



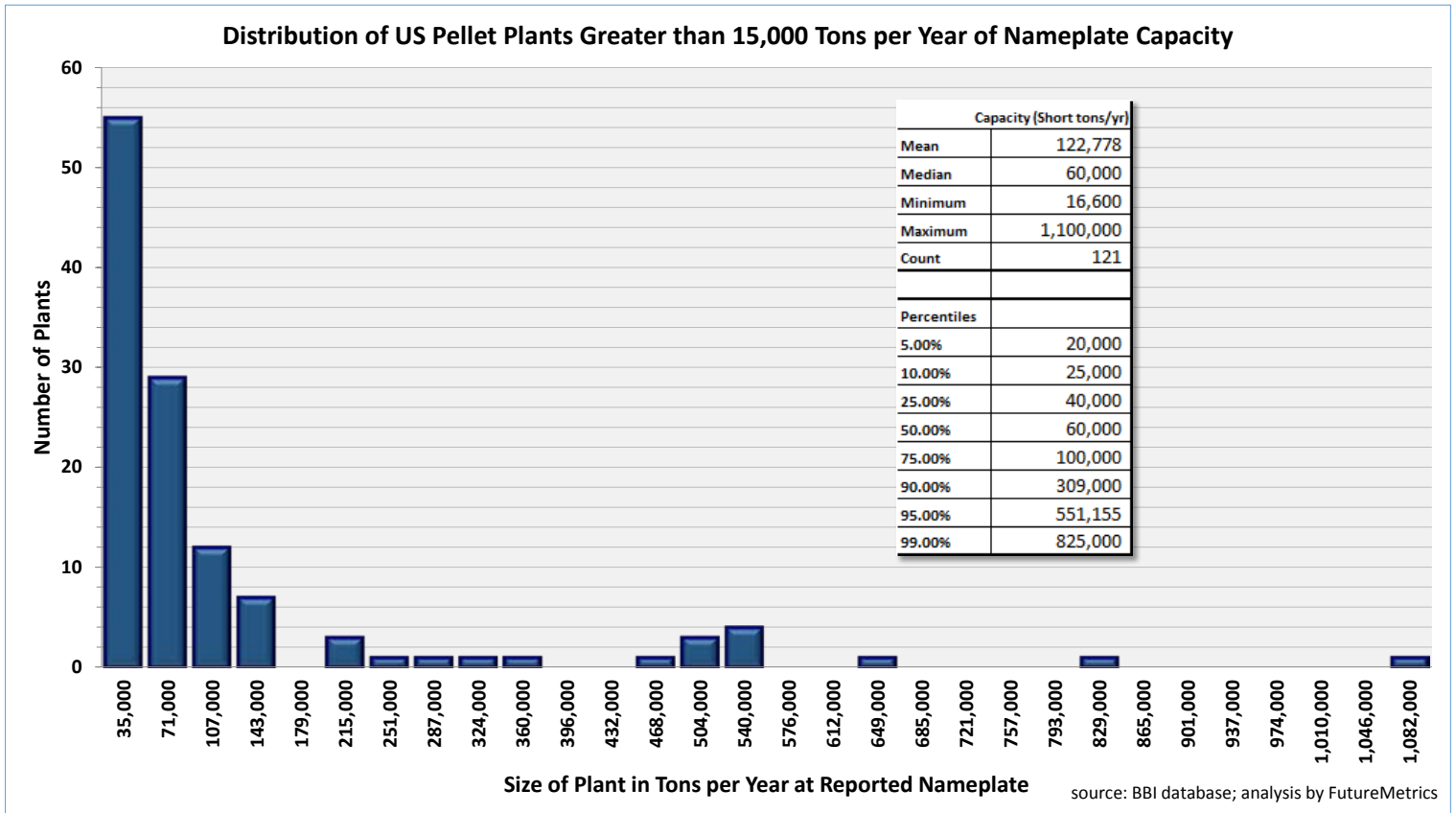
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## Consolidation in the Wood Pellet Manufacturing Sector

By William Strauss, PhD  
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The US wood pellet manufacturing sector is dominated by many small plants serving local markets. As the chart below shows, of the 121 plants in the US that are equal to or larger than 15,000 tons per year of nameplate capacity, half are smaller than 60,000 tons per year and 75% are under 100,000 tons per year.



