



October 16, 2013

Commissioner Janea Scott
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814-5512



docket@energy.ca.gov

Re: Docket 12-HYD-01: Comments on Draft Solicitation Concepts, Alternative and Renewable Fuel and Vehicle Technology Program, Subject Area – Hydrogen Fuel Infrastructure.

Dear Commissioner Scott & CEC Staff,

Thank you for the opportunity to respond to the draft PON solicitation for the Hydrogen Fuel Infrastructure program of the ARFVTP. We appreciate the Energy Commission's outreach to stakeholders through this draft and previous workshops, and its desire to optimize the solicitation and associated processes. We recognize that this program represents a critical, yet highly complex investment system, and welcome the Commission's incorporation of multiple, diverse voices and proposals.

As Commissioner Scott and CEC staff are aware, Energy Independence Now has recently completed a report, the Hydrogen Network Investment Plan (H2NIP), which is publically available for all Commission Staff to review.¹ The report represents over 18 months stakeholder input, combined with financial modeling, aimed at addressing the question of how to structure hydrogen station incentives in order to optimize the build out of the initial hydrogen network. The report's findings are therefore highly relevant to the current questions embedded in the Draft solicitation.

Our stakeholder discussions and analysis indicate that there remains a high degree of uncertainty around the timing and sales volumes of the initial market, and that this uncertainty is the key barrier to large-scale investment in the coverage phase. We remain concerned that even with the increased cost-share, and with the additional operations and maintenance (O&M) funding offered in the Draft PON, that CEC risks facing an under-subscribed solicitation.

Our comments in this letter are focused on how to best mitigate that uncertainty within the context of the PON. However, to truly attract investment, we believe other government action, including a clear government investment plan that rewards first movers, and some well-defined automaker surveys are essential to reducing the underlying uncertainty.

¹ <http://www.einow.org/resources/reports.html>



We would like to commend the CEC on this current Draft Solicitation. Not only is it clearly written, communicating the CEC's intentions for each of the proposed changes in a succinct manner, the Draft also clearly reflects many diverse ideas from multiple stakeholders combined into a structured program. Our recent work makes us appreciate the difficulty of this task, and we congratulate CEC staff on this effort.

In particular, we are pleased to see the following reflected in the revisions:

1. **We support the new inclusion of O&M cost reimbursement, and linking it to timely station deployment (Item 18).** Our work has highlighted the large burden that O&M costs represent in a context of uncertainty around when vehicles enter the market. Our analysis shows that covering O&M costs can not only improve the attractiveness of the investment (by limiting the possible downside cost of staying open in an early market), but can also reduce the risk to OEMs that stations will close prematurely, as well as spur faster development times. CEC's proposal to offer O&M cost recovery for 3 years, in addition to capital cost share is welcome. Linking that offer to timely station deployment is an excellent addition. We comment further on O&M issues later in this letter, including the need to broaden its definition, link it to throughput, and extend the timeframe it is offered.
2. **We support the increased cost-share (Item 2).** Our analysis shows that the continued high cost of stations, combined with uncertain demand projections makes hydrogen infrastructure investment tenuous, even with the current 65% cost share. We therefore welcome the increase to 70% as acknowledgement of this need, as well as the higher thresholds for the renewable and mobile fueler competitions. As noted above, this cost-share is only a portion of the overall cost, so the increased emphasis on O&M in the Draft is an essential complement to the increased capital cost-share. As with the O&M comments, we also strongly support the 10% bonus offered to those who complete the station within a year.

While we believe the increased cost share percentage is certainly the right directional move, we are not convinced it will generate the over-subscription we all hope for with the upcoming PON, given the significant marketplace uncertainty facing station developers. Assuming the goal is to secure early market success, we suggest increasing the bonus potential to 20% (resulting in the opportunity for 90% cost share). This cost share level should be coupled with a clear signal that the CEC's intent is to decrease the cost share in subsequent PONs.

3. **We support the greater flexibility in the overall structure.** We support the CEC's general attempt to give itself and applicants greater flexibility in the types of proposals that are presented and awarded funding. The early stage of this industry and need to promote diversity and competition, as well as the challenges associated with finding good partners and sites, all point to a need to be adaptive and open to multiple solutions. We



see this increased flexibility in many of the new ideas, particularly the inclusion of mobile fuelers, flexible treatment of location, and discretion around applicant caps. It appears that rather than setting a specific view of an ideal project, and screening for it, the CEC has opened the solicitation to a greater variety of options and will reward proposals for their attributes. This heightens innovation and competition and we support it.

