DOCKETED	
Docket Number:	22-ERDD-03
Project Title:	Clean Hydrogen Program
TN #:	250198
Document Title:	Draft Solicitation Concept for Large-Scale Centralized Hydrogen Production
Description:	The Draft Solicitation Concept focuses on Large-Scale Centralized Production for the Clean Hydrogen Program. The Draft Solicitation Concept outlines proposed funding, eligibility requirements, project focus, evaluation process, and specific questions for stakeholders.
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Organization:	California Energy Commission
Submitter Role:	Commission Staff
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DO NOT DESIGN OR SUBMIT PROPOSALS ACCORDING TO THIS DRAFT
Comments are due Friday, June 9, 2023, at 5:00 p.m.

DRAFT SOLICITATION CONCEPT

Clean Hydrogen Program

Subject Area: Large-Scale Centralized Production

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 is subject to change.

The purpose of this draft solicitation concept is to solicit public feedback on eligibility requirements, goals and vision, and solicitation format (See Section 8 for specific questions). Staff will accept comments submitted to the California Energy Commission (CEC) Dockets Unit or by email until Friday, June 9, 2023, at 5:00 p.m. (See Section 9 for additional details on how to comment.)

http://www.energy.ca.gov/contracts/index.html
State of California
California Energy Commission
May 2023

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I. INTRODUCTION

This "draft solicitation concept" document details the concept under consideration for a competitive grant solicitation on large-scale centralized hydrogen production to be issued by the CEC's Clean Hydrogen Program. The purpose of this solicitation is to fund the demonstration or scale-up of clean hydrogen production, distribution, and storage. These projects will increase the scale and reduce the overall cost of clean hydrogen production in California.

II. FUNDING

A. Available Funding

There is $30 million available for the grants resulting from this competitive solicitation.

B. Maximum Award

The maximum award will be up to $15 million for each award. The CEC reserves the right to modify this funding amount.

C. Match Funding Requirements

50% match funding is required for this solicitation.

D. California Spending Requirement

At least 50% of CEC funds must be spent in California. Preference points will be given for spending over 50%.

- "Spent in California" means that:
  - (1) Funds in the "Direct Labor" category and all categories calculated based on direct labor are paid to individuals that pay California state income taxes on wages received for work performed under the agreement. Payments made to out-of-state workers do not count as "funds spent in California." However, funds spent by out-of-state workers in California (e.g., hotel and food) can count as "funds spent in California."; AND
  - (2) Business transactions (e.g., material and equipment purchases, leases, and rentals) are entered into with a business located in California.
  - (3) Total should include any applicable subrecipients and vendors.

III. ELIGIBILITY REQUIREMENTS

A. APPLICANT REQUIREMENTS

1. Eligible Applicants

This is an open solicitation for public and private entities.

Each grant agreement resulting from this solicitation will include terms and conditions

that set forth the recipient's rights and responsibilities. By submitting an application, each applicant agrees to enter into an agreement with the CEC to conduct the proposed project according to the terms and conditions that correspond to its organization, without negotiation: (1) University of California and California State University terms and conditions; (2) U.S. Department of Energy terms and conditions; or (3) standard terms and conditions.

If an applicant, by law, cannot agree to the (1), (2), or (3) terms and conditions listed above without negotiation, the applicant can apply and request to negotiate terms. The CEC retains the sole right to refuse to agree to any terms changes. Note: the ECAMS system will require applicants to agree to certain certifications before submitting an application, including certifying the applicant will conduct the proposed project according to the terms and conditions without negotiation. Applicants that, by law, cannot agree to the terms and conditions will not be penalized for agreeing to the ECAMS system certifications.

All terms and conditions will be located on the Funding Resources page under "Clean Hydrogen Program Information" at https://www.energy.ca.gov/funding-opportunities/funding-resources. Please refer to the applicable Grant terms and conditions. Failure to agree to the terms and conditions by indicating that acceptance is based on modification of the terms will result in rejection of the application. Applicants must read the terms and conditions carefully. The CEC reserves the right to modify the terms and conditions prior to executing grant agreements.

