

**Comments following Public Workshop: 2022 Scoping Plan Update - Scenario Inputs Technical Workshop**

**Re. Promoting Carbon Negative Fuels through Gasification of Wood Waste**

Yosemite Clean Energy writes to CARB to suggest the promotion of carbon negative fuel production through the gasification of farm and forest wood waste. Each year, 56 million bone dry tons (“BDT”) of waste biomass are available in CA (Lawrence Livermore National Laboratories, Getting to Neutral, pg. 4), and Yosemite provides suggestions to incentivize gasification of this waste to produce carbon-negative fuels and power.

**Who we are:** Yosemite Clean Energy (“Yosemite”) is a bioenergy development company that specializes in transforming farm and forest wood waste into carbon-negative green hydrogen and renewable natural gas, providing renewable solutions to California’s transportation and broader energy sectors while reducing risk of wildfire, raising air quality, and creating jobs and economic stimulus in minority, tribal, and other underserved communities. Yosemite is developing a network of biofuels plants that are locally owned by the agricultural and forest communities they serve. The company is at various stages of development planning on biofuels plants across the state of California. Our first plant in Oroville is scheduled for ground breaking in Quarter 2 of 2022 and operations are scheduled to begin in 2024. This first plant will process 105,000 bone dry tons of waste biomass each year and will produce green hydrogen and renewable natural gas with negative CI scores below -50.

**Our strategy:** Yosemite Clean Energy has a strategy for the San Joaquin and Sacramento Valleys and the Sierra Nevada. Our goal is to serve the biomass owners and public agencies who steward our forests throughout the state. To provide our services to a mere 15% of the available waste biomass market annually in California, it would require approximately 50 gasification plants like the one we are contracted to build in Oroville, California. Because our goal is to return the highest returns for biomass in the industry for both public and private entities, we will create an economically sustainable clean energy industry within our state that will multiply with private and market sectors and will not need continued government subsidies once the green hydrogen market is fully developed. We currently have the capability to produce green hydrogen from waste biomass with an estimated negative carbon intensity score in the triple digits.

**Our schedule for growth:** To service 15% of the current market need, our plan is to build a minimum of 50 plants throughout the state within the next 10 years. The second project will break ground in Tuolumne County in approximately Q4 of 2022 then multiple projects will be started simultaneously beginning in Q4 of 2023 and Q1 of 2024. The biomass gasification plants will vary in size but most will process 105,000 bone dry tons per year (BDT/year). Each plant will be supplied with and will distribute their products by fuel cell electric trucks (FCET) and the operations of the plant will meet all clean air standards required by CARB. The first three plants will provide farmers and forest communities the opportunity to eliminate over 315,000 BDTs of waste biomass annually by 2025. In addition, these plants will provide a total of approximately 10 million diesel gallon equivalents (“DGEs”) of RNG and 10 million DGEs of green hydrogen and will displace a total of 400,000 metric tons of CO2 from fossil fuels each year. Yosemite plans to have the first three of these plants online by the end of 2025. By 2027, Yosemite Clean Energy is expecting to be converting over 1.5 million BDT annually of California’s waste biomass and by 2030 we have targeted the goal of processing over 5 million BDT of waste biomass each year.

**Hydrogen is our focus:** We desire to build plants that produce entirely green hydrogen but until markets for hydrogen are robust enough, economics require us to produce half RNG and half green hydrogen. To increase the use and demand of green hydrogen faster, we ask CARB to give Electric LCFS credits for electricity we sell directly to EV charging fleets over the grid. In this way we can use our green hydrogen to produce electricity for the grid that has triple digit negative carbon intensity scores and remain profitable by providing our electricity for EV transportation fleets. In addition, we ask for CARB to earmark significant investments in Hydrogen carriers such as Hysilabs.com so as to ensure the long term success, safety and stability of the hydrogen economy for centuries.

**Vertical Integration is the key for success:** Vertical Integration is the key for the “biomass-to-energy” industry to thrive resulting in the development of an economically sustainable zero emissions fuels industry that will boost our poor rural economies and jobs markets as well as be the economic fuel to manage, thin and replant our forests. Our aim is to directly distribute our fuels to the consumer thus returning the highest value back to the farm and forest. We plan on having a minimum of one fueling station per plant and ask the Air board to continue incentives to build 50 more Commercial hydrogen stations along our highways.

