

HYDROGEN DRAFT SOLICITATION CONCEPTS

Alternative and Renewable Fuel and Vehicle Technology Program

Subject Area – Hydrogen Refueling Infrastructure

No proposals are being accepted at this time. This is a draft compilation of solicitation concepts. Do not design or submit proposals according to this DRAFT. The actual solicitation and station location Priority Areas are subject to change.

Comments on this DRAFT will be discussed at the August 13 – 14, 2015 Workshops. This DRAFT will be discussed at the Workshops. At the latest, comments are due by August 28, 2015 to the Energy Commission Dockets Unit (See Notice of Staff Workshop for additional details on how to comment).



<http://www.energy.ca.gov/contracts/index.html>

State of California
California Energy Commission
July 31, 2015

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INTRODUCTION

This “Draft Solicitation Concepts” document details the concepts under consideration for the next hydrogen refueling infrastructure solicitation issued by the California Energy Commission’s Alternative and Renewable Fuel and Vehicle Technology Program (ARFVTP). The goal of the next solicitation is to provide grant funds to projects in specified regions which expand the network of publicly accessible hydrogen refueling stations to serve the current population of fuel cell electric vehicles (FCEVs) and to accommodate the planned large-scale roll-out of FCEVs in the 2016-2018 timeframe.

This network of hydrogen refueling stations and FCEVs will support the carbon reduction and air quality improvement goals of the State of California, such as the Zero Emission Vehicle (ZEV) Mandate, which calls for sufficient alternative refueling infrastructure to support up to 1 million ZEVs by 2020, and then to have 1.5 million ZEVs on the road in California by 2025. Hydrogen FCEVs are expected to play a critical role in meeting the ZEV Mandate targets. This growing hydrogen station network will also support the commercial launch and future deployment of FCEVs in California. Hydrogen fueling will also contribute to the mix of alternative fuels needed to implement the Low Carbon Fuel Standard (LCFS), which is designed to reduce the carbon intensity of transportation fuels by 10 percent by 2020.

No proposals for hydrogen refueling infrastructure are being accepted at this time. Readers of this document are cautioned to NOT design or submit proposals according to this Draft Solicitation Concepts document as the final solicitation (including Priority Area maps) may substantially change. Comments on this Draft Solicitation Concepts document are due by August 28, 2015 to the Energy Commission Dockets Unit. Please refer to the Notice of Staff Workshop for additional details on how to submit comments. Number comments consistent with this Draft Solicitation Concepts document to facilitate effective evaluation. This Draft Solicitation Concepts document places a preference on establishing core hydrogen refueling markets, expanding core markets with fueling coverage and capacity, initiating future markets, and developing connector stations in between core markets. Major changes relative to PON-13-607, “Hydrogen Refueling Infrastructure” are noted throughout this document in bold-faced, italicized text.

NOTE: Potential applicants to the next funding solicitation are strongly encouraged to discuss their proposed project(s) with the automotive original equipment manufacturers (OEMs), site owners, station owners, station operators, county and city governmental representatives involved with permitting and fire protection rules and regulations, e.g., California Environmental Quality Act (CEQA) and National Fire Protection Association (NFPA), and other key project partners and components. To the greatest extent possible, potential applicants are strongly encouraged to begin discussions with key project partners and not wait for the final solicitation to be released. Potential applicants are cautioned that the final solicitation may differ from this Draft Solicitation Concepts document. The Energy Commission cannot guarantee that an eligible project under this document will be eligible under the final solicitation.

The Draft Solicitation Concepts follow:

1. Available Funding

Up to \$17.3 million is available under this solicitation for eligible capital expense (Cap X) and operation and maintenance (O&M) costs. The Energy Commission, at its sole discretion, reserves the right to increase or decrease the amount of funds available under this solicitation.

2. Maximum Award

The maximum award funded under this solicitation is up to 75% of the total costs of a hydrogen refueling station, or up to \$1.875 million, whichever is less, plus up to \$300,000 for O&M funding support. See Station Priority and Funding Levels for additional information on maximum award amounts.

3. Station Priority and Funding Levels

Highest scoring applications achieving at least the minimum passing score in each identified station Priority Area will be recommended for funding in the following order until funding in this solicitation has been exhausted:

- A. **Establish Core Market Competition.** The Establish Core Market Competition seeks proposals for stations in areas that have the highest potential of early market adoption for FCEVs. These areas do not have any existing hydrogen refueling station coverage. **Maximum award:** 75% of the total costs of a hydrogen refueling station, or up to \$1.875 million, whichever is less, plus \$300,000 O&M per station.
- B. **Expand Core Market Competition.** The Expand Core Market Competition seeks proposals for stations in areas that have the highest potential of early market adoption for FCEVs. These areas either: 1) have some hydrogen refueling station market coverage, but require further augmentation of that coverage, or 2) have some hydrogen refueling station market coverage, but are projected to face a challenge with capacity in the future. **Maximum award:** 75% of the total costs of a hydrogen refueling station, or up to \$1.875 million, whichever is less, plus \$300,000 O&M per station.

Upgrades to expand the hydrogen refueling capacity of existing stations are eligible under this competition for areas identified as “Expand Core Market Capacity” in Table 1. Only stations funded prior to 2010 are eligible for an upgrade. The upgraded station shall comply with all of the Minimum Technical Requirements of this Draft Solicitation Concepts. **Maximum award for upgrades:** 75% of the total costs of the hydrogen refueling station upgrade, or up to \$1.5 million, whichever is less, plus \$300,000 O&M per station.

- C. **Initiate Future Market and Develop Connectors Competition.** The Initiate Future Market and Develop Connectors Competition seeks proposals for stations in areas: 1) with high potential for early adoption for FCEVs and for which outside indications convey this market may develop once a core market is developed; or 2) that could provide fueling service for FCEV drivers travelling long distances between Core and Future Markets. **Maximum award:** 75% of the total costs of a hydrogen refueling station, or up to \$1.875 million, whichever is less, plus \$300,000 O&M per station.

