESTIMATE			**16%**

References

1 IAC Industrial Assessments; DOE, http://iac.rutgers.edu/database/

2 "Reduce Energy Use at Lumber & Wood Processing Facilities". Efficiency Vermont. 2010. http://www.efficiencyvermont.com/stella/filelib/EVT_lumbertechFinal.pdf

3 IAC Industrial Assessments; DOE, http://iac.rutgers.edu/database/findassessment.php?ID=NC0279

4 IAC Industrial Assessments; DOE, http://iac.rutgers.edu/database/findassessment.php?ID=AS0407

5 "Energy Efficiency Opportunities in the Solid Wood Industries." Carroll-Hatch (International) LTD, January 1996.

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