California Energy Commission
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6/29/12 RFP Workshop Presentation

TOP 10 Issues and solutions for the Hydrogen Infrastructure Solicitation

A perspective from a small business attempt to compete with the “Big Guys”

Paul Staples,
Chairman/CEO HyGen Industries.
www.hygen.com

1 Review approaches to selecting hydrogen fueling station locations (This discussion will summarize the June 22 staff workshop on approaches to hydrogen station locations).

- How would you choose the optimal/best site locations for hydrogen fueling stations in the future? (e.g. how to decide between two locations in the same town that are too close together, etc.
  - Not Rocket Science. Anyone who owns a vehicle and lives in the main cluster areas for more than a year will know where they should be located. No need for "Proprietary -Confidential Analysis Data to locate. Don't over analyze.
  - If a preference is needed, always first - to the cleanest most renewable/sustainable system. Otherwise the best location. If a couple of miles away, and both are good locations, then fund them both. Good for customers to have a choice in case one of them is down for repairs.
- How would you advise the Energy Commission to choose the optimal/best locations for hydrogen fueling stations in the future?
  - if you **need (?)** an expert, any private consulting firm (w/no COI), that specializes in locating, siting, building, and/or supplying station equipment and/or traffic modeling, could easily provide excellent data for locating/siting stations. Check the Yellow Pages.

1 Review approaches to selecting hydrogen fueling station locations (This discussion will summarize the June 22 staff workshop on approaches to hydrogen station locations) contin.

- How would you advise the Energy Commission to choose the optimal/best locations for hydrogen fueling stations in the future? (contin.)
  - No changing what is laid out for the RFP, at least 3 months before RFP is released, and never after release.
- Approaches for selecting the locations of hydrogen fueling stations for California's hydrogen infrastructure network strategy.
  - Identify preferred areas in RFP (already done and is in the last RFP). No outside entity with a "dog in the fight". No oil companies, no auto manufacturers, No COI.
  - Form a TAC (Technical Advisory Committee) with members of the Sustainable Hydrogen Workgroup at ARB, w/1 member of the CEC Project/Program Management staff
  - an outside consulting firm with no COI (Possible candidate SAIC- performs the same services for the MSRC).
  - Auto Makers can provide advice on locations and technical specs, but no direct review of applicants information.
  - The TAC review selections from the technical consultants, and the Auto Makers technical and location preferences indicated in RFP. Vote on approval and submit to the AB 118 HIRC for final approval - all up, or all down and start over.

1 Review approaches to selecting hydrogen fueling station locations (This discussion will summarize the June 22 staff workshop on approaches to hydrogen station locations) contin.

- Existing research about how to optimize the selection of Potential Hydrogen Fueling Stations
  - The only vehicle data that can have any reliability already exists, and everyone has it, Caltrans, DMV, gas station and petroleum marketers, etc.
- Definition of clusters, connector stations and destination stations. Identification and definition of other regional prioritization concepts
  - Clusters - Should be expanded to other areas.
    - L.A. - San Fernando Valley, Encino, Sherman Oaks, Woodland Hills, Toluca Lake, Burbank, Studio City, Pasadena, and Riverside as well.
    - SF - Pacifica, Richmond, Berkeley, San Rafael,
  - Connectors - L.A. to S.F. - very important, L.A. - S.D.
    - Santa Rosa, Petaluma, San Luis Obispo, Santa Barbara
  - All along major highways, thoroughfares and/or near Freeway Exits
- Role of automakers' fuel cell vehicle sales projections in hydrogen infrastructure siting and award selection.
  - in the Investment plan, and update location data at least 3 months before RFP is released. No review of applicants data. Will be outlined in full proposals as required by RFP. Need more renewable stakeholders input, i.e., renewable power producers.

1 Review approaches to selecting hydrogen fueling station locations (This discussion will summarize the June 22 staff workshop on approaches to hydrogen station locations) contin.

- Other ideas and recommendations on hydrogen infrastructure siting.
  - Remove requirement of an LOS from an auto-maker, or any non-participating private entity to apply.
  - Make process more compatible for small business to participate, not just billion dollar corporations and fossil H2 fuel developers.

2 Consider optimal technical requirements for hydrogen fueling dispensers.
  - Eliminate 700 bar requirement: Not necessary. Can double the cost of infrastructure over 350 bar: Compressors – 2x-3x the cost, Dispensers – 2x-3x the cost, Storage – 2x the cost, plumbing – 2x the cost. Installation – 30-50% higher cost. Permitting more difficult. Scares permitting agencies. 700 Bar an impediment to Infrastructure deployment. Designed to fail.
  - Range increase can be achieved by adding another tank. Design into vehicle. Stop putting the cost of vehicle design on the infrastructure. Much less expensive on vehicle cost than in infrastructure cost.