Differences from PON-13-607:

- ✓ **The three competitions are new.**
- ✓ **Only hydrogen refueling stations awarded funding under this solicitation are eligible for O&M funding.**
- ✓ **Instead of a 100% renewable hydrogen competition, points will be given to applications commensurate with the amount of renewable hydrogen in their projects that exceeds 33% renewable hydrogen.**
- ✓ **There is no Mobile Refueling set-aside competition.**

Table 1: Hydrogen Station Location Priority Areas and Purpose

Priority Areas	Max # of Stations to be Funded	Purpose
San Francisco	2	Establish Core Market
Berkeley/Oakland/Walnut Creek/Pleasant Hill	2	Establish Core Market
San Diego/La Mesa	1	Expand Core Market Coverage
South San Diego/Coronado	1	Expand Core Market Coverage
Pasadena/San Gabriel/Arcadia	1	Expand Core Market Coverage
Long Beach/Huntington Beach/Buena Park/Fullerton	1	Expand Core Market Coverage
Sacramento/Land Park	1	Expand Core Market Coverage
Sacramento/Carmichael	1	Expand Core Market Coverage
Greater Los Angeles/Sherman Oaks/Granada Hills/Glendale	1	Expand Core Market Capacity
Torrance/Palos Verdes/Manhattan Beach/Redondo Beach	1	Expand Core Market Capacity
Santa Cruz	1	Initiate Future Market
Fremont	1	Initiate Future Market
Thousand Oaks	1	Initiate Future Market
Encinitas/Carlsbad	1	Initiate Future Market
Lebec	1	Develop Connector
Los Banos	1	Develop Connector
Camp Pendleton	1	Develop Connector

4. Eligible Projects

To be eligible under this solicitation, projects must:

- A. Construct a new hydrogen refueling station or upgrade the capacity of an eligible existing station.
- B. Be located in California.
- C. Be publicly accessible (meaning the project must sell fuel without the use of access, liability, or user contracts for either corporate customers/partners or individual consumer access).
- D. Meet the Minimum Technical Requirements.

5. Agreement Execution Deadline

Funding agreements must be fully executed by the funding Recipient within 90 days of project approval at an Energy Commission business meeting. If this deadline is missed, the Energy Commission reserves the right to cancel the proposed award and recommend awarding funds to the next eligible project.

6. Multiple Station Applications Allowed

Applications may include multiple hydrogen refueling stations. However, each station within the application will be evaluated, scored, and ranked individually.

7. Single Applicant Cap

To promote market diversity, a single Applicant is eligible for no more than 60% of the total funds awarded under this solicitation. This is referred to as the “Single Applicant Cap.” The Energy Commission reserves the right to modify or eliminate this cap if necessary.

8. Operational Date and Cap-X Funding

All proposals must demonstrate when the proposed hydrogen refueling station will be operational. The operational date impacts the amount of Cap-X funding that will be provided by the Energy Commission.

The operational date determines the maximum Cap-X funding that the Applicant can receive. Stations that become operational prior to September 2018 may be eligible for incentive funding in accordance with Table 2. For each calendar month after March 2018 and prior to September 2018 in which the new station becomes operational, the Energy Commission will provide up to \$62,500 per month in reimbursements for allowable Cap-X expenditures up to, but not to exceed, the amount of Cap-X funding requested by the Applicant:

Table 2: Cap-X Funding and Operational Dates, Monthly

Station Type	Max. Funding (for stations operational in September 2018 or after)	Monthly Incentive Funding	Maximum Funding (for stations operational in March 2018 or before)
New Station	\$1,500,000 or 60% of total station costs, whichever is less.	\$62,500	\$1,875,000 or 75% of total station costs, whichever is less.
Station Upgrade	\$1,235,292 or 60% of total station upgrade costs, whichever is less.	\$44,118	\$1,500,000 or 75% of total station upgrade costs, whichever is less.

Differences from PON-13-607:

- ✓ **Provides a greater incentive for Applicants to make stations operational on a monthly basis in order to receive incentive funding.**

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

The Energy Commission expects to provide funding for actual and eligible O&M costs for publicly accessible hydrogen refueling stations. O&M support costs are in addition to the Cap-X award amounts. Proposals requesting O&M support must demonstrate, through documentation, the need for state-funded O&M support.

- A. **Eligibility:** O&M funding is available only for stations: 1) funded under this solicitation; and 2) that have not previously received O&M funding from the Energy Commission. O&M funding may be provided to station developers, station owners, or station operators of eligible hydrogen refueling stations. To be eligible for O&M funding, hydrogen fueling stations must meet the Minimum Technical Requirements of this solicitation.
- B. **Application Process:** O&M support grant applicants must complete the O&M Support Grant Application form (to be attached to the solicitation) and submit it with the Cap-X grant application. The form must be completed and signed by the entity that will receive the O&M funding grant and signed by that entity’s authorized representative. No other application documentation is required.
- C. **Funding Amount:** Each eligible hydrogen refueling station can apply for O&M funding support for up to four years in accordance with Table 3.

Table 3: O&M Funding

	Station Operational on or before March 1, 2018	Station Operational between March 1, 2018 and September 1, 2018	Station Operational between September 2, 2018 and March 1, 2019
Maximum Percentage of O&M Support	100% of eligible O&M costs	80% of eligible O&M costs	60% of eligible O&M costs
Maximum Term for O&M Funding	March 1, 2022	March 1, 2022	March 1, 2022
Maximum O&M Funding Award per Station	\$300,000	\$240,000	\$180,000

Differences from PON-13-607:

- ✓ **O&M funding support is only for hydrogen refueling stations funded from this solicitation.**
- ✓ **O&M funding spans four years and is not limited in any one year.**

- D. **O&M Funding for Multiple Stations:** O&M funding may be pooled to provide O&M funding support for multiple stations funded under this solicitation. To be eligible, all stations must be funded under this solicitation and all O&M support costs must be provided to the same entity.

The maximum amount of O&M funding shall be the sum of O&M funding allowable in accordance with Table 3. Pooled O&M funding may be used to cover eligible O&M costs at any covered station limited only by the maximum percentage of O&M funding support listed in Table 3.

