August 8, 2022

VIA ELECTRONIC FILING

Cheryl Laskowski
Chief, Transportation Fuels Branch
California Air Resources Board
1001 I Street
Sacramento, Ca 95814

Re: Neste Comments on LCFS Rulemaking Workshop Held On July 7, 2022

Dear Ms. Laskowski:

Neste appreciates the opportunity to provide these comments to the California Air Resources Board (CARB) regarding the LCFS Rulemaking Workshop on July 7, 2022. Neste is the world's largest producer of renewable diesel (RD) and sustainable aviation fuel (SAF) refined from waste and residues. During the past ten years, Neste's transformation journey has taken it from a local oil refining and service company to a global leader in renewable and circular solutions. Neste's goal is to achieve carbon neutral production by 2035 and supply California with products that will enable the state to be carbon neutral by 2045. We are in the business of combating climate change by producing effective climate solutions, and our vision is to lead the way towards a sustainable future together.

Neste believes that all solutions should be leveraged to address climate change (including biofuels, EVs, and any other policy measures to reduce greenhouse gas (GHG) emissions) and states should take more aggressive actions in light of the Supreme Court ruling on federal climate regulations (*West Virginia vs EPA*)[1]. We consequently support Governor Newsom's July 22, 2022 letter to CARB that requests, among other things, establishing a 20 percent clean fuels target for the aviation sector.

As CARB acknowledges, the GHG reductions achieved in the next 10 to 15 years are critical in reaching carbon neutrality by 2045, and the LCFS is poised to deliver those reductions. Neste recognizes that strong market signals are needed to incentivize new technologies for light and medium-duty vehicles that are key to reaching carbon neutrality. However, we suggest strengthening the LCFS to further incentivize technologies available today for the heavy-duty vehicle sector to reduce GHG emissions even further. Technologies such as RD and SAF will be instrumental in reaching carbon neutrality for the GHG-intensive heavy-duty vehicle and aviation sectors. These technologies can reduce GHGs across the life cycle by about 80% today, and more investments are being made in their production. Neste, therefore, requests that the LCFS adequately focus on today's GHG-reduction technologies, such as RD and SAF.

The comments below are regarding materials provided by CARB at the July 7, 2022 LCFS Rulemaking Workshop. We look forward to continuing to work with CARB on this rulemaking.

Proposed Targets Through 2030 and Beyond:

Neste supports increasing the LCFS carbon intensity (CI) reduction target to 30% below 2010 levels by 2030. The proposed standards will not only make significant strides in helping California reach its ambitious carbon reduction goals, but it also sends a strong signal of support for renewable fuels and low carbon fuel programs. The ability to comply with the proposed standards is bolstered by the projected significant growth in renewable fuels production (most notably renewable diesel) over the next few years, the additional LCFS credit generation opportunities being proposed by CARB (intrastate SAF), and the current

[1] https://www.supremecourt.gov/opinions/21pdf/20-1530_n758.pdf

oversupply of LCFS credits. The LCFS program is somewhat a victim of its own success. By incentivizing billions of dollars in investments on the development of renewable fuels, the program is now chronically oversupplied, as reflected in the depressed LCFS credit prices. The key concern now is whether the CI reduction targets remain ambitious enough to support LCFS credit prices, as the credit price has always been directly tied to the net deficit/credit generation, as seen in Figure 1 below.

