

# BIOMASS IN THE NORTHEAST: Challenging Economics and a Cloudy Future



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## **Biomass Energy**

A few years ago, biomass accounted for somewhere around a quarter of all volume harvested in the Northeast. That percentage has certainly shrunk, and the future of many biomass energy markets is in question.

Biomass energy competes directly against fossil fuels –natural gas (and others) for biomass electricity, home heating oil (and others) for thermal applications. Prices for both are hovering at or near recent lows, and there is no reason to think this will change in any meaningful way. For biomass energy producers, this means scrambling and struggling to find ways to stay economic, operating and providing a market for truckloads of wood daily. There are benefits to biomass, of course – a market for low-grade material, an outlet for sawmill residue, jobs in rural communities both at the plants and in the woods, and a renewable energy source that is available when you need it.

Unfortunately, those benefits aren't part of the price mix – at least not enough to change the economics.

Each plant is faced with a unique set of economics, challenges and opportunities, but all are facing the stark reality that using wood for energy production doesn't always compete well with other energy sources on an economic basis. The following provides some details and insight on how biomass markets in different regions are faring.

## **Maine**

Maine has six “operating” wood-fired power plants, as well as significant biomass use at several pulp and paper mills. In 2016, Maine passed legislation to provide nearly \$14 million in above-market payments to sustain operations at biomass plants. Through a competitive process, four plants qualified to receive funding – ReEnergy's facilities in Ashland and Fort Fairfield, and plants that new market entrant Stored Solar purchased from Covanta in West Enfield and Jonesboro.



The ReEnergy plants have been operating as expected, and providing an important market for sawmill residues and whole tree chips in Northern Maine. ReEnergy recently announced an effort, led by Biobased Maine, to find co-location partners that help all four of the firm's Maine facilities viable after state support ends.



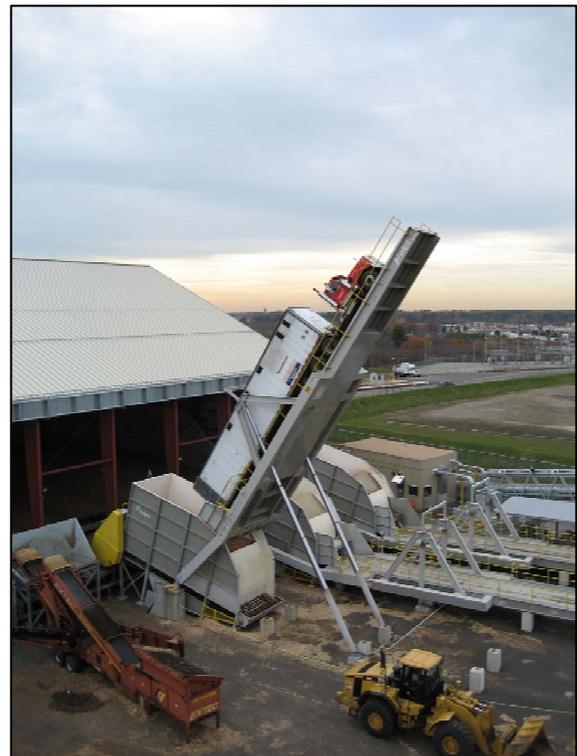
Stored Solar has been a very different situation. Neither of the plants has operated at expected levels, and the facility in Jonesboro has been off-line for significant stretches of time. Press reports indicate that the facilities have been late in paying suppliers, and frustration has been building among loggers who rely upon these plants. Stored Solar recently told local newspapers that they are working to get all of their suppliers paid, and that they are committed to operating the facilities and finding ways to make them economically sustainable. As part of that effort, ambitious plans now include a co-located shrimp farm, a large commercial greenhouse, and efforts to find bioproduct manufacturers to co-locate. These are all interesting ideas, but how things play out in reality remains to be seen.

Maine's also experienced the loss of biomass markets at pulp and paper mills. With natural gas now going directly to some mills via pipeline, biomass is more easily displaced by the less expensive energy source when price allows. One

pulp mill had a reduction in biomass consumption estimated to be larger than closing a single 50 MW wood-fired power plant.

