DOCKETED

Docket Number:	17-HYD-01
Project Title:	Renewable Hydrogen Transportation Fuel Production
TN #:	220452
Document Title:	Presentation - Alternative and Renewable Fuel and Vehicle Technology Program
Description:	Draft Solicitation Concepts for Renewable Hydrogen Transportation Fuel Production Facilities & Systems Workshop Slides, July 31, 2017
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Organization:	California Energy Commission
Submitter Role:	Commission Staff
Submission Date:	7/28/2017 4:13:50 PM
Docketed Date:	7/28/2017

Alternative and Renewable Fuel and Vehicle Technology Program

Renewable Hydrogen Transportation Fuel Production Facilities and Systems

Draft Solicitation Concepts Workshop

Art Rosenfeld Hearing Room, CEC

July 31, 2017

Introductions

- Welcome
- Housekeeping/Logistics
  - Bathrooms
  - 2nd Floor Snack Shop
  - In case of emergency
- Diversity Survey
  - https://www.surveymonkey.com/r/CECDiversity-07-31-2017

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 under-served 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.).

Workshop Objectives

- Provide an overview of the Draft Solicitation Concepts.
- Provide an open forum for questions and comments to clarify and improve these concepts.
- Receive guidance that will enable the Energy Commission to prepare a successful solicitation for renewable hydrogen production for use as a transportation fuel.

Reminder

- This workshop is discussing *Draft* Solicitation Concepts.
- No applications are being accepted at this time.
- The final solicitation could be substantially different from these draft solicitation concepts.

Agenda

Discussion of Draft Solicitation Concepts 9:10 a.m.

- Funding Strategies
- Eligibility Requirements
- Evaluation Process and Criteria

Questions and Answers 11:00 a.m.

Adjourn 12:00 p.m.

Proposed Solicitation Overview

Purpose: The development of low carbon, cost-effective, new renewable hydrogen production capacity.

- Renewable hydrogen for public hydrogen refueling stations for light-duty fuel cell electric vehicles.

Available Funding and Maximum Award (pg. 4)

- At least $2 million in funding is available through the Alternative and Renewable Fuel and Vehicle Technology Program (ARFVTP).

- The maximum requested award per project is up to $2 million or 75 percent of the total project cost, whichever is less.

Eligible Applicants (pg. 4)

- Businesses
- Public agencies
- Non-profit organizations
- Vehicle and technology entities
- Public-private partnerships
- Academic institutions

Eligible Applicants, continued (pg. 4)

- Must have a business presence in California.
- Registered and in good standing with the California Secretary of State.

Eligible Applicants, continued (pg. 4)

- Must include in their proposed project team, at a minimum:
  1) Hydrogen production equipment manufacturer or a technology integrator with an equipment manufacturer.
  2) In-state renewable resource producer, collector, or distributor.
  3) Hydrogen refueling station owner/operator for fuel off-take.

Eligible Projects (pg. 5)

- Projects producing new, renewable hydrogen production capacity using 100 percent in-state renewable resources (i.e., renewable electricity or renewable gas).
- Hydrogen must be used at in-state public hydrogen refueling stations for light-duty FCEVs.
- Projects must be located in California.
- Must meet Minimum Technical Requirements.

Ineligible Projects (pg. 5)

- Paper studies, surveys, case studies, or research projects.
- Development and demonstration of a pilot-scale system.
- Resale or use of existing hydrogen production capacity.

However, projects may co-locate at an existing hydrogen production facility, but cannot count existing capacity towards this solicitation.

Ineligible Projects (pg. 5)

- Repurpose of an existing ARFVTP-funded project or public hydrogen refueling station.

  However, projects may co-locate at an existing ARFVTP-funded project or public hydrogen refueling station if it will not reduce the existing project's or station's performance.

- Hydrogen distribution and transportation without any new hydrogen production.

Ineligible Projects (pg. 5)

- Projects serving alternative uses of hydrogen, such as for energy storage, forklifts, cell towers, medium- and heavy-duty vehicles, off-road vehicles, or for chemical processing or refining.

However, hydrogen produced that exceeds the minimum production requirement can be used for alternative uses. It is anticipated that the demand from the light-duty hydrogen refueling stations will exceed the minimum production requirement.

Minimum Technical Requirements

(pg. 6)

- Project must produce at least 1,000 kg/day of 100% renewable hydrogen.
- The renewable hydrogen shall be dedicated to supplying in-state hydrogen refueling stations for use in light-duty FCEVs.
- Hydrogen fuel quality must meet SAE J2719.

Minimum Technical Requirements, continued (pg. 6)

- 100% renewable resource(s) sourced in-state dedicated to the proposed project.
- Project technologies must have prior successful continuous operation for 6+ months.

Eligible Feedstocks and Renewable Electricity Sources (pg. 5)

- Eligible renewable feedstocks include biomethane or biogas such as biomass digester gas, landfill gas, sewer (wastewater) gas, municipal solid waste gas, or other waste fuels.
  - Systems using other waste biomass feedstocks, such as biomass waste or residues, may be eligible.