- E. **Eligible O&M Costs:** Eligible O&M costs must meet the following general requirements. In some instances, whether costs meet these general requirements will be determined solely by the Energy Commission on a case-by-case basis based on available facts and documentation.
1. The Energy Commission will apply appropriate Federal contract cost principles to grants made under this solicitation. Applicable federal rules will depend on Applicant's form of organization. The likely applicable Federal contract cost principles are available at:
 - OMB Circular A-122 (Revised):
http://www.whitehouse.gov/omb/circulars_a122_2004/#aa
 - OMB Circular A-87 (Revised):
http://www.whitehouse.gov/omb/circulars_a087_2004#37
 - Title 48 Code of Federal Regulations (CFR) Subpart 31.2:
<http://www.gpo.gov/fdsys/granule/CFR-2011-title48-vol1/CFR-2011-title48-vol1-part31-subpart31-2/content-detail.html>
 2. Regardless of whether a specific item of cost is allowable under the Federal contract cost principles, the Energy Commission reserves the right, at its sole discretion, to determine whether a specific item of cost is allowable.
 3. Costs must be documentable and measurable.
 4. Costs must be non-duplicative of other reimbursed or match share costs.
 5. Indirect costs are not a reimbursable O&M expenditure.
 6. Costs must be reasonable and allocable to the eligible hydrogen refueling station supported by the O&M support grant. If a cost would exist in absence of the hydrogen refueling station being supported, the cost may not be claimed. For example, if utility costs are claimed as an operating cost, only utility costs resulting from the hydrogen refueling station are eligible for reimbursement.
 7. Non-cash expenses (such as amortization, depreciation, bad debt, etc.) are not eligible as a reimbursable O&M expenditure.
 8. Maintenance of equipment that is reasonably necessary to keep the hydrogen refueling station and related equipment in efficient operating condition, from the date of delivery until the end of the agreement, only if the maintenance does not add permanent value to the equipment.

9. Costs to procure and/or produce hydrogen gas for station testing is an eligible O&M cost.
10. Insurance on the hydrogen refueling station and related equipment from the date of delivery until the end of the agreement, only if:
 - insurance does not protect the Recipient against the cost of its own defects in materials or workmanship;
 - coverage for loss, damage, destruction, or theft of the equipment does not limit or eliminate the Recipient's liability for such loss under the grant agreement;
 - coverage does not include loss, damage, destruction, or theft which results from the willful misconduct or lack of good faith on the part of any of the Recipient's ownership or managerial personnel;
 - coverage does not include lost profit; coverage does not exceed the cost of acquisition, unless the Recipient has a formal written policy that assures that the property, if converted, will be valued at the book value of the replaced asset plus or minus the difference between the insurance proceeds and the actual replacement costs;
 - costs are consistent with competitive insurance prices; insurance does not protect the Recipient from the Commission; and,
 - insurance is equivalent to the insurance that the Recipient maintains for similar equipment.
11. Rent or lease payments allocable to the hydrogen refueling station.

Costs under a resulting agreement are allowable if they are reasonable, allocable, and appropriate to the project as determined under applicable federal cost principles. Costs must be documentable, measurable and non-duplicative of other reimbursed or match share costs. For purposes of this provision, sections 31.201-2, 31.201-3, and 31.201-4 of Title 48 of the Code of Federal Regulations (CFR) are expressly incorporated by reference.

- F. ***Ineligible O&M Costs:*** Certain costs are expressly disallowed as reimbursable Operations and Maintenance costs.
 1. Costs to procure and/or produce hydrogen gas for retail sale.
 2. Property taxes.
 3. Interest.
 4. Penalties.
 5. Maintenance that adds permanent value to the equipment.
 6. Any costs which do not meet the requirements set forth in section E(1) above.
- G. ***Documentation of O&M Costs:*** If selected for funding, recipients of O&M funding support must provide with their invoices adequate documentation substantiating the actual eligible O&M costs incurred for the hydrogen refueling station. Specifically, costs

must be supported by source documents. Examples of source documents include but are not limited to checks, receipts, warrants, invoices, and stock received reports. The Energy Commission will only approve reimbursement for O&M costs adequately documented. All expenses and costs can be audited at any time, with reasonable notice. In the event of an audit, source documents may be required from Applicant.

- H. **Data Collection:** Operation and Maintenance Support Grant funding Recipients shall collect data and submit the data to the Energy Commission throughout the time the O&M Support grant is received. The Recipient shall use the National Renewable Energy Laboratory (NREL) Data Collection Tool (to be attached to the solicitation).

Differs from PON-13-607:

- ✓ **O&M funding support does not cover the cost to produce or procure hydrogen gas used for retail sale.**

10. Minimum Technical Requirements

To be eligible for funding under this solicitation, proposed hydrogen refueling stations must, at a minimum, meet each of the following minimum technical requirements. Projects exceeding minimum technical requirements may score higher in accordance with the scoring criteria.

- A. **Hydrogen Quality Requirements:** The station developer and hydrogen supplier shall ensure, through best practices, that any hydrogen delivered to and dispensed at the station shall meet the requirements of the Society of Automotive Engineers (SAE) International J2719: 2011 Hydrogen Fuel Quality for Fuel Cell Vehicles (www.sae.org). The delivery vehicle/vessel shall include a “sticker” or chart 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, the reading(s), and any special condition(s) that were used while the reading(s) were taken. Additionally, the name of the company and / or organization that took the reading(s) shall also be included.

The station developer shall be cognizant of, prepared for, and communicate their plan to accommodate potential random visits to the station to evaluate the purity of hydrogen by the California Department of Food and Agriculture/Division of Measurement Standards (CDFA/DMS) and other governmental bodies. The station developer and/or operator shall allow and cooperate with these bodies to obtain and provide samples from the station.

Stations shall provide a method of continuously monitoring the gas stream such as an in-line analyzer to ensure that hydrogen quality meets SAE J2719 standards at the dispenser output. If an analyzer is used, it should be placed immediately downstream and as close as possible to the hydrogen generation/purification equipment.

Differs from PON-13-607:

- ✓ **Requires continuous in-line hydrogen purity monitoring.**

- B. **Fueling Protocols:** The station(s)/dispenser(s) shall meet SAE International J2601: 2014, Fueling Protocols for Light Duty Gaseous Hydrogen Surface Vehicles (www.sae.org), or the most recent version published and promulgated by the SAE of the standard.
- C. **Test Method and Equipment Specification to Confirm Performance:** The station(s)/dispenser(s) shall use the Canadian Standards Association (CSA) Hydrogen Gas Vehicle (HGV) 4.3 (CSA HGV 4.3:2012), Test Methods for Hydrogen Fueling Parameter Evaluation and related devices, or the most recent published version of the standard, if available, as a test method and equipment specification 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. The use of an equivalent testing method and device is also acceptable if the method and device are described in the Applicant's narrative.

