



COORDINATING RESEARCH COUNCIL, INC.

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June 15, 2021

In reply, refer to:
CRC Project No. SM-2

Dear Prospective Bidder:

The Coordinating Research Council (CRC) invites you to submit a written proposal to provide services for “Sustainability and Local Air Quality Impacts of Future Electrification and New Vehicle Emission Regulation Scenarios in the U.S.” (CRC Project No. SM-2). 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-2

Sustainability and Local Air Quality Impacts of Future Electrification and New Vehicle Emission Regulation Scenarios in the U.S.

Background

Carbon dioxide and criteria emissions from the U.S. light duty vehicle fleet have declined over time even as vehicle numbers and miles travelled have increased. This trend should continue as sales of new vehicles with low (or zero) tailpipe emissions replace older vehicles having higher emissions. New vehicle sales will include increasing numbers of electric vehicles in addition to conventional and hybridized vehicles with internal combustion (IC) engines. New vehicles with IC engines must meet more stringent tailpipe CO₂ and criteria emissions limits. These tailpipe criteria emissions benefits are realized locally where the vehicles are driven, while CO₂ emission benefits are independent of the locality. In addition to tailpipe emissions, there are other local emissions sources associated with the operation of these vehicles, e.g., brake and tire wear. Also, there are emissions generated from the facilities and related feedstock sources in the electric utility, petroleum and renewable energy sectors that are associated with supplying the energy used to power these vehicles. These stationary point sources are typically not located in urban areas with high population and where most of the vehicle criteria emissions occur, but they do have an impact on CO₂ emissions.

Objective

Assess the trends in air quality (ozone, NO₂, PM₁₀, PM_{2.5}, CO, CO₂) of several selected US urban areas and regions for various scenarios (2030-2035) involving different assumptions regarding: (a) the future penetration of electrified vehicles ¹in the on-road light-duty vehicle fleet), (b) the mix of fuels (i.e., gasoline/diesel, biodiesel, ethanol) needed to operate internal combustion engine-equipped vehicles (ICEVs) and generate electricity for electrified vehicles; and (d) emissions levels for future light-duty ICEVs. Contractor and CRC will work collaboratively to build/assess scenarios for modeling. Model the change in well-to-wheels CO₂ emissions associated with the same future scenarios. Determine and compare the incremental CO₂ and air quality impacts of high and low vehicle electrification scenarios. Consider CO₂, PM_{2.5}, PM₁₀, NO_x, ozone, CO, non-methane hydrocarbons, methane, oxygenates, etc. Compare cases to each other and/or to air quality and climate objectives, or other metrics.

Statement of Work

1. Identify and select at least 4 US urban areas and/or regions for which adequate underlying emissions inventory (and other) data exist to support air quality modeling and:
 - Construct a base year scenario
 - Construct at least 3 alternative future year scenarios that will serve as a reference case, a high vehicle electrification case and a low vehicle electrification case
2. For each of the locales/regions selected in (1):
 - Model the well-to-wheels CO₂ emissions for EV and ICEV that are associated with each of the scenarios described above

- Determine and compare the incremental CO₂ and air quality impacts related to the future scenarios and to the base year
- Compare cases to each other and to air quality and climate objectives.

Provide separate case or scenario costs to allow CRC the opportunity to determine which set are containable within budget.

Deliverables

Deliverables include:

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

Please 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.

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.