### **New Hampshire**

In the 2017 legislative session, New Hampshire passed changes to that state's Renewable Portfolio Standard (RPS) that should help the state's 6 older wood-fired power plants until 2020. Facilities in Tamworth, Springfield, Alexandria, Bridgewater, Whitefield and Bethlehem – with a combined wood fuel use of 1.3 million tons annually - saw the cap price they are paid for Renewable Energy Certificates (RECs) increase, with the express goal of sustaining these facilities while they search for ways to operate absent subsidies. How that happens isn't clear, but they have three years to figure it out.



In Berlin, NH, a biomass plant that opened in 2013 at the site of a former pulp mill is operating well. Given the decline of pulp markets in the



region, this facility has become an important market for low-grade wood from several states. The facility has a Power Purchase Agreement (PPA) that runs for 20 years, but a clause that caps above-market costs at \$100 million. Given the unforeseen drop in natural gas prices, this cap could be reached much sooner than anyone anticipated when the plant opened.

In Portsmouth, a sale has been announced of Eversource's 50 MW Schiller Station biomass unit. The biomass facility is being sold as a package with two coal units at the same site, a nearby oil / natural gas plant, and a large coal unit near Concord. Terms of sale suggest that once the purchase is approved by state regulators, the facility will need to continue operations for at least 18 months. It is far too soon to know what the new buyers plan for the biomass facility.

#### **New York**

In the Empire State, ReEnergy's facility at Black River (near Watertown) is operating under a 20-year Power Purchase Agreement with the Army to provide electricity to Fort Drum. Power from the 60 MW converted coal unit not purchased by the Army is sold to the regional electricity grid.

At Lyonsdale, ReEnergy's contract for Renewable Energy Certificates expires at the end of 2017, threatening continued operations. ReEnergy has petitioned the NY Public Service Commission to extend this for up to three years while the facility is transitioned into a liquid biofuel manufacturing facility and 33 MW solar farm. ReEnergy has announced plans with Ensyn to manufacture Renewable Fuel Oil (RFO) at the site, producing a wood-based liquid fuel that can be substituted for fossil fuel in several applications. RFO uses biomass as the feedstock, and maintaining the market at Lyonsdale during the planned transition is critical. As ReEnergy noted in their request to the Commission, "In

order for the RFO facility to be successful, it is imperative that the forest products infrastructure that currently supplies biomass fuel to the [electric generation] facility remain in place in order to ensure that a biomass fuel supply is available for the RFO facility."

#### **Status of Modern Wood Heating**

Several years ago, with heating oil and propane approaching or exceeding \$4.00/gallon, interest in modern wood pellet and chip heating systems was rising. Fully automated whole home systems, and bigger boilers for schools, hospitals and businesses were quickly becoming a mainstream heating choice as folks sought to reduce their high heating bills. New wood pellet manufacturing capacity had been added across the region to meet burgeoning demand, and high-quality wood chips for heating were becoming a viable market option for many sawmills and loggers in northern New England. Northeastern state energy programs were lining up to help accelerate market growth with incentives and grant programs.



Fast forward to 2017. Heating oil and propane are down 50% or more from the 2013-2014 peaks. Two warmer than average winters have softened demand for wood fuels. Pellet manufacturers have struggled to move inventories and greatly curtailed



operations. Demand for chips and pellet feedstock has dropped across the region, deepening the decline in low grade wood markets. Boiler installs replacing oil and gas are down more than 75% from just a few years ago.

As we enter the winter of 2017-2018, there are some glimmers of optimism for renewed growth. Volatile energy prices brought on by the record hurricane season have reminded consumers of how unstable fossil fuel costs can be, and how quickly they can change. Meanwhile the price of boiler chips and wood pellets have come down to levels not seen in many years. Modern wood heating once again enjoys a slight heat cost advantage compared to average heating oil and propane prices across the region. Manufacturers of

boiler systems are finding ways to lower up front capital cost, and develop new technologies that deliver high performance with lower cost fuels such as dried, refined chips. Vendors are finding more creative ways to market the benefits of modern wood heating besides lower heat cost, such as focusing on the importance of retaining energy dollars in local economies instead of exporting them.

Use of wood as a fuel has and always will be subject to ups and downs. Meanwhile the forests continue to grow, and creating stable markets for low grade wood become ever more important to landowners and healthy forests.

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