All corporations, limited liability companies (LLCs), limited partnerships (LPs) and limited liability partnerships (LLPs) that conduct intrastate business in California are required to be registered and in good standing with the California Secretary of State prior to its project being recommended for approval at an Energy Commission Business Meeting. If not currently registered with the California Secretary of State, bidders are encouraged to contact the Secretary of State's Office as soon as possible to avoid potential delays in beginning the proposed project(s) (should the application be successful). For more information, contact the Secretary of State's Office at http://www.sos.ca.gov/. Sole proprietors using a fictitious business name must be registered with the appropriate county and provide evidence of registration to the Energy Commission prior to their project being recommended for approval at an Energy Commission Business Meeting.

2. Number of Applications

Applicants may only submit one application, which may include multiple project locations throughout the state.

B. PROJECT REQUIREMENTS

1. Eligible Project Costs

Costs incurred for the following are eligible for CEC's reimbursement or as the applicant's match share:

I. Equipment and materials specifically associated with hydrogen production, storage, and delivery.
II. Services, including, but not limited to, subrecipients or vendors for:
    a. Engineering and design
    b. Site construction and preparation
    c. Required project tasks (See Project Goals and Vision) related to:
        i. Measurement and verification (M&V)
        ii. Community benefits and engagement
        iii. Safety
        iv. Business and market
        v. Operations and maintenance (O&M)
        vi. Administration (e.g., progress reporting, project meetings, and final report)

The allocation of CEC funds must meet the following requirements:

- M&V will be reimbursed by the grant only when outside parties are used. Use of in-house staff is not reimbursable.
- Costs for required project tasks must not exceed 5 percent.
- Engineering and design task costs must not exceed 10 percent.
- Site construction and preparation costs must not exceed 5 percent.
- At least 80 percent of CEC funds must be allocated towards equipment, including installation, and materials.

The following are not eligible for CEC reimbursement but may be counted toward match share:

- Permit costs and the expenses associated with obtaining permits, with the exception of costs incurred by University of California recipients.
- Other costs for installing or operating eligible renewable energy resources, as defined in California Public Resources Code Section 25741 and subject to the requirements of Public Utilities Code 399.12(e)(1)(A)-(D) and 399.12(e)(2).

2. Project Timeline

The expected project timeline is four years, from CEC agreement execution through project completion, including the required twelve (12) months of demonstration.

IV. PROJECT FOCUS

Hydrogen can serve as a zero-carbon energy carrier and act as a potential replacement for fossil fuels in hard-to-electrify applications for the transportation, industrial, and electricity generation sectors. To achieve sustainable wide-scale deployment, hydrogen must be produced cleanly at increased scale and reduced cost. However, the nascent market faces hurdles to reducing electrolyzer cost, demonstrating production co-located

with renewable energy resources, and ensuring adequate infrastructure for clean hydrogen storage and transportation. The award(s) resulting from this competitive solicitation will address challenges and opportunities to deploy large-scale quantities of clean hydrogen at centralized locations by leveraging economies of scale and co-locating renewable energy resources to reduce overall system costs and distribute hydrogen to diverse end users.

For the purposes of this solicitation, clean hydrogen is defined as hydrogen that is produced from water using eligible renewable energy resources, as defined in California Public Resources Code Section 25741, and is subject to the requirements of Public Utilities Code 399.12(e)(1)(A)-(D) and 399.12(e)(2) or produced directly from eligible renewable energy resources. Hence, this solicitation is being implemented using a technology agnostic approach. Projects must use 100% renewable energy resources onsite or power purchase agreements (PPA), including both the electricity and associated Renewable Energy Credits, to source renewable energy in California. Additionally, projects must help reduce sector-wide emissions (e.g., avoiding any benefit to facilities associated with high emissions, associated with fossil fuels, or that may contribute to high emissions).

