

MEMORANDUM

TO: Jim McKinney, California Energy Commission
Jean Baronas, California Energy Commission

FROM: Gerhard Achtelik, California Air Resources Board

DATE: September 25, 2012

SUBJECT: AIR RESOURCES BOARD COMMENTS ON DRAFT HYDROGEN
INFRASTRUCTURE PROGRAM OPPORTUNITY NOTICE

The Air Resources Board (ARB) appreciates the effort that went into incorporating the information that was presented to you during the three workshops leading to the development of this draft program opportunity notice (PON) for hydrogen infrastructure. Thank you for the opportunity to provide comments. We have the following comments that we feel, if incorporated, would make an even stronger PON.

Our primary suggestions concern clarification regarding the amount of funding available, the possible station locations, the station performance requirements, and the discussion regarding renewable hydrogen.

Amount of Funding – We recommend that the solicitation clearly state that the full \$29.69 million is available under this solicitation. However, the Energy Commission reserves the right to fund any portion of this amount based on receiving qualifying responses and will follow up at a later date with another solicitation as necessary.

Station Locations – The draft PON identifies 11 eligible target areas for hydrogen infrastructure placements. The PON also states that only one station per target area will be competitively awarded. Given the challenges associated with creating partnerships with traditional fueling outlet operators it is conceivable that not each target area will have a potential project that is submitted or that the 11 highest scoring proposals do not represent all 11 target areas. We recommend clearly allowing all 25 areas mapped by the University of California at Irvine STREET model and submitted to docket 12-HYD-1 be included for consideration for funding. The locations should be listed on a table and included in attachment 11. In addition, if not all 25 identified areas receive qualifying proposals we recommend that CEC reserve the option to consider suitable proposals from the “expanded network locations”, such as I-5 corridor, Lake Tahoe, Santa Barbara, and Palm Springs, provided in Table 4 of the CaFCP document, “A California Road Map: The Commercialization of Hydrogen Fuel Cell Vehicles”

Minimum Technical Requirements – CARB feels that the PON minimum requirements (50 kg/day and 20 kg/hr.) are far too low for any of the stations needed in the 25 priority area maps generated by UC Irvine. It is likely that these stations will become operational at the end of 2014 or early 2015 at the point when an increasing deployment of vehicle is expected to occur. Therefore we recommend the following performance parameters;

- Each individual station must have a minimum daily throughput capacity of 140 kg/day..
- Stations should be capable of five 7 kg, H70 fills in one hour and provide type A H70 and type B H35 fills.
- A 50 kg/day station can be identified as being sufficient in connector or some market development applications. For example a connector station along Interstate 5 or a destination station in the Lake Tahoe area. Both of which should qualify for funding.

The PON scoring is heavily focused on location parameters minimizing the technical or performance aspects of a station. Location items 7 and 8 add up to 120 points. Fueling station performance item 9 totals 20 points. The weighting is not proportional to their importance. The current scoring allocation raises the possibility that the State could fund 12 stations with unacceptable performance resulting in almost certain market failure in these areas. Such scoring does not adequately allow the awarding of higher performing stations. We recommend a more proportional shift of points such as follows, which still leaves in place a total of 140 possible points for location and performance:

- | | |
|---------------------------------|----------|
| 7. Location - STREET Maps | max = 70 |
| 8. Location Intersections | max = 25 |
| 9. Hydrogen station Performance | max = 45 |

Renewable Hydrogen – Additional information is needed for the bidder to be able to more easily determine compliance with the renewable hydrogen requirement. In addition, the purpose of the reference to the Low Carbon Fuel Standard is not clear. The LCFS fuel pathways cannot be directly used to determine whether hydrogen meets the renewable energy requirement neither can credits earned in the LCFS be applied to meeting renewable hydrogen requirements. A separate set of data based on total energy used in the fuel lifecycle is required. For each fuel pathway, ARB has provided a list of existing hydrogen fuel pathways and corresponding energy use in the attached spreadsheet (Attachment A).

