September 14, 2015
California Energy Commission
Dockets Office, MS-4
15-HYD-01 Draft Solicitation Concepts for Hydrogen Refueling Infrastructure
1516 Ninth Street
Sacramento, CA 95814-5512

Re: Input on the Draft Solicitation Concepts for Hydrogen Refueling Infrastructure 15-HYD-01

Industry appreciates the opportunity to respond to the Draft Solicitation Concepts, and thanks the Energy Commission for the significant time and effort taken to develop this draft. We recognize the amount of work CEC staff, in collaboration with CARB, has put into this draft document. These efforts have led to a stronger draft solicitation and should provide positive results that will further advance California's environmental, economic, and energy independence goals. This draft and the resulting official solicitation should expand the hydrogen infrastructure network towards the goal of 100 stations. Achieving this goal is urgently needed to provide the network coverage and capacity required to enable the commercial market introduction of the number of fuel cell electric vehicles (FCEV) presented in the July 2015 AB8 report.

Following the August 13-14 workshop for Draft Solicitation Concepts for the 2016 Grant Funding Opportunity (GFO) for Hydrogen Refueling Infrastructure, the California Fuel Cell Partnership convened several industry meetings. Participants included CaFCP members and non-members that are actively involved in hydrogen infrastructure. The following bullets summarize consensus recommendations, with more detail on subsequent pages. These comments are complementary to any that the individual entities submit separately. We invite CEC to ask CaFCP any clarifying questions.

Summary of Recommendations

- Consider "pulling" funding forward, similar to the last hydrogen solicitation. Doing so would support the AB8 Report which shows a possible shortage of available hydrogen capacity near 2020. (SECTION 1 – Available Funding)
- Further incentivize expediently built stations by providing additional cost share for stations built within 12 months of award/business meeting. (SECTION 2 – Maximum Award)
- Remove the H35 pressure requirement and make it optional for interested developers. (SECTION 10-F – Duel Dispenser Pressure Requirements)
- Require stations to participate in Station Operational System Status (SOSS) as a central resource for increased consumer convenience and to reinforce station reliability. (SECTION 11 – Connect with an Online Status System)
- Make safety planning details a requirement rather than part of the points evaluation process. Safety is always considered a priority and hence a given, and should already be part of any hydrogen station plan, including the approval processes prescribed by state and local authorities having jurisdiction. (SECTION 24 – Evaluation Process)
- The California Hydrogen Infrastructure Tool (CHIT) Model is relatively new and has not yet been fully peer-reviewed by Industry participants. Therefore, Industry recommends that use of the CHIT model not be considered the final process for deciding station location/coverage, capacity and upgrades. Station location decisions must factor in other relevant criteria and information. (SECTIONS 20, 21 & 24)

- Industry recommends support for retail station land owners and other entities holding a controlling interest in proposed hydrogen station sites. The implementation by CEC of a combination of financial and non-financial incentives, specifically for the site owners and other important location stakeholders, would decrease site acquisition duration, prevent most location changes and ensure site owner's and other property stakeholder's full commitment to the development of hydrogen infrastructure. (SECTION 18 – Enforcement of Proposed Station Locations)
- A separate funding category for 100% renewable hydrogen stations has not been included in this next solicitation. Consideration of this technology in the Draft Solicitation Concepts has been downgraded to achieving additional evaluation points for Sustainability in the scoring and evaluation process. Industry urges the CEC not lose sight of this as a long-term State goal as to where this market eventually needs to be and recommends adding more substantial consideration and incentives in the next PON for 100% renewable stations. (SECTION 12 – Renewable Hydrogen, and SECTION 24-Evaluation Process)
- Industry requires that all stations using delivery or on-site production shall ensure through best practices and process controls that the dispensed hydrogen meets the latest SAE J2719 requirements. (SECTION 10A – Hydrogen Quality)
- Industry recommends the CEC consider a representative dispensing mass of 4 kilograms as a refueling baseline across Low Use, Medium Use, and High Use, scenarios that stipulate 1-hour,3-hour, 12-hour and 24-hour fueling capacity for each. This will harmonize station capacity requirements with several consensus industry studies (Nexant, H2FIRST, CARB AB 8 Report) and hydrogen infrastructure initiatives in other countries (H2 Mobility). (SECTIONS 10D – Daily Fueling Capacity & 10E – Peak Fueling Capacity)

Detailed Comments on Selected Sections in the Draft Solicitation Concepts Document

Section 1. Available Funding
In PON 13-607, CEC pulled funding forward from future years to create a $40M funding opportunity. This resulted in significant forward momentum in development of necessary hydrogen infrastructure and confidence for long term investment. Considering the list of priority station locations and the need to continue the progress towards the goal of 100 retail stations, if CEC receives more high quality proposals than the current available funding level can support, strong consideration should be given to similarly pulling funds forward to support good proposals.

