In Defense of Better Balance Between Centralized and Decentralized Wood Fuel Distribution Channels

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I completely support the effort to standardize chip size so that material handling systems can be built around a specific fuel specification. Wood chip burning can be undependable if variations in chips size exceed the capacity of the material handling system, so it is essential to develop standard chips to standardize material handling systems.

Similarly it is essential that purchaser of wood fuel know the moisture content of the fuel they are buying so they know their combustion systems can burn the fuel efficiently and know the cost of BTUs delivered. Obviously, 20 tons of 40% MC fuel will deliver many fewer BTUs and a ton of 20% MC fuel.

But I am not a fan of public subsidies being tied to specific moisture contents chips vs. pellets because, as I will explain, this practice will stifle the opportunity for creativity at the local level where wood cost are minimized and there is a tremendous need for demand. It is important to tie public subsidies to combustion efficiencies as measured by emissions, not moisture content.

The obvious benefits to green wood fuel is cost. Going from local forest to local wood boiler is far less expensive than transporting the resource to a central drying and processing facility and then shipping it to market.

My Company, Biomass Combustion Systems sells green wood burning boilers into the forest products industry where there are no additional transportation costs. Sawmills and veneer mills produce off fall which is chipped on site and fed directly to the boiler. These boilers cost effectively dry the fuel for gasification and combustion in the firebox. The more one moves or processes wood the more the value of the resource transfers from the wood to the cost of transporting and processing.

Thus far these green wood chip systems have not been cost effective in smaller applications because they require economies of scale to overcome the cost of material handling and refractory. The refractory is required to maintain the heat in

the firebox to drive off the moisture and a robust fuel handling system is required to handle variations in chip size.

No where in the country is the trucked in green wood chip market more developed than in the State of Vermont. I credit Norm Hudson, a Chief Forester in the state of Vermont in the late 80's and 90's with a vision which recognized the opportunity to expand the use of Vermont's wood resources as an economic development tool. The Fuels for school program, which was replicated around Country, used local harvesting infrastructure to connect local wood with local heat demand and thereby save local communities energy dollars while strengthening local economies. Much like local food, local wood can have a tremendous impact on local economies, particularly in municipal buildings.

While I doubt Norm Hudson was versed in the local good movement he was instrumental in convincing policy makers of the benefits of expanding the market for wood chips. Today we need more Norm Hudson as the chip market is losing the attention of Policy Makers in favor of more centralized processed wood fuels.

Before I paint myself into an anti-pellet/anti microchip corner I want to go on record as a big fan of these more centrally processes wood fuels, and credit the pellets industry with helping Norm Hudson move wood heat into public discourse. Before the advent of pellets wood heating in America was hidden in the forest products industry and homes with inefficient cord wood stoves. This latter cord wood market is living proof that there is a segment of the population who is willing to tolerate inconvenience to save money by burning wood.

In contrast, pellets, and now microchips, opened the wood heating market up to people who were willing to pay a little more for convenience. The pellet industry has done a great job at giving some consumers what they want. Beyond convenience these systems offer automatic ignition, have lower initial capital costs, and pellets can be cost effectively shipped around world thus opening additional foreign markets to the American Forest Products industry. The pellet industry has brought much needed visibility and political presence to the wood heating industry and should be supported for the green, renewable product that it is.

But, in addition to price there are defining characteristics of the pellet/microchip markets which differentiate these fuels from wood chips and balance is needed in public policy between the two markets.

Centralized processing facilities require a critical mass of demand to cost justify construction. Centralized facilities face the same chicken and egg barriers of finding dependable demand as the chip market, but the barriers to entry are higher. When compared to a more centralized wood fuel processing facility the cost of setting up a local fuel supply chain is much lower cost, and within reach local communities using local resources.

In addition, centralized manufacturing and distribution of pellets/microchips removes the direct link to the community and makes it harder to weave wood fuel into the local wood local good movement. Wood from a town forest heating the local town hall paints a different picture of wood heat than wood from a town forest going off to be processed and the same town hall buying pellets. Pellets and microchips industry can also make the same claims of sustainability and local benefit but these arguments are stronger when residents can see the direct connection between supply and demand.

While there has always been a demand for heat, it is becoming increasing clear there is a need for markets for wood chips for both environmental and financial benefit. Good forest management requires the removal of the low grade/pulp but this removal is often not taking place because there are no cost effective markets for this resource. The cost of harvesting and transporting this wood to low value markets is often subsidized by the value of merchantable timber. Demand for this low grade wood is shrinking as paper plants around the country close just as we are seeing an increase in invasive species and tree killing pests.

The good news from Massachusetts is that environmental groups who want to manage forest for wildlife and healthier forests are realizing the need for local wood markets to help pay for the land management work. So stigma of cutting trees is softening, and we have an opportunity to market chips as an economic development tool which leads to environmental benefit.

But this abundance of available wood is not just building up in the forests

In my home State of Massachusetts wood is being generated from municipalities, arborists, utilities, state agencies and land clearing operations. This resource is often blown on the ground, used for landfill capping or erosion control. A small percentage is used for composting bulking agent, some is offered to residence as mulch or given away as firewood. The rest is trucked down the road. While some of this wood is finding its way into higher value markets through pellets/microchips there is an huge opportunity to develop more local, lower cost wood fuel supply chains and this opportunity deserves more public support.

A ton of green wood will produce the same amount of heat as $150 in imported oil at $2.50 a gallon. Put another way, each ton of wood can keep $150 in a local community if local venders are used to cut down and handle the wood. If we reduce transportation costs by using this resource locally, and reduce or eliminate drying costs, this value offers a large window of opportunity to build out the local chip market.

The key to developing this market is an inventory which includes wood which is being cut or should be cut and removed from the forest for environmental reasons and a local understanding of its current value. Current chip supply chains only include a small segment of this available wood from a limited corner of potential supply. Smaller, community scale projects require very little wood compared to local supply. There are many more schools, hospitals, prisons and industries who cost could justify purchasing refractory lined boilers to burn wood green supplied through lower cost local fuel supply chains. At the same time there are many land owners who would put their land in line to be managed properly if they knew they can go get some value out of their low grade. Aligning long term dependable supply of chips with long term demand for heat just makes sense at the local level.

Smaller chip burning boilers, without refractory, could be put in municipalities which produce their own wood. They do require drier wood but wood can certainly be dried locally by stockpiling it for the necessary time to air dry it. Granted this takes longer than it does in more arid areas but with a budget of $150 a ton before the environmental and local benefits are considered makes it is a strategy worth pursuing. Alternatively, in Europe, smaller boiler without refractory are used to dry their own fuel through on site drying systems. Given the win-win-win offered

to the Commonwealth, the local community and the environment, public policy needs to support this decentralized opportunity.

Since private investment follows public dollars it is critically important for public policy to balance support between decentralized and centralized wood fuel supply chains. Regrettably, claiming it takes more wood to produce a BTU from green wood than from dry, many States are favoring more centralized, drier fuel over chips. Good public policy balances all the costs and benefits to maximize societal benefits. I question if those who advocate pellets over chips have included all the costs – including emissions during the drying process - and comparable benefits into their policy determination, but certainly this current strategy represents a desire for perfection becoming the enemy of the better.

At this point in the development of the wood heating market in New England we cannot loose site of the opportunity to develop local fuel supply chains using locally available wood. Pellets/microchips will expand this market opportunity, but the lowest cost option, which has the greatest impact on local economies and public opinion, should not be ignored.

Charlie Cary, Volunteer
Massachusetts Statewide Wood Energy Team
crcary@verizon.net
cell: 978-697-8223