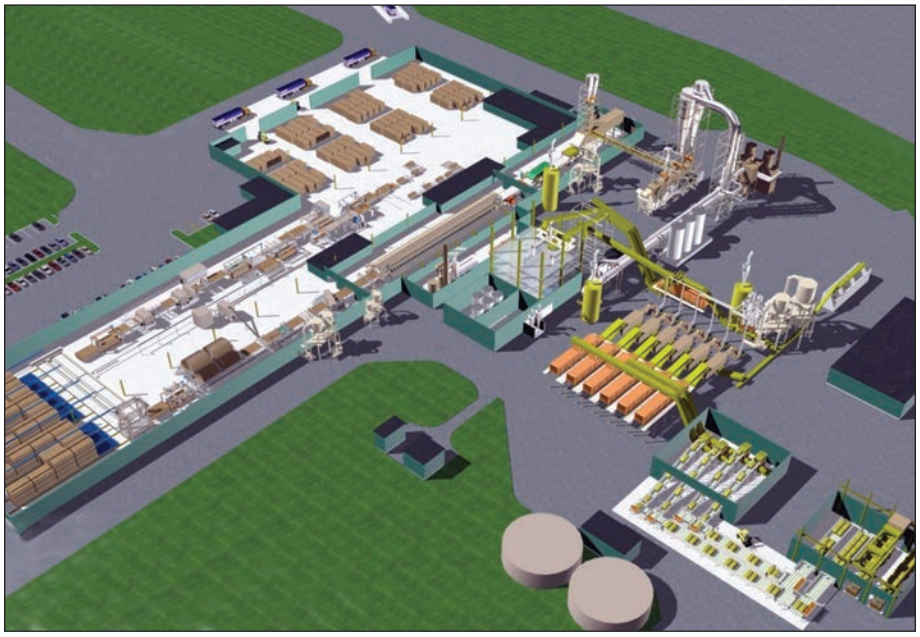
RICE STRAW BASED MDF PROJECT BEGINS STRAW STORAGE AS NEW PLANT NEARS CONSTRUCTION



CAD rendering of the CalAg plant layout by Sicoplan

CalAg has begun developing a portion of the 275 acre plant site for storage of this year's rice straw harvest to be used at the rice straw-based MDF plant, known as CalPlant I, LLC, it is building near Willows, Calif.

At full production of 140MMSF (¾ in. basis) per year, the plant will use 275,000 tons of straw each year from about 100,000 acres of rice fields; this is about 20% of the straw generated each year in the Sacramento Valley.

On June 14, after 20 years and approximately $22 million in research and development expenditures, CalAg closed an approximately $315 million financing to build the MDF manufacturing facility just west of Willows. Of these funds, $87.5 million was from a group of equity investors, and $228 million was from tax-exempt pollution-control bonds issued via the California Pollution Control Financing Authority (CPCFA).

CalAg, LLC, the predecessor company to CalPlant I, LLC, was founded in 1997 by longtime California rice industry veterans Jim Boyd (and family members), and Jerry Uhland to address the challenges and costs the rice industry faced when it was announced by the California Air Resources Board (CARB) that the burning of post-harvest rice straw would be largely eliminated because of air quality concerns.

After many years of R&D, and several false starts, CalAg, LLC obtained a patent in 2003 on the process for refining rice straw into fiber with which high-quality, environmentally-friendly MDF can be manufactured.

The plant will take approximately 18 months (post-financing closing) to construct; about 150-200 construction jobs will be created during construction.

Once completed, the plant will employ 87 full-time employees. CalAg's philosophy is to hire locally whenever possible, and to provide pay and benefits at levels gauged to minimize turnover and maximize morale, according to President Jerry Uhland.

The plant will be of economic benefit to rice farmers as well. According to Uhland, to dispose of rice straw after the annual fall harvest—as the straw must be disposed of before the following season's crop can be planted—it now costs farmers, directly and indirectly, about $100/acre: they have to chop the straw into smaller pieces; disc the straw into the soil; then re-flood the fields to accelerate the decomposition of the organic matter, using approximately .6 acre feet per acre to do so; and then treat the next year's growing crop with expensive fungicides to eradicate the fungi that flourish in the decaying straw.

The decomposing straw also generates methane, a powerful greenhouse gas; estimates range from 500 lbs. to 1,250 lbs. per acre.

At full production, Uhland adds, the company's operations will result in a number of environmental benefits:

—It will save about 60,000 acre feet of water per year, or roughly the annual water use of 550,000 Bay Area households.

—It will prevent the generation of between 25,000 and 62,000 tons of methane per year—the equivalent of removing from 120,000 to 295,000 cars from the state's roadways.

—It will use 275,000 tons of solid waste in an environmentally friendly product.

