

When construction is completed in fall 2019, CalPlant will be the world's first commercial-scale producer of annually renewable, rice straw-based medium density fiberboard (MDF), annually supplying approximately 140 million square feet to the building products industry.

An economic driver for Glenn County.

The Sacramento Valley produces 20% of the nation's rice and more than 1.5 million tons of rice straw every year; a steady, homogenous source of fiber for the MDF produced by CalPlant.

CalPlant is located on a 276-acre parcel of land in Willows, California, in the heart of rice-growing country. The total capital requirement for the facility is approximately \$315 million, with a process machinery package being provided by Siempelkamp, the world's premier supplier of MDF-manufacturing equipment. Rice straw is an agricultural waste product of the annual harvest, and all furnish for the plant will be procured from Sacramento Valley rice growers within a 15- to 25-mile radius of the plant site in Willows.

CalPlant will revolutionize the composite panelboard industry by converting post-harvest rice straw into a high quality, environmentally preferable and sustainable building product. By filling a large portion of the West Coast's demand for MDF, CalPlant will assume a key domestic manufacturing role when production commences in late 2019.

The project has already resulted in more than 200 jobs for the construction of the facility. And it is anticipated that the fully operational plant will create 115 full-time, family-wage jobs and more than 300 ancillary jobs in Glenn County. At full capacity the plant will produce an annual output of 140+ million square feet, or roughly 30 percent of California's current demand for MDF.



Sacramento Valley rice farmer Jerry Umland and 50-year California rice industry veteran Jim Boyd (1916-2009), the visionaries behind CalPlant.



CalPlant I Economic Benefits at a Glance

- Plant construction budget: **\$315 million**
- Construction jobs created: **200+**
- Full-time plant and management jobs created: **115**
- Part-time jobs during rice straw harvest: **450**
- Ancillary jobs created through construction: **110**
- Ancillary jobs in Glenn County created after plant is open: **300+**
- Estimated annual payroll: **\$11 million**
- Estimated plant output: **36-41** truckloads per day; **140+ million** sq. ft. produced annually
- Savings to Sacramento Valley rice farmers: **up to \$20 million annually**

Good for the Sacramento Valley's air and water quality.

CalPlant spent many years researching, developing and patenting a process to make high-quality MDF using annually renewable rice straw as the feedstock, the disposal of which has posed environmental issues in California for many decades.

Currently, the most common practice of straw disposal is to initiate a decomposition process by flooding the fields after harvest. This practice uses a large volume of incremental amounts of precious water, and the decomposing straw releases greenhouse gases into the atmosphere. By processing rice straw into MDF, CalPlant will significantly reduce the levels of water that would have been diverted from regional waterways to flood rice fields after harvest.

A sustainable, biobased product and manufacturing process.

Comparably sized, wood-based MDF plants typically produce up to 20 times more volatile organic compounds (VOCs) than CalPlant's facility will. And with its no-added-formaldehyde construction, CalPlant's MDF panels don't negatively impact indoor air quality.

By removing straw after the rice harvest, significant annual water savings is realized, water that would otherwise be used to flood the fields to decompose straw. The reduction of fall water diversions from the Sacramento, Yuba and Feather Rivers will help protect river flows for Chinook salmon, steelhead, striped bass and California fisheries.

Siempelkamp, a global leader of composite panel manufacturing technology, is a partner in CalPlant and provided their ContiRoll® Generation 9 continuous press, which is 10 feet wide and 35 meters (116') long. CalPlant will produce MDF in thicknesses from 2.0 mm to 1-1/8" with the ability to sand to as thin as 1.7 mm.

CalPlant rice straw-based MDF will be able to contribute to several credits under LEED 4.1, providing designers and architects a new biobased panel option for interior finishes.



The Willows facility will be state-of-the-art in technology, energy efficiency, environmental protection and safety.



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What is MDF?

MDF is an important raw material commonly used to make furniture, kitchen cabinets, store fixtures, doors, moldings and flooring substrates. A proven composite building product, MDF panels have traditionally been produced by pressing wood fibers together, under heat and pressure, utilizing a urea formaldehyde resin system. CalPlant's MDF will be manufactured using post-harvest rice straw and a urea formaldehyde-free resin system, and it will compete directly with wood-based MDF in the marketplace.

CalPlant I LLC

Address:
PO Box 1338
Willows, CA 95988

Marketing contact:
Elizabeth Whalen
(503) 515-2625

CEO:
Jerry Uhland
Cell: (530) 521-0249

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