**Current Progress on Permits with CARB:** Our company has formally submitted a Conditional Use Permit Application to Fresno County for a plant in Auberry which will be a plant number 3 or 4. In Auberry we would process 52,000 Bone Dry tons of woody biomass and would generate an estimated 15 metric tons per day of RNG and 6 metric tons per day of hydrogen. Our first plant in Oroville is currently beginning its permit process with the city and is expected to be submitting its application to the Air Board in November. City staff in Oroville expects our permitting to be complete in early Q2 of 2022. Our second plant in Tuolumne County is also proceeding through the permitting process and we expect submitting our Air Board permit application in December.

**Current Funding Allocations:** Yosemite recommends utilizing funds such as the $178 million provided to SJAPCD to invest in long-term comprehensive solutions such as Yosemite’s plan to empower biomass owners and managers with a long-term sustainable solution. Subsidizing the incorporation of woodchips into the soil is at best a “band-aid” and at worst, an incentive to create more greenhouse gases (GHG). Chips incorporated in the soil adds very little benefit other than a potential increase in water percolation. Before carbon becomes available to plants in soil, the wood chips must break down and rot to become humas. This process demands nitrogen and produces significant amounts of methane that is released into the atmosphere thus defeating the purpose of decreasing emissions. Instead of wasting this valuable resource, Yosemite suggest that the Air Board consider the following:

**1. Incentivize the use of waste biomass to produce carbon negative and zero emission fuels.**

Under the current announcement for $178 million of funding to SJAPCD for farmers in the region to eliminate open burning, our company provides an alternative option to the “Alternatives to Agricultural Open Burning Incentive Program”, which is costly and has other environmental issues. We would ask the SJAPCD to consider the following concerns, ideas, and suggestions from Yosemite Clean Energy:

* Biomass gasification to produce hydrogen is referenced by Lawrence Livermore National Labs as having “the largest promise for CO2 removal at the lowest cost and aligns with the state’s goals on renewable hydrogen” (Lawrence Livermore National Labs, Getting to Neutral, pg. 4). The process is not combustion, and therefore the emissions will be significantly lower than old technologies and can meet all SJAPCD threshold requirements. Yosemite Clean’s technology eliminates particulate matter and other major emissions that open pile burning creates and that the current CARB farmer chip and disc program seeks to eliminate. Further, through capturing and sinking carbon throughout the gasification process, Yosemite will turn a carbon neutral fuel into a significantly carbon negative fuel.
* **Current SJAPCD regulations are disincentivizing the production of carbon negative hydrogen and natural gas through gasification.** Companies like Yosemite Clean are able to utilize wood waste to produce carbon negative fuels, but farmers are hesitant to commit biomass from concern that they would not be able to receive SJAPCD subsidies. Farmers are prohibited from receiving $600 per acre to remove their orchards if they use their chips offsite for energy production, even for carbon negative fuels.
* Yosemite suggests that farmers should receive a portion of the $600 payment if they choose to use a biofuels conversion option instead of discing the biomass into the field. This partial payment would reduce the overall cost per acre to SJAPCD, would stretch the funding program to treat more acres within the district, and would incentivize the production of carbon negative hydrogen and RNG.
* Yosemite will look towards working with SJAPCD to develop the cost function and metrics by which to develop an appropriate mutually beneficial program. We hope that we may be able to set up a meeting to discuss this matter further if SJAPCD is open to discussion or if there are more public channels, we must consider to express our ideas and interests.

**2. Incentivizing carbon negative electricity generation through the E-LCFS**

Yosemite’s business plan is made possible in part through incentives available through the Low Carbon Fuel Standard. Yosemite also recognizes the need for carbon negative electricity for the transportation sector, and has the capability to generate carbon negative electricity at a lower capital cost than RNG and green hydrogen. We suggest creating an E-LCFS program that mirrors the LCFS program for RNG and green hydrogen, in which the the distributer is able to purchase negative CI electricity from producers who transfer electricity to the grid, so that the charging station can receive the full incentive of their negative CI electricity.

**3. Offer direct investment into energy plants that are owned by the biomass owners and managers.** With as little as a one time, $350 per acre investment subsidy to farmers and forest owners and managers, the equity required to build these plants could be met and California could lead the nation and world in developing the first of its kind network of cooperatives who would become the backbone of the world’s largest network of locally owned energy plants producing over 900,000 metric tons of renewable and sustainable green hydrogen annually while simultaneously reinvigorating depressed rural economies, increasing water shed production statewide and empowering a economically sustainable forest management program that will mitigate forest fire risks, improve the health and resilience of our California forests to drought and once again steward one of our greatest renewable natural resources and make our forests the envy of the world.

We look forward to serving California, and its citizens as well as partnering with CARB in helping transform what is now considered a “liability” into one of our greatest assets as an industry and as a society.