The station/fuel dispenser shall be evaluated using the U.S. Department of Energy HyStEP device or equivalent, and the California HyStEP Implementation Plan (HIP), as practicable. If HyStEP is unavailable, the station/fuel dispenser fueling protocol shall be confirmed using best practices with automobile OEM validations. The commissioning process shall follow declaration of the station operational date.

The station developer shall communicate and provide dispenser breakaway temperature and pressure data at 1 second intervals to the HyStEP operators so that accurate ramp rates of the station/fuel dispenser may be determined during the station validation/commissioning process(es), i.e., data output near the base of the dispenser that shows the ramp rates.

Differs from PON-13-607:

✓ **HyStEP, HIP, and ramp rate data output are new concepts in this solicitation.**

- D. **Minimum Station Daily Fueling Capacity Requirements:** Each station shall meet or exceed a minimum average daily fueling capacity of no less than 150kg and shall be able to increase the capacity to 250kg per day, with no additional state funding, within three years of the station becoming operational. The station capacity shall be described over a 12 hour period.

For purposes of capacity requirements, multiple hydrogen refueling stations funded under this solicitation may be considered together as a group. In total, the stations shall have a minimum average daily fueling capacity of 150kg per station and shall be able to increase their capacity to an average of 250kg per day per station within three years of the station becoming operational. The increase in capacity shall be achieved with no additional state funding.

- E. **Minimum Peak Fueling Capacity Requirements:** Stations must be able to provide a minimum of seven 5kg Type A for 70 MPa and seven 5kg Type B for 35 MPa fills per

hour. Stations must be able to fuel vehicles in accordance with this standard in a single one hour period, back-to-back, without the vehicle user having to wait for the station to recharge.

Differs from PON-13-607:

- ✓ ***The number of back-to-back vehicle fills is changed from three 7 kg fill per hour to seven 5 kg per hour.***
- ✓ ***The one hour minimum peak fueling capacity is unchanged from PON-13-607.***
- ✓ ***The minimum station daily fueling capacity requirement is increased to 150 kg/day.***

F. ***Dual Dispenser Pressure Requirements:*** Each hydrogen refueling station shall dispense fuel at both 700 bar and 350 bar and provide Type A for 70 MPa and Type B for 35 MPa fueling according to SAE J 2601: 2014 Fueling Protocol, or the most current published version of the standard.

G. ***Hydrogen Dispensing Requirements:*** The Applicant must demonstrate the ability to dispense hydrogen per “Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices” as adopted by the 97th National Conference on Weights and Measures 2012, U. S. Department of Commerce, National Institute of Standards and Technology (NIST), Handbook 44: 2013.

Hydrogen dispenser performance specifications shall satisfy NIST Handbook 44: 2013, unless superseded by California Department of Agriculture (CDFA), Division of Measurement Standards Rulemaking: California Code of Regulations (CCR) 3.39 “Hydrogen Gas Measuring Devices Tentative Code” (as proposed for replacement through public review processes).

H. ***Station Design Requirements:*** Hydrogen refueling station design must accommodate the delivery of hydrogen fuel from a mobile refueler or tube trailer.

I. ***Renewable Hydrogen Requirements:*** Proposals must demonstrate compliance with the minimum Renewable Hydrogen Requirements.

J. ***Public Point of Sale (POS) Terminal:*** Projects must include Point of Sale (POS) terminal capabilities that include credit card, or debit card, or fleet card payment systems.

K. ***Retail Requirements:*** The station shall be open to the public (unrestricted access) without a requirement of an access card or PIN code, OEM/customer liability agreements and formal/registered station training of each individual consumer.

Differs from PON-13-607:

- ✓ ***Point of Sale (POS) Terminal and Retail Requirements are new.***

11. Plan to Connect With an Online Status System

Applications should provide a plan to ensure that the station will appear on an online station status system so that drivers can know where the station is and the station status. One such system is the California Fuel Cell Partnership's Station Operational Status System (SOSS). Details on this system can be found at <http://m.cafcp.org>.

12. Renewable Hydrogen Requirements

Applicants must provide a plan for dispensing at least 33% renewable hydrogen through direct physical pathways for all station proposals. Proposals shall specify the percentage of renewable hydrogen to be dispensed at each location and describe in adequate detail how each station or portfolio of awarded stations (including stations previously awarded by the Energy Commission) expect to dispense at least 33% of renewable hydrogen on a per kilogram basis over the applicant's entire portfolio of Energy Commission funded stations through direct physical pathways from "well to wheel."

Proposals must include information about the source of the feedstock(s) and/or process electricity; how the feedstocks will be processed into fuel; and how the fuel will be transported, stored, and ultimately dispensed at the proposed station(s).

Eligible renewable feedstocks include:

- Biomethane or biogas such as: biomass, digester gas, landfill gas, sewer gas, or municipal solid waste gas.
- Other feedstocks may be eligible if the Application demonstrates that the proposed feedstock is sustainably produced, reduces greenhouse gas emissions compared to the petroleum baseline, and achieves the ARFVTP sustainability goals contained in 20 CCR 3101.5.

If the primary process energy for hydrogen production is electricity (e.g., for electrolysis), Applicants must describe a direct source of eligible renewable electricity or source of renewable energy certificates (RECs) that are registered and verifiable through Western Renewable Energy Generation Information System (WREGIS) or an equivalent tracking and verification system. Further information about WREGIS can be found at: www.wecc.biz/WREGIS.

Eligible renewable electricity sources include facilities that use the following:

- Fuel cells using renewable fuels
- Geothermal
- Small hydroelectric (30 megawatts or less)
- Ocean wave
- Ocean thermal
- Tidal current
- Photovoltaic (PV)
- Solar Thermal

- Wind
- Biomass digester gas
- Municipal solid waste conversion (non-combustion thermal process)
- Landfill gas
- Renewable Energy Certificates (RECs)

Applications must include information about the source of the feedstock(s) and/or process electricity (i.e., electrical power used to run a system); how the feedstocks will be processed into fuel; and how the fuel will be transported, stored, and ultimately dispensed at the proposed station(s).