4. **We support the relaxation around locations (Item 15).** We commend the CEC's attempt to balance the need for optimal locations for the overall network, with a pragmatism that recognizes ideal locations are not always possible. Allowing station proposals from outside the optimal locations, yet rewarding those within it with a bonus system balances the optimal solution with real world practicality. The use of "backup" locations, and the openness to consider stations beyond the core zones in the "unassigned station" competition is also welcome.
5. **Market viability score is key (Item 20).** In conjunction with the relaxation of minimum specifications and specific locations, we view the emphasis on market viability as key to ensure that a proposal has a high likelihood of market success, based on the input of parties such as the OEMs who can anticipate customer needs. We recognize that this score currently constitutes 90 out of 380 points (24%), and commend the CEC on giving it relatively heavy weighting.
6. **We support the increased incentives and penalties (Items 3 and 4)** associated with accelerated or delayed deployment. We note, however, that it is our understanding that some of the delays are rational responses to low market demand, and that a strong O&M support is a key counterpart to this incentive mechanism.
7. **We support the 6-minute buffer (Item 15F and 16).** A geographical buffer offered to successful applicants is one of the important non-monetary incentives highlighted in the H2NIP. We support CEC's 6-minute buffer and believe CEC should highlight it more explicitly, in the introduction, as one of the incentives offered to early movers. It is also unclear how long this exclusion would last, so specificity would solidify that value. If additional capacity was needed within the defined time-period, the station owner could be given first right of refusal for additional funding within the buffer zone.

The following are our suggestions for further consideration:

I. O&M Funding

Although we are pleased to see O&M funding receiving more attention, we suggest that government support would be more effective if it included the following elements:



1. **Define O&M cost more broadly.** As defined in the draft PON, we see that O&M costs exclude elements of fixed business expenses that may be considerable, such as the property tax and permitting fees (mentioned in the document), but also rent.

EIN's Network Investment Plan has considered a range of values for fixed business expenses. Our baseline values for a \$2m station are as follows:

Expense	Monthly	Annual	
Insurance:	\$1,600	\$19,200	Included in Draft PON
Maintenance:	\$2,800	\$33,600	Included in Draft PON
Rent:	\$3,000	\$36,000	Not currently included
Permitting		\$ 1,200	Not currently included
Property Tax:		\$20,000	Not currently included
TOTAL		\$110,000	

As can be seen, although the CEC offer of up to \$100,00 is likely to be adequate, this is only the case if rent, permitting and property tax are included. Covering only maintenance and insurance, as the Draft PON does, only covers half of the ongoing costs of keeping a station open. We would argue that the purpose of the O&M support is to keep the station open during the period of very low market demand, and that all of these expenses should be included.²

We therefore propose that CEC expand the definition of operations to include all fixed business expenses related to the actual site, all of which are associated with keeping the station open.

2. **Link O&M payment to throughput.** The concept of the "Market Assurance Grant" presented in the H2NIP suggests that it would be appropriate to link the O&M support to throughput, for four primary reasons. It would allow the government to:

- 1) Avoid paying a station O&M support if it experiences strong demand.
- 2) Direct support to where it is most needed
- 3) Phase out support to ensure the station always has an NET incentive to sell more fuel (factoring in the loss of O&M support).
- 4) Send a clear message to developers on why the O&M support is in place, and that it reflects a sharing of the demand-risk, by the government.

Our proposed Market Assurance Grants are structured to provide \$100,000 phasing out

² The financial calculations presented in H2NIP paper, as well as presentations given to Commissioner Scott and CEC staff, all assume that all fixed business expenses are funded under any strategy to cover O&M expenses. Limiting O&M coverage greatly increases the probability of a station losing money if the roll-out of FCEVs is prolonged.



linearly to zero as utilization increases from zero to 200 kg/day. We proposed this fixed payment (rather than reimbursement) for several reasons:

- a) To provide downward pressure on the O&M cost elements, including rent and insurance, for the good of the entire industry.³
- b) The approach recognizes that operational costs between different size stations are not dramatically different.
- c) A fixed payment system would simplify the administrative burden for both the CEC and the station owner.