Eligible Feedstocks and Renewable Electricity Sources, continued (pg. 6)

- Eligible renewable electricity sources include fuel cells using renewable feedstocks, geothermal, small hydro, ocean wave, ocean thermal, tidal current, photovoltaics, solar thermal, biomass digester gas, municipal solid waste conversion (non-combustion thermal process), landfill gas, and wind.

Eligible Feedstocks and Renewable Electricity Sources, continued (pg. 6)

- Renewable electricity shall either go directly to the hydrogen production system or be connected via the grid from an in-state generation facility. Renewable Energy Credits (RECs) must be dedicated to and used for the production of hydrogen in the proposed system and the RECs must be retired within the Western Renewable Energy Generation Information System (WREGIS).

Match Funding Requirements (pg. 6)

- Minimum of 25% match share of the total project costs.
- Match share funding must include a minimum ***cash*** contribution equal to at least 10 percent of the total project costs.
- Applicants that do not meet the minimum match share requirements will be disqualified.

Match Funding Requirements, continued

Examples:

Project	Total Project Cost	Maximum CEC Funds Requested	Minimum Total Match Contribution	Minimum Cash Match Contribution
X	$2 million	$1.5 million	$500,000	$200,000
Y	$2,666,667	$2 million	$666,667	$266,667
Z	$10 million	$2 million	$8 million	$1 million

Eligible Project Costs (pg. 7)

- Facility pre-engineering and design
- Engineering plans and specifications
- Building and facility construction and/or modifications
- Asset and/or equipment acquisitions

Ineligible Project Costs (pg. 7)

- Land acquisition
- Fuel distribution
- Fueling infrastructure
- Permits

- While not reimbursable, these expenses may be counted towards match share.

California Environmental Quality Act (pg. 7)

- Projects recommended for funding must complete the CEQA process within 6 months of the release date of the Notice of Proposed Awards (NOPA).
- The Energy Commission reserves the right to cancel proposed awards that do not meet this CEQA compliance deadline.

Permitting (pg. 8)

- Applicants must provide information about the permitting required for the project, and the status of obtaining permits.
- If not completed, applicants must:
  - Provide a permitting schedule that ensures completion within the timeframes specified in the solicitation.
  - Have held an in-person pre-application permitting meeting with the authority(s) having jurisdiction.

Letters of Support / Commitment

(pg. 8-9)

- Applications must include current dated letters from:
  - The owner/operator of the site where the hydrogen production facility project is proposed.
  - Any third-party that is committing match share required for the project.
  - Key project partner(s) for facility design, engineering, construction, operation; feedstock or electricity supply; fuel off-take.

Letters of Support / Commitment

(pg. 8-9)

- Applications may optionally include letters of support from:
  - Air districts
  - State or federal agencies
  - Original equipment manufacturers
  - Hydrogen fuel distributors
  - Hydrogen refueling station operators
  - Local safety officials
  - Fleet operators

Data Collection (pg. 9)

- Applicants awarded funds must collect and submit facility operation and performance data to the Energy Commission for a minimum of twelve (12) months after the funded hydrogen production facility begins operation.

Two-Phase Scoring Process (pg. 9-10)

- **Pre-Application Abstract**
  - Abstract Form and 3-page project abstract
  - Scored on pass/fail basis
- **Full Application Screening and Scoring**
  - Passing pre-application abstracts will be eligible to submit a full application.

    Full applications must be consistent with previously submitted and passing pre-application abstract.

Full Application Scoring Criteria

(pg. 10)

Scoring Criteria	Points
Team Experience and Qualifications	40
Project Readiness	50
Project Implementation	50
Performance	50
Project Budget and Cost Effectiveness	40
Economic and Social Benefits	20
Sustainability	50
TOTAL POSSIBLE POINTS:	**300**

Team Experience and Qualifications (pg. 11)

- Ability to successfully implement the project.
- Demonstrated:
  - Project administration and management.
  - Can adequately account for and control costs.
  - Real estate procurement and experience in siting, construction, and supply chain logistics.
  - Experience with producing, transporting, handling, and using hydrogen at low/high pressures.
  - Permitting and CEQA compliance experience in California.

Team Experience and Qualifications, continued (pg. 11)

- Experience deploying and operating the proposed technology/system.
- Demonstrable business growth.
- If Applicant received a previous CEC award(s), it has fulfilled/is fulfilling the requirements of the agreement(s) and demonstrated acceptable past performance.

Project Readiness (pg. 11-12)

- Demonstrates site and equipment control.
- Progressed in obtaining required permits.
- Obtained CEQA compliance, or has viable plan to obtain CEQA compliance within six months of NOPA.
- Permitting and CEQA compliance schedules are reasonable, documented, and ensure project success.
- Secured feedstock and off-take agreements for full production capacity.
- Role of strategic marketing partners, customers, and other partners ensures project success.

