JOINT INSTITUTE FOR WOOD PRODUCTS INNOVATION
FUNDED PROJECTS

<u>Current Projects under Contract</u>

Clere, Inc is assessing the 'Feasibility of the Establishment of a State Contract Guarantee Fund (CGF).' This project focuses on how to de-risk long-term forest biomass feedstock supply contracts for existing and emerging businesses in the biomass industry. If the CGF is found feasible, this project will also explore how best to create such a fund that will serve as the first-in-line financial backstop for some portion of the risk associated with feedstock supply chain failure.

UC Davis is 'Assessing the Feasibility of Biochar-Enhanced Concrete' via lab trials and a field demo. This project is focused on replacing a portion of the cement ingredient in concrete with biochar made from forest biomass, with the end goals of reducing the cost and global warming potential of concrete as well as potentially supporting a new market for biochar from forest-biomass.

UC Berkeley is leading a project on 'Mountain Community Affordable Workforce Housing with Mass Timber Components.' This project is developing affordable workforce housing designs that will fit the needs of mountain community workforces. Plans are being designed to be permitted in the areas for which they are intended and include mass timber elements where affordable.

TYLD Corp is leading a project on 'Forest Industry Infrastructure Capacity Assessment and Needs Analysis.' This work characterizes current industry infrastructure by CALVEG sub-region as well as volume and type of supply necessary to retain and sustain the industry infrastructure needed to accomplish relevant California Wildfire and Forest Resilience Task Force goals. This project also includes an analysis of current and reasonably recent successful efforts to increase pace and scale of ecosystem restoration and hazardous fuels reduction within the state.

The University of California Agriculture and Natural Resources is leading a project on 'Marketing Strategy and Guidelines for California Biochar Producers and Consumers.' This project is formulating a marketing strategy for enhancing biochar production and its utilization in California. The strategy will encompass market research, a marketing plan, implementation guidelines, and metrics to measure rollout success. This project will also develop a comprehensive guide on biochar derived from California forest species, designed to inform producers and consumers using the best available science.

Finished Contracted Projects

<u>2025</u>

[Life Cycle Analysis (LCA) Calculator Tools for Production of Transportation Fuels from Forest Residue in California](#) were developed by Cal Poly Humboldt. These calculator tools quantify the greenhouse gas (GHG) impact of diverting forest residues from current management practices to bioenergy products. They model the life cycle GHG impact of electricity or hydrogen fuel pathways

and are intended to help state agencies evaluate the carbon intensity of forest residue liquid and gaseous transportation fuels and their potential role in the state's climate and forest plans.

[Assessment of State Purchasing Protocols Related to Innovative Wood Products](#) was a project conducted by TSS Consultants. Approved by the Board January 22, 2025, it evaluated current state purchasing protocols and identified barriers and implications of updating the protocols to facilitate procurement of innovative wood products.

A [CEQA Handbook for Bioenergy and Wood Products Businesses](#) was produced by Clere, Inc. The handbook is intended to help guide project developers, land use staff, local government leaders, and other interested parties through the CEQA process. The insights and strategies outlined in the handbook can also help inform bioenergy projects using wood from other sectors and forest fuel reduction projects. The document also analyzed the value of a new CEQA Guideline amendment that was described in the Institute's November 2020 "Recommendations to Expand Wood and Biomass Utilization in California" to determine whether the language proposed should be recommended.

2024

[Recommendations to Advance Forest-Derived Renewable Natural Gas in California](#) was a study conducted by UC Berkeley. Approved by the Board April 10, 2024, it provided recommendations to the CA Public Utilities Commission and other state agencies on renewable natural gas (RNG) from forest biomass. Recommendations were developed based on a geospatial analysis of existing biomass power plants that were evaluated for possible retrofitting for RNG production, interviews with bioenergy project developers, and an assessment of potential policy scenarios in which RNG would be economically viable.

[Cross-Laminated Timber Layup Tests Using Mixed Fir Species](#) was a study conducted by the TallWood Design Institute at Oregon State University. Approved by the Board March 6, 2024, it assessed the feasibility of mixed species CLT using white fir and Douglas-fir.

[Measuring Transport Properties for Concrete Containing Cellulose Nanocrystals (CNC): Porosity, Resistivity, and Chloride Ingress](#) was a study conducted by Oregon State University. Approved by the Board of Forestry and Fire Protection (Board) March 6, 2024, it assessed the influence of CNCs on the service life of steel in concrete elements to extend the time to onset of reinforcing steel corrosion.

2023

[Forest Biomass Pile Data Collection](#) (and associated [Appendices](#)) was a project led by Clere Inc and the Spatial Informatics Group. Approved by the Board in 2023, Part 1 of the report quantifies the number of forest biomass piles in the state that accumulated from 2018 – 2021, including the area treated to create a given pile; composition, volume, and locations of the piles; and the planned vs actual fate of each pile. It also provides an inventory of forest biomass pile material potentially available for wood and biomass utilization. Part 2 of the report provides information about intentional anthropogenic burning and related regulations.

[Cellulose Nanocrystals as a Value-Based Additive for Low Carbon Footprint Concrete with Limestone](#) was a study conducted by Oregon State University. Approved by the Board in 2023, it evaluated cellulose nanocrystals (CNCs) as an additive that can aid concrete mixture modifications in an effort

to reduce concrete's carbon footprint. This project explored the use of CNCs in cementitious materials containing various amounts of limestone.

The TallWood Design Institute added an Addendum to their 'Cross-Laminated Timber (CLT) Layup Tests Using Western Wood Products Association (WWPA) White fir Species Group' report. Approved by the Board in 2023, the Addendum highlights the comparisons of white-fir CLT to that of the design values used within the CLT standard (PRG-320).

2022

Advancing Collaborative Action on Forest Biofuels in California was a project conducted by UC Berkeley. Approved by the Board in 2022, it had 5 subgroups (infrastructure, policy, equity and development, project finance, and feedstock supply), each of which had their own recommendations. Four fuel types (hydrogen, ethanol, drop-in gasoline/diesel, and renewable natural gas [RNG]) were assessed for current demand, future demand, and to determine how much forest biofuel could feasibly be used in the fuels industry.

2021

Mass Timber and Other Innovative Wood Products in California: A Study of Barriers and Potential Solutions to Grow the State's Sustainable Wood Products Sector was a project led by the Sierra Institute for Community and Environment. It was approved by the Board in 2021.

2020

Joint Institute Recommendations to Expand Wood and Biomass Utilization in California was approved by the Board in 2020. To meet California's forest health and carbon neutrality goals, the Institute recommended the state continue to expand innovative wood and biomass products markets through a comprehensive set of recommendations.

Literature Review and Evaluation of Research Gaps to Support Wood Products Innovation was a project led by UC Berkeley. Approved by the Board in 2020, it provided policy recommendations and identified promising classes of innovative wood products as well as those less mature technologies that merit continued monitoring with respect to their potential for commercial deployment.