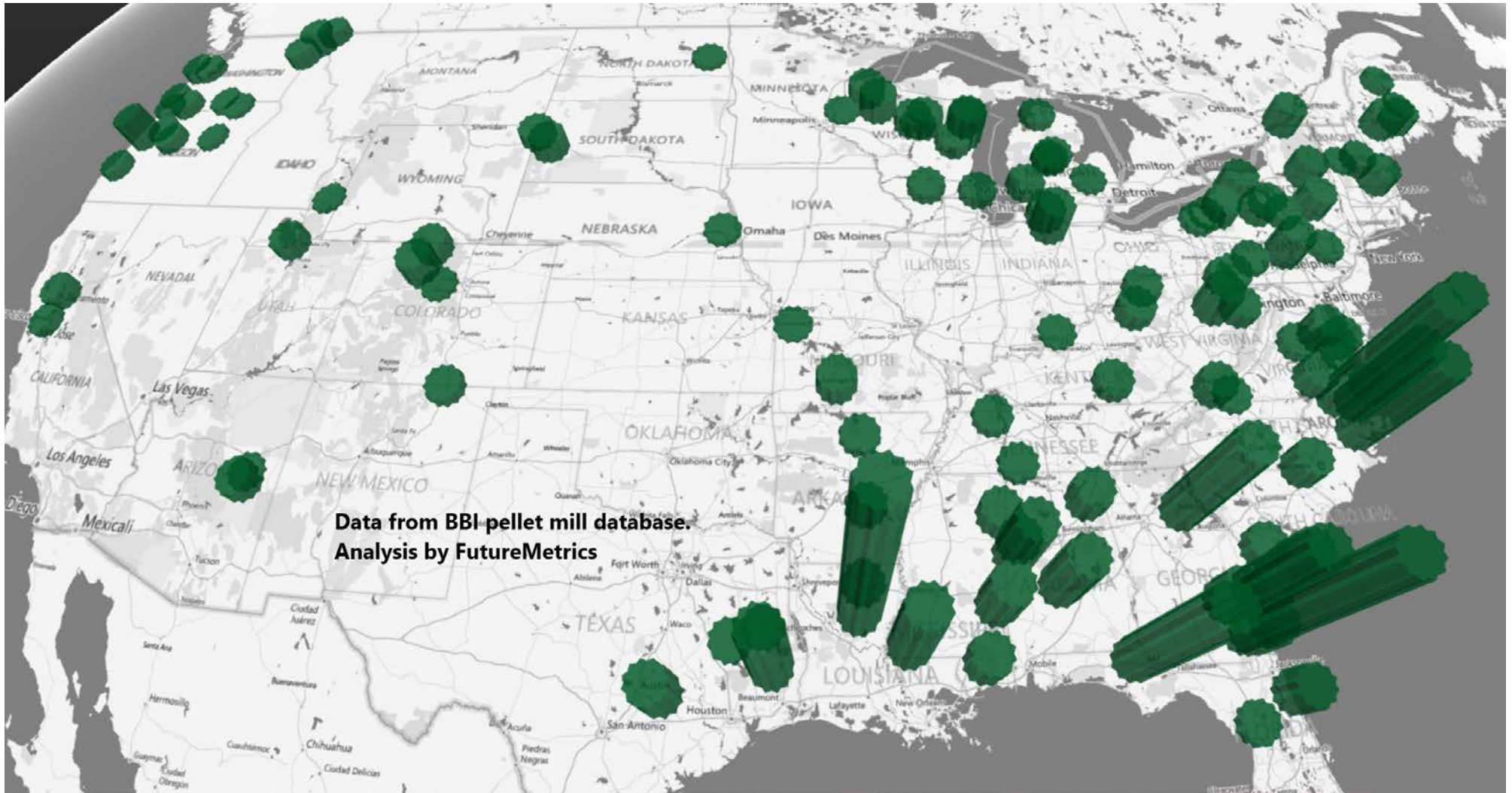
The larger plants are primarily producing for the export markets. Most of the smaller plants are producing wood pellets for local or regional markets around their locations.

