



COORDINATING RESEARCH COUNCIL, INC.

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June 15, 2021

In reply, refer to:
CRC Project No. SM-6

Dear Prospective Bidder:

The Coordinating Research Council (CRC) invites you to submit a written proposal to provide services for “Evaluation of Hydrogen Fuel Cells as a Power Source for Electric Vehicle Charging” (CRC Project No. SM-6). A description of the project is presented in Exhibit A, “Statement of Work.”

Please indicate by email before **June 30, 2021** if you or your organization intends to submit a written proposal for this research program. CRC will answer technical questions regarding the Request for Proposal if they are submitted in writing. CRC will then return written answers to all of the bidders, along with a copy of the original questions.

A CRC technical group composed of industry representatives will evaluate your proposal. CRC reserves the right to accept or reject any or all proposals.

The reporting requirements will be monthly progress reports and a summary technical report at the end of the contractual period. The reporting requirements are described in more detail in the attachment entitled “Reports” (Exhibit B). Contract language for intellectual property and liability clauses is presented in Exhibit C and in Exhibit D, respectively. Important selection factors to be taken into account are listed in Exhibit E. CRC evaluation procedures require the technical group to complete a thorough technical evaluation before considering costs. After developing a recommendation based on technical considerations, the costs are revealed and the recommendation is modified as needed.

The proposal must be submitted as two separate documents. The technical approach to the problem will be described in part one, and a cost breakdown that is priced by task will be described in part two. The cost proposal document should include all costs associated with conducting the proposed program. The technical proposal shall not be longer than 10 pages in length (not including resumes). **The schedule / timeline information should be included in the technical proposal.**

CRC expects to negotiate a cost-plus fixed fee or cost reimbursement contract for the research program.

The technical and cost proposals should be submitted to:
Christopher J. Tennant Email: ctennant@crcao.org

The deadline for receipt of your proposal is **July 22, 2021**.

EXHIBIT A – STATEMENT OF WORK

CRC Project SM-6

Evaluation of Hydrogen Fuel Cells as a Power Source for Electric Vehicle Charging

Background

As the number of battery electric vehicles (BEV) increases, the development of a non-residential charging infrastructure becomes more important. Charging away from home is more likely to require fast charging or charging of commercial vehicles. In some cases, the existing electric grid is unable to meet the power demand. Two of many possible scenarios are fast charging in areas remote from the high capacity grid and commercial sites where a large number of vehicles need to be recharged in a limited timeframe. In the first case long distance travelers will want high power charging, typically supplied by Direct Current Fast Chargers (DCFC), to minimize the wait while their vehicle is recharged. It is very easy for DCFC units (which are typically at least 50 kW) to overwhelm the local grid capacity. The second case could be a distribution center that uses electric delivery vans which drive around all day and return to recharge overnight. In this case having a hundred or more vans coupled with the power consumption of the building itself could again overwhelm the local grid capacity or trigger unsupportable demand charges.

One option for boosting available power is install fuel cell systems. These systems can be resupplied with hydrogen and/or produce it themselves with an electrolyser during periods of low electrical demand.

Objective

The objective of this project is to develop models of both potential sites. One is a rural charging station with limited electric service the uses fuel cells to supply DCFCs. The other is a distribution site that uses fuel cells to supply some or all of the extra demand created when the fleet of delivery vehicles returns for recharge.

Statement of Work

The contractor will build a model of the two sites using the characteristics of current and near future fuel cells and vehicle charging equipment. The model will evaluate variations in customer density and demand, and the costs of fuel cells, chargers, grid electricity, hydrogen and the potential of making hydrogen on-site. The goal is to build a flexible model that will allow potential users to determine the lowest cost approach for their situation.

Deliverables

Deliverables include:

- A kick-off meeting/call between CRC and the contractor to discuss project scope and align expectations.

- Contractor will review the basic Model Designs and proposed Model Inputs with CRC prior to starting any analyses. All Inputs should have a reference for its source
- Monthly calls between CRC and the contractor to discuss preliminary results and identify any information gaps before finalizing findings and starting the final report.
- A final report, the draft of which will be reviewed by CRC before final release.

Project Schedule

CRC expects that this effort should be performed over a 9-month period following contract execution. However, the contractor will propose an appropriate timeline for completing the study, including milestones for study deliverables.

Project Management

CRC and its project technical panel will provide management and oversight for this project. These entities are here after referred to collectively as the project sponsor.