3 Explore infrastructure coverage and station capacity.
  - Redundancy is no vice. When more than one good location is proposed that are 1.5 – 2 miles from each other. If one must be selected – 1st. Cleaner one, 2nd. Best location.
  - Keep 100kg/day for starter station – be able to increase as demand increases past 75kg/day.

4 Discuss aspects of market diversity for hydrogen fueling infrastructure developers.

- Except those that are committed advocates and/or environmentalists, the roll-out customers will undoubtedly tend to be affluent.
- Some locations that are on high traffic roads will play the duel roll of providing convenient fueling for the above main demo, as well as providing public awareness for those to become prospective customers sooner or later, e.g.,
  - 19th ave in S.F. – largest traffic road in Metro S.F.
  - Good for both Demo's. No valid data to prove otherwise.
- All locations must have open un-restricted access.
  - Commercial fuelers in commercial locations that normally only fuel commercial fleet clients (e.g., FedX, DHL, UPS, etc,), should qualify if they allow open access and are located on main public roads in areas outlined in RFP.
  - Incentive for fleet operators to purchase FCEVs for their fleets.

5. Explore options for assistance in application development.

- By CEC and ARB Staff only. And only those not involved in the review or selection process. Must be genuine supporters of FCEVs and Hydrogen fuel.
- CEC: Listen to your Public Advisors Office when an issue arises. Could have avoided a lot of problems if you listened to Jennifer.
- Make RFP more compatible to small businesses and there may not be a need. (See #7. "Other issues related to the design of a hydrogen fueling infrastructure solicitation.")
  - Extend the submittal time required after the release of the RFP to at least 60 days. 30 days is shortest response time I have ever heard of. Especially for such a large program effort.

6. Stakeholder ideas and recommendations on Energy Commission grant selection process.
   - The CEC is providing incentives for up to 70%, even 80% funding (with bonus), you should not require anymore cost share than what an applicant legitimately qualifies for. No extra credit/higher score for higher cost share, or penalty for lower cost share unless applicant does not qualify for higher cost share.
   - Applicant should not be penalized (or denied higher score) because they qualify for higher cost share by CEC, and asks for it. ???

7. Other issues related to hydrogen fueling infrastructure location or the design of a solicitation

1 RFP needs to be streamlined to be more compatible to small business to participate. Every other State Agency has that policy.

- The MSRC (Mobil Source Air Pollution Reduction Review Committee) had a similar problem in 1992/93. In 1993 it was restructured into a program that was fair and successful. The following is based on that process for the CEC:

- Form an "AB 118 Hydrogen Infrastructure Review Committee" (i.e., AB 118 HIRC – “Ad-Hoc”)
  - Made up of ARB Board Members/Executive Staff, and 1 CEC Commissioner.
  - The essence of this whole program (AB118) was due to a legal settlement between the Auto-Makers and ARB. This is all generated by laws and regulations centered around pollution control and reduction.
  - The Energy Commissions best attributes are in dealing with business and managing projects. ARB will have a stronger commitment to sustainability and pollution reduction for the selection process.

Other issues related to hydrogen fueling infrastructure location or the design of a solicitation. (contin.)

2 Form a TAC (Technical Advisory Committee) with members of the Sustainable Hydrogen Workgroup at ARB,

- and for the CEC Administration of Contracts and managing contracts and projects, a member of the CEC Project/Program Management staff,
- as well as an outside consulting firm with no COI (Possible candidate, SAIC- performs the same services for the MSRC).
- Auto Makers can provide advice on locations and technical specs, but no direct review of applicants information.
- The TAC would review recommendations from the contracted technical consultants reviewing the proposals, and the Auto Makers technical and location preferences (as currently outlined in RFP). Vote on approval and submit to the AB 118 HIRC for final approval - all up, or all down and start over.

Other issues related to hydrogen fueling infrastructure location or the design of a solicitation

3 Eliminate many of the requirements in project narrative. Too Cumbersome.

- Eliminate much of the requirements that require most of a whole proposal for each location in multiple station proposals, especially if the systems are identical.
- For example; 15 stations with all being 100% renewable electrolytic hydrogen dispensing need only the list of the system and a footprint of each station and indication of where it will be installed at each location. The rest is only done once.
- Only if multiple technologies, i.e., Some w/on-site electrolytic systems, some w/on-site SMR, systems, some w/delivered h2. Needs full proposal on each technology.

4 Eliminate "3. Market Viability" in Attachment B for "Project Narrative" from Attachment B (page 25). This is all new and no one can predict the "viability" until we get systems and vehicles out there. It is all relative to the "cost per mile" analysis of the fuel, and the cost of the vehicles. Ease of fueling is already indentified and required, equal to or similar to fueling a conventional gasoline vehicle.

Other issues related to hydrogen fueling infrastructure location or the design of a solicitation (contin.)

5 Eliminate "4. Project Implementation". To cumbersome. Already outlined in detail in Task by Task in SOW

6 Eliminate "5. Project Readiness". Again, identified in SOW. Very difficult to know in advance what the permitting procedures will likely be for something that is mostly new to the permitting agencies, without going through it. Which would require detailed engineering drawings and very expensive work associated with the project before any award is made.