Project Implementation (pg. 12)

- Project will be completed effectively, efficiently, and within budget.
- Project plan is complete, reasonable, and expedites production.
- Viable and reasonable plan to match supply & demand.
- Efficient and effective hydrogen distribution plan.
- Maximizes the number of public hydrogen refueling stations served.
- Reliably and consistently supply hydrogen to refueling stations.

Project Implementation, continued

(pg. 12)

- Applicant understands California's hydrogen and FCEV market development and has thoughtfully analyzed integration of the production facility into those markets.
- Market barriers and potential competition are identified and adequately addressed.
- Risk management and backup plans for feedstock supply and fuel off-take.
- Will have safety, maintenance, and training procedures.
- Commits to continue or expand operations beyond the end of the CEC agreement.

Performance (pg. 12)

- Technology is technically feasible, with 6+ months of demonstration/validation and testing data.
- Increases in-state production of renewable hydrogen and exceeds the minimum daily production capacity.
- State-of-the-art hydrogen storage, handling, and distribution.
- Maximizes facility reliability and uptime.
- Potential to replicate at multiple other sites.
- Can be further scaled up to expand production capacity.

Project Budget and Cost Effectiveness (pg. 13)

- Results in a higher benefit-cost score (GHG reduction per CEC $).
- Demonstrates need for CEC funding.
- Match share is documented, secured, reasonable, and verifiable.
- Proposed budget is complete, realistic, and reasonable.
- Minimizes total cost of production on a per kilogram basis.

Project Budget and Cost Effectiveness, continued (pg. 13)

- Cost effectively distributes hydrogen to California refueling stations at competitive prices within the timeframe needed.
- Co-products, co-benefits, or other revenue streams are identified and contribute to the production of cost-competitive hydrogen fuel and the viability of the project.

Economic and Social Benefits (pg. 13)

- Expand business opportunities for California-based businesses.
- High-quality local and in-state jobs.
- Increases state and local tax revenues.
- Project funds will be spent in California.
- Benefits California disadvantaged communities.

Sustainability (pg. 13-14)

- Produces hydrogen at lower carbon intensity than CaRFG (95.02 gCO2e/MJ for 2017).
- Minimizes environmental impact associated with hydrogen delivery to refueling stations.
- Minimizes rerouting of feedstocks from any current GHG reducing activities.
- Uses direct renewable resource(s), co-located with the production facility.
- Uses sustainable or underutilized feedstocks, such as wastes resources or curtailed electricity.

Sustainability, continued (pg. 13-14)

- Maximizes energy efficiency for system power.
- Minimizes physical space/footprint.
- Provides energy and environmental co-benefits (e.g., biomass energy storage or electric grid storage and load balancing).
- Preserves and enhances the use of natural resources and promotes superior environmental performance of alternative and renewable fuels.
- Maximizes efficient use of water through water recycling/reclamation.
- Uses recycled or repurposed equipment and materials.

Applicant Past Performance (pg. 14)

- An applicant's performance, if any, under an existing or prior Energy Commission agreement will be considered as part of an applicant's score in the Team Experience and Qualifications criteria.

- In addition, the Energy Commission reserves the right to cancel an agreement awarded under this solicitation due to poor performance by Applicant under a previous or existing Energy Commission agreement.

Full Application Evaluation Process (pg. 14)

- Applications will be screened according to administrative and technical criteria. Passing applications will proceed to scoring.
- Using the scoring criteria, applications will be scored and those receiving a minimum of 70% (or 210 points) will be eligible for funding.
- Full applications will be recommended for funding in ranked order until funds have been exhausted.

References (pg. 15-17)

- The reference section of the draft solicitation concepts includes laws, regulations, reports, and other documents with which applicants should become familiar.
  - California Code of Regulations, Code of Federal Regulations, and other applicable standards and codes.
  - Relevant state agency reports and plans.

Next Steps

ACTIVITY	ACTION DATE
Draft Solicitation Concepts Workshop	July 31, 2017 at 9:00 a.m.
Deadline for Written Feedback/Questions	August 15, 2017 at 5:00 p.m.
Solicitation Release	Q3/Q4 2017
Pre-Application Workshop	Q3/Q4 2017

Additional Information

Renewable Hydrogen Documents, Updates, and Alternative Fuels Email listserv

http://www.energy.ca.gov/altfuels/2017-HYD-01/

Questions and Answers

- Accepting oral questions during this workshop.

- Accepting written feedback and questions until August 15, 2017 at 5:00 p.m.

https://efiling.energy.ca.gov/Ecomment/Ecomment.aspx?docketnumber=17-HYD-01

Contact Information

Please send questions and comments to:

California Energy Commission
Dockets Office, MS-4
Docket No. 17-HYD-01
1516 Ninth Street
Sacramento, CA 95814
E-mail: Docket@energy.ca.gov

Adjournment

Thank you!

We look forward to your feedback!

https://efiling.energy.ca.gov/Ecomment/Ecomment.aspx?docketnumber=17-HYD-01

Comments due August 15, 2017