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Toyota Response, 18-HYD-02, Hydrogen Station Capacity Model (HyC) Workshops

Additional submitted attachment is included below.

TOYOTA

Toyota Motor North America, Inc.
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July 31, 2018

California Energy Commission
1516 9th Street, MS-4
Sacramento, CA 95814

RE: Docket No. 18-HYD-02, Hydrogen Station Capacity Model (HySCapE1 .0) Workshops

Dear Staff:

On behalf of Toyota we sincerely appreciate the opportunity to provide comment on the proposed HySCapE Beta 1.0 hydrogen station capacity model. We agree that an accurate and functionally representative model is needed for both CARB to evaluate LCFS capacity, and CEC to evaluate grant funding opportunity proposals. Moreover, as the LCFS policy ruling intends to reference the initial version of the model for an extended term, it is important to carefully understand the process for how the model will be used in application.

Based on our initial review from workshops on June 18 and July 20, we present a few concerns observed and summarized below:

1) During our review, we observed that the parameter inputs are "hard-coded" or "fixed" in the model. As a design philosophy, this type of programming will make the model inflexible to process a parametric study based on changes to the inputs. We recommend that the parameter inputs not be internal to the model, but rather as an input file that can be varied.

2) As an example of parameter inputs, the model uses a fueling interval time for consecutive (back-to-back) fills from the CSA HGV 4.9 Appendix. This time interval in the document is presented only as a reference for a unique context, and was not intended to be a design criterion for an H2 capacity analysis. We recommend that the interval time be reduced to at least 2 minutes to reflect the conventional gasoline fueling experience.

3) The functional representation of existing and future H2 station configurations in HySCapE1.0 is limited at this point in the development and review process. However, due to the use of the current baseline model by CARB in a "fixed state" for an extended term, and that the model has under-reported capacity during our initial evaluation, we recommend an approach to accommodate this variance. Specifically, we advise to consider a process for LCFS capacity review that provides an option for the applicant to

propose a review with CARB and NREL that would result in an update to the existing model configuration, or an update that adds a new configuration. The purpose would be to allow the NREL model result to more accurately reflect the applicants unique H2 station design configuration.

Thank you for your leadership on this key activity. As a leading manufacturer of advanced technology vehicles, Toyota looks forward to a continuing dialogue with you and other stakeholders on the planning and development of a successful hydrogen program.

Very truly yours,

Matt McClory
Senior Principal Engineer
Research & Development
Toyota Motor North America