

Docket 15-HYD-01
Draft Solicitation Concepts for Hydrogen Refueling Infrastructure

Submitted 28 August 2015
Linde LLC Comments

California Energy Commission

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TN # 76142

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General Comments – not falling in a specific category or paragraph from draft solicitation:

- There should be a funding bonus available for stations that significantly beat the minimum 150kg/day requirement. While additional points are awarded for better performance, the solicitation doesn't recognize that this better performance comes at a significant cost. For instance, stations that provide 300 Kg/day or more, are a far better value for the state from a \$/Kg of throughput standpoint, and the network needs some larger stations as the latest AB8 report has indicated. However, these stations are significantly more expensive and should qualify for a bonus in funding of 10%.
- Linde would like to see the ability of including partial funding for distribution assets that are necessary to meet the special needs of delivery to these retail station sites. In order to access very tight retail sites safely, we need to develop solutions for smaller more maneuverable delivery assets, which will open up the ability to deliver to more sites, removing one important hurdle to site selection. Perhaps this could be considered for next solicitation as well.
- Structure the solicitation to allow one "generic" section to cover multiple proposals, so as not to create more work for both applicants and reviewers for multiple station sites.
- Medium Duty / Heavy Duty Vehicles at 350 bar – Additional funding should be available to Station Developers to cover the cost of development of creating a dispensing system that can cater to both light duty and MD/HD vehicles automatically. MD/HD fueling should be exempt from public fueling requirements of the balance of the station as SAE J2601-2 is not a protocol but a non-prescriptive guideline and such vehicles are not standardized the way light duty vehicles are. Additionally there are no performance requirements for MD/HD vehicles so this should be left to the developer to propose what can be done in the most cost-effective solution
- Simultaneous Filling – Additional funding should be provided to Station Developers who propose simultaneous filling as this is a significant performance enhancement with development and hardware costs

Specific Comments – pertaining to the listed section/paragraph from the draft solicitation:

2. Maximum Award – consider increasing the maximum funding to be equivalent to the prior solicitation – i.e. 85% Funding, as we are still in the time frame where the business case justification for a retail station requires significant throughput to make sense – i.e. 200 kg/day which is not projected until after 2020 at the current average projection rates.

3a. See comment in #2 above on increasing funding level and rational

5. Agreement Execution Deadline – within 90 days. If contract negotiation is delayed through no fault of Station Provider, an amount of days equivalent to the delay period should be added to the schedule for completion and any related incentive or penalty of funding and O&M funding provisions.

8. Operational Date Cap-X funding. Related to comment in #2, about increasing the maximum award, the CAP-X funding for stations in operation by September 2018 or after should be increased proportionately to increase in max. award funding.

10a. Hydrogen Quality Requirements – “The delivery vehicle/vessel shall include a “sticker” on the outside of the vehicle/vessel that communicates the hydrogen purity readings for the hydrogen contained in the vehicle/vessel, i.e. the date the reading(s) is taken....Stations shall provide a method of continuously monitoring the gas stream...at the dispenser output”

Linde believes this is an excessive requirement for hydrogen specifically with high purity sources such as liquid supply which by nature of being in the liquid state is very pure. Linde suggests the supplier be allowed to define how purity is monitored in the cases of high purity supply options such as certificates of analysis for liquid etc. Similarly, with a liquid supply, the need for testing at the dispenser should be equivalent to the prior solicitation as in twice per year.

10e. Minimum Peak Fueling Capacity: “...minimum of seven 5kg Type A for 70 MPa and seven 5kg Type B for 35 MPa fills per hour....”

This should read “or” not “and” (if this was “and”, it implies 70Kg/hour simultaneous fueling, which is a standard that probably no early station can meet). Really, the solicitation should simply provide a standard for throughput for 70 MPa fueling (i.e. 5 fills back to back into 7 kg tanks) with a requirement that each station has the ability to fill 35 MPa. If the CEC wants to target a kg/hr number, then Linde suggests a number of 25 kg/hr be used for back to back fueling which works out to five 5 kg fills in an hour. This will result in the optimal cost performance balance. Any higher than this will probably involve additional compression which will create higher station costs for all suppliers. Finally the terminology “Type A” and “Type B” are not consistent with SAE J2601 2014.