The overall goal of this solicitation is to support the adoption of commercially available hydrogen technologies and kickstart large-scale, centralized clean hydrogen production through demonstration and scale-up in California. Projects must demonstrate (at new facilities) or scale-up (at existing hydrogen production facilities) clean hydrogen production, storage, and distribution. By deploying clean hydrogen production at a large scale, this endeavor can benefit communities, workforce, air quality, and natural environments should hydrogen be used to replace diesel, fossil gas, or other fossil fuels. Any hydrogen production technologies that meet the minimum requirements and project elements identified in this solicitation are eligible to apply.

The primary objectives of these funded projects will be to:

1) Demonstrate production of at least five metric tons of clean hydrogen per day.
2) Demonstrate hydrogen storage on-site and delivery off-site.
3) Meet demand for low-carbon fuels and contribute to the overall hydrogen economy in California through distribution networks.
4) Establish a foundation for learning-by-doing to enable economies of scale and knowledge sharing.
5) Lower the cost barrier and carbon impact for clean hydrogen production by co-locating renewable energy production with hydrogen production, delivery, and storage.

A. Project Elements

CEC staff envision projects that include the following core components, while allowing applicants to add other appropriate components:

- Minimize water consumption where possible and limit water consumption to 9-

13.5 kilograms of water per kilogram of hydrogen produced. Water for projects must not be originally intended for human consumption. Additionally, there is a preference for facilities that have a secured water source or can ensure use of process or wastewater.

- Reduce sector-wide emissions (e.g., avoiding any benefit to facilities that are associated with fossil fuels or high emissions, or contribute to high emissions).
- Exhibit a carbon intensity of 0.0 kilograms of carbon dioxide equivalent per kilogram of hydrogen produced.
- Exhibit a minimum technology readiness level (TRL) of 8 at the start of the project.
- Demonstrate the system for a minimum of 12 cumulative months. The time starts accruing after the system has reached stable operation.
- Demonstrate storage and transportation of hydrogen.
- Implement hydrogen safety measures, including, but not limited to, job training and leakage detection and monitoring.
- Actively seek community input and engagement and create tangible benefits to local communities.

To achieve these goals, CEC staff envision receiving detailed information and plans from recipients, including but not limited to:

- M&V plan, including:
  - Expected production capacity (metric tons per day).
  - Water consumption estimates (including quantity and source) and methodology.
  - Feedstock procurement estimates (including quantity and source), if applicable.
  - Well-to-gate greenhouse gas emissions assessments and methodology (recommended method for monitoring and reporting is the Argonne Greenhouse gases, Regulated Emissions, and Energy use in Technologies (GREET) model).[1]
  - System performance under normal operating conditions.
- Proposed site location(s).
- Feasibility study that assesses the viability of the project, identifying potential sites and end-use application(s), and evaluating the project's economic, technical, and environmental feasibility.
- TRL of the proposed technology/production system design, including backup materials and explanation of accomplished TRL milestones prior to the application process.
- Approach to:
  - Solicit, consider, and integrate input from local communities through a community engagement plan that aims to inform, educate, and involve local community members in the clean hydrogen project's development

[1] Argonne National Laboratory, "GREET Model" 2022 https://greet.es.anl.gov/

and deployment.

- Identify specific community benefits and impacts that are expected and resulted from the project. This includes workforce development, jobs created or retained, community investments, and local health impacts.
- Ensure broad and diverse participation from underrepresented groups – including minority-, women-, and LGBT-owned businesses and disadvantaged communities.
- A safety plan that addresses hydrogen leakage monitoring and detection plans, understanding of federal and state codes and standards for hazardous materials, materials embrittlement, setback distances, and emergency plans.
- A business and market plan, including a techno-economic assessment, contracts, and agreements for deployment beyond the term of the proposed project.
- An O&M plan, including key system operating parameters and limits, maintenance procedures and schedules, and necessary documentation methods.

B. California Environmental Quality Act

Prior to CEC approval and encumbrance, the CEC must comply with the California Environmental Quality Act (CEQA). To comply with CEQA, the CEC must have CEQA-related information from applicants and sometimes other entities, such as local governments, in a timely manner. Unfortunately, even with this information, the CEC may not be able to complete its CEQA review prior to the encumbrance deadline for every project. For example, if a project requires an Environmental Impact Report, the process to complete it can take many months. For these reasons, it is critical that applicants organize project proposals and provide all CEQA-related information in a manner that minimizes the time required for the CEC to comply with CEQA and enables the CEC to complete its review in time to meet its encumbrance deadline.