Furthermore, the offering of O&M funding support is strongly supported by industry as it supports stations during early years of FCEV rollout. However, pulling funding from the same bucket as the capital equipment support funds reduces the number of hydrogen station awards and lengthens the time to reach 100 retail stations. Consideration should be given to separating operation and maintenance (O&M) funding from the station development funding bucket.

Section 2. Maximum Award
Industry urges the CEC to consider providing greater cost share for stations that are able to be deployed even faster than the current draft solicitation funding dates, thus rewarding bidders demonstrating capabilities to decrease development timelines. Further, providing an additional ~10% cost share for developers able to deploy stations in less than twelve months from award date facilitates vehicle rollout and sets a new standard for station deployment timelines (For a discussion of related issues, see Section 8 discussion).

Section 3. Station Priority and Funding Levels
The draft solicitation identified four different types of station locations and market purposes in the early infrastructure network: Establish Core Market, Expand Core Market Coverage, Initiate Future Market and Develop Connector. This is helpful in defining and establishing the "right" station for each market according to specific demand, market need and time of rollout. During the workshops CEC noted that funding would be awarded to the highest scoring station proposals, regardless of priority area, and each subsequent award would be reviewed with both existing/planned station considerations as well as those awarded previously during this solicitation. This approach is sound and appreciated, as it considers the existing network in an iterative manner.

Hydrogen funding solicitations continue to improve, building upon previous lessons and learnings, including newly developed tools such as the California Hydrogen Infrastructure Tool (CHIT) model. However, how, when, and how absolute the CHIT model will be applied in the location decision making process is still not fully understood by industry, nor has the model been tested in a real world application (such as a previous award process). Also unclear is the process to break a bidder tie on specific locations using CHIT vs. other criteria, or balancing a good location vs. a highly enthusiastic property owner. In the latter case, some of the modeling, or even criteria itself, may not lend itself to fully appreciating and discerning some of the 'softer' criteria that make for a good station location or proposal. Industry discussion during the workshops also included consideration of outside advisor input prior to final awards, such as blind OEM input on locations or other knowledgeable stakeholder input as specific topic experts.

Given the significance of CHIT, industry intends to seek more information about the tool, its inputs and its modeling capabilities. Specifically, industry intends to ask the ARB to host a workshop or webinar regarding CHIT.

Industry also suggests the CEC and State consider development of financial and non-financial incentives specifically for the property and/or existing fueling station owners. These incentives may include tax breaks incentives, low interest loans (e.g.; facility capital improvements not related to the hydrogen station project), and other concepts to ensure the timely commitment of the land owner and any other controlling business entities. See Section 18, below.

Section 4. Eligible Projects
Industry recommends the CEC provide a list of stations eligible for upgrades for further clarification regarding eligibility requirements for station upgrades. See Section 21, below.

Section 8. Operational Date and Cap-X Funding
PON-13-607 incentivized developers with greater cost share if they implemented their projects more quickly. This proved to be a very successful approach to improving station development timelines and should be continued in future solicitations. To further incentivize developers, Industry recommends the CEC provide additional incentives for those that can develop stations even faster, further improving the process for developing stations and the timeline to reach the goal of 100 retail stations. The table below outlines an example approach. CEC should base the milestone dates on the date of the Notice of Proposed Award (NOPA) or official CEC business meeting approval for award, for simplicity and transparency for all bidders. A similar approach could be taken for O&M.

	Station Operational <13 months from NOPA	Station Operational 13-18 months from NOPA	Station Operational 19 months and later from NOPA
Maximum funding*	80%	75%	60%

** As a % of maximum final allowable station cost*

Hydrogen infrastructure consists of both the dispensing network (stations) and the production and distribution of hydrogen (including onsite and central production). In PON-13- 607 Cap-X support was offered for both dispensing and production/distribution equipment. Industry strongly recommends continuation of this approach. The allowance of these necessary supply chain and ancillary equipment costs will benefit both onsite production and delivery business models, if included in total proposed station costs, and support larger infrastructure network development and should be permissible in the next funding round.

