

September 4, 2017

Nel Hydrogen Inc.
200 Page Mill Road, Suite 100,
Palo Alto, CA 94306

E info@nelhydrogen.com
W www.nelhydrogen.com

Feedback on Concept Paper for LCFS Amendments 2018

Nel Hydrogen appreciates the opportunity to provide feedback on the ARB Pre-Rulemaking Concept Paper “*Low Carbon Fuel Standard 2018 Amendments*” issued July 24, 2017 – and as presented in the Pre-Rulemaking Public Meeting held on August 7, 2017.

- **Lookup Table Pathways for use of California Grid Electricity**

The ARB proposal on updating/adding pathways for use of California Grid Electricity for both battery vehicle charging and hydrogen production is relevant. It is strongly recommended that pathways are developed in a manner that ensures same treatment of the two technologies. Also in relation to hydrogen it may be relevant for ARB to calculate and define the renewable hydrogen content achieved when using California Grid Electricity. This could be a help for stakeholders in their reporting of compliance with SB 1505 to the ARB.

- **Lookup Table Pathway for use of renewable electricity**

Same comment applies as for the California Grid Electricity – pathways for use of renewable electricity for battery vehicle charging and hydrogen production should ensure same treatment of the two technologies. It would also be relevant to allow flexibility for combining renewable electricity and grid electricity – e.g. providing a standard formula for how this affects CI values and credits. Both battery vehicle charging and hydrogen production may use both locally produced renewable electricity as well as grid electricity in order to optimize utilization of equipment – thus the consumed electricity may be a mix of renewable and grid.

- **Application of RECs to grid electricity**

It is noted and appreciated that ARB intends *to offer new options to add flexibility for the accounting of renewable power*. This is indirectly understood as addressing of the aspect on whether RECs can be applied to grid electricity in order to green this before using it to battery vehicle charging or hydrogen production that generates LCFS credits. Whereas it is relevant to avoid doubling counting of environmental effects in both the power sector (REC) and fuel sector (LCFS) – it is also highly needed that battery vehicle charging and hydrogen production can interface with the grid in ways that allows for integration of more renewables. If RECs or other means of documenting a renewable origin of the electricity cannot be used by battery vehicle charging or hydrogen production, these technologies are better off being entirely off-grid and connected directly to renewables – thus providing no balancing and storage contributions to the grid.

- **Projected Carbon Intensities 2017 (CI values)**

Table A-2 in the Concept Paper outlines new and updated 2017 CI values for hydrogen and other fuels, that may be used by ARB for the scenario work. It is recommended that ARB solicits stakeholder feedback on the 2017 CI estimates as early as possible in the scenario process, and e.g. not wait until the phase 4. Currently the Table A-2 provides no details on the changes made for hydrogen, the methodology nor the exact EER figure adjustments made.

- **Renewable Hydrogen Refinery Credit Pilot Program**

The ARB proposal on clarifying the scope for the renewable hydrogen refinery credit pilot program is highly relevant and appreciated. Also it would be relevant to consider how hydrogen off-take for both feedstock to the refinery as well as hydrogen fuel for transport may be combined. This could provide infrastructure synergies across the fuels and e.g. help increase plant utilization and credit revenue generation.

- **New LCFS mechanisms to catalyze hydrogen infrastructure deployments**

Whereas battery vehicle charging infrastructure has several advantageous grid consumer financed incentives (e.g. direct whole-sale access, reduced rate schedules etc.) none such currently exist for hydrogen. Addition of new mechanisms under the current LCFS that e.g. allows for credit generation from hydrogen infrastructure investments could help catalyze the deployment efforts. The credits generated from infrastructure investments would offset the financial challenges from low infrastructure utilization during the early years of deployments. These are exactly the arguments applied for the grid consumer financed incentives for battery vehicle charging currently in place – and the same rationale could be applied for LCFS credits that would support hydrogen infrastructure, only would this be financed by the fuel consumers. It is highly recommended, that ARB includes considerations on such new mechanisms for hydrogen and engages in stakeholders discussions as part of the process for the 2018 LCFS amendments.

Nel Hydrogen thanks the ARB for the opportunity to provide feedback to the LCFS. Should the ARB have any questions or need for further information on our feedback, we would be happy to assist.

Best regards

Mikael Sloth

Vice President, Business Development

Nel Hydrogen Inc.

US cell: (916) 841 7264

EU cell: +45 29 91 31 79

E-mail: mslot@nelhydrogen.com

Nel Hydrogen Inc.

200 Page Mill Road, Suite 100,
Palo Alto, CA 94306

E info@nelhydrogen.com

W www.nelhydrogen.com