



Light Duty Vehicle Hydrogen Refueling Infrastructure GFO-15-605

Pre-Application Workshop

April 26, 2016

Zero-Emission Vehicle and Infrastructure Office (ZEVIO)



Agenda

- **1:00 – 1:10 Welcome and Logistics**
- **1:10 – 2:10 GFO-15-605 Presentation**
- **2:10 – 2:20 Break**
- **2:20 – 3:00 Questions**
- **3:00 p.m. Adjourn**



Commitment to Diversity

The Energy Commission adopted a resolution on April 8, 2015, to firmly commit to:

- Increase participation of women, minority, disabled veteran and LGBT business enterprises in program funding opportunities.
- Increase outreach and participation by disadvantaged communities.
- Increase diversity in participation at Energy Commission proceedings.
- Increase diversity in employment and promotional opportunities.



Commitment to Diversity

Fairness – Increase funding accessibility to all Californians.

Inclusion – Small businesses make up a significant portion of the U.S. economy.

Job Creation – Projects can create jobs for residents of the underserved communities.

Diversity of Ideas – Great ideas occur in a variety of areas.

Diversity in Communities' Needs – Needs vary widely from one area to the next (air quality, socioeconomic, etc.).



Relevant Laws, Codes, and Regulations

- Laws, rules, codes, and regulations.
- Standards and codes required to meet the Minimum Technical Requirements and Renewable Hydrogen Requirements.
- Tools, systems, and guides.
- Policy documents.



Funding

- Up to \$17.3 Million available.
- Two separate funding categories.
 1. Operation and Maintenance Support Grants.
 - \$300,000 per station (Page 23).
 2. Capital Expense (Cap-X) Grants.
 - I-5 Connector Station Competition.
 - Main Station Competition.



Cap-X Awards

- Maximum award amounts (Table 3, page 17):
 - Depend on station capacity (180-299 kg/day and over 300 kg/day).
 - Depend on month station is operational (Page 18).
- Open Retail Station Requirements (Page 19).
 - Applications should include a plan for becoming an open retail station no more than 180 days after becoming operational.
 - Remain functioning for a minimum of five years after becoming open retail.



Maximum Cap-X Awards

180-299 kg/day daily capacity

Station Operational Date	Maximum Cap-X Funding Amount	Monthly Incentive	Maximum Percentage of Total Project Costs
26 or more Months after Business Meeting Approval	\$1,700,000	N/A	70%
25 Months after Business Meeting Approval	\$1,770,833	\$70,833	75%
24 Months after Business Meeting Approval	\$1,841,666	\$70,833	75%
23 Months after Business Meeting Approval	\$1,912,499	\$70,833	80%
22 Months after Business Meeting Approval	\$1,983,332	\$70,833	80%
21 Months after Business Meeting Approval	\$2,054,165	\$70,833	85%
20 Months after Business Meeting Approval	\$2,125,000	\$70,835	85%



Maximum Cap-X Awards

300+ kg/day daily capacity

Station Operational Date	Maximum Cap-X Funding Amount	Monthly Incentive	Maximum Percentage of Total Project Costs
26 or more Months after Business Meeting Approval	\$1,870,000	N/A	70%
25 Months after Business Meeting Approval	\$1,947,915	\$77,915	75%
24 Months after Business Meeting Approval	\$2,025,832	\$77,917	75%
23 Months after Business Meeting Approval	\$2,103,749	\$77,917	80%
22 Months after Business Meeting Approval	\$2,181,666	\$77,917	80%
21 Months after Business Meeting Approval	\$2,259,583	\$77,917	85%
20 Months after Business Meeting Approval	\$2,337,500	\$77,917	85%



Other Solicitation Elements

- Retention: 15% per station; released when Final Report is approved.
- Single Applicant Cap: One applicant can receive no more than 60% of total funds awarded under GFO-15-605.
- Agreement Execution Deadline: within 90 days of Business Meeting approval.
- Multiple Station Applications Allowed: Provide separate information for each station.
- Data Collection Requirements: NREL Data Collection Tool.



Enforcement of Proposed Station Locations

- Advised to only submit applications for locations where 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 becomes unviable.



Special Terms and Conditions (Attachment 14)

- Data collection
- Payment contingency
 - Critical Milestone 1
 - Must file initial applications for construction permits with all offices having jurisdiction over the project.
 - Critical Milestone 2
 - Must have control and possession of the project site.