Section 9. Operational Date and Operation and Maintenance (O&M) Funding

The inclusion of O&M funding is critical to supporting stations in the early years and Industry is pleased to have CEC continue to provide this incentive. Spreading this support over four years instead of three years is beneficial. The pooling concept appears to add increased flexibility in support, acknowledging that some stations may need greater support than others and that the entire network needs to function properly.

Industry recommends that costs for safety enhancements and costs for implementation and maintenance for Station Operational Status System (SOSS) reporting be eligible for O&M funding.

To link O&M to the price of hydrogen at the dispenser, Industry recommends CEC consider potential buy-downs/incentives for incurred cost, up to a certain amount of fuel, possibly connected to the station classification (Core/Future/Connector). As noted in the AB8 Report additional incentive approaches should be considered, especially those that directly encourage greater fuel and vehicle purchase, in this or future solicitations.

Industry recommends including definitions for the terms “operational” and “open”, as presented in the Fuel Cell Electric Vehicle Deployment and Hydrogen Fuel Station Network Development Report (ARB, July 2015 “AB 8 Report”). This will help all stakeholders to have a consistent understanding of expectations and develop better proposals for CEC review.

Section 10. Minimum Technical Requirements

Subsection A - Hydrogen Fuel Quality

Whether a station is using delivery or on-site production, it shall ensure through best practices and process controls that dispensed hydrogen meets the latest SAE J2719 requirements. Real-time, in-line continuous analysis of all contaminants in SAE J2719 is technically challenging and costly, and may likely increase the dispenser footprint due to the need for monitoring at the nozzle. Instead, Industry urges the monitoring of key contaminants (canary species) according to the specific production technology used (e.g.; on-site generation or purification). For stations with delivered hydrogen, then it is recommended that the hydrogen should conform to CGA G5.3 FC QVL. All stations should be required to implement operation processes and maintenance procedures that maintain SAE J2719 quality of gas to the vehicle. Industry recommends continued discussion with stakeholders to articulate the latest hydrogen quality best practice requirements (e.g. SAE J2719/1) into the final solicitation document.

Subsection C - Test Method and Equipment Specifications
The use of CSA HGV 4.3 2012 is inconsistent with the requirement in section 10.B, SAE J2601-2014 of the draft solicitation. The sentence, "to confirm that the performance of a station/fuel dispenser is consistent with SAE J2601: 2014, or the most recent version of CSA 4.3 published and promulgated by the CSA", should be changed to "to confirm that the performance of a station/fuel dispenser is consistent with SAE J2601: 2014, or the most recent version of SAE J2601 published and promulgated by the SAE."

In addition it is unclear what is meant by "The commissioning process shall follow declaration of the station operational date". Commissioning is not clearly defined. In general terms, the "Commissioning" process is the final phase of construction where the station is declared functional, or a "ready to dispense" status. In other words, a stage just prior to the dispenser fuel meter certification or "operational" status as defined by the CEC. The "commissioning" phase should also include the fuel quality tests, required before test fills are commenced with OEM vehicles. The term "confirmation" is intended to encompass the process steps of dispenser fuel meter certification and fueling interface protocol confirmation and/or certification.

We also recommend the following change be made "The station developer shall communicate and provide dispenser outlet temperature and pressure data (as close as possible and no greater than 1 meter in flow length from the dispenser breakaway), as well as the hydrogen mass flow rate, at 1 second intervals to the HyStEP operators**".** This change is consistent with SAE J2601-2014. It is unclear what is meant by "data output near the base of the dispenser that shows the ramp rates"? This language is confusing and doesn't add to the request. In addition, the CEC should change the word "commissioning" to "confirmation" as the confirmation process is the phase immediately after "operational" and before "open" for commercial retail fuel sales.

The station shall have means of terminating the fueling within 5 seconds if any process limits, as described in SAE J2601, are exceeded. Dispensers shall not be able to provide any fueling protocols which do not conform to SAE J2601: 2014, except with manual override by the station provider and approval of the manufacturer of the vehicle which is fueling. The use of special PIN codes or card keys for use by the retail public vehicle operator, in order to activate an alternative fueling protocol, are not are not acceptable.