Figure 1: California LCFS Program Historical LCFS Price versus Credit Generation

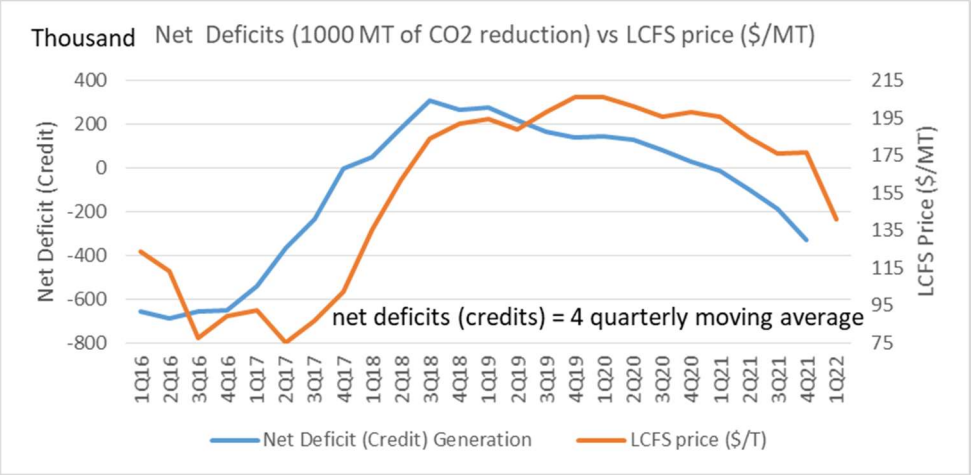

Figure 1 shows that if the LCFS credit price is not high enough, it does not incentivize bringing renewable fuels into California, and may even impair the development of renewable technologies. Therefore, to adequately balance the LCFS credit market, a higher deficit generation is needed and the only way to achieve this is via more stringent CI targets. To make this 2030 standard attainable and efficient, Neste requests that California continue to pursue a technology neutral approach so that California consumers can obtain renewable fuels faster and at the lowest cost possible.

Neste also recommends setting targets through 2045 to further incentivize investments in renewable technologies, with the understanding that these targets should be reevaluated in the future once better forecasting data is available.

Demonstrated Success Supports Stronger Commitment to Today's GHG Reduction Technologies:

History of Neste's Investment in California's LCFS Program:

Neste was one of the first major suppliers of renewable diesel into the state of California when it implemented the nation's first Low Carbon Fuel Standard (LCFS). As an early participant in California's LCFS program, we have supplied California with most of the renewable diesel consumed in the state, thereby reducing the overall carbon footprint of the heavy duty vehicle sector. We were also one of the few investors in technologies that allowed renewable diesel production to meet LCFS volume demands, ensuring California was able to meet its aggressive fuel carbon intensity (CI) reduction goals and the overall success of the program. Neste continues to make significant investments to help states, cities, and our customers combat climate change and to create a healthier planet for our children.

Below are some of the benefits of renewable diesel under California's LCFS program, and most of these benefits were achieved by Neste produced renewable diesel:

- Over the course of the life cycle, renewable diesel leads to an 80% reduction in GHG emissions when compared to fossil diesel,
- As a drop-in fuel, renewable diesel now comprises over 36% of California diesel as of 1st quarter 2022[2], and
- Through the end of 2021, renewable diesel use resulted in 28% of the GHG reductions from alternative fuels over the life of the LCFS program and will soon pass ethanol as the largest carbon reducing technology[3].

Data from a Stillwater Associates study prepared for Diesel Technology Forum also demonstrates that significant emissions reductions would be achieved when using blends of 100% renewable diesel and biodiesel, and the latest diesel truck technologies[4]. This highlights the importance of relying on all available low carbon technologies, especially those that are available TODAY, such as renewable diesel.

Renewable Diesel Use Has Also Delivered Significant Criteria Emissions Reductions:

In addition to generating lower GHG emissions, renewable diesel burns much cleaner than conventional diesel. This leads to improvements in the air quality of regions with high diesel truck traffic, which tends to impact disadvantaged communities. Below are some examples of renewable diesel's co-benefits documented by CARB.