If CEC is uncomfortable setting a fixed price, it could base a MAG on a reimbursement scheme. One simple way would be to offer reimbursement of a percentage of total O&M costs, with that percentage reducing linearly from 100% to 0% as demand grows from 0 to 200 kg/day.

3. **Extend the coverage period.** Our interviews with infrastructure providers indicate that there remains significant uncertainty among investors that stations will be sufficiently utilized within the 3-year time frame of the current solicitation. We therefore strongly urge that CEC find a mechanism to offer O&M funding for more than three years.

The current solicitation, by offering O&M funding to past stations, is in effect extending coverage for these previous stations. However the signal to current investors is that after 3 years they are on their own. O&M support that lasts longer, even it is at lower levels as throughput increases, would be more effective in attracting investors into this market, signaling that the government will share the risk of delayed or slow market launch.

We should point out that if the payment is linked to throughput as suggested above, we believe it is likely that the TOTAL amount spent on supporting the network, during the life of the program, may not exceed the current set-aside of \$300,000/station *on average*. Core stations built in 2016 and 2017 may need very little MAG support, while others that are either earlier or in less utilized markets will need more.⁴

³ A fixed payment would encourage a station owners to decrease their expense costs (to benefit their bottom line), as opposed to inflating costs to either a) capture as much reimbursement as possible or b) taking advantage of a generous government offer to improve their negotiating position.

⁴ For example, based on our model, a core market station open for business at the start of 2015 would need approximately \$115,000 in MAG support if FCEVs entered the market under the ZEV Likely Compliance scenario. This scenario was developed by the ARB to support its 2012 Advanced Clean Cars rulings. Slower vehicle rollout would increase the total MAG support required, while a faster rollout would decrease the need.



II. Mechanisms for Extended O&M support

We understand that the AB118/AB8 grant program faces restrictions that may make it difficult for CEC to offer support for a) an extended period of time, and b) on a contingency basis.

We therefore suggest CEC explore one of 2 options.

1. **Engage an implementation partner to manage and disburse the O&M support program.** CEC could engage a partner agency to hold and manage the \$300,000 contribution per station. That agency would be in charge of monitoring the stations after they open, gathering data on throughput, and – if the stations met the predetermined performance criteria – issuing reimbursement checks to offset O&M costs that cannot be met with fuel sale revenues.

Engaging a third party to manage and oversee the MAG grant has other advantages:

- a) Leverage: such a mechanism could be the basis for a funding mechanism that can also potentially attract additional funds, from either federal or regional government bodies or automakers.
- b) This O&M-oriented fund/mechanism would build expertise on how well the overall network is performing, catching problems before they threaten the market launch, and sharing them across infrastructure developers.
- c) This fund would also be available to either inform or help manage any OEM or network based funding or initiatives to support stations, if those were developed.⁵
- d) Ultimately, such a fund could become the mechanism that addresses the longer-term need of looking out for needs of the network that an individual company may not take on, such as funding and operating connector stations.

We strongly believe that the challenge CEC faces in selecting and funding new stations is a full-time job in and of itself, and while CEC looks ever forward to the next PON, it would be well served in having a partner agency looking out for the operations of the existing network.⁶

2. **Incorporate a “Market Assurance Competition” into the current PON.** As a second choice, an alternative or intermediate approach to incorporating Market Assurance type grants is to structure them into the current PON as one of the “Competitions” that CEC uses to prioritize funding.

A “Market Assurance Set-Aside Competition” could be the first set-aside that is

⁵ In the H2NIP document, we suggest the potential for directing a percentage of hydrogen sales revenues towards network support (see “Capture Revenues for On-going Network Support” chapter). Such a system could be managed by this fund.

⁶ Alternatively, the CEC could increase staffing to serve this function.



considered in each solicitation, prior to disbursing funds to new stations. It would precede The Renewable Hydrogen Set-Aside, the Mobile Refueler Set-aside, and the Station Location and Unassigned Station location competitions. In this way, CEC's would signal that its first priority would be to ensure the current network it has built remains open for business, before funding further stations, and that it is in this way prioritizing first-movers over fast-followers.

Though not as strong of an assurance as Option 1 above (as developers may worry this would be later reversed), the advantage of this system is that it provides a relatively easy way for CEC to provide multi-year coverage and yet not tie up funds if they are not required. We would recommend that clear parameters, including the station's throughput and uptime, be used to determine the eligibility and amount a station could receive.