In addition to any other right reserved to it under this solicitation or that it otherwise has, if the CEC determines, in its sole and absolute discretion, that the CEQA review associated with a proposed project would not likely be completed prior to the encumbrance deadline referenced above, and that the CEC's ability to meet its encumbrance deadline may thereby be jeopardized, the CEC may cancel a proposed award and award funds to the next highest scoring applicant, regardless of the originally proposed applicant's diligence in submitting information and materials for CEQA review.

C. Critical Milestones

Time is of the essence, so to incentivize and ensure timely project completion, in addition to meeting other agreement requirements, the Recipient must complete certain activities by determined dates to receive payment by the CEC under any agreement resulting from this solicitation. Recipients will be required to submit quarterly progress reports containing updates on Critical Milestones and project costs. Recipients will also be required to hold Critical Project Report meetings with CEC staff after completing each Critical Milestone. Without limitation to any other of the CEC's rights or remedies, failure to submit accurate or timely quarterly progress reports may be grounds for agreement termination.

Example critical milestones are as follows:

Critical Milestone 1: The Recipient shall provide proof of the completion of pre-installation community engagement and benefits report, permitting, CEQA documentation, safety, zoning tasks, design & engineering, and establishing a project timeline.
The Applicant must provide to the CEC proof of having met this Critical Milestone by submitting permit status letter, updated list of permits, and notes from each meeting including date, time, location, names, and titles of meeting participants, a summary of topics discussed, action items, and next steps.

Critical Milestone 2: The Recipient shall have control and possession of the site at which each proposed clean hydrogen project is to be constructed.
The Applicant must provide to the CEC proof of having met this Critical Milestone for the proposed clean hydrogen production project by submitting adequate documentation of site control and possession. Documentation of site control and possession may include, but is not limited to, an executed lease for the land on which the project will be constructed.

Critical Milestone 3: The Recipient shall complete mid-project community engagement and hold meetings to establish an agreement with contractors and/or developers for renewable energy build-out onsite or PPA, on-site storage, and off-site delivery.
The Recipient must provide to the CEC proof of having met this Critical Milestone by submitting meeting notes, not to exceed five pages per project site, including date, time, location, names and titles of meeting participants, a summary of the topics discussed, action items, and next steps.

Critical Milestone 4: The recipient shall hold meetings to develop and construct the production facility and O&M Manual, staff the facility, and acquire and install equipment and technology.
The Recipient must provide to the CEC proof of having met this Critical Milestone by submitting written notification of completed construction and installation, certificate of occupancy, and meeting notes, not to exceed including date, time, location, names and titles of meeting participants, a summary of the topics discussed, action items, and next

steps.

Critical Milestone 5: The recipient shall establish off-take agreements and partnerships to supply California customers and secure a revenue stream for the hydrogen production plant.
The Recipient must provide to the CEC proof of having met this Critical Milestone by submitting documentation that may include, but is not limited to, memorandum(s) of understandings with customers and invoices.

CEC staff will determine whether the documentation submitted by the Recipient is sufficient to show that the Critical Milestone has been met.

V. HOW AWARD IS DETERMINED

Applicants will apply for funding in two phases: the Pre-Application Abstract and the Full Application. The Pre-Application Abstract will include the project summary, project readiness, implementation schedule, and a list of proposed project partners, including an offtaker. Pre-Application Abstracts that score well will be encouraged to submit Full Applications, which will include commitment letters, site locations, and additional details relevant to the project.

Applicants passing administrative and technical screening will compete based on evaluation criteria and will be scored and ranked based on those criteria. Unless the CEC exercises any of its other rights regarding this solicitation (e.g., to cancel the solicitation or reduce funding), applications obtaining at least the minimum passing score will be recommended for funding in ranked order until all funds available under this solicitation are exhausted.

