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California Energy Commission

**DOCKETED**  
**12-HYD-01**

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California Energy Commission  
Alternative and Renewable Fuel & Vehicle Technology Program  
1516 Ninth Street, MS-1  
Sacramento, CA 95814

RE: Docket No. 12-HYD-01, Hydrogen Fuel Infrastructure, Draft Solicitation Concepts

Dear Chairperson and members of the Commission:

On behalf of Toyota, we sincerely appreciate the Commission's leadership support of Hydrogen refueling station funding under the ARFVT program. The network of stations developed are critical to commercialization of Fuel Cell Vehicles that Toyota and other manufacturers are introducing in California.

We thank the California Energy Commission (CEC) for the leadership and effort to convene a series of interviews and workshops this past summer resulting in the *Draft Solicitation Concepts* document for review by stakeholders. As a process of continuous improvement, the following comments are provided to streamline and advance the solicitation process, and the corresponding build rate of stations.

Toyota supports the California Fuel Cell Partnership (CaFCP), and participated in the recent published document, A California Roadmap: The Commercialization of Hydrogen Fuel Cell Vehicles (2012). This study concluded that at least 68 stations by the start of 2016 is necessary to provide a base coverage to support market launch for customers. The analysis was based on approximately 45 stations in the cluster regions of Northern and Southern California, and 23 stations that provide cluster expansion, interconnecting sites, destinations, and new market regions.

Based on our assessment, a range of 18 to 23 retail public accessible 70 MPa stations is currently estimated to be online, resulting in a gap of 50 to 45 stations, respectively. As a result, the design of the next solicitation should focus on advances in process and criteria that will maximize the number of stations awarded and expedite the time to complete construction.

Item 1 – Available Funding*Recommendation.*

Toyota supports the proposed \$29.9 million funding level, and estimate this amount should result in at least 20 stations based on capital projections.

*Rationale.*

The largest magnitude of funding available is required to meet the goal of building the greatest number of stations in the network in the shortest reasonable timeframe. Any funds remaining unencumbered after completion of the grant agreements, or other incentives, should be rolled into the next solicitation.

Item 2 – Maximum Award*Recommendation.*

Toyota supports the proposed increased cost match of 70% (or \$1.75 million), or greater, for applications towards *Station Location Areas and Unassigned Station Competitions* (Part 2C).

In conjunction with station capital costs, we recommend the consideration of additional financial incentives, such as zero-interest loans up to \$1.0 million, and made available to the station site owner/retailer for facility upgrades and/or retrofits associated with the project.

*Rationale.*

The defined 70%, or greater, maximum award amount is fundamental to cover the capital costs related to the equipment and related direct installation costs of the station hardware. The greater amount of cost share directly correlates with a higher number of stations that could be supported, resulting in supply chain and construction cost efficiencies.

The availability of financial incentives for the station/site owner may be a significant factor towards reaching a contract lease agreement with the station builder. In some jurisdictions, station site owners/retailers may be required to upgrade other parts of their facility or convenience store to meet ADA or other local codes, not related to the new hydrogen station equipment or dispenser. In addition, the site owner/retailer may desire to plan alternate upgrades as a lease contingency to offset the hydrogen equipment space and setback.

Item 3 – Early Completion Bonus*Recommendation.*

Toyota supports the 10% early completion bonus within 12 months of grant agreement execution.

*Rationale.*

This incentive is appropriate for the industry in order accelerate total station build time.

#### Item 4 – Late Project Penalty

##### *Recommendation.*

Toyota supports the 5% late project penalty after 18 months of grant agreement execution. However, there should be discretionary consideration where milestone progress is demonstrated for a project applicant, and where a block of stations is completed prior to the deadline, and the balance is completed within a timeframe after the deadline.

##### *Rationale.*

This incentive is appropriate for the industry in order to accelerate total station build time. In the case of a block of stations by a project applicant, the sequence of series and parallel construction may be limited by component supply chain and contractor bandwidth limitations. The duration to complete pre-submittal and the formal plan check review by the authority having jurisdiction review may be the longest duration element in the overall schedule, and may become the critical path to meet the project deadline.

#### Item 6 – Limit of One Station per Proposal

##### *Recommendation.*

In order to build the largest network at the lowest cost, then the solicitation should allow for multiple stations of identical system and site design, and process for installation. Toyota recommends that the fundamental structure of the solicitation incentivize proposals based on the largest number of stations as part of an integrated network, rather than a proposal limited to only one station, or by a location metric.

##### *Rationale.*

System design, site design, component supply chain, and build contractor efficiencies may only be realized with a volume commitment for a large number of stations, and by a standardized build process. In addition, a volume build-out approach supports the shortest build-time, and is significant towards closing the station gap by early 2016.

#### Item 8 – Single Applicant Cap

##### *Recommendation.*

Toyota supports the increase of the single applicant cap to 60%. In addition, we recommend that the CEC consider a discretionary variance where proposals target a large number of stations and reflective of the unique proposal features.

##### *Rationale.*

The original PONs 09-608 and 11-609 achieved 71% and 60% single applicant match, respectively. With the proposed increased available funding, the need to target a gap closure of 50 to 45 stations, and the cost efficiency of a large block of stations, then there is potential for a cost match greater than 60%.