Subsection D - Daily Fueling Capacity and E-Peak Fueling Capacity
Establishing the capacity requirements for stations requires balancing the need to maximize consumer convenience and experience with the need to minimize overall station costs. The CEC has done admirable work in the past in establishing these requirements, and should continue to find balance while aggressively building out the network.

Industry recommends a variety of station sizes are needed to meet the needs of the overall network, and the following station capacity requirements correlate daily and peak hourly design requirements with existing fueling station design and operation. The following table provides recommended general station capacity requirements defined for H70-T40 type fueling, per SAE J2601-2014 (or subsequent published version by the SAE), based on former analysis (Nexant) and design requirements (H2 Mobility):

Reference CHSS size	125 L
Dispensed mass	4 kg
State of Charge (SOC)	98% +2/-1% for communication fills, and where possible based on the starting conditions, measured by the dispenser, up to 38°C ambient

	temperature or the normal expected historical high ambient temperature range
1 hour fueling capacity	# of reference tanks filled in one hour, and equivalent amount of mass dispensed, defined as the peak hourly capacity
3 hour fueling capacity	Repeat 1 hour peak fueling capacity for 3 consecutive hours
12 hour fueling capacity	80% of the 24 hour fueling capacity, estimate across 0700-1900h
24 hour fueling capacity	Total kg dispensed per 24 hours

The station shall provide fueling for at least the Compressed Hydrogen Storage System Category (CHSS) of the 4-7 kg for light duty vehicles.

Industry recommends the following design table as consistent with the Nexant 2008 Study, Report June 2008, Fri Profile [Fig.1-25], DE-FG36-05GO15032, and H2 Mobility 70MPa HRS Standardization V1.1 07-06-2010. The performance ratings are provided as a minimum criteria.

General Size Rating	Large	Small
Daily Capacity [kg], Minimum, 24h	400	200
Daily Capacity [kg], Minimum, 12h	320	160
Peak Consecutive Capacity, Min. [kg/3h], peak hourly for 3h block	120	60
Peak Hourly Capacity, Total, Min. [kg/h]	40 (2x20)	20
Number of H70 dispensers or fueling positions	2	1
Number of Fills per Hour, Minimum, Total	10 (2x5)	5

The H70 dispenser, or fueling position, is defined as a unique H70 fueling nozzle with independent access and control. For example, for Qty=2 H70 dispensers/positions, then both H70 nozzles shall be accessible and operable simultaneously in parallel. These may be configured as 2 physical dispenser enclosures, or 2 H70 hoses on opposite sides of a single dispenser enclosure.

The minimum peak hourly capacity fueling sequence for the Small-Size 20 kg /hr output, and Large-Size 40 kg/hr (2x20 kg/hr) output is provided in the following table. For the Large size, this is defined as Qty=2 Small-Size dispenser ratings operating simultaneously in parallel:

Fill #	**1**	**2**	**3**	**4**	**5**
Fill Mass [kg]	4	8	12	16	20
Fill Time (avg) [minutes]	4	4	4	4	4
Interval Time to next [minutes]	3	5	5	5	-
Total Time [minutes]	7	16	25	34	38

The consecutive fill sequence for both the 20 and 40 kg/hr is defined as a single back-to-back fill with a 3 minute time interval, and then multiple back-to-back fills with a 5 minute time interval. This rate is a defined as the minimum criteria. Consideration of the station bid proposal should contemplate the ability to provide a consecutive fueling rate, and corresponding peak hourly capacity greater than this minimum criteria level.

Funding should be comparable to the performance of the station for each category and competitive awards should be evaluated against proposals in a given category. As a general rule of thumb, the CEC has tended to provide about $10,000 to $12,000 per installed kg/day. A consistent application of this approach, appropriately calibrated with CHIT evaluation, would favor the larger station as the cost reductions tend to favor larger capacity stations. At the same time, CEC would also face incentives to award competitive smaller stations when the values, along with other variables such as location, are favorable.

Consideration of the station bid proposal should contemplate the ability to scale-up to a 400 kg/day (24h), Qty=2 H70-T40 fueling dispensers/positions within an original site layout footprint (i.e.; setbacks), and based on an estimated demand for the specific business case. In addition, since each site location within a target region may have unique site space challenges, then consideration is recommended to plan for multiple Small-Size station designs within a local region.