10h. “Hydrogen refueling station design must accommodate the delivery of hydrogen fuel from a mobile refueler or tube trailer”.

Linde suggests this requirement only be applied to stations with unreliable supply or supply solutions potentially involving extended downtime. The reasoning is that most station sites are very small and much room has already been taken with the existing station and thus may not have the physical space or set back requirements to host a mobile refueling solution, which could eliminate the site from consideration if this requirement is mandatory. If the station provider can demonstrate a robust reliability and maintenance plan, then this requirement should be waived.

10k. Retail Requirements: “...without a requirement of an access card or PIN code..”

Linde suggests this part be struck from this section since access cards or PIN codes are not necessarily related to user agreements and may be required for other purposes such as training and special un-charged access on a case by case basis.

12. Renewable Hydrogen requirements: SB1505 requirement for green H2 – 33% of fuel sold. There should be room for how this is interpreted and enforced, especially as it applies to early stations. Initially, with only 5 or 6 cars (or even less) fueling at a new station, enforcing a 33% green H2

requirement becomes quite an administrative burden and very expensive, for relatively very little CO2 reduction benefit. For instance, if purchasing biogas to accomplish this requirement, there is a minimum amount that a station owner will need to contract for, which makes this route very expensive for low and inconsistent throughput. This regulation should be interpreted to go into effect for any given station, only after there is a fairly consistent throughput of H2. Once a station has enough cars that it is fueling a minimum of 50 or 60 Kg/day (around 20-25 fuelings per day), then the 33% requirement could go into effect. This would be a more cost effective approach to meet the spirit of SB1505 requirement. Ultimately, a station can meet the 33% requirement, but the cost to do so will simply be passed on at the pump, and for low/inconsistent throughput, this could be high.

13. Please clarify if this “CEQA form” is the same as last solicitation (which Linde supports). CEQA is already a very difficult hurdle.

The Applicant shall provide copies of email or letters or both as evidence. The applicant must also provide an estimation of the potential or actual impacts the project may have on the surrounding environment. A CEQA schedule / plan activities must be submitted for each proposed station.

This is very subjective and any meaningful response to this requires any proposer to spend non-reimbursable monies prior to award and undertake more detailed analysis at a very preliminary phase. Suggest removing this barrier from entry.

Stations not proposed at an existing fueling station will require a completed CEQA analysis to be provided at the time of application submittal.

This comment effectively removes “non fueling station” locations from consideration as experience shows that cities do not readily grant CEQA completion without detailed permit and engineering packages completed. This barrier (the language highlighted above) must be removed, and CEQA should not be a scheduled milestone for solicitation. The hurdle is already very high, and getting CEQA approval prior to submitting a proposal to the solicitation would effectively remove these “non-fueling station” sites from most considerations, which is not in the spirit of the solicitation. Finding sites is perhaps the most difficult step, so anything that opens this up is welcome.

16. Operational Date: Linde suggests removal of “open to public” from this definition which allows for commissioning tuning after the first fill to fine tune the station and not affect funding deadlines.

17. Data Collection: Due to the additional administrative burden and cost involved with continuous data collection, Linde suggests this be limited to 12 months as per prior solicitations and that the budget retention not be related to this requirement. For example whether the data collection period is 12 months or more, the retention is paid when the station is completed as this affects the project financials.

24. Scoring Criteria and Points: Project Budget: This should be normalized by \$/Kg of throughput, or larger stations with much better throughput will be penalized.

Linde appreciates the efforts of the CEC to solicit feedback from the stakeholders – this draft solicitation largely reflects key feedback. Significant hurdles remain to getting qualified sites, but this draft solicitation is definitely a strong step in the right direction.

Please feel free to contact either Mike Beckman or Nitin Natesan directly about clarification on any of the comments in the above document.

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