Enforcing Critical Milestones

Must meet Critical Milestones to receive payment under an agreement resulting from this solicitation.

- Stations funded by previous solicitations must meet both Critical Milestones by December 31, 2016.
- Stations funded by GFO-15-605 must meet both Critical Milestone 1 and Critical Milestone 2 according to the application's Schedule of Products and Due Dates.
- Provide proof to receive reimbursement for work performed under GFO-15-605.



O&M Support Grants

- Only stations awarded a Cap-X grant under GFO-15-605 are eligible.
- Must meet the Minimum Technical Requirements (Pages 36-41).
- First-come, first-served.
- \$300,000 per station.
- NREL Data Collection Tool (Attachment 11).
- See pages 23-26.



Capital Expense (Cap-X) Grants

- I-5 Connector Station Competition
- Main Station Competition
 - Core Market Areas (Table 4, Page 28).
- Upgrade of existing non-retail stations is eligible (both I-5 Connector Station and Main Station Competitions).



Overall Eligibility Requirements

- Eligible Applicants
- Project Requirements
- Eligible Costs
- Match Share Funding Requirements
 - Stations operational 20 months after Business Meeting: 15%.
 - Stations operational 26 or more months after Business Meeting: 30%.



Past Performance of the Applicant

- If substantive progress not demonstrated under previous Energy Commission funding agreements, Applicant may be disqualified.
- Past performance can affect:
 - Eligibility to apply under GFO-15-605.
 - Reimbursement for expenses under GFO-15-605.
 - Termination of a new agreement funded under GFO-15-605.



Minimum Technical Requirements

Section VI.	Item
A. (Page 36)	Hydrogen Quality
B. (Page 37)	Type Evaluation for Hydrogen Refueling Station Dispensers
C. (Page 38)	Fueling Protocols
D. (Page 39)	Minimum Daily Fueling Capacity
E. (Page 39)	Minimum Peak Fueling Capacity
F. (Page 39)	Fueling Hoses
G. (Page 40)	Point of Sale (POS) Terminal
H. (Page 40)	Connection to the Station Operational Status System
I. (Page 40)	Signage
J. (Page 41)	Station Design Requirements



Hydrogen Quality

- Comply with SAE International J2719.
- Test and report quality at least every 3 months.
- Allow future retrofits to improve or automate contaminant monitoring.
- Monitor humidity if generating onsite hydrogen via electrolysis.
- Monitor CO and CO₂ if generating onsite hydrogen via SMR.



Type Evaluation for Hydrogen Refueling Station Dispensers

- Conform to CCR Title 4, Division 9, Chapter 1, Article 1, Section 4002.9 Hydrogen Gas-Measuring Devices (3.39).
- Undergo type evaluation according to CTEP.
- Must receive a Temporary Use Permit or Certificate of Approval from CDFA/DMS to dispense hydrogen for retail sale.
- Include a plan for testing dispensers using either DMS or a Registered Service Agent.



Fueling Protocols

- Comply with most recent SAE and CSA standards.
- Describe how station developer will self declare compliance with the standards.
- State how the station will use HyStEP during commissioning, or OEM best practices if HyStEP is unavailable.
- Dispense at mandatory H70-T40.
- Describe optional H35-T20, if applicable.



Minimum Daily Fueling Capacity

- No less than 180 kg per day.
- Must adhere to the minimum daily fueling capacity proposed in the application.
- Over a 12 hour period, between 6 a.m. and 6 p.m..



Minimum Peak Fueling Capacity

- H70-T40: five 4kg fills per hour, back-to-back, between 6 a.m. to 9 a.m. and 3 p.m. to 6 p.m..
- H35-T20 (if opted): four 4kg fills per hour, back-to-back.
- Describe how HyStEP or FCEVs will be arranged to test peak capacity.



Other Min. Tech. Requirements

- Fueling Hoses
 - Conform to the latest version of SAE J2600-2012 or ISO 17268-2006.
- Point of Sale (POS) Terminal
 - Accept major credit cards, debit cards, and fleet cards.
 - Compatible with microprocessor chip technology.
 - Use product codes for hydrogen fuel sales.