For each station, Applicants must submit the following information: Year, name of pathway, amount of hydrogen dispensed annually per station (in kilograms), biogas/renewable feedstock (in standard cubic feet), and renewable electricity (in kilowatt hours), assumptions and calculations on an energy equivalent basis that demonstrate that on a “well to wheel” evaluation that the required percent of the energy used to produce, deliver, dispense and use hydrogen was from renewable feedstock. Applicants should use the energy economy ratio (EER) value of 2.5 (relative to gasoline) from the LCFS regulation to account for the fuel cell vehicle efficiency. For further information, see: <http://www.arb.ca.gov/fuels/lcfs/lcfs.htm>.

Applicants planning to use renewable electricity for system power must describe how they intend to use new renewable electricity capacity with the electricity either going directly to the hydrogen production system or connected to the grid (within the Western Electricity Coordinating Council - WECC). ***Applicants planning to use renewable electricity for system power must describe how the electricity will be dedicated and used for the hydrogen production in the sustainability section of their application.*** Alternatively, applicants purchasing and utilizing eligible renewable electricity credits must describe how the credits will be dedicated and used for the hydrogen production.

Applicants planning to use biogas for system power must describe how they will either produce or purchase biogas (certified as renewable) that will be delivered directly to their hydrogen production facility or injected into a pipeline system. If the purchased biogas will be injected into a natural gas pipeline distribution system, applicants must show that a physical pathway exists by providing documentation that proves that the purchased biogas could be transported from the injection point to the hydrogen plant (that supplies the hydrogen for the applicant’s stations).

For each station, Applicants must submit the following information: Year, name of pathway, amount of hydrogen dispensed annually per station (in kilograms), biogas/renewable feedstock (in standard cubic feet), and renewable electricity (in kilowatt hours).

Applicants must account for the possibility that not every station they submit will be recommended for funding. Therefore, Applicants must describe whether and how their renewable hydrogen plan would change depending on the number and location of stations ultimately awarded. Please also include information about whether and how costs might

change depending on the portfolio of stations ultimately awarded grant funding. For example, the Applicant shall specify whether different technologies or more expensive equipment would be used depending on the combination of stations awarded.

13. California Environmental Quality Act (CEQA)

Applicants must complete a CEQA form for each proposed hydrogen refueling station.

The Energy Commission must ensure that the appropriate level of environmental review under CEQA is complete prior to advancing a project to a Business Meeting for Commission approval. Thus, no award can be approved, nor can any grant be executed, until a CEQA determination can be made by the Energy Commission. Applicants are encouraged to contact the appropriate local lead agency and, at a minimum, provide evidence within the application that this contact has been made by the applicant and the project, as proposed, has been described to the appropriate local lead agency.

The Governor’s Office of Business and Economic Development is available to provide CEQA assistance. Contact:

Mr. Tyson Eckerle
Governor’s Office of Business and Economic Development (GO-Biz)
Sacramento, CA 95814
Phone: 916-322-0563
Fax: 916-322-0693
tyson.eckerle@gov.ca.gov

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.

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

14. Permitting

Applicants must include information in their narrative that describes their plans to obtain permits for hydrogen fueling stations. The Governor’s Office of Business and Economic Development (GO-Biz) is available to provide permitting assistance. GO-Biz has a Permitting Guidebook in process. For more information, please contact:

Mr. Tyson Eckerle
Governor’s Office of Business and Economic Development (GO-Biz)
Sacramento, CA 95814
Phone: 916-322-0563
Fax: 916-322-0693
tyson.eckerle@gov.ca.gov

15. Letter(s) of Support or Commitment

Letter(s) of support or commitment will not be counted against the page limitations in the Final Solicitation.

- A. **Site Owner/Operator (MANDATORY):** Proposals must include a current letter of support from the owner/operator of the site where the hydrogen fueling station or upgrade project is proposed. The letter shall be signed by the site owner or representative who is duly authorized to commit the site to building a hydrogen fueling station (or to implement an upgrade) at their site in collaboration with the project developer. The letter shall also contain a telephone number to allow the Energy Commission to contact the site owner or representative to confirm the commitment and authority to commit to the proposed project.
- B. **Third-Party Match Share Commitment (MANDATORY, if applicable):** For match share committed by a third-party (i.e., other than the match share committed by the Applicant), Applicant must submit a letter of commitment from each match share partner identifying the source(s), amount of match funding, and availability of match funding.
- C. **Key Project Partners (MANDATORY, if applicable):** Proposals shall include a letter of commitment from every key project partner. The letter of commitment shall include complete contact information so the Energy Commission is able to efficiently contact the letter writer, as necessary.
- D. **Third-Party Letters of Support (OPTIONAL):** Applicants are encouraged to submit additional letter(s) of support that further substantiate the estimated demand and/or the potential benefits of the proposed station. Third-party letters of support can be provided by, but are not limited to: air districts, state or federal agencies, original equipment manufacturers (OEMs), renewable hydrogen fuel providers, local safety officials, fleet operators, and any other organizations.

16. Operational Date

The operational date is defined as the date by which the station has a hydrogen fuel supply and all station/dispenser components are installed. Further, the station shall meet all of the Minimum Technical Requirements contained in this solicitation and shall have all of the required permits from the local jurisdiction and agency. The station shall also: 1) have a completed, successful hydrogen quality test; 2) successfully fueled one fuel cell vehicle with hydrogen; and 3) be open to the public.

The station shall be operational for a minimum of three years. The Energy Commission strongly prefers that stations be operational by March 1, 2018. This is the reason this solicitation offers a sliding scale to incentivize early station completion. Therefore, Applicants are strongly encouraged to submit proposals that realistically demonstrate a hydrogen refueling station will be completed by March 1, 2018.

17. Data Collection

Applicants that are awarded will be required to collect and submit station operation, maintenance, and performance data for a minimum of 36 months (3 years) once a station becomes operational per the National Renewable Energy Laboratory (NREL) Data Collection Tool. The specific requirements will be contained in the agreement's Scope of Work.