- As part of the Alternative Diesel Fuels (ADF) Regulation, the CARB determined that renewable diesel reduced **NOx by 10%** relative to conventional diesel[5]
    - CARB also found that PM, benzene, ethyl benzene, and toluene emissions from renewable diesel were significantly lower than from conventional diesel combustion.
- As part of the Commercial Harbor Craft Regulation, CARB determined that renewable diesel reduced **NOx by 11.8%** and **PM by 26.6%** when compared to conventional diesel[6]
    - CARB noted that the cleaner combustion of renewable diesel is driven by the superior cetane rating (consistently above 70) which leads to maintenance benefits for truck owners
- Renewable diesel does not contain sulfur, eliminating all SOx emissions

Table 1 below summarizes the significant GHG and criteria emissions reductions achieved when switching from conventional diesel to renewable diesel.

Table 1: Renewable Diesel Emissions Reductions When Compared to Conventional Diesel

Pollutant	% Reduction
GHGs	80%
PM	26.6%
NOx	10-11.8%
SOx	100%

[2] https://ww2.arb.ca.gov/sites/default/files/2022-08/quarterlysummary_073122_0.xlsx
[3] https://ww2.arb.ca.gov/sites/default/files/2022-08/quarterlysummary_073122_0.xlsx
[4] https://dieselforum.egnyte.com/dl/MWHPcRW4e6
[5] https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2015/adf2015/adf15isor.pdf
[6] https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2021/chc2021/appe.pdf

Considering that California diesel trucks now run on 36% renewable diesel, a large percentage of the emissions reductions shown in Table 1 are being realized today. Emissions can continue to go down immediately if CARB further prioritizes the use of renewable diesel and newer diesel truck technologies as noted in the Diesel Technology Forum study. Local communities are TODAY benefiting from significant emissions reductions due to the cleaner burning fuels incentivized by the LCFS program, and CARB should work towards maximizing these emissions reductions generated by biofuels.

LCFS Program Adequately Disincentivizes Crop-Based Feedstocks:

Neste is concerned by the market signals created by proposed caps on crop-based feedstocks, considering there are mechanisms to disincentivize their use. Via the Indirect Land Use Change (ILUC) factor, the LCFS program already adequately disincentivizes the use of crop-based feedstock for the production of biofuels. The ILUC leads to a higher CI for fuels produced using crop-based feedstocks, making them less competitive and less valuable when compared to fuels derived from waste streams such as used cooking oil (UCO). This is proven by the fact that crop-based feedstocks were used to produce only 6% of renewable diesel and biodiesel over the life of the LCFS program, while waste streams dominated the rest of the production[7]. In addition, an arbitrary cap on feedstocks could alter investments in biofuels, potentially slowing down GHG reductions and thus impact the ability to meet California's carbon neutrality goals. Lastly, the Advanced Biofuels Association (ABFA) conducted a study that concluded that "To 2030, feedstock supplies available for use in the U.S. are more than enough to meet our forecast demand—after accounting for food[8]."

The use of waste streams to produce biofuels also reduces their environmental impacts to bodies of water, underground drinking water supplies and soil. Instead of allowing these waste streams to be improperly disposed of in waterways throughout the world, they are recycled to produce low carbon fuels, a true circular solution.

Biofuel companies are also the leaders in decarbonizing the transportation sector and are making major investments on future low CI technologies such as green hydrogen, algae and Power to X. Biofuel producers often use existing feedstocks to produce newer generation biofuels, and concurrently phase out older generation biofuels. This means announcements for new biofuels are often tied to repurposing of existing feedstocks. By prematurely restricting the production of biofuels today, CARB will delay essential GHG reductions, improvements in air quality in disadvantaged communities, and the production of next generation renewable fuels.

Renewable Diesel Driving Local Climate and Air Quality Benefits TODAY

As part of our circular approach to fueling, Neste has partnered with the City of Oakland to collect used cooking oil locally and convert it into renewable diesel for use in the city's fleet. By making waste more valuable and supporting jobs that collect and treat it, this concept helps the local economy in the city while the cleaner-burning Neste MY Renewable Diesel improves the lives of its residents by reducing local emissions from the city's fleet.