The Market Assurance Competition could be instituted either instead of, or in addition to, the 3 year O&M support program. In the current PON, the O&M support offered to previous stations gives the appearance of a one-off concession.

If, instead, new stations were still offered the current deal (Cost-share + 3 year assurance), while this "Market Assurance Set-Aside Competition" were set up with a clearly defined objective of supporting stations that have gone beyond their original O&M contract but still face low demand due to slow vehicle sales, it would act as a powerful signal. Language suggesting this structure should be expected in future solicitations would be helpful.

We encourage CEC to develop this Market Assurance Set-Aside Competition with the hope that it can morph into a dedicated Market Assurance Fund. Developers are understandably skeptical of the FCEV sales projections, with OEMs being reticent to making public announcements for good reasons of their own. The government funding program should be seen as the key to buying down this early uncertainty.

III. A Government Investment Plan

We believe the Draft PON is a significant improvement over past PONs, but that its provisions would be more effective if they were communicated within the context of a longer term Government Investment Plan.

One of the key elements of such a plan would be to signal the government's longer-term strategy in terms of the incentive packages it is offering, beyond the PON-by-PON development.



Communicating the long-term strategy is particularly important in terms of highlighting how, and when, incentives levels are likely to decline, such that an investor can be encouraged to be a first-mover, rather than fast-follower.

Although it may be beyond the scope of the PON to do this in a comprehensive way, we urge CEC to pay special attention to the framing of this PON in the introduction, with **the external investor audience in mind**. Many of the current incentives, including the 70% cost share, the award caps, and 6-minute geographical buffer will have greater perceived value in the market place if they are *contrasted* with how the incentive package may decline over time.

We therefore suggest CEC highlight the following points in its introduction:

- The hydrogen cost-share is currently up to 80% (or 90%), which is higher than most fuel programs, given the need for the coverage phase to launch this market, but that this is expected to decline over time.
- The O&M support/market assurance grant will be offered for up to x years for this coverage phase, but is not expected in the capacity-driven phase.
- Current stations receive a 6-minute “competitive buffer,” while subsequent stations are expected to receive smaller buffer zones.

In all cases, outlining the expectations of how future incentives will decline is critical. In fact, we believe it is more important to say that cost share is at 80% (or 90%) but expected to decline, than to say it has been raised from 65% to 80% (or 90%). The latter sends a perverse message that it might be better to wait until the government is more desperate, and offers 100% next time.

IV. Additional comments

1. **Reward expandability, not just high capacity.** The scoring of capacity beyond the minimum appears in two categories (Market Viability and Station Performance). This may have the unintended consequence of rewarding high capacity, expensive stations in areas where they might not be warranted. While capacity matters, we suggest that expandability should be a factor that is recognized and rewarded more explicitly. In part, this would require assessment of whether the site can accommodate expansion, and if the equipment is amenable to a quick expansion of daily capacity. In many cases, a small, high-peak station that has low O&M and is expandable may be better use of CEC funds.
2. **Reward multi-fuel dispensers.** The need for a multi-fuel dispenser including hydrogen is a specific need that has been identified by members of the retail fueling industry (e.g. Hydrogen and gasoline, hydrogen and diesel or hydrogen and CNG). We suggest rewarding the development of multi-fuel dispensers under the Innovation Score (20 points). Currently, since a station host has to choose whether to use the space on a fueling island for EITHER hydrogen or a traditional fuel, the station investor has to



compensate the station host not just for the real estate of the equipment, but for all the lost sales of traditional fuel, as well as the associated convenience store sales that he forgoes. This very high opportunity cost is one of the reasons we suspect the rents for hydrogen hosting are so high. A multi-fuel dispenser would slash that opportunity cost to near zero. We note that we have recommended in the past that CEC issue a specific RFP for the development of such a dispenser, as we believe it is a critical component in bringing station and fuel costs down.

In closing, we wish to reiterate the tremendous progress the CEC continues to make towards developing a successful hydrogen infrastructure development program and thank you for the opportunity to provide comments. We commend the CEC on its effort, and look forward to reading the next PON. We remain available to meet to help clarify our comments, run scenarios in our H2NIP model, or anything we can do to help you create the strongest possible program.

Sincerely,

A handwritten signature in black ink, appearing to read "Tyson Eckerle".

Tyson Eckerle
Executive Director
AFVRT Advisory Committee Member

A handwritten signature in black ink, appearing to read "Remy Garderet".

Remy Garderet
Policy Director