We propose modifying the paragraph in the PON as follows:

For each station, the applicant must demonstrate that the hydrogen supplied for transportation meets reasonably the fuel production pathways described in

Attachment A. Each application must also demonstrate that the hydrogen supplied for transportation meets all requirements specified in the Environmental and Energy Standards for Hydrogen Production (SB1505). Because this regulation is currently under development, the applicant may refer to the SB1505 fact sheet at http://www.arb.ca.gov/msprog/hydprod/hydprod_fs.pdf to understand the requirements.

For the purpose of this solicitation and to appropriately evaluate each application, the term “renewable hydrogen”, as defined in Public Resources Code Section 25741(a) (1) and Public Resources Code Section 25741 (a) (1) includes, but are not limited to, hydrogen produced by:

Eligible renewable feedstocks from:

- Biogas (biomass, digester gas, landfill gas, sewer gas, municipal solid waste)¹
- Biomass-based diesel²

Eligible renewable electricity generated by:

- Fuel cells using renewable fuels
- Geothermal (natural heat from within the earth, captured for production of electric power, space heating, or industrial steam)
- Small hydroelectric facility that is 30 megawatts or less.³
- Ocean wave
- Ocean thermal

¹ Biogas (also called biomethane) means natural gas that meets the requirements of 13 CCR §2292.5 and is produced from the breakdown of organic material in the absence of oxygen. Biogas is produced in processes including, but not limited to, anaerobic digestion, anaerobic decomposition, and thermo-chemical decomposition. These processes are applied to biodegradable biomass materials, such as manure, sewage, municipal solid waste, green waste, and waste from energy crops, to produce landfill gas, digester gas, and other forms of biogas.

² Biomass-based diesel means a biodiesel (mono-alkyl ester) or a renewable diesel that complies with ASTM D975-08ae1, (edited December 2008), Specification for Diesel Fuel Oils. This includes a renewable fuel derived from co-processing biomass with a petroleum feedstock. Biodiesel means a diesel fuel substitute produced from nonpetroleum renewable resources that meet the registration requirements for fuels and fuel additives established by the Environmental Protection Agency under section 211 of the Clean Air Act. Renewable diesel means a motor vehicle fuel or fuel additive that is all the following: (A) Registered as a motor vehicle fuel or fuel additive under 40 CFR part 79; (B) Not a mono-alkyl ester; (C) Intended for use in engines that are designed to run on conventional diesel fuel; and (D) Derived from nonpetroleum renewable resources.

³ A hydroelectric facility employing one or more hydroelectric turbine generators, the sum capacity does not exceed 30 megawatts and meets the requirements of Public Resources Code Section 25741(a) and Public Utilities Code Section 399.12(e)(1), as amended on October 14, 2007.

- Ocean tidal current
- Photovoltaic (PV)
- Solar thermal
- Wind Power
- Biomass-based diesel facility using renewable⁴

Following are additional comments applicable to specific sections.

Page 8 E. Existing State Law – Is the intent of referencing ARB to direct the bidder to contact ARB? If so, please Insert Gerhard Achtelik email gachteli@arb.ca.gov , 916-323-8973

Page 9. B. Eligible Projects first sentence: Insert “*Fueling*” in place of “gasoline”

Page 10. B, 3rd bullet from the top of the page - CARB believes that data should be collected for the entire 3 years of the stations operation, and be reported using the NREL data templates on a quarterly basis to CEC, CARB and NREL.

Page 32. B. Stage Two: Technical Evaluation of Applications - CARB believes that the CEC should, in general terms, describe what type of entities/personnel/organizations might possibly make up the “Evaluation Committee” and how many people might make up that committee.

⁴ If the facility is certified as a Qualifying Small Power Production Facility (QF) under the federal Public Utilities Regulatory Policies Act (PURPA), then 100 percent of the electricity production from the facility may count as renewable, provided the facility satisfies the fossil fuel use mitigations specified in PURPA. If the facility is NOT certified as a QF, then only the renewable portion of the electricity production can qualify.