By simply switching to Neste MY Renewable Diesel, the City of Oakland's fleet has been able to reduce the following emissions when compared to fossil diesel

- GHG emissions by 74 percent
- Fine particulates by 33 percent
- Carbon monoxide emissions by 24 percent

[7] https://ww2.arb.ca.gov/sites/default/files/2022-08/quarterlysummary_073122_0.xlsx
[8] http://advancebioprod.wpengine.com/wp-content/uploads/2021/12/LMC-Lipid-Feedstocks-Outlook-SUMMARY-SLIDES-Nov-2021.pdf

- Nitrogen oxide emissions by 9 percent

This concept creates a win-win-win for the City, its businesses, and its residents. It helps the local economy in and around Oakland, improves the City's air quality, and, of course, ensures that used cooking oil does not end up as waste. Neste hopes that CARB continues to incentivize these circular solutions that are having real impacts in local communities TODAY.

Additional Proposals to Consider - Additional Credit Generation:

Neste suggests that CARB consider these additional opt-in sources of credit generation using "drop-in" fuels that do not require significant infrastructure or investments to implement.

- Rail Opt-in: The rail sector indicated to Neste an interest in using lower carbon fuels if incentivized under the LCFS. As a direct drop-in replacement of fossil diesel, renewable diesel could play an important role in decarbonizing the rail sector in California. Should the rail industry use renewable diesel, nearby communities would see added co-benefits of lower criteria and toxic air pollutant emissions. These added benefits are unique to renewable diesel use as noted in CARB's Alternative Diesel Fuels Regulation[9] and further support incentivizing the use of drop-in lower carbon fuels in the rail sector.
- Stationary Generators Opt-in: The past several years have seen significant growth in the installation of stationary backup generators in several states, including California. Operators of stationary generators have expressed to CARB and Neste a strong interest in creating incentives to replace fossil diesel with renewable diesel. CARB should add stationary generators as an opt-in use of renewable diesel to help decarbonize this growing source of reliable power. Similar to rail applications, nearby communities would see reduced air emissions if renewable diesel was used in these generators.

Additional Proposals to Consider - Administrative Streamlining and Updates:

We also have a few suggestions that could further optimize the administration of the LCFS:

- Pathway Approval Reciprocity: The Oregon CFP and Washington CFP established pathway approval reciprocity with California. Neste suggests that CARB evaluate similar pathway reciprocity with the low carbon fuels programs in Oregon, Washington, British Columbia, and Canada (federal). This will allow California to reduce its administrative burden while more quickly receiving innovative low carbon fuels approved by nearby programs considering how similar they are to the LCFS.
- Optional Expedited Application Fee: Allow regulated parties to pay an optional expedited application fee for fuel pathways that require a more urgent approval. This will ensure faster delivery of the most advanced renewable fuels, and will help California be the top destination of new, lower CI fuels.
- Update CA GREET 3.0: Neste requests that CARB use the most up to date GREET model developed by Argonne National laboratory and other best available data to update CA GREET 3.0. Argonne's GREET model has improved since 2016, the version currently used by CA-GREET, and is seen as a valuable independent tool to determine CI values of renewable fuels. One major improvement opportunity in the CA-GREET is how the vessel transport emissions for renewable diesel and associated feedstocks are calculated. This gap can be easily addressed by adjusting the CA-GREET to take into account this discrepancy when calculating the actual transportation CI scores for renewable diesel and other renewable fuels that rely on smaller vessel sizes.

[9] https://ww2.arb.ca.gov/our-work/programs/alternative-diesel-fuels

August 8, 2022

Neste looks forward to continued participation in the LCFS rulemaking, and being a leader in the fight against climate change.

Please feel free to contact me if you want additional information or have questions regarding our submission.

We appreciate your consideration.

Oscar Garcia

West Coast Regulatory Affairs Manager
Neste US, Inc.