



COORDINATING RESEARCH COUNCIL, INC.

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November 4, 2014

In reply, refer to:

CRC Project No. E-88-3b

Dear Prospective Bidder:

The Coordinating Research Council (CRC) invites you to submit a written proposal to provide services for "Follow-On Study of Transportation Fuel Life Cycle Analysis: Review of EPA and CARB Estimates of Land Use Change (LUC) Impacts" (CRC Project No. E-88-3