March 15, 2023



Cheryl Laskowski, Ph.D. California Air Resources Board 1001 I Street Sacramento, CA 95814

Re: Low Carbon Fuel Standard February 2023 Workshop

Dear Dr. Laskowski,

Beyond Energy thanks the staff of the California Air Resources Board (CARB) for the opportunity to comment in response to information presented at the Public Workshop for Potential Regulation Amendment Concepts (the Workshop) related to the Low Carbon Fuel Standard (LCFS), which took place on February 22, 2023. By way of background, Beyond Energy is one of the premier service providers to fleets that operate material handling equipment using eligible low carbon fuels, with a focus on electric forklifts. Beyond Energy has a history of working closely with CARB staff as it relates to crediting for electric forklifts.

Beyond Energy has several concerns related to concepts that were presented at the Workshop, one related to how CARB staff appear to be using their modeling to determine the carbon intensity (CI) target in 2030 (and beyond), and two others related to the proposed changes specific to electric forklifts.

Establishing the 2030 CI Reduction Target

Beyond Energy appreciates the difficulty of modeling the LCFS program and determining appropriate Cl reduction targets given the uncertain nature of low carbon fuel supply and demand. However, Beyond Energy is urging CARB staff to conduct its modeling in a manner that will determine the most feasible Cl reduction achievable in 2030 (and beyond). As it is currently described, the LCFS program modeling being done by CARB is deterministic: The Cl reduction target is an input into the California Transportation Supply (CATS) model that CARB is proposing to use in its modeling, and LCFS *compliance* is an output of the modeling (with some optimization for cost). Beyond Energy recommends that CARB staff should be modeling the supply-demand balance of low carbon fuels in the context of overall transportation fuel demand, and the Cl reduction achieved in a target year (e.g., 2030) or years should be an output of the modeling exercise, rather than an input. This approach will enable a more realistic, data-driven Cl reduction target to be established, rather than using an iterative approach of determining the feasibility of compliance with different predetermined Cl reduction targets.

Furthermore, with respect to the modeling, Beyond Energy is concerned that the preliminary results (beginning on Slide 45 of Staff Presentation) show a troubling outcome. Based on Beyond Energy's understanding of the presentation and CARB staff's description provided during the Workshop, CARB staff presented preliminary modeling results for a 30% CI reduction by 2030 and 90% CI reduction by 2045. On Slide 51 of the Staff Presentation, CARB staff are showing preliminary LCFS credit price estimates. Beyond Energy noticed that the forecasted LCFS credit price presented is equal to or exceeds the LCFS credit price cap for 50% of the time between 2024 and 2045. Beyond Energy understands that

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there is a credit price cap that will help prevent "dramatic price spikes"; however, how can the LCFS program succeed if low carbon fuel providers are only receiving a fraction of the LCFS credit price required to deliver the fuel to California year-over-year? This outcome is particularly concerning given that CARB seeks to reduce credit generation from cost-effective pathways like electricity used in forklifts. How can CARB staff justify constraining credit generation from low carbon fuel pathways like electric forklifts, when it will be available at a considerably *lower* credit price than what is shown on Slide 51?

Metering for Electric Forklifts

Beyond Energy has been and remains supportive of requiring metering for electric forklifts. First and foremost, Beyond Energy notes that requiring metering of all electric forklift fueling will likely decrease participation in the LCFS program by electric forklift fleet operators, particularly amongst forklift users that are sensitive to operational disruptions, smaller fleets, and fleets that have a mix of electric and propane lifts. To the extent feasible, Beyond Energy recommends that any revised reporting requirement for electric forklift fueling be developed in a way that will minimize the decrease in participation by fleets in the LCFS program.

Beyond Energy has identified the following *key considerations* for CARB staff to incorporate as they consider revisions to the requirements for reporting electric forklift fueling:

- Implementation timeline. Beyond Energy recommends that if a change is made requiring metered data for all electric forklift fueling, then fleets (and/or their designated fuel reporting entity) should be given adequate time to implement an acceptable metering solution. Consider, for instance, that low carbon fuels subject to verification in the LCFS program were afforded a two-year runway to prepare for annual verification requirements. Beyond Energy highlights the following: i) there is virtually no separate metering done for electric forklift fueling today, ii) there are thousands of facilities operating electric forklifts, and iii) there are tens of thousands of electric forklifts and other pieces of equipment in operation at these facilities. Beyond Energy recommends a minimum three-year timeframe to implement the proposed change to reporting for electric forklift fueling.
- Developing a metering plan. There is a wide range of operational considerations at facilities that
 use electric forklifts. Each facility (and where appropriate, in partnership with its designated fuel
 reporting entity) should be allowed to develop a metering plan. In some cases, Beyond Energy
 anticipates that it will be viable to report accurate electric forklift fueling information without
 metering every piece of equipment, particularly in facilities that have large fleets with similar
 equipment operating similar shifts and performing similar tasks. In other words, it is conceivable
 that a metering plan could include metering a subset of equipment that enables accurate
 reporting for all the equipment at that facility. Regardless, Beyond Energy emphasizes that
 facilities that use electric forklifts are very different, and that a change in the reporting
 requirement will be best introduced by giving each facility (or its designated fuel reporting
 entity) some leeway with respect to a metering plan.
- Flexibility regarding the technological solution to requiring metering for electric forklift fueling. There are generally three pieces of equipment that should be considered for reporting electric forklift fueling: i) the electric forklift, ii) the battery in the forklift, and iii) an industrial battery charger. In some cases, the battery and charger are built-in to the forklift (e.g., with electric

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walkie pallet jacks), and there is no industrial battery charger. Regardless, there are generally three pieces of equipment that *could* be tracked and enable reporting of metered electric forklift fueling. Different facilities, however, will be better served by tracking different pieces of equipment. As such, it will be important that forklift fleets and their designated reporting entities are afforded flexibility as they develop a solution to satisfy changes to electric forklift fueling requirements. This will enable fleets and designated fuel reporting entities to identify the most cost-effective and least disruptive solution for their facility or facilities.