If the funds available under this solicitation are insufficient to fully fund a grant proposal, the CEC reserves the right to recommend partially funding that proposal. In this event, the applicant/proposed awardee and Commission Agreement Manager shall meet and attempt to reach an agreement on a reduced scope of work commensurate with the level of available funding.

The Pre-Application Abstract and Full Application will be evaluated in two stages: administrative and completeness screening, and technical and cost evaluation of proposals.

VI. STAGE ONE: ADMINISTRATIVE AND COMPLETENESS SCREENING

The Contracts, Grants, and Loans Branch will review Proposals for compliance with administrative requirements and completeness. Proposals that fail Stage One shall be disqualified and eliminated from further evaluation.

VII. STAGE TWO: TECHNICAL AND COST EVALUATION OF PROPOSALS

Proposals passing Stage One will be submitted to the Evaluation Committee to review and score based on the Evaluation Criteria in this solicitation. As an example, potential Evaluation Criteria for the solicitation could include the following (note that these could change when the CEC solicitation is released):

- Technical Merit
- Technical Approach
- Impacts and Benefits to California
- Team Qualifications, Capabilities, and Resources
- Budget and Cost-Effectiveness
- Funds Spent in California
- Benefits to Disadvantaged, Low-Income Communities, and/or Tribes and Localized Health Impacts.

During the evaluation and selection process, the Evaluation Committee may schedule a clarification interview with an applicant that will be held by telephone, videoconference, or in person at the Energy Commission for the purpose of clarification and verification of information provided in the proposal. However, these interviews may not be used to change or add to the contents of the original Proposal.

The total score for each Proposal will be the average of the combined scores of all Evaluation Committee members.

After scoring is completed, Proposals not attaining a score of 70 percent of the total possible points will be eliminated from further competition.

All applicable Preferences will be applied to all Proposals attaining a minimum of 70 percent of the total possible points. The agreement shall be awarded to the responsible applicant meeting the requirements outlined above, who achieves the highest score after application of Preferences.

VIII. QUESTIONS FOR STAKEHOLDERS

CEC staff are seeking responses and comments to the following to shape the direction and scope of this solicitation:

1. Are the Project Elements in Section 4 of this document realistic, reasonable, and feasible?
2. What would be the appropriate level of project funding that would leverage private investments associated with the work proposed in this draft concept and why?
    a. How would limiting the use of grant funds to Eligible Project Costs in Section 3 impact the project? What changes do you recommend, and why?
3. Is the requirement for spending in California (50% minimum, preference points for spending over 50% in California) feasible?
4. Provide any feedback on the two-phase solicitation approach. Is the 1-month

abstract deadline and 3-month full application deadline realistic?

5. Is four years a feasible project timeline?
    a. If grant awardees were CEQA-ready (see CEQA in Section 4) but need to obtain regulatory approvals, permitting, and zoning during the project, is a 4-year timeframe feasible for completion? If not, what is the recommended term for a funded project?
6. Please provide relevant comments regarding other considerations not explicitly listed above.

IX. WRITTEN COMMENTS

Comments on this "draft solicitation concept" document are due by **Friday, June 9, 2023, at 5:00 p.m.**

Please submit comments to the CEC using the e-commenting feature by accessing the comment page for this docket at https://efiling.energy.ca.gov/Ecomment/Ecomment.aspx?docketnumber=22-ERDD-03. A full name, e-mail address, comment title, and either a comment or an attached document (.doc, .docx, or .pdf format) is mandatory. Please include "Large-Scale Centralized Hydrogen Solicitation Concept" in the comment title. After a challenge-response test is used by the system to ensure that responses are generated by a human user and not a computer, click on the "Agree & Submit Your Comment" button to submit the comment to the CEC's Docket Unit.

Please note that written comments, attachments, and associated contact information included within the documents and attachments (e.g., your address, phone, email, etc.) become part of the viewable public record. This information may become available via Google, Yahoo and any other search engines.

Interested stakeholders are encouraged to use the electronic filing system described above to submit comments. If you are unable to submit electronically, you may email your comments to: DOCKET@energy.ca.gov and include "Large-Scale Centralized Hydrogen Solicitation Concept 22-ERDD-03" in the subject line.