18. Enforcement of Proposed Station Locations

Applicants are strongly advised to only submit funding applications for locations where the Applicant has site control and assurance that the station can be successfully constructed. The Energy Commission reserves the right to cancel a proposed award or funding agreement if the proposed location of the station becomes unviable for any reason. Funding from terminated agreements may be utilized to fund the next eligible Proposal under this solicitation.

19. Enforcement of Critical Milestones

Applicants are strongly encouraged to provide realistic and aggressive timelines for critical milestones under the application. Critical milestones may include, but are not limited to: 1) grant agreement execution; 2) permit application submittal(s); and 3) commencement of station construction. While aggressive timelines will be rewarded through the scoring criteria, they must be realistic to ensure applicants can achieve the identified critical milestones. The Energy Commission reserves the right to cancel a proposed award or funding agreement if one or more critical milestones are missed. Funding from terminated agreements may be utilized to fund the next eligible Proposal under this solicitation.

20. Station Competition and Station Priority Area Determination

Applicants are encouraged to contact the Air Resources Board (ARB) with the proposed project location(s) and to provide to the ARB the full address of each proposed station, including zip code. ARB will answer requests on a first-come, first-served basis. Further, the ARB will hold the information provided by the potential Applicant confidential and return results within approximately one week. Any discrepancies between information submitted by the Applicant and the Energy Commission's analysis related to location scoring will be resolved by the Energy Commission and scored based solely on Energy Commission analysis and results in consultation with ARB.

The ARB will provide the Applicant confirmation of the station competition for the proposed station location and a map of the Priority Area with the address of the proposed station identified in the map center. The ARB will use the California Hydrogen Infrastructure Tool (CHIT) to generate high-resolution maps of Priority Areas. Stations do not have to be proposed for locations inside Priority Areas; however, stations located inside Priority Areas will receive a higher location score according to the Location and Capacity Scoring Criteria.

Applicants should contact:

Andrew Martinez, PhD
(916) 322-8449
ECARS/ Advanced Clean Cars Branch
ZEV Infrastructure
California Air Resources Board
Andrew.Martinez@arb.ca.gov

Inquiries will be processed on a first-come, first-served basis. The Applicant shall include a copy of the ARB correspondence and map(s) with their application(s) to the Energy Commission. The extent to which the location serves California's need for hydrogen refueling will be scored according to the Location and Capacity Scoring Criteria.

The ARB will also provide the need for fueling capacity in the proposed location's Priority Area. The extent to which the fueling capacity serves California's demand for fueling will be scored according to the Location and Capacity Scoring Criteria in the solicitation by the Energy Commission. As each station is recommended for a proposed award, the Energy Commission will re-evaluate the location and capacity score (through subsequent CHIT output) for all remaining stations by considering the locations and capacities of stations proposed for a funding award.

21. Hydrogen Refueling Station Upgrades

Proposals for station capacity upgrades are only eligible if the station is identified as a station in the Expand Core Market Capacity Competition by ARB in accordance with CHIT. Only stations funded prior to 2010 are eligible for an upgrade. The upgraded station shall comply with all of the Minimum Technical Requirements of this solicitation.

The proposal shall include detailed information about the complexity of the upgrade, the existing status (in terms of state of the art) of the station, and the benefit-cost score which is the project's expected or potential greenhouse gas reduction per Energy Commission dollar requested for the upgrade.

In addition to other solicitation requirements, proposals for station upgrades shall include:

- A. An overview of the existing station, including components.
- B. An overview of the architecture planned for the upgraded station, including components.
- C. The benefit-cost score.
- D. Rationale as to why state funding is needed for the upgrade.
- E. Throughput for the upgraded station, estimated in terms of vehicles to be filled and amount of hydrogen dispensed.

22. Match Share Funding Requirements

The balance of the project cost beyond the Energy Commission grant is the Applicant's match share. This is also referred to as "match funding." Applications must meet the minimum match share funding requirements specified within this solicitation based on the actual station operational date.

Proposals with a greater percentage of the total project costs in match share funding will be scored higher in accordance with the Scoring Criteria.

- A. All match share expenditures must conform to the requirements in the terms and conditions of the grant agreement. Grant recipients will be required to document and verify all match share expenditures.
- B. Applicants must disclose the source and provide verification and documentation for the match share funding.
- C. Match share funding may be in the form of cash and/or in-kind contributions such as donated labor hours, equipment, facilities, and property. Equipment, facilities (e.g., laboratory space), and most property may count as match funds as long as the value of the contribution is based on documented market values or book values, prorated for its value to the project, and depreciated or amortized over the term of the project using standard accounting principles.
- D. Funding from other non-state government agencies may be used as match share.
- E. Funding recipients are allowed to incur match share expenditures only after the Energy Commission notifies the Applicant that its project has been proposed for an award through the release of a Notice of Proposed Awards (NOPA). Match expenditures incurred prior to the full execution of a funding agreement are at the Applicant's own risk. The Energy Commission is not liable for an Applicant's incurred match share costs if the grant is not approved, if approval is delayed, or if the match share expenditure is not allowable under the terms and conditions of the grant or applicable federal cost principles incorporated by reference into the agreement.

23. Screening Criteria

Proposals will be screened according to the following criteria. Proposals not meeting one or more of the following requirements will be disqualified and not eligible for funding:

- A. Applicant is eligible to apply under this solicitation.
- B. Proposed project is eligible in accordance with this solicitation.
- C. Project meets each of the Minimum Technical Requirements.

Additional administrative screening criteria will be included in the solicitation.

24. Evaluation Process, Scoring Criteria and Points

The Energy Commission will evaluate and recommend for funding proposals utilizing the following guidelines:

- A. Proposals will be scored in accordance with the Scoring Criteria.
- B. To be eligible for funding, projects must achieve the minimum passing score of 70%.
- C. Proposals will be ranked according to score.
- D. Once an Applicant exceeds the Single Applicant Cap, remaining stations from the Applicant will be disqualified and not eligible for funding. The Energy Commission reserves the right to modify or eliminate this cap.
- E. Ties, if any, will be broken in the following order:
 - 1. Proposal with highest “Market Viability” score.
 - 2. Proposal with highest “Hydrogen Refueling Station Performance” score.
 - 3. Proposal with highest renewable hydrogen content.
 - 4. If still tied, an objective tie-breaker will be utilized.
- F. Proposals will be recommended for funding in ranked order until funds in this solicitation have been exhausted.

