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California Air Resources Board
Attn: Rajinder Sahota
1001 I Street
Sacramento, CA 95812

RE: Comment in Response to Analysis of Progress toward Achieving the 2030 Dairy and Livestock Sector Methane Emissions Target

Dear Ms. Sahota,

Maas Energy Works, Inc. ("MEW") appreciates the opportunity to provide written comments in response to CARB Staff's Analysis of Progress toward Achieving the 2030 Dairy and Livestock Sector Methane Emissions Target ("Dairy Analysis"). As one of the largest developers of dairy biogas to energy projects in California, MEW is committed to doing our part to help California achieve its methane reduction targets as required by SB 1383. Our comments will be focused on the need to convince California dairy producers to continue to voluntarily install systems that they have an incentive to continue operating as part of an increasingly sustainable California dairy industry.

LCFS Incentives MEW encourages CARB to continue leveraging the LCFS in a manner to incentivize further development across all potential dairy projects in the state. As documented in the Dairy Analysis, revenues generated through the LCFS are critical to spurring project development and private investment. CARB should not consider implementing regulation of dairy methane emissions. Removing or inhibiting digesters' ability to generate LCFS revenue from dairy biogas-to-energy projects regulation will destroy the main incentive for voluntary investment in methane reduction projects—reversing a strong trend of private investment in methane reduction.

Although SB 1383 gives specific authority to CARB and CDFA to regulate dairy methane emissions on or after January 1, 2024, we strongly urge CARB not to consider any regulatory mandate on dairy methane emissions. Without any certainty on further State funding for digester projects, developers must rely on private funding to finance dairy digester projects which depend on returns generated in both the RIN and LCFS markets. As environmental commodity markets, RIN and LCFS prices are subject to significant volatility, minimal liquidity, and unpredictable future pricing. The Dairy Analysis appropriately modeled several environmental credit scenarios where the RIN price is \$0. With so much uncertainty in RIN pricing, investors need reliability in LCFS pricing and more importantly LCFS credit yields in order to deploy capital for a dairy digester project. Regulating dairy methane emissions will drastically reduce the

LCFS credit yield for a dairy digester project due to the removal of the avoided methane benefit and as a result, dairy pathways will convert to carbon positive projects similar to landfill gas facilities. Dairy biogas costs significantly more than landfill gas to produce. Investments in dairy digester projects would be unavailable and development of digester projects in California would stop. If that were to happen, the newly-regulated dairy industry would leave California for less regulated jurisdictions, causing significant leakage with respect to methane emissions in other states. The best course of action would be for CARB to avoid any dairy methane regulations that would threaten farmers' ability to create voluntary LCFS credits. CARB must continue incentivizing voluntary capture of dairy methane emissions to meet the requirements of SB 1383. California dairy families are embracing digesters. The system is working.

Electricity and Small Dairies: The Dairy Analysis correctly describes biogas to electricity projects as the lowest cost option for capturing methane emissions from dairy manure, but the Dairy Analysis also seemingly dismisses these projects as viable options for reducing dairy methane emissions as required under SB 1383. This conclusion is antithetical to the stated methane reduction goals of SB 1383, not to mention the transportation electrification goals of Executive Order N-79-20. MEW recognizes that CARB is looking to control and limit criteria pollutants--especially in non-attainment zones. However, small to medium sized dairies have limited options for developing a cost-effective digester project, especially if they are not located near an existing dairy cluster project or near a pipeline injection point. Further compounding this issue for small to medium size dairies is the benchmark engine efficiency penalty implemented into the LCFS through the May 2019 Low Carbon Fuel Standard (LCFS) Guidance 19-06: Determining Carbon Intensity of Dairy and Swine Manure Biogas to Electricity Pathways. We continue to be surprised by CARB Staff's selection of a 50% efficiency standard for implementation into the LCFS Regulation since this level has not been achieved by any existing biogas technologies.

CARB has maintained that solid oxide fuel cells can achieve 50% efficiency in a farm setting. Do farmers agree? Farmers' willingness to install digesters depends on their confidence that the associated technologies are proven and can be reliably maintained in a farm setting. Most small and medium sized farms cannot afford a fuel cell, which in many cases costs more than the dairy facilities themselves. American dairies, almost without exception, have used lean burn internal combustion engines with air-district compliant emission catalysts, which operate at 30-35% efficiency under the best possible real-world circumstances. Thus the 50% benchmark efficiency standard results in a 30-40% penalty on LCFS credits received per cow on dairies in the LCFS program—unless those dairies can install fuel cells that actually achieve this unprecedented level of efficiency. Effectively, the 50% efficiency requirement is a penalty on all dairies except the largest and most well-funded dairies. The result will be a few experimental, expensive systems on just a few large dairies that can install and maintain highly complex, unproven equipment—most or all with large state grants to subsidize the capital cost. This approach will not achieve SB-1383's goals.

The recent history of digester development already confirms this trend of digesters biased heavily towards large dairies. Other than a some of our company's own clients, 100% of digesters installed since 2014 have been on dairies over 2,500 cows. The 50% efficiency benchmark will continue to exacerbate, not reverse this trend. According to the Dairy Analysis, California needs a significant number of digester projects to come online to meet the SB 1383 goal, and any such barriers to bringing more digesters online need to be removed.

EV charging (without the 19-06 Guidance benchmark efficiency reduction in credits) offers the first profitable opportunity for smaller dairies to enter the digester market—especially those dairies not near a dairy pipeline “cluster,” and especially for dairies that have not been able to secure the state

grants that so far have tended to fund large, clustered dairies. We should not miss this opportunity to encourage farmers to invest in technology to mitigate manure emissions as required by SB 1383. Current biogas generators can achieve the strictest Air District emissions standards, while also being reliable in a farm environment. Requiring an unachievable standard prevents the various air emission reductions that digesters encourage, including support to electric vehicle adoption. We propose the following alternatives tools to modify the proposed 50% benchmark efficiency standard and incentivize the development of digesters on small to medium sized dairies.

1. Use a benchmark efficiency standard of 37% for digester facilities below 1 MW capacity, and 50% for larger generators, or
2. Set the benchmark efficiency standard for all sites to 37%, until such time as a California dairy has demonstrated higher real-world efficiencies, with comparable up-time, for a 24-month period necessary for a certified LCFS pathway. Make the demonstrated efficiency the new standard thereafter, perhaps with a phase-in period or small-digester exemption. CARB Staff has enough data now through certified dairy biogas to electricity pathways to determine a realistic and accurate efficiency benchmark, or
3. Set an escalating efficiency standard the is feasible for smaller dairies (1 MW or less) to meet. The efficiency standard should escalate such that it does not penalize existing assets that can provide immediate GHG and methane reduction benefits, but instead ratchets up efficiency on an annual basis based on the date of pathway certification and thereby incentivize progressively more efficient and cleaner generation equipment. The following efficiency standard schedule would be appropriate:
 - a. Pathway certified by January 1, 2025- Efficiency Standard = 25%
 - b. Pathway certified by January 1, 2026- Efficiency Standard = 30%
 - c. Pathway certified by January 1, 2028- Efficiency Standard = 35%
 - d. Pathway certified by January 1, 2030- Efficiency Standard = 40%

Thank you for the opportunity to provide comments We look forward to collaborating with CARB Staff to work towards improving the industry's achievement of the requirements of SB 1383.

Sincerely,



Daryl Maas
Chief Executive Officer