The map on the next page shows the locations of the 121 plants. The height of the bars is based on their reported nameplate production capacity. The most of the larger export oriented plants are located in the southern states and near the coast to take advantage of fast growing lower cost southern yellow pine plantation fiber and to maximize mill-to-port logistics.



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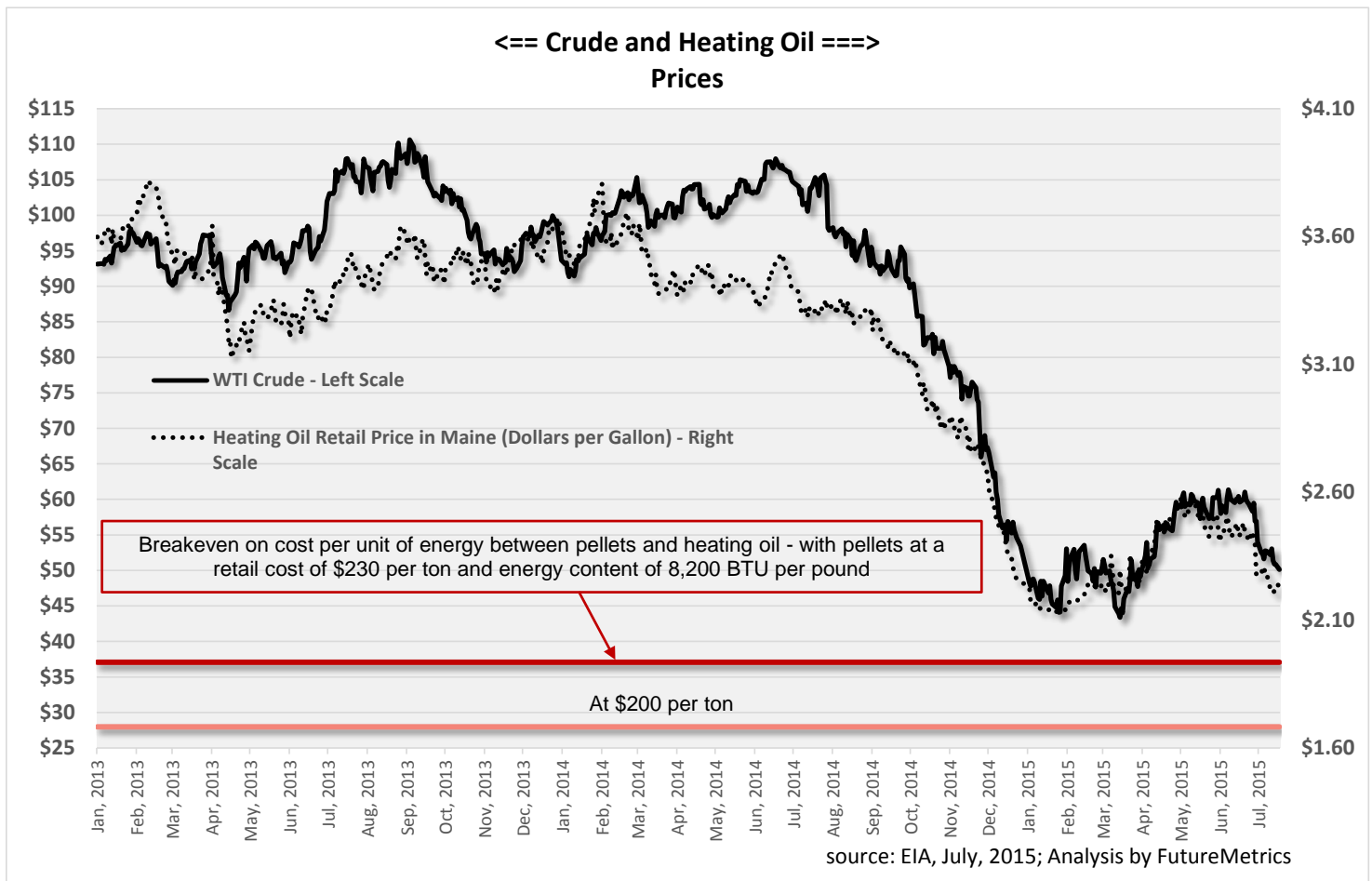


