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NEW PRODUCTS FORUM

Weyerhaeuser, Nexterra, Paprican tackle pulp mill fuel costs

Nexterra Energy Corp. of Vancouver, BC, has signed an agreement with Weyerhaeuser Company's Kamloops pulp mill and the Pulp and Paper Research Institute of Canada (Paprican) to verify the application of Nexterra's innovative gasification technology for pulp mill lime kilns.

Nexterra's gasifier enables mill operators to reduce fuel costs by converting boilers, kilns and dryers from natural gas to "syngas" – a clean, low-cost biofuel produced by gasifying wood residue.

"Reducing our fuel costs is a strategic priority for Weyerhaeuser, so we're excited to be working with Nexterra and Paprican on a potential gasification solution for our lime kilns," said Bill Adams, manufacturing services manager at the Kamloops mill. "Over the past decade, we have significantly decreased our reliance on fossil fuels. Nexterra's gasification technology shows tremendous potential as a clean, cost-effective solution to lower energy costs in our kraft mills and move us closer to energy self-sufficiency. This agreement allows us to take a closer look at how the gasifier would perform in our mill before making a decision to acquire the technology."

Adams said that the Nexterra gasifier system has the potential to reduce greenhouse gas emissions by 25,000 tonnes per year. The 60-million Btu/hr gasification system would displace the equivalent amount of natural gas needed to heat 4,000 residential homes.

North America's pulp and paper industry consumes 900 trillion Btu of natural gas and fuel oil each year at a cost of $US8.0 billion. There are 150 kraft pulp mills in North America, each consuming millions of dollars worth of natural gas or fuel oil in their lime kilns. Since the mid-1990s, the cost of natural gas has increased by 500%, leaving North America with some of the highest natural gas prices in the world and placing severe competitive pressures on North American forest companies.

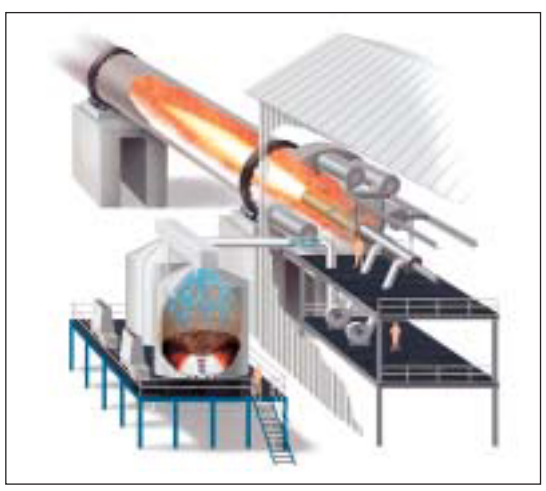
"We are very pleased to be a partner in this project," said Mike Towers, senior research engineer at Paprican. "Rising energy costs continue to be a major challenge for the pulp and paper industry, and lime kilns are major consumers of fossil fuels. Developing alternative fuel systems, such as Nexterra's gasification technology, is essential for the industry to remain competitive. We are confident that this project will demonstrate an attractive option for substituting fossil fuels in lime kilns and achieving critical cost reductions."

"Firing lime kilns with syngas is a natural extension of our gasification technology and represents a significant new market opportunity for Nexterra," said Jonathan Rhone, Nexterra president and CEO. "We are very pleased to collaborate with Weyerhaeuser and Paprican, both of whom have well-established track records of innovation, as well as the commitment and technical capabilities needed to make this project a success."

In April 2005, Tolko Industries Ltd. purchased a multi-million dollar Nexterra gasification system for its plywood plant near Kamloops. In November 2005, Nexterra sold a system to US multi-national Johnson Controls Inc. as a key component in a $16 million biomass cogeneration plant that JCI is supplying to the University of South Carolina. **PI**

Weyerhaeuser Company, www.weyerhaeuser.com
Nexterra Energy Corp. www.nexterra.ca
Paprican, www.paprican.ca

FastInfo #



Nexterra gasifier and lime kiln: Nexterra's gasifiers (left of illustration) produce clean "syngas" that is fed directly into a pulp mill lime kiln (right). The syngas replaces natural gas that is used to produce lime for the pulping process. Pulp mill lime kilns are long, refractory-lined steel cylinders used in the production of lime for the pulping process. The kiln rotates slowly as lime calcining occurs. Inside the kiln, there is a 40-65-ft-long natural-gas-fueled flame that processes the lime as it gravitates through the kiln to an exit where it is transported and used in pulp production. Typically a kiln is between 8 and 13 ft in diameter and about 250 ft long.

Nexterra gasifier: The core of Nexterra's technology is a fixed-bed, updraft gasifier. Fuel, sized to 3 in. or less, is bottom-fed into the centre of the dome-shaped, refractory-lined gasifier. Combustion air, steam and/or oxygen are introduced into the base of the fuel pile. Partial oxidation, pyrolysis and gasification occur at 1500 – 1800°F and the fuel is converted into "syngas" and non-combustible ash. The ash migrates to the base of the gasifier and is removed intermittently through an automated in-floor ash grate. The clean syngas can then be directed through energy recovery equipment or fired directly into boilers, dryers and kilns to produce useable heat, hot water, steam and/or electricity.