January 11, 2018

Anil Prabhu
Manager, Fuels Evaluation Section
California Air Resources Board

RE: Tier 2 Method 2B Pathway: Solar-based (Photovoltaic) Electricity for a Single Dual Port Electric Vehicle Charging Station. (T2N-1208)

Dear Anil,

A comment was submitted by the California Natural Gas Vehicle Coalition during the public comment period for 3 Phases Renewables Incorporated's ("3 Phases") Tier 2 Pathway for solar-based electric vehicle charging (T2N-1208) in the Low Carbon Fuel Standard (LCFS) program.

Summary of Comment:

The comment raises concerns about charging stations and the perceived impact on electricity markets. The comment suggests that the Carbon Intensity (CI) score of zero be capped at capacity factor times nameplate capacity of the PV generating units for a given month and use a CA-mix CI score for the remaining electricity supplied. From the commenter's perspective, this would ensure that the LCFS credit generation methodology would mirror electricity capacity markets and conform to rewarding alternative vehicle fuels for their lifecycle emissions displacement. The comment in its entirety is available at: (https://www.arb.ca.gov/lists/com-attach/12-tier2lcfspathways-ws-WzgGblQyBCFQNVcI.pdf).

Response to Comment:

We find no basis in the rule for capping the amount of zero CI electricity claimed based on a given month's capacity factor and nameplate capacity as suggested in the comment. The LCFS regulation makes it clear that low-CI sources of energy, including renewable electricity, may be used to reduce the carbon intensity of LCFS pathways. Further, the LCFS regulation specifically cites the following as an example of a low-CI energy source: renewable electricity from a dedicated (non-grid) form of generation, such as wind turbines and photovoltaic arrays.[1]

The LCFS regulation does not fully define "dedicated," or "non-grid," nor does it lay out requirements for how pathway applicants should assign a certain quantity of renewable electricity to electric load. 3 Phases interprets the following meanings for both terms:

- "Non-grid" means the PV panels are located on the customer side of the utility meter and at a facility under the control of the fuel pathway applicant.
- "Dedicated" has the meaning given to it in the dictionary, "given over to a particular purpose."[2] In this case, 3 Phases has assigned (i.e. dedicated) the renewable attributes from the energy generated by the PV unit to the EV load in order to make a CI reduction claim in the LCFS system.

The PV array is located behind the meter at the same location where the charging station is located. 3 Phases has demonstrated that the total amount of electricity produced monthly by the PV array significantly exceeds the EV charging load and thus the output from the PV array is dedicated to ensuring a zero CI for the EV charging station.

[1] § 95488(b)(2)(F)1 of the regulation: https://www.arb.ca.gov/regact/2015/lcfs2015/lcfsfinalregorder.pdf
[2] https://www.merriam-webster.com/dictionary/dedicated

Given that the Solar array is located onsite, behind-the-meter and is generating adequate renewable energy to cover its charging stations monthly energy consumption, 3 Phases has established that its application satisfies the description of low-CI process energy sources and further meets the example cited in the LCFS regulation.

Since the pathway posted for public comments meets the current requirements of the LCFS regulation, 3 Phases is recommending that this pathway be certified.

3 Phases additionally raises the following points in response to the comments raised regarding electricity capacity markets:

- Capacity Markets are designed to "stabilize and guide the market to provide the target level of generation adequacy at a reasonable cost."[3] Capacity markets are developed by balancing authorities to assure adequate generation capacity and pay generators for being available to ensure grid reliability, however such generators do not necessarily need to run to participate in the market.

- To accurately measure electricity emissions, it is necessary to quantify electricity generation for a specific period of time (i.e. volumetrically in MWh); electricity emissions cannot be quantified by accounting for available capacity. For example, if a natural gas power plant runs at 100 MW for 1 hour, it generates 100 MWh of electric energy and has measurable emissions for such generated energy; however, if it does not run at all during a specified period of time, it generates 0 MWh (and zero emissions) and yet may still have 100 MW of available capacity during that time.

- Energy (not capacity) is the well established way to measure electricity emissions in California. The California Energy Commission measures electricity content by quantifying energy generation from various power resources and the California Air Resources Board measures carbon emissions from every electricity generating facility in California by quantifying generated energy and multiplying by an emission factor for each facility that is based on carbon emissions per unit of energy generated.

Please do not hesitate to contact me with any further questions.

Sincerely,

Michael Leone

Senior Manager, Energy Development
3 Phases Renewables

[3] CPUC, Capacity Markets White Paper: http://docs.cpuc.ca.gov/published/report/48884.htm#P183_22341