Subsection F - Dual Dispenser Pressure Requirements

OEMs have announced that LDV FCVs will now be produced for the H70 pressure level. It is understood that this next solicitation is intended for the LDV FCV market. As a result, it is recommended that there should not be a requirement for the H35 pressure level, but rather as an optional feature. The solicitation should consider the H35 as optional and at the discretion of the station bidder, in order to engage alternate revenue pathways (e.g.; non-vehicle appliance, MD/HD FCV), and/or to leverage existing design and supply chain components for LDV FCV fueling stations. Fueling for non-LDV FCV applications shall be consistent with the SAE J2601:2014 (or subsequent published version) interface protocol.

For MD/HD FCV applications, where a high-flow H35 fueling nozzle and interface protocol is required, then the station design shall provide a dedicated and separate dispenser from the LDV dispenser. Where the MD/HD CHSS application is greater than 7 kg (max LDV FCV SAE J2601 fueling table), the station design shall include an increased capacity commensurate with a dual-use FCV configuration (LDV + MD/HD). The MD/HD fueling dispenser shall be dedicated, physically separate, and shall be restricted and preclude access, from the public retail LDV FCV market.

The H35 pressure level for LDV FCVs, consistent with the SAE J2601:2014 protocol, is now at a precooled hydrogen supply temperature, and does not support ambient hydrogen temperature (Tamb). As a result, there is no redundancy or “back-up fueling” advantage of H35 compared to the H70 pressure level. For new station equipment designs, the addition of the H35 pressure level fueling interface incurs additional and significant capital cost in the overall station design.

Subsection H - Station Design Requirements

Industry believes the “mobile refueler accommodation” requirement is misinterpreted. We believe the original intent is to ensure a station built under the “delivered hydrogen” model can indeed accommodate the necessary tube trailer or delivery truck by design and permit, not to build in accommodation of a tube trailer as a backup fuel supply. Future stations are anticipated to be more robust and retail oriented than previous stations. While earlier technology demonstration stations experienced sufficient downtime to warrant consideration of an onsite mobile fueler or tube trailer, current and future stations should not need such back-up systems. Requiring station designs to accommodate these will limit the potential locations station developers can consider, potentially require additional costs and equipment that may not be necessary, and distract developers from building more robust station designs. If stations do go offline the primary objective should be to get the equipment back in operation, not securing backup supply, permits and other resource intensive activities. If an extended disruption is encountered, deploying a mobile fueler at a

nearby, more convenient location could provide drivers similar backup supply options without distracting the station developer from bringing the station back online. Industry recommends the requiring space for a temporary mobile fueler be omitted from the solicitation.

All fueling nozzles used by the station shall conform and be listed to SAE J2600-2012 or ISO 17268-2012 or to the latest published version. If no such nozzles are commercially available, then the SAE J2600-2002 or ISO 17268-2006 version shall take precedence.

Subsections J - Public Point of Sale (POS) Terminal and K - Retail Requirements

New references to Point of Sale (POS) and Retail Requirements are strong additions to the draft solicitation and are well received. To highlight the need to develop fully retail stations comparable to gasoline counterparts, and to provide sufficient flexibility to station developers, POS requirement language should state bidders "must include major credit, debit or fleet card payment systems". Industry suggests that the CEC language state: "Projects must include Point of Sale (POS) terminal capabilities that accept major credit/debit card and fleet card payment systems. As a minimum requirement, the POS terminal shall accept payment cards based on the following retail networks: MasterCard, Visa, and Discover; and commercial/fleet networks: Voyager, and WEX. The POS shall be setup to conform to the Conexxus H35 and/or H70 product code in order to the specify hydrogen fuel sale type in the transaction record. Industry also recommends that all retail fueling stations comply with new EMV POS requirements (new payment cards based on microprocessor chip technology) in anticipation of the October 1, 2017 merchant liability compliance deadline for automated fuel dispensers. These will ensure that stations have the latest POS technology and are not out of compliance immediately after completion (as a cost savings measure or misunderstanding) resulting in an unanticipated shift of liability.

Regarding Retail Requirements, Industry recommends that the CEC add the following clarifying sentence to this section: "The station shall be open for business 24 hours per day, 365 days per year, or the maximum extent allowed by law or local ordinance."