Other Min. Tech. Requirements

- Connection to SOSS
 - Describe plan to install hardware and software.
- Signage
 - Must post signage to educate the public about hydrogen and acknowledge public funding.
 - Initiate planning for trailblazer and CalTrans signage.
- Station Design Requirements
 - Must be able to accept hydrogen from a mobile refueler or tube trailer.



Renewable Hydrogen Requirements

- Must dispense a minimum of at least 33% renewable hydrogen (per kilogram).
- Contingency Plan for actual awarded stations.
- Eligible Renewable Feedstocks.
- Eligible Renewable Electricity Sources.
- Renewable Sources for System Power.
- Biofuel for Delivery Trucks.
- Report of Renewable Hydrogen Dispensed (Attachment 12).



Hydrogen Safety Plan

- Required for each proposed hydrogen refueling station.
- In accordance with the Hydrogen Safety Panel's *Safety Planning for Hydrogen and Fuel Cell Projects* (March 2016).
- Post-award requirements:
 - Release and Incident Reporting.
 - Annual Safety Evaluations.



Safety Plan Assistance

- Provided by Pacific Northwest National Laboratory (PNNL), which manages the Hydrogen Safety Panel (HSP)
- Webinar on May 3, 2016 (1:00 p.m. - 3:00 p.m.)
 - WebEx information will be posted on the solicitation page.
- Pre-application consultations
 - No cost to the applicant.
 - First-come, first-served.



Safety Plan Assessment

- HSP will evaluate the submitted Safety Plan(s) for each Cap-X application.
- HSP will provide the Energy Commission with a written assessment and recommendation of the adequacy of each submitted Hydrogen Safety Plan.



Use of CHIT

1. Each Applicant shall contact CARB to obtain CHIT Values for each proposed station.
 - Energy Commission staff will verify CHIT values.
2. Each station location will be scored using CHIT Station Coverage Value, CHIT Station Capacity Value, and Market Viability.
3. Remaining Evaluation Criteria will be scored and scores will be totaled.



Use of CHIT (cont.)

4. The highest ranked station will be selected and added to the hydrogen refueling network within CHIT.
5. CHIT Values will be re-calculated.
6. Remaining proposed stations will be re-ranked based on revised CHIT Values.
7. In areas needing more than one station, a second station will be selected for funding.



Table 4: Core Market Areas

Core Market Areas	Maximum # of Stations to be Funded*
San Francisco	2
Berkeley / Oakland / Walnut Creek / Pleasant Hill	2
Greater LA / Sherman Oaks / Glendale / Pacific Palisades	1
San Diego / La Mesa	1
Torrance / Manhattan Beach / Redondo Beach	1
South San Diego / Coronado	1
Pasadena / San Gabriel / Arcadia	1
Long Beach / Huntington Beach / Buena Park / Fullerton	1
Santa Cruz	1
Irvine / Tustin	1
San Mateo / Palo Alto / Cupertino / Campbell / San Jose	1
Sacramento / Carmichael	1
San Clemente	1
Laguna Beach	1

