

Biomass optimisation in the timber sector

Dennis Williams, Commercial Director at leading operations and maintenance (O&M) service provider to the steam and boiler sector, Associated Energy Services (AES), talks about rising interest in the use of biomass waste from the timber industry to offset coal use.

The timber industry contributes up to 5% of national gross domestic product (GDP) and has an extremely complex value chain. AES has worked closely with sawmills and related downstream businesses for many years. "One can rest assured that somewhere in the value chain, thermal energy is required to condition or soften wood chips – or even dry them," says Dennis Williams of AES. Therefore, the timber sector needs to ensure that its energy plant is efficient, reliable and resilient in the face of growing input costs and broader economic pressures.

While working alongside a number of tissue manufacturers, a kraft paper producer and a large board manufacturer, AES has helped improve boiler efficiency, steam quality and boiler reliability; while reducing emissions.

Throughout all, safety and asset care are priorities. As many plants within the timber sector are old, Williams emphasises that pressure vessel (boiler) safety is crucial. The company's ISO 9001, ISO 14001 and ISO 45001 certifications in energy plant operations and maintenance set AES apart from competitors, who either have no ISO or only manufacturing compliance. This is key within the timber sector, as AES is often responsible for the operation and maintenance of clients' energy plants on sites in remote locations.

A large part of AES's competency and value offering to its clients lies in on-site boiler and energy plant staff training and management, made all the more challenging by low literacy levels on some sites. "We have been privileged to make a real difference by facilitating literacy training where required, thereby unlocking further career path growth and quality of life for those participating," Williams says.

Over the past decade, Williams reports that AES has witnessed much realignment within the timber value chain: "We are now engaging with companies looking to invest in new plant and equipment, providing them with more efficient energy and water utilisation throughputs and economies of scale"

He also points out that AES considers what clients plan to do with the biomass generated and how to manage the quantities. "We try to find a solution using as little of this vital resource as possible, enabling our client to sell the rest on," he explains.

Closely related to this is greener fuel



The timber sector generates its own power using internally-generated by-products, but it can now also create a whole new income stream from this biomass.



Timber biomass is increasingly being used to offset the use of fossil fuels.

sources such as timber biomass for clients in other sectors wanting to offset the use of fossil fuels. However, there are challenges. High fuel costs mean transport of biomass from rural sawmills is expensive. Distances travelled could also inadvertently increase users' carbon footprints in the name of sustainability, Williams warns.

"Furthermore, as timber biomass has a low calorific value, the actual content per mass is low and bulky: loaded onto a 30 ton vehicle, it might only yield 11 tons of fuel, while 25 to 26 tons of coal could have double the calorific value – depending on the moisture in the wood biomass," he explains.

Another challenge is the cost of biomass: "It all comes down to economics. The originator wants to sell it for the best possible price. So, while burning biomass instead coal is preferable, clients may not be able to pay the price that the timber mill wants.

"Many timber residue producers are trying to figure out what to do with the with spare biomass. If AES wants to purchase it to convert into a fuel source for thermal energy, we need a 10-year agreement to secure the funding for a new biomass steam plant," he notes.

He continues: "The coal, gas and liquid fuels market is very established. We know the parameters and how the economics work. However, in the biomass space, it is a bit of a 'wild west' scenario, because companies are deciding what works best in this volatile, dynamic marketplace.

In summary, whether AES is optimising operations and maintenance or innovating around the use of biomass as a greener fuel source, we are confident that the timber sector can assist plant owners in processing timber-derived fuels as optimally and successfully as possible, Williams concludes.

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