- In other-words, no guarantee of reimbursement before the award is made, or even acceptable as cost share, before the award. If no award, the applicant is screwed.

Other issues related to hydrogen fueling infrastructure location or the design of a solicitation. (contin.)

7 Eliminate most of "5. Project Readiness" Again, permitting for something new, will be difficult to predict when, how, and what will be asked from the presiding agency.

- Keep "Provide documentation of commitment or letters of interest from fleet owners/managers in purchasing and/or distributing the hydrogen from the station…. commitment to purchase hydrogen fuel from the station may be scored higher."
- Contact SCAQMD TAO to get copy of one of their RFPs (unless they have significantly changed the way they do RFPs), those are about 20 pages long with a proposal format requirement of a 3 page ES, 20 pages to describe your plan, Technical Proposal, an SOW, Cost Proposal, Schedule of Deliverables, Attached LOIs, documentations, etc, and any attachments, if needed, to expand on your plans.

- Eliminate 700 bar requirement: Not necessary. Can double the cost of infrastructure over 350 bar: If only 350 Bar, I could easily provide hardware for under $1 mill (100% renewable on-site electrolysis). Design into vehicle.

Other issues related to hydrogen fueling infrastructure location or the design of a solicitation. (contin.)

8 CEQA Documents are attached and required to be filled out. Why require explaining it in the project narrative? That is all you should be concerned about, do they have CEQA approval. The form is what is required. Leave it at that. Also, if you are proposing a 100% renewable, sustainable electrolytic hydrogen fueling system, with no carbon or other toxic chemicals in use, can't we get a determination that it is exempt and state it in the RFP?

9 “6 Project Budget” Can we all just agree that State funds are needed to start the hydrogen fueling infrastructure,

- private investment rarely invests in any kind of infrastructure
- ROI on "Bricks and Mortar" infrastructure requires a longer amortization approach to establish profitability than most private investment is willing to invest in.
- Most private investment requires a 2 year ROI and then get out with double their money and additional equity to dump when the stock value shoots sky high. Not the right investment for this paradigm at this time. Needs State to start-up.

Other issues related to hydrogen fueling infrastructure location or the design of a solicitation. (contin.)

9 "6 Project Budget" (contin.)

- This paradigm is more like the Rural Electrification, TVA, Hoover Dam, the Interstate Freeway, etc.
- Cost effectiveness is relative to the sustainability of the project (economic, environmental, technological, market, operational, customer acceptance, etc.?)
  - Does the cost rise, the more you use, or lowers?
  - Eliminate that part of "# 6. Project Budget".
  - Because Clean, Sustainable, Renewable on-site, on-demand, electrolytic hydrogen generation and dispensing is, as the CEO of Valero Petroleum stated, "Funding our own demise!"
  - Quite a compliment that my plan is a treat to petroleum's dominance in our current energy paradigm.

Other issues related to hydrogen fueling infrastructure location or the design of a solicitation. (contin.)

10 ATTACHMENT C: Please tell us that you don't need to spell out CEC, CARB, ARB, SCAQMD, BAAQMD, AQMD, ASME, etc., or any other common acronym. If the reviewer doesn't know what they are, then they shouldn't be reviewing proposals!

- Attachment C, IV. Problem Statement: If there are any of these barriers, why would anyone propose something that has any scientific or technical barriers.
- Not an R&D funding program. It is a deployment program.
- Most of the technical and scientific barriers should have been dealt with before submitting a proposal.
- Market barriers are simply product recognition.
  - Will be addressed by simply getting enough stations deployed along with the vehicles. Advertising and marketing.
- Institutional – You guys need to get on thees local permitting agencies to cooperate and permit these systems asap. Use your clout.

Other issues related to hydrogen fueling infrastructure location or the design of a solicitation. (contin.)

- 10 ATTACHMENT C: (contin.)
  - Environmental – If there is, it won't pass CEQA. If it does, not necessary. Can't imagine why you would fund it if there is an environmental problem.
  - C. Products: Much of this section can be completed after the award and/or before signing contract, or beginning work. Adds unnecessary workload and costs to producing proposal. Or if no problems, just a statement of such should suffice. The product is hydrogen fuel that meets the purity and pressure requirements of the vehicle, and the systems that produce it. That is what this is all about! Anything else is superfluous. Unless it is a pollutant, then it should not qualify, unless fully abated.
  - Attachments K & M: Relative to proposal? Or just info for contracting after award?
  - Attachment F: If there are no health impacts due to zero emissions from production on-site, and meets all safety codes, couldn't the response simply be "Due to the fact there are no criteria emissions from facility, and all the facilities meets or exceeds all safety codes, there are no negative health impacts?"

It’s not perfect, but this would be a good start! It does at least make it fairer.

Thank You for your time.

HyGen industries
www.hygen.com
707-667-5329
h24u@hygen.com