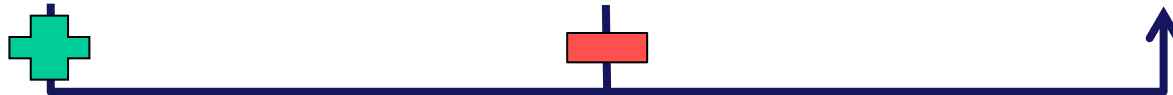
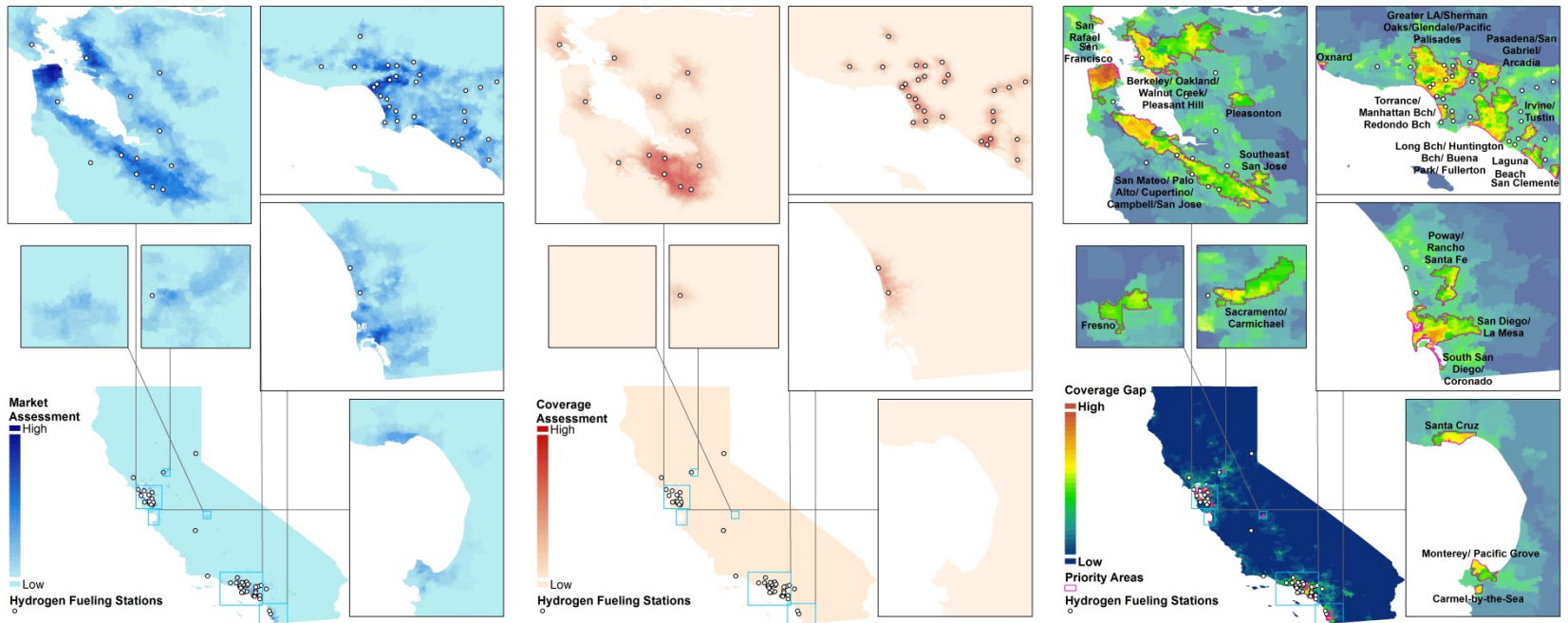


CHIT Overview

- CHIT evaluates relative need for hydrogen infrastructure based on a gap analysis between a projected market and current infrastructure
- Markets are estimated by demographic and vehicle registration data indicators
- Pattern analysis of coverage gap guides determination of prioritized Core Market Areas



CHIT Overview





CHIT Public Access

- Technical details of CHIT presented in two public workshops in 2015.
- Interactive CHIT map and full CHIT tool download package posted on CARB website, for informational purposes, on March 9, 2016.
- CARB updated the CHIT maps April 18, 2016 to support GFO Table 1 and Table 4.

<http://www.arb.ca.gov/msprog/zevprog/hydrogen/h2fueling.htm>



Evaluation Process

- Administrative Screening
- Technical Screening
- Technical Scoring
 - Proposals will be scored in accordance with the Evaluation Criteria.
 - To be eligible for funding, projects must achieve the minimum passing score of 70%.
 - Proposals will be ranked according to score.
 - Tie breaker.



Evaluation Criteria

- Qualifications of Applicant/Project Team
 - 60 points.
 - Must achieve a minimum of 70% (or 42 points) under this criterion to be eligible for funding.
- Coverage, Capacity, and Market Viability (applicable to I-5 Connector Station Competition only)
 - 100 points.
 - Must achieve a minimum of 70% (or 70 points) under this criterion to be eligible for funding.



Evaluation Criteria

- Coverage, Capacity, and Market Viability (applicable to Main Station Competition only)
 - 100 points.
 - Must achieve a minimum of 70% (or 70 points) under this criterion to be eligible for funding.
- Safety Planning
 - 40 points.
 - Must achieve a minimum of 70% (or 28 points) under this criterion to be eligible for funding.



Evaluation Criteria

- Project Readiness
 - 40 points.
 - Must achieve a minimum of 70% (or 28 points) under this criterion to be eligible for funding.
- Station Operation and Maintenance
 - 40 points.
- Project Budget
 - 25 points.