Item 9 – Operational Date

*Recommendation.*

Toyota supports the operational date of 16 months after execution of the contract grant agreement, or October 2015. It is recommended to consider specific milestone duration metrics in regards to external critical schedule processes such as plan check review by the authority having jurisdiction. There should be flexibility based on these factors in conjunction with stations in a series that are completed prior to the deadline.

*Rationale.*

This is based on CEC requirements of when long-lead components may be ordered, continuing challenges with the duration of pre-submittal and formal plan check, and contractor bandwidth to build-out a number of stations in a series and parallel process sequence.

Item 11, Part A – Minimum Technical Requirements, Hydrogen Quality

*Recommendation.*

Toyota recommends the dispensed fuel quality shall meet the requirements defined by SAE J2719, and subject to the most current available edition.

For delivered fuel to the forecourt, the station shall meet industry standard requirements consistent with a typical certificate of conformance process.

Stations that use on-site generation or purification of hydrogen shall have a method of continuously monitoring the gas stream, such as an in-line analyzer monitoring a canary species, to ensure that the hydrogen quality does not exceed the levels listed in SAE J2719 at the dispenser output. If an analyzer is used, it should be placed immediately downstream and as close as possible to the hydrogen generation/purification equipment.

Item 11, Part B – Minimum Technical Requirements, Fueling Protocols

*Recommendation.*

Toyota recommends that the station interface design requirements shall meet the SAE J2601 interface protocol. The current SAE J2601-2010 TIR document is planned to be superseded by a new version, expected by the end of 2013. Stations shall be designed, or capable for upgrade, to the new 2013 version document and by the solicitation deadline.

*Rationale.*

This update is based on the efforts of OEMs within the SAE Interface Working Group, and represents the industry standard for vehicles.

Item 11, Part C – Minimum Technical Requirements, Minimum Station Daily Capacity

*Recommendation.*

Toyota supports the definition of 100 kg per 12 hour period as a minimum requirement, and is defined in reference to an SAE J2601 7-kg fill. It is recommended that the

scoring criteria be based on the ability to dispense at rate higher than the minimum requirement.

*Rationale.*

The 100 kg per 12 hour period is the minimum level to establish a base daily capacity for the network in support of market launch of vehicles.

Item 11, Part D – Minimum Technical Requirements, Minimum Peak Fueling Capacity Recommendation.

Toyota recommends that the station shall meet the requirements of at least five, consecutive back-to-back fills, each defined as SAE J2601 7-kg, where 70 MPa is defined as H70 Type A (T40, -40C), and 35 MPa is defined as H35 Type B (T20, -20C). Note: The T40 and T30 terms are defined in the planned SAE version update, and will supersede the Type A and B terms, respectively, from the current SAE J2601-2010 TIR version. It is recommended that the scoring criteria be based on the ability to dispense at rate higher than the minimum requirement.

*Rationale.*

The five 7-kg fills per hour is the minimum level to establish a base peak rate capacity for the network in support of market launch of vehicles.

Item 14, Mobile Fueler Set-Aside Competition

*Recommendation.*

Toyota recommends that the solicitation consider two areas to define mobile fueling to support high-availability of the network: (1) delivered hydrogen solutions to stations to support problems with existing delivered hydrogen pathways, or to provide a delivered hydrogen source where on-site generation or purification systems are offline; and/or (2) mobile hydrogen dispensing solutions to provide fueling directly to the vehicle, and shall be based on interface requirements defined by the OEM.

*Rationale.*

This approach is intended to supplement existing stations, and support high-availability of fixed stations.

Item 15, Station Location Area Competition

*Recommendation.*

Toyota recommends that the defined specific station location city names and polygons be removed from the solicitation, and be replaced with general cluster regions as a reference. Consistent with the CaFCP Roadmap (2012), general areas identified by OEMs include but is not limited to the: Sacramento region, San Francisco Bay Area region, and Los Angeles, Orange County, and San Diego County Regions. In addition, the Roadmap makes reference to additional target areas for interconnecting and destination sites, as well as new market regions.

The general regional location areas defined in the solicitation should not be used as a screening or scoring criteria, but as a reference guideline. Toyota recommends that the applicant bid proposal provide a specific rationale for the justification of proposed real station location sites that are consistent with the OEM customer market.

*Rationale.*

The review of actual bidder station site proposals, independently by Toyota, and by other OEMs independently, or by pathway of a third party blind aggregate assessment, is the only method to ensure that the actual real site locations, as part of overall integrated network, are consistent with the latest and proprietary market projections of each OEM. This independent review and assessment is expected as part of the bid application submittal process.

Item 20, Scoring Criteria

*Recommendation*

Toyota supports the proposed weighting values, including but not limited to, Market Viability, Project Budget, and Hydrogen Fueling Station Performance. If possible, an increased weighting should be considered for Project Budget, in order to address financial approaches by project applicants and their partners, in regards to providing a comprehensive station network proposal over a defined operating term.

*Rationale*

The proposed updates are significant to realize new approaches to secure a large and robust fueling network.

Realization of early market vehicle sales is contingent upon an appropriate and sufficient fueling infrastructure network. The total number, location, and performance of hydrogen stations expected to be awarded for this solicitation are critical to support Toyota's market launch planned for the 2015 time frame.

Thank you for your leadership on this critical issue. As a leading manufacturer of advanced technology vehicles, Toyota looks forward to a continuing dialogue with you and other stakeholders on this and other important matters as they relate to these vehicles, including the planning and development of a successful hydrogen program.

Very truly yours,



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