Section 11. Plan to Connect With an Online Status System

For five years, the CaFCP has provided a Station Operational Status System (SOSS) to increase customer satisfaction and station demand. This system is built using a secure, open source platform with simple data collection requirements and is open for all stations to participate. Automotive OEMs support the use of SOSS as the clearinghouse for providing station status information to their customers. As such, Industry recommends that stations be required to provide station status information to SOSS, but also be allowed to send status information to additional similar private/3rd party systems. Additional information about SOSS can be found at the end of this document. Industry requests SOSS as a requirement of funding.

Section 12. Renewable Hydrogen Requirements

Whether the previous solicitation's 100% set-aside or this draft's more generalized approach, it is clear the CEC is seeking to incentivize and support clean hydrogen production while giving consideration to overall station costs and rollout. If the new approach to renewable hydrogen is taken, the final solicitation should provide more clarity on how it would be scored. As an incentive to increasing the number of renewable hydrogen pathways and actual renewable production, Industry recommends greater points be awarded to stations dispensing renewable hydrogen above a CEC-set threshold if extra costs are demonstrated in the Cap-X. A per-kilogram buy-down incentive, with limits, could also be applied here.

Industry urges the State to think more broadly regarding renewable hydrogen stations. For example, hydrogen can play an important role and provide added value in energy storage and grid stability applications. These attributes can be incorporated with hydrogen fuel retail stations in the form of "energy parks". Industry suggests incentivizing this "technology application collaboration" approach, possibly through a combination of a revised scoring mechanism, a per-kilogram buy-down incentive, and credit incentives.

Another benefit with on-site generation is the reduced impact on roadways. Industry suggests incentivizing on-site generation through a revised scoring mechanism such that the higher costs for stations with on-site generation are not seen as less competitive.

Section 15. Letter(s) of Support or Commitment
Previous solicitations included OEM contact information to assist bidders seeking to gain support letters for their project. Industry recommends the CEC again include similar contact information.

Section 17. Data Collection
Data collection is essential to advancing infrastructure development, including reducing costs, achieving sustainability, expediting development timeline, and improving safety. To clarify and provide transparency, the final solicitation should encourage the submission of NREL data collection worksheets. Industry recommends CEC work with NREL to identify those critical data collection sets, based upon specific station technologies, that would voluntarily or via direct contract between NREL and respective station operator, be returned by the station developer/operator. Currently many stations are required to return the worksheets by nature of NREL contract, but there is no requirement or enforcement that key data sets are completed. The State can assist by stating which worksheets and data sets are required and which are optional.

Section 18. Enforcement of Station Locations
One of the most challenging aspects of site acquisition is gaining the commitment of the property owners and other tenants to hydrogen stations. While it may be the responsibility of the proponent "Station Provider" to lead the project effort, often the site owner, acting as a landlord, holds significant leverage during the lease negotiations. Depending on the specific location, other business entities such as the fuel wholesaler ("jobber") may hold a controlling interest in the site as well. These situations often lead to lengthy negotiations and unreasonable expectations, which must be addressed prior to moving forward with permitting submission. Often the site owner's signature is required on almost all permit applications. Industry suggests the CEC establish at a minimum financial incentives specifically for the site owners and other controlling entities, such as a portion of the total funding, made contingent upon expedient signature of permit submission documents, that would decrease site acquisition duration, potentially prevent location changes, and ensure site owner's full commitment to the development of hydrogen infrastructure. Funding amounts might be based on local indexed land value and proportional to the requested funding. Additionally, Industry urges the CEC and the State develop a combination of other possible financial and non-financial incentives, such as tax breaks and incentives, low interest loans, or other concepts to ensure the timely commitment of the land owner and any other controlling business entities.

Section 19. Enforcement of Critical Milestones
To provide greater insight into expected milestones provisions, Industry recommends CEC work with GO-Biz on providing current State milestone expectations and typical timelines. Doing this will provide greater transparency to bidders on State expectations, and reinforce the rationale behind funding support based on operational date.

Section 21. Hydrogen Refueling Station Upgrades
To further support network development and leverage existing resources, Industry recommends every existing station be eligible for upgrade support to full retail operations if it can be done in a cost effective, competitive, safe manner. While not all early market stations will be suitable for an upgrade to full retail operations, any station technically capable of a cost effective upgrade that also supports OEM market needs (for either coverage or capacity) should be able to compete within the competitive solicitation process. If there are other reasons to limit the eligibility of upgrades, Industry recommends CEC provide a list of eligible stations for bidder transparency.