Evaluation Criteria

- Financial Plan
 - 15 points.
- Hydrogen Refueling Station Performance
 - 60 points.
 - Must achieve a minimum of 70% (or 42 points) under this criterion to be eligible for funding.
- Economic and Social Benefits
 - 20 points.
- Innovation
 - 20 points.



Evaluation Criteria

- Renewable Hydrogen Content
 - 30 points.
 - The station (or average of hydrogen dispensed across a collection of one grant recipient's stations funded under this solicitation) exceeds the required 33% renewable hydrogen content by use of renewable energy certificates (RECs).



Evaluation Criteria

- Renewable Hydrogen from Direct Sources
 - 30 points.
 - The station (or collection of one grant recipient's stations funded under this solicitation)
 - has direct renewable hydrogen sources from a project initiated specifically for the proposed station.
 - uses direct renewable hydrogen resources from within California.
- Sustainability and Environmental Impacts
 - 20 points.



Application Format, Required Documents, and Delivery

- 11 point font, single-spaced with a blank line between paragraphs.
- Project Narrative limited to 70 pages plus 5 pages for each station.
 - $5 \text{ stations} = 70 \text{ pages} + (5 \text{ stations} \times 5 \text{ pages}) = 95 \text{ pages}$
- **Preferred Method for Delivery is electronic.**
- Hard Copy Delivery
 - Submit one paper copy and an electronic copy on CD-ROM or USB memory stick.



Electronic Submission

- Energy Commission Grant Solicitation System
 - Online tool available at: <https://gss.energy.ca.gov/>.
 - Upload prior to July 15, 2016 at 5:00 p.m..
- Tutorial Video
https://www.youtube.com/watch?v=ZDNhPaCt_yk



Application Organization

Tab Number	Title of Section
1	Table of Contents
2	O&M Support Grant Application Form (Attachment 1)
3	Capital Expense (Cap-X) Grant Application Form (Attachment 2)
4	Executive Summary
5	Project Narrative
6	Hydrogen Safety Plan
7	Scope of Work (Attachment 3)
8	Schedule of Products and Due Dates (Attachment 5)
9	Budget (Attachment 6)
10	Resumes
11	Letters of Commitment/Support
12	Contact List (Attachment 7)
13	CEQA Compliance Information (Attachment 8)
14	Localized Health Impacts Form (Attachment 10)
15	Confidential Business Plan <i>Detached and separately sealed from application</i>



Attachments

- 1 O&M Support Grant Application Form
- 2 Capital Expense (Cap-X) Grant Application Form
- 3 Scope of Work Template
- 4 Scope of Work Instructions
- 5 Schedule of Products and Due Dates
- 6 Budget Forms
- 7 Contacts List
- 8 CEQA Compliance Information
- 9 ARFVTP Terms and Conditions
- 10 Localized Health Impacts Form
- 11 NREL Data Collection Tool
- 12 Report of Renewable Hydrogen Dispensed
- 13 Greenhouse Gas Emission Calculation Example
- 14 Special Terms and Conditions



Confidential Business Plan

- Balance sheet and cash flow statement for the past three (3) years.
 - Must be audited and certified by a CPA.
- Five (5) year proforma statement.
- If submitting electronically, be certain to upload under the file description, “Confidential Information.”



Confidential Business Plan

- Financial information described in Section IX.H.14 (a and b) will be kept confidential from receipt to seven (7) years following the posting of the Notice of Proposed Awards, after which time the records will become public.
- **Document should be detached from the application package, separately sealed, and clearly identified as confidential.**



Technical Contacts

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<p>CHIT</p> <p>Andrew Martinez, Ph.D.</p> <p>ECARS/ Advanced Clean Cars Branch ZEV Infrastructure California Air Resources Board (CARB) (916) 322-8449 Andrew.Martinez@arb.ca.gov</p>	<p>CEQA/Permitting</p> <p>Tyson Eckerle</p> <p>Deputy Director of ZEV Infrastructure Governor's Office of Business and Economic Development (GO-Biz) 916-322-0563 tyson.eckerle@gov.ca.gov</p>



California Energy Commission

- Solicitation and related information posted at:
<http://www.energy.ca.gov/contracts/transportation.html#GFO-15-605>

Applications due on July 15, 2016, 5:00 PM



Written Questions

by **April 29, 2016 at 5 p.m.**

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Adjournment

Thank you for participating.