

Biomass Energy – Mixed Signals Abound

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By Eric Kingsley – from [Renewable Energy World](#)



Standing in front of 200 New Hampshire loggers on a cold night last February, it was my job to explain electricity markets and why biomass power projects are facing a tough time. For these guys, it wasn't an academic discussion of the influence of natural gas prices on wholesale power prices. It wasn't a class on supply and price interactions in the market for Renewable Energy Certificates (RECs). It was about their jobs.

New Hampshire biomass plants use 1.8 million green tons of biomass each year, or 155 truckloads each and every day of the year. Add to this wood pellet manufacturing, biomass use at schools and other community-scale setting, and (let's not forget) firewood. In total, New Hampshire uses lots of wood for energy. And the Granite State is not alone – while the numbers and mix vary a little, Vermont and Maine use lots of wood for energy production as well.

Biomass power plants – particularly those unaffiliated with utilities and without power purchase agreements – are having a tough time. It is probably about to get tougher. These plants sell electricity on a spot market basis, and I would expect that we'll see some idled this spring. "Why?" is a reasonable question – some of these facilities have been operating for 25+ years without major downtime.

It all comes down to dollars, of course. Biomass electricity providers in New England sell two products – electricity and RECs. Wholesale electricity prices in the region are at depressed prices – in part due to a recession-related drop in electricity demand, in part because natural gas (the fuel that generally sets the price of power in New England) is currently plentiful and cheap. RECs – a mechanism meant to support renewable generation – are low as well. REC price decline is partially due to a decrease in demand, partially due to an increase in supply (often from generation outside of the region).

On the cost side, wood fuel is the largest and most variable cost for biomass plants; other costs include debt service, staff, emissions control, maintenance, etc. While it varies by plant and fuel moisture, a good rule of thumb is that it takes 1.7 green tons of fuel to make 1 megawatt hour (MWH) of electricity. On the afternoon of February 17, wholesale power in New Hampshire was

selling for \$33.32 per MWH. This means that – if the value of the REC covered all non-fuel costs (an optimistic assumption), and the plant was willing to operate at break-even (again, optimistic) – the plant could pay \$19.60 per green ton of fuel.

For most loggers, the cost to produce and transport biomass fuel is well above that level. We are at a point where loggers can't produce the product for less, some plants can't operate profitably, and Spring – a traditional low point for electricity prices – is upon us. It is hard to see how some facilities get through this without downtime.

However, market pain in the near term doesn't (necessarily) mean disaster in the long-run. Markets are cyclical, and re-bound. In fact, despite the tough short-term outlook, biomass developers are well down the path in New Hampshire, and moving (less so) down the path in Vermont on new biomass electric projects, and a large combined heat and power project at a Maine paper mill is under serious discussion. At this point I don't know how all of it will play out, but given the importance of biomass to the region's electricity marketplace – not to mention the benefit to rural economies and the benefits as a forestry tool – it is hard to see New England without a meaningful biomass market.

Of course, biomass electric isn't the only use of wood for energy. Biomass thermal – heating homes and buildings – remains a largely untapped opportunity in a region with heavy dependence on oil for heating. A couple years ago, when heating oil prices were climbing by the day – it seemed that everyone who had ever seen sawdust was set on building a pellet mill.

This winter, with oil prices at what many consumers considered a “reasonable” level, enthusiasm for pellet fuel (and firewood) was depressed. Long term? Again, hard to tell, but we all know that oil rich states in the Middle East are facing popular uprisings – and that brings the possibility of increased oil prices.

Changes in oil prices or not, biomass thermal is often cost competitive in today's market – but the fear that prices will soon spiral out of control can certainly lead consumers to make the investment in a new pellet stove or boiler, creating a market for decades to come. Similarly, we are seeing a number of schools and colleges switch from fossil fuels to wood heat – providing nice local markets (with the added benefit of directly connecting students with the local forest industry).

So what does all of this mean? Biomass energy has hit a bump in the road, but the future remains full of opportunity for the right projects. We will probably see some facilities close, others sold... and others built. Overall market trends are important, but so too are the economics of a particular project – whether it is a bank considering hundreds of millions of dollars for construction of a new biomass electric plant, or a family considering thousands of dollars for a new pellet stove.

What hasn't changed – and won't change – is that biomass energy is renewable, local, and helps sustain the region's forested landscape.

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