New England Regional Council on Forest Engineering

Economic Trends in the Northeast Forest Industry

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Innovative Natural Resource Solutions LLC

- Founded in 1994
- Offices in New Hampshire and Maine
- Focus at the intersection of forest industry, energy and economic development
- Services include:
  - consulting in renewable energy
  - forest industry consulting
  - advocacy
  - forest certification and sustainability
- Clients from the private, non-profit and government sectors
- Conducted work in all regions of North America
- www.inrsllc.com
Volume and Value to Landowner of Products from a Timber Harvest

Maine, Statewide, 2014

<table>
<thead>
<tr>
<th>Product</th>
<th>Volume</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biomass</td>
<td>23%</td>
<td>5%</td>
</tr>
<tr>
<td>Pulpwood</td>
<td>51%</td>
<td>31%</td>
</tr>
<tr>
<td>Sawlogs</td>
<td>26%</td>
<td>64%</td>
</tr>
</tbody>
</table>
Housing Starts (past 20 years)
Housing Starts (past 10 years)
Lumber Markets – The Bubble Has Passed

http://markets.businessinsider.com/commodities/lumber-price
A growing issue for (softwood) mills...

• As markets build and production climbs...
• More residue (chips, sawdust, bark) is produced
• Markets for this residue have shrunk, and this is a danger sign for a healthy industry
  • Old Town to relieve some concern re chips
  • What to do with a half million tons of bark each year?
Cross Laminated Timber
Maine Wholesale Electricity Prices (and Futures)

Cost of Fuel, Cost of Fuel plus O&M Shown (estimates)
Maine Wholesale Electricity Prices (Trailing 12 Months) Cost of Fuel, Cost of Fuel plus O&M Shown (estimates)
ReEnergy Partners with Biobased Maine with New Co-Location RFP

By Charlotte Mace | October 18, 2017 | 0

Today, at the National Biomass Energy Day event in Fort Fairfield, Maine, ReEnergy and Biobased Maine announce a partnership to seek technology for co-location at one or all of ReEnergy’s biomass-to-energy facilities in Livermore Falls, Ashland, Stratton, and Fort Fairfield Maine. Biobased Maine will be administering the RFP, which can be accessed here: ReEnergy RFP

Biobased Maine’s role in this partnership is to assist in finding the most viable and commercially relevant technologies to co-locate at ReEnergy’s four Maine facilities and use wood, electricity, and other site-specific assets available there to manufacture new products. Examples of industries which could co-locate with ReEnergy’s facilities include biofuels, biobased chemicals, advanced biobased materials, as well as industries such as agriculture, aquaculture, algae, or other technologies that use biomass energy co-products (heat, steam, emissions).
Modern Wood Heat A Growing Market
Comparing Heating Costs of Different Fuel Types

Fuel price (dollars per million Btu)

- Electricity (baseboard) (15.5 cents/kwh)
- Propane ($2.82/gallon)
- Kerosene ($3.38/gallon)
- Heating Oil ($2.73/gallon)
- Natural Gas ($1.55/therm)
- Wood Chips ($60/ton)
- Wood Pellets ($260/ton)
- Cord wood ($250/cord)

Source: Maine Energy Office
<table>
<thead>
<tr>
<th>Location</th>
<th>Green Tons (estimated)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Madison</td>
<td>0</td>
</tr>
<tr>
<td>East Millinocket</td>
<td>0</td>
</tr>
<tr>
<td>Lincoln</td>
<td>0</td>
</tr>
<tr>
<td>Bucksport</td>
<td>0</td>
</tr>
<tr>
<td>Millinocket</td>
<td>500,000</td>
</tr>
<tr>
<td>Old Town</td>
<td>1,500,000</td>
</tr>
<tr>
<td>Jay</td>
<td>2,000,000</td>
</tr>
<tr>
<td>Woodland</td>
<td>1,000,000</td>
</tr>
<tr>
<td>Rumford</td>
<td>2,500,000</td>
</tr>
<tr>
<td>Somerset</td>
<td>2,200,000</td>
</tr>
</tbody>
</table>
If you like Pulp & Paper
In print...

you’ll love PPI online!

Emails you never expected...
New Investment at Woodland Pulp

- 2 new tissue machines
- ~$150 million in new investment
- Used New Markets Tax Credits
- 70 new employees

**FIRST SALEABLE JUMBO ROLL**
**MARCH 16**
SAPPI Announced Investment

- $165 million rebuild of PM1 at Somerset Mill
- $25 million in new wood yard (completed)

- Clearly investing in the future of the mill, New England’s largest market for low-grade wood
ND Paper to Re-Start Old Town Mill

- Major (much needed) softwood market
- Announced 100+ jobs in the mill
- Lots more jobs in the woods and in trucking
- Use of regional chip mills for supply
Emerging Industries

• Maine Technology Institute recently initiated funding for emerging forest industries looking to expand or locate in Maine
  • $1.5 million in funding (up to)
  • A number of interesting proposals – currently under review
• Companies have been looking at Maine for biofuels, biochemicals, cross-laminated timber, nano-cellulose, wood-based insulation...
• FOR/Maine has been active in identifying – and now recruiting
  • Other (allied) efforts as well
What Concerns Me...

- Age of Maine’s Logging Workforce
- Markets for Biomass / Residues
- Federal Rules for RFS Qualification
- Forest Products Trucking Capacity
  - Quit making trucks wait in line
- Speed (or lack thereof) of innovation / technology adoption in the Industry

**Age Distribution of Maine Loggers**

*Data Source: Maine Logger and Log Trucker Employment Availability and Wage Analysis Report, 2019*
The Markets
We’re Going to Be Fine...

- We have **markets**, and are incredibly well positioned compared to other parts of the country.
- We have the **forest resource and supply infrastructure** (landowners, loggers, entire forest industry ecosystem) that would make other regions jealous.
- We live in close proximity to (and are part of) the **greatest collection of consumers** in the history of the world.
- There may **never be a better time** to be develop a project or technology that uses low-grade, particularly softwood.
I would like to add you to my email lists

Send an email to kingsley@inrsllc.com to be placed on our monthly email list, which provides information on markets and developments of interest to the region’s forestry community. I will also add you to my FRA email list, and you will receive invitations to monthly dinner forums and other regional information.
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