Section 24. Evaluation Process, Scoring Criteria and Points
Safety. As discussed during the workshop, Industry recommends the safety criteria be "pass/fail", not part of the points distribution. To ensure safety all bidders must provide safety and emergency management plans (as will be required by the CUPA and the California Fire Code) that include personnel training, maintenance schedules and emergency response plans.

Project Readiness. Industry recommends future solicitations include a list of all funded or known Regional Readiness Plans to facilitate better coordination, faster station development and transparency.

Project Implementation. As outlined previously, Industry recommends references to medium and heavy duty vehicles be reviewed. If a bidder can explicitly outline how they can accommodate these vehicles in a safe and effective manner, without impacting light duty FCEVs (or technical capacity requirements), then that should be available as an optional addition.

And as previously stated, Industry recommends mandatory station reporting to SOSS, and optional reporting to alternate status reporting systems.

Section 25. References, Regulations and Reports
Providing these resources is an excellent way to increase knowledge and response quality across all bidders. Inclusion of the pending Permitting Guidebook, when available, and the NACS Toolkit is important as not all station developers may know of their existence. Although potential bidders have the obligation of their own due diligence, it might be helpful to include links to other useful resources such as CEC's DRIVE, ARB's ZEV Program, NREL's Hydrogen and Fuel Cell Research, and Hydrogen Readiness websites.

The Draft Solicitation Concepts demonstrates the CEC's hard work and dedication to reaching the State's environmental and energy independence goals, and should provide bidders with significant opportunities to further advance the establishment of the initial hydrogen infrastructure network to support the commercial FCEV launch in the years ahead. Industry appreciates all the thoughtful consideration and improvements with each subsequent solicitation, as well as the recent successful workshops on August 13-14. Industry will continue to support the CEC in these activities in every way possible and are always available to you as needed.

This consensus document – and its detailed-level approach – represents the collective voice of Industry. The influence and precedent-setting nature of California's hydrogen infrastructure funding solicitations is appreciated. Industry again appreciates the opportunity to provide what we hope is valuable and insightful input into the solicitation process.

On behalf of the following Industry stakeholders,

- Air Liquide Advanced Technologies, US
- Boyd Hydrogen, LLC
- FirstElement Fuel, Inc.
- Golden State EPC, Inc.
- H2 Frontier, Inc.
- H2 Logic A/S
- HTEC Hydrogen Technology & Energy Corporation
- HyGen Industries, Inc.
- ITM-Power Inc.
- Linde North America
- Powertech Labs, Inc.
- StratosFuel, LLC
- American Honda Motor Company, Inc.
- General Motors LLC
- Hyundai-Kia America Technical Center, Inc.
- Mercedes-Benz Research & Development North America, Inc.
- Nissan Technical Center North America
- Toyota Motor Engineering & Manufacturing North America, Inc.
- Volkswagen Group of America, Inc.

William Elrick

CaFCP Executive Director

Overview: Station Operational Status System (SOSS)

Purpose

The goal of SOSS is to ensure FCV drivers know which fueling stations can meet their fueling needs, at any given time. Using SOSS, drivers will have online access to fuel availability status at hydrogen stations in real time (updated every 15 minutes). This will save users time by avoiding traveling to a station that is not dispensing hydrogen or has inadequate supply, whatever the reason. An ancillary benefit of the SOSS program should also be an increased utilization of stations, since drivers now have accurate information which will allow them to take advantage of a station's full capacity and an FCVs extended range.

Anyone with access to the Web can find the fuel availability information of stations participating in SOSS using a handheld device and entering the URL http://m.cafcp.org. For those not using a handheld device, station information can also be accessed at http://www.cafcp.org/stationmap.

FTP Server and Data Transmission

The current generation SOSS requires a station to be able to transmit its station information via the internet to the CaFCP's SOSS file server. This is done via file transfer protocol (FTP) using a simple text file (.txt extension). This text file carries 4 pieces of distinct dynamic information, separated by semi-colons:

- H35 status
- H70 status
- H35 capacity
- H70 capacity

Station Status File Format:
TXT file (i.e. notepad is sufficient). Separate fields with either comma or semi colon. Each station has a unique filename. Please contact Ben Xiong at bxiong@cafcp.org or 916-375-8034 for your unique filename.

When a text file is transmitted from a station to the CaFCP, it contains a time-stamp on the CaFCP website so users know how up to date the information is.