CalAg's MDF will have several natural and unique qualities: high moisture and fire resistance; increased dimensional stability; formaldehyde free. The project has had longstanding support from CARB, from CPCFA, from Glenn County, and from many local and state elected officials.

EQUIPMENT SCOPE

SICOPlan, a wholly-owned subsidiary of Siempelkamp; Casey Industrial, the Balance of Plant (BOP) contractor; and Evergreen Engineering are well into the final engineering stage that will allow Casey to begin site work in September.

Siempelkamp anticipates delivering its first round of equipment by April 2018 and deliveries will continue for four more months. First board is expect-

ed during the first quarter 2019.

Siempelkamp, which is a minority investor, reports it will supply, install and start up the entire machine technology amounting to an order value of 75 million euro. CalAg signed the supply contract on June 14, shortly after it became known that the required investment volume had become available through public investors' contributions.

The order to Siempelkamp includes the complete preparation technology for rice straw bales with bale twine remover and shredder by Pallmann, a 100% daughter company of Siempelkamp, as well as a cleaning system for the straw to remove coarse materials and dust. Pallmann will also supply two refiners for the fiberizing of the rice straw. These refiners will be equipped with horizontal digesters, a design typical for annual plants, to prevent material bridging. The cleaning system for separating silicate components from the fibers is a design specially developed by Siempelkamp and designed to process rice straw.

The natural gas fiber dryer designed for a material throughput of up to 32 metric tons/h bone-dry will be supplied by Siempelkamp subsidiary Büttner, as will be the energy plants needed for steam and heat generation. The front-end technology for fiber and mat preparation will be supplied by the Italian subsidiary CMC. A special resin blending system with a turbo mixer will be used. This high-speed mixer processes isocyanate PMDI in a procedure developed by Siempelkamp.

The core component of the production plant will be a 9th Generation Siempelkamp ContiRoll continuous press with its numerous innovations including, for example, a highly efficient drive motor ContiRoll Ecodrive. These motors provide the plant operator with energy savings of at least 7% under full load operation and up to 14% under partial load operation. The newly developed Siempelkamp Press Controller, Sico SPC, controls the desired press forces and distances between the cylinders in the technological press zones of the ContiRoll by means of modern hardware technology and precise sensor technology. The ContiRoll will feature a variable press width of 8-10 ft. and a length of 35.4 m.

The finishing line will include a diag-

onal saw (rip-cut saw), which will cut exclusive sizes for Columbia Forest Products, also an investor, and a main purchaser of the fiberboard. Next to the sanding and stacking lines, a fully automatic storage system with warehouse vehicles and base carrier is also part of the scope of supply.

Morrison & Foerster LLP advised CalAg, LLC and CalPlant I, LLC in connection with equity and debt financing of the project. Equity investments in the project are being made by a subsidiary of TIAA (Occator Agricultural Properties, LLC), Zelman Capital, CalAg LLC, Columbia Forest Products, Inc., and Siempelkamp Maschinen- und Anlagenbau GmbH.

CONTINUOUS PRESS BOUND FOR N. AFRICA

The Algerian family-owned company Panneaux d'Algérie has commissioned Dieffenbacher SWPM to deliver a complete system for producing MDF at its site in El Tarf in the far northeast of the country.

The plant concept is designed specifically for smaller capacities. Here, the Dieffenbacher CPS+ continuous press proves that it can also be the ideal entry-level system for newcomers to the wood-based panel market and an economic alternative for easily replacing older single- or multi-opening presses in existing small-capacity plants.

Panneaux d'Algérie is such a newcomer. Although the parent company BIGSTAR has been active in the wood-based panel trade for many years, it has never produced its own materials. That is now set to change.

"There is a rising demand for MDF boards in Algeria, and imports from other countries are becoming increasingly costly. We have been considering producing our own materials for a long time for this reason, and Dieffenbacher SWPM has given us the perfect concept to do so," explains Guelai Mohamed Chiheb, BIGSTAR CEO.

BIGSTAR President Guelai Belkacimar adds, "We've remained in contact since we first started thinking about having our own production line four years ago. We feel as if we've always received excellent advice. We've twice been able to visit the Dieffenbacher headquarters in Eppingen and get a first-hand experience of the outstanding work done there. We have great confidence in Dieffenbacher and Dieffenbacher SWPM, and we're very pleased to have a working relationship with this long-standing family business."

The 6 ft. wide, 14.5 m long CPS+ for BIGSTAR will be supplied from Eppingen. Dieffenbacher SWPM is responsible for the remainder of the scope of supply and for project management. The complete order includes the material preparation process, the refiner, the dryer, the forming station and the forming line. The complete raw board handling, including the diagonal saw, the star cooler and billet stacking right through to the short-cycle laminating line, is also part of the delivery scope. ➤ 38