Table 4: Summary of the Scoring Criteria and Points

Scoring Criteria	Points
Qualifications of Applicant/Project Team	30
Location and Capacity	50
Market Viability	50
Safety Planning	50
Project Readiness	30
Project Implementation	40
Project Budget	40
Economic and Social Benefits	20
Hydrogen Refueling Station Performance	50
Innovation	20
Sustainability	30
TOTAL POSSIBLE POINTS:	410

At a minimum, an application must reach the Minimum Passing Score of 287 points, or 70% of the 410 total possible points.

Qualifications (skills and abilities, experience, and knowledge) of the Applicant/Project Team (30 points). Proposals will be evaluated the degree to which the team...

- Is qualified (including skills and abilities, experience, and knowledge) to implement the proposed project. Project teams with better qualifications will score higher.
- Demonstrates the ability to work with the hydrogen refueling technology or other gaseous fuels by disclosure of the details of the applicant’s role working on refueling

stations in the past including the dates, locations, the type of fuels dispensed, and the amount of fuels dispensed.

- Demonstrates the ability to meet deadlines and milestones of large scale fueling projects.
- Demonstrates the ability in logistics management that is relevant to a hydrogen refueling station.
- Demonstrates the experience completing recent work projects as they relate to the scope of work of the application.
- Demonstrates knowledge and understanding, demonstrated by specific examples of past projects, of the state of California's hydrogen refueling infrastructure and how the proposed hydrogen refueling station(s) works within the infrastructure.
- Demonstrates experience and knowledge of hydrogen refueling station permitting process(es) applicable to a particular site.
- Demonstrates knowledge of the tests and techniques related to comply with hydrogen purity testing and the applicable hydrogen production/delivery.
- Demonstrates experience applying state of the art techniques in designing and building a hydrogen refueling station.
- Demonstrates knowledge of station equipment reuse and recycling techniques.

Applicants must achieve a minimum of 70% (21 points) under this criterion to be eligible for funding.

Location and Capacity (50 points). Proposals will be scored based on the degree to which the proposed station provides fueling coverage and capacity needs in California as determined by CHIT. Any discrepancies between information submitted by the Applicant and the Energy Commission's analysis related to scoring will be resolved by the Energy Commission and scored based solely on Energy Commission analysis and results in consultation with ARB.

- Coverage Analysis: Ability of the proposed station to cover an identified gap in service of an identified market according to the CHIT model.
- Capacity Analysis: Ability and appropriateness of the proposed station to fulfill the needed capacity of an identified market according to the CHIT model (the percentage of identified capacity need). Stations with daily fueling capacity closer to or exceeding a capacity gap will score higher.

NOTE: As stations are recommended for proposed awards, subsequent CHIT analyses will be conducted on the remaining applications to consider the impacts of the proposed station awards. This subsequent analysis has the potential to affect the location and capacity score of station applications. Therefore, scores will be based on CHIT analyses and output that may differ from the information received from ARB during the application development process.

Market Viability (50 points). Proposals will be evaluated on the degree to which...

- The capacity and cost, including the fuel pathway, are suitable for the proposed station location over time. Stations with capacities and costs more suitable to their proposed location will score higher.
- The station will have the ability to serve the consumer, reliably meet the fill needs for the projected demand of vehicles, and exhibit a plan for continuous improvement to customer service.
- The project plan is sufficient to meet the expected business opportunities and business climate for the proposed station, including the anticipated cost (and calculations) to the customer per kilogram of hydrogen for three to five years after the station is operational.
- The station will contract with local fleets to assure high, constant hydrogen utilization throughout the station's lifetime.
- The demand for hydrogen refueling at the location of each station is reasonable, realistic and documented.

Safety Planning (50 points). Proposals will be evaluated on the degree to which...

- The proposal includes thought-out safety features in the design of the hydrogen refueling station, such as air-operated valves configured with spring return actuators, sensors, cameras, mitigation strategies that reduce the risk of incidents to the public, integration of hydrogen safety devices with existing gas station safety systems, and other onsite safety features and equipment.
- The proposed project is in compliance with the most recently published edition of the National Fire Protection Association (NFPA®) -2, Hydrogen Technologies Code, 2011 Edition.
- The proposal provides current, timely and easily accessible information about the station to First Responders in the event of an emergency, including a publicly available station maintenance plan.
- The Applicant provides a realistic, timely and comprehensive plan to assure safety training for the station's initial operation and safety retraining over time for all station operators.

Project Readiness (30 points). Proposals will be evaluated on the degree to which...

- The project is consistent with existing zoning requirements of the proposed location.
- The Applicant has secured or initiated actions to secure required permits for the proposed project.
- The proposed permitting schedule ensures successful project completion within the timeframes specified in this solicitation.
- The proposal includes detail about the project components that are certified by third-party standards compliance organizations and test organizations, i.e., the Underwriters Laboratories (UL).

- The project has progressed in obtaining compliance under the California Environmental Quality Act (CEQA) per the requirements of the solicitation.
- The engineering site plan has been drafted demonstrating physically feasible hydrogen station design within the site's footprint given acceptable separation distances pursuant to local, State, and Federal codes and standards, e.g., NFPA 2.
- The proposed project schedule is reasonable and installation can be complete on or before March 1, 2018.
- Outreach to the community, including Fire Marshals, has either taken place or is planned to educate the public about the potential hydrogen fueling facility.
- The proposed project coordinates with Regional Readiness Plans, either existing or in process.
- Correspondence demonstrates that the site's representative is committed to operating the hydrogen refueling station.
- Proposal demonstrates and documents site control (including but not limited to lease or access rights) needed to design the station; to install equipment and storage tanks; and for the entrance, exit and parking of vehicles to the proposed station property.
- The proposed project facilitates traffic approaching, entering, and leaving the station and traffic circulating within the station and to accommodate station setback requirements.
- The proposal includes reports of pre-application discussions with the permitting agencies and Fire Marshals.

Project Implementation (40 points). Proposals will be evaluated on the degree to which...