- Opportunity for exemptions. Given the range of operations at facilities that use electric forklifts, and the significant changes that will likely be required as part of a shift towards metered electric forklift fueling, it will be important to determine opportunities for exemptions or deferrals for facilities that meet certain criteria. These criteria may include, but are not limited to the size of the facility, the equipment in operation, the accessibility to the facility, the impact on operations that might occur as a result of the changes contemplated, etc..
- Distinguishing between electric forklift fueling by model year of forklifts. As currently written, the LCFS regulation requires fleets or their designated reporting entity to distinguish between

 forklifts that are model year 2011 or later and ii) forklifts that are model year 2010 or earlier. It appears that CARB is proposing to remove this distinction, which Beyond Energy supports.

Modified EER for Electric Forklifts

CARB staff have advanced the concept of changing the energy economy ratio (EER) for electric forklifts to 1.9, down from 3.8. Beyond Energy urges CARB staff to reconsider this concept, as this arbitrary reduction in the EER, when paired with metering requirements, has the potential to eliminate the viability of electric forklifts to participate in the LCFS program. Furthermore, this change may cascade into other low carbon fuel programs and have ramifications far beyond the borders of California.

Based on Beyond Energy's understanding, this is linked to an assumption that 50% of the forklift fleet (for forklifts with less than a 12,000 lb lift capacity) are electric. As noted previously, the introduction of metering will likely decrease participation in the LCFS program by electric forklift fleet operators. To be clear, if CARB proceeds with both metering and halving the EER, it will effectively end participation by electric forklift fleets in the program (for forklifts with less than a 12,000 lb lift capacity). This is not hyperbole—CARB is proposing to impose additional costs on forklift fleets participating in the program, while decreasing their revenue by at least a half as a result of the EER reduction.

This potential reduction in the EER continues a nonsensical historical arc for the different treatment of electric forklifts in the LCFS program compared to other low carbon fuels in California, which has spilled over into low carbon fuel programs in other states. By way of background, when electricity in forklifts were first made eligible in 2016, the fuel-vehicle combination did not qualify for the so-called displacement credit (using the EER) in the calculation of credits generated. Even after CARB staff reconsidered and corrected this oversight in the 2018 rulemaking, they used the 2011 model year (MY 2011) as a point in time to distinguish between forklifts that did or did not qualify for the consideration of displacement in the calculation of credit generation. Beyond Energy notes that with the exception of

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fixed guideway systems, no other eligible fuel-vehicle pathways were subject to this MY 2011 cutoff.¹ To make matters worse, the language that CARB introduced into the LCFS program with respect to the MY 2011 distinction for electric forklifts was adopted by Oregon's Department of Environmental Quality for their Clean Fuels Program (with a MY 2016 distinction) and by Washington's Department of Ecology for their Clean Fuel Standard (with a MY 2023 distinction). Beyond Energy urges CARB staff to reconsider this potential change because of how it will impact negatively electric forklift fleet operations in California, and also because it will likely flow through to other states and harm electric forklift fleet operators there.

For the avoidance of doubt, the EER is a unitless parameter that "represents the effectiveness of a fuel used in a powertrain as compared to a reference fuel (e.g., diesel) used in the same powertrain." There is nothing in the definition of EER that suggests it can be adjusted to account for some "baseline electrification" in the fleet. There is no precedence for this type of adjustment to an EER value based on some perception of the "baseline fleet". Rather, CARB's proposed concept is an artificial and arbitrary reduction in the EER that will effectively end the viability of electric forklift fleets generating value from the LCFS program. Electric vehicles in the light-duty sector surpassed 1 million vehicles in 2022, with an estimated 1.2 million EVs on the road, compared to roughly 30 million light-duty vehicles total. To follow CARB's logic associated with the proposed concept for changing the EER for electric forklifts, then the EER for light-duty EVs should be adjusted accordingly from 3.4 to 3.23 (i.e., 3.4 x (1-4%)). Of course, this is a bad idea for the program and for EV drivers, just as it would be for electric forklift operators.

Thank you again to CARB staff for the workshop and related presentation materials, and for the opportunity to provide feedback on the potential changes to the LCFS program. Beyond Energy looks forward to working with CARB and other stakeholders to ensure the continued success of the LCFS program.

Sincerely,

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Joseph Turávie Chief Executive Officer Beyond Energy LLC

¹ One could make the argument that ethanol was incorporated into the baseline carbon intensity for reformulated gasoline, against which the carbon intensity reduction for gasoline and gasoline substitutes is determined. However, the assumed CI of ethanol in 2010 is so high as to render this argument moot.