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There are two reasons why we are predicting many mergers and acquisitions in the near to medium terms.

First, there will be price pressure on producers serving the northern heating markets. The price pressures will be the result of lower heating oil prices narrowing the spread between the cost of heat from pellets and heating oil<sup>1</sup>. As the chart below shows, at a price of \$230/short ton, if petroleum prices drop below about \$37/barrel and therefore heating oil drops below about \$1.95/gallon, pellet users will switch off the pellet stove or pellet boiler and switch on the heating oil boiler.



That switching point can be lowered to an equivalent of \$27/barrel or \$1.68/gallon if pellet retail pellet prices are \$200/ton rather than \$230.

Even if the switching point is not reached, some users will not be willing to pour pellets from 40 pound bags if the savings are very low.

<sup>1</sup> Heating oil is the predominate fuel for heat in many of the northeast states. In some NE states, natural gas dominates with heating oil second. Propane is the dominate fuel in the upper Midwest.



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So if petroleum prices remain low, there will be pressure on the pellet producers in the NE states to lower their prices to maintain demand at current levels.

The second reason that northern producers will be experiencing price pressure is due to competition from the larger southern industrial producers. Many of those producers are already capable of producing premium heating market pellets. Some are already EnPlus certified and are able to ship premium pellets into the European heating markets.

The large southern producers are also facing pressure to lower operating costs due to the strong dollar versus the Euro and Pound. EU and UK policy changes may result in a period of excess production capacity when some of the larger industrial pellet projects in development and/or under construction come on line. So the industrial producers have an incentive to look north into the US heating markets as a potential outlet for their pellets.

Can southern producers compete in the northern markets? It depends on the price of the pellets as they leave the gate of the southern plant and the ability to use the rail systems to move the pellets into the markets. Large southern producers benefit from economies of scale and lower wood and electricity costs. However, the transportation and logistics costs of loading boxcars with palletted bagged pellets or loading loose pellets into rail cars for bagging in strategic locations in the NE is not insignificant. Lower production costs combined with optimal logistics costs could allow large southern producers to be competitive in northern markets where production costs (wood and electricity costs) are somewhat higher than in the south.

For both reasons, low heating oil prices and market share threats from southern producers, there is a strong incentive to optimize operations. Combining several independent plants into one ownership and management structure can be beneficial to the cost structures of the operations. Coordinated fiber procurement strategies, coordinated and optimized distribution channels, and the ability to implement industry best practices at the operations can lower costs and improve production outputs. Having sufficient access to working capital, and the potential for a strategically located warehousing facility, would allow the plants to better manage the inventory challenges of a seasonally demanded product by operating at full capacity year round.

For the larger southern producers, there is the value of serving a market that is independent of policy issues and adds some diversification against weather related demand fluctuations and adverse terms of trade. The past two warm European winters coupled with the strong dollar have been difficult for US industrial pellet producers who were expecting to sell some excess capacity into the EU heating markets.

Whether it is several independent producers joining together or rollups by the companies that own the southern mills, there is likely to be consolidation in the US heating pellet production sector.