- The proposal demonstrates that the proposed project, including permitting, will be completed in an effective and efficient manner.
- The proposed station provides a plan for dispensing renewable hydrogen, in excess of the minimum 33% renewable requirement. Stations that dispense more than 33% renewable hydrogen will score higher.
- The schedule, sequence of tasks, and appropriate objectives of the proposed project are clear, complete, reasonable, and logical.
- The scope of work is clear, complete, reasonable and logical.
- A thorough and viable maintenance plan that facilitates the continued, ongoing station operation beyond the required three year operational time requirement.
- Procedures exist and are implemented to maximize station "up-time" to meet fill requests, including station monitoring.
- The applicant applies programmable, flexible dispensing, perhaps during non-peak hours, to non-light-duty vehicles (i.e., medium- and heavy-duty trucks such as delivery vehicles).
- The plan to connect with an online status system is sufficient to provide station status information to potential fuel cell electric vehicle owners.

Project Budget (40 points). Proposals will be evaluated on the degree to which...

- The proposed project is cost-effective.
- The proposed project results in a higher benefit-cost score in terms of GHG reductions per Energy Commission dollar provided to the project.
- The proposed station's project budget and costs are reasonable and suitable.
- The proposed match share is committed.
- The proposal exceeds the minimum match share requirements.
- State funds are necessary for the installation of the proposed project.

Economic and Social Benefits (20 points). Proposals will be evaluated on the degree to which...

- The proposed project expands opportunities for California-based businesses.
- The proposed project creates jobs.
- The proposed project results in positive economic and job benefits in disadvantaged communities within California.
- The proposed project results in tax revenues from the station.

Hydrogen Refueling Station Performance (50 points). Proposals will be evaluated on the degree to which...

- The daily fueling capacity of the proposed station(s), individually, or as a collection of stations, funded under this solicitation, exceeds the minimum average daily fueling capacity specified in this solicitation, measured over a twelve hour period.
- The peak fueling capacity of each proposed station exceeds the minimum peak fueling capacity specified in this solicitation.
- The proposed station has a viable plan to increase capacity of the station within three years of the station operational date with no additional funding from the State.
- The proposed station has the ability to serve the expected daily traffic count (DTC) or the amount of vehicles passing the station per day, per week, or for the time period during which the planned station will remain open and has higher average number of fills over both a one hour and 12-hour period.
- The traffic circulation in the proposed station supports throughput, efficiency and performance, including unobstructed ingress/egress to the fueling facility.
- The proposed station provides adequate lighting to assist station users.
- The proposed project includes directional signage to the station (pathfinder signs) and also signage from the nearest thoroughfare.
- The proposed project maximizes the hours of operation and addresses the quiet hours of the locality.
- The proposed project provides for a customer fueling experience comparable to existing gas stations, including the availability of a fueling station attendant.
- Multiple vehicles can be filled with hydrogen simultaneously.

Innovation (20 points). Proposals will be evaluated on the degree to which the proposed project includes innovation(s) that improve consumer fueling experience, increase station cost-effectiveness, and/or increase the effectiveness of the hydrogen refueling network. Innovations may include, but are not limited to:

- Unique or advanced features of the project or hydrogen refueling station technology.
- The station provides an additional hose, without a chiller, to provide lower-priced hydrogen for consumers who are comfortable with longer fill times.
- Stations with equipment that can be relocated and reused as demand increases.
- Unique use of standardized Point of Sale (POS).
- Unique use of space.
- Efficiencies in supply chain management.

Sustainability (30 points). Proposals will be evaluated on the degree to which...

- The proposed project achieves reductions of greenhouse gas (GHG) emissions to help meet the California Air Resources Board (ARB) identification of the statewide greenhouse gas emissions limit 2020
<http://www.arb.ca.gov/cc/scopingplan/document/updatedscopingplan2013.htm>.
- The proposed project maximizes the use of renewable resources or fuels, as defined within the Renewables Portfolio Standard Eligibility, Seventh Edition guidebook.
- The proposed project utilizes recycled materials and repurposed equipment and materials.
- The proposed project maximizes the efficient use of water through water recycling/reclamation.
- The proposed project maximizes energy efficiency for system power.
- The proposed project preserves and enhances the use of natural resources in the State and promotes superior environmental performance of alternative and renewable fuels.
- The proposed projects uses alternative fuels for trucks that transport the renewable hydrogen.
- The proposed project uses curtailed electricity from California's electricity grid.

25. **References: Relevant Laws, Regulations, Reports and Other Documents**

Applicants must comply with all applicable federal, state, and municipal laws, rules, codes, and regulations, including but not limited to:

- Specifications for Hydrogen Used in Internal Combustion Engines and Fuel Cells: California Code of Regulations, Title 4, Division 9, Chapter 6, Article 8, Sections 4180 and 4181.

Further, Applicants may want to familiarize themselves with the following documents when responding to this solicitation:

- 2015 Governor’s Office of Business and Economic Development’s Hydrogen Station Permitting Guidebook, Sacramento, CA, publication pending.
- 2015-2016 Investment Plan Update for the Alternative and Renewable Fuel and Vehicle Technology Program (ARFVTP)

<http://energy.ca.gov/2014publications/CEC-600-2014-009/CEC-600-2014-009-CMF.pdf>

- 2014-2015 Investment Plan Update for the ARFVTP

<http://energy.ca.gov/2013publications/CEC-600-2013-003/CEC-600-2013-003-CMF.pdf>

The above-referenced ARFVTP Investment Plans are on display and available for review in the Energy Commission’s Library. Library hours are Monday - Friday from 8:30 a.m. to 4:30 p.m., closed for lunch: 12:00 - 1:00 p.m. The Library is located at: California Energy Commission, 1516 Ninth Street, First Floor, Sacramento, CA 95814, (916) 654-4292.

- California Department of Agriculture (CDFA), Division of Measurement Standards Rulemaking: California Code of Regulations (CCR) 3.39, Hydrogen Gas - Measuring Devices - Tentative Code, as proposed for replacement through public review processes.

- National Association of Convenience Stores (NACS) Toolkit

<http://www.nacsonline.com/YourBusiness/Refresh/Documents/Site-Approval-Toolkit.pdf>

- Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices, as adopted by the 97th National Conference on Weights and Measures 2012, U. S. Department of Commerce, National Institute of Standards and Technology (NIST) / U.S. Department of Commerce, Handbook 44: 2013.