EXHIBIT B

REPORTS

MONTHLY TECHNICAL PROGRESS REPORTS

The contractor shall submit a monthly technical progress report covering work accomplished during each calendar month of the contract performance. An electronic Microsoft® Word compatible file (<1 MB) of the monthly technical progress report shall be distributed by the contractor within ten (10) calendar days after the end of each reporting period. The report shall contain a description of overall progress, plus a separate description for each task or other logical segment of work on which effort was expended during the reporting period. Periodic conference calls may also be requested by CRC to update the technical committee overseeing the project.

FINAL REPORT

The contractor shall submit to CRC a draft final report. The report shall document the test procedure, document details of each test iteration, and explain any observations noted. The test data will be recorded and reviewed, and the final report will include a certification that the test procedures were followed, noting any exceptions. The detailed data will also be supplied electronically to CRC.

The draft report must have appropriate editorial review corrections made by the contractor prior to submission to CRC to avoid obvious formatting, grammar, and spelling errors. The report should be written in a formal technical style employing a format that best communicates the work conducted, results observed, and conclusions derived. Standard practice typically calls for a CRC Title Page, Disclaimer Statement, Foreword/Preface, Table of Contents, List of Figures, List of Tables, List of Acronyms and Abbreviations, Executive Summary, Background, Approach (including a full description of all experimental materials and methods), Results, Conclusions, List of References, and Appendices as appropriate for the scope of the study. Incomplete draft reports or reports of poor quality requiring additional outside editorial review may have outside editorial services charged back to the project budget.

Comments regarding the report shall be furnished by the CRC committee to the contractor within one (1) month after receipt of the draft copy. Additional rounds of review may be required.

Within thirty (30) days after receipt of comments, the contractor shall make the requested changes and submit an electronic copy of the draft final report in both Microsoft Word and Adobe pdf file format. Once accepted, the contractor shall deliver five (5) hard copies of the final report to CRC. The final report may be prepared using the contractor's standard format, acknowledging author and sponsors. An outside CRC cover page will be provided by CRC. The electronic copy will be made available for posting on the CRC website.

EXHIBIT C

INTELLECTUAL PROPERTY RIGHTS

Title to all inventions, improvements, and data, hereinafter, collectively referred to as (“Inventions”), whether or not patentable, resulting from the performance of work under this Agreement shall be assigned to CRC. Contractor X shall promptly disclose to CRC any Invention which is made or conceived by Contractor X, its employees, agents, or representatives, either alone or jointly with others, during the term of this agreement, which result from the performance of work under this agreement, or are a result of confidential information provided to Contractor X by CRC or its Participants. Contractor X agrees to assign to CRC the entire right, title, and interest in and to any and all such Inventions, and to execute and cause its employees or representatives to execute such documents as may be required to file applications and to obtain patents covering such Inventions in CRC’s name or in the name of CRC’s Participants or nominees. At CRC’s expense, Contractor X shall provide reasonable assistance to CRC or its designee in obtaining patents on such Inventions.

To the extent that a CRC member makes available any of its intellectual property (including but not limited to patents, patent applications, copyrighted material, trade secrets, or trademarks) to Contractor X, Contractor X shall have only a limited license to such intellectual property for the sole purpose of performing work pursuant to this Agreement and shall have no other right or license, express or implied, or by estoppel. To the extent a CRC member contributes materials, tangible items, or information for use in the project, Contractor X acknowledges that it obtains only the right to use the materials, items, or information supplied for the purposes of performing the work provided for in this Agreement, and obtains no rights to copy, distribute, disclose, make, use, sell or offer to sell such materials or items outside of the performance of this Agreement.

EXHIBIT D

LIABILITY

It is agreed and understood that _____ is acting as an independent contractor in the performance of any and all work hereunder and, as such, has control over the performance of such work. _____ agrees to indemnify and defend CRC from and against any and all liabilities, claims, and expenses incident thereto (including, for example, reasonable attorneys' fees) which CRC may hereafter incur, become responsible for or pay out as a result of death or bodily injury to any person or destruction or damage to any property, caused, in whole or in part, by _____'s performance of, or failure to perform, the work hereunder or any other act of omission in connection therewith.

EXHIBIT E

PROPOSAL EVALUATION CRITERIA

- 1) Merits of proposed technical approach.
- 2) Previous performance on related research studies.
- 3) Personnel available for proposed study – related experience.
- 4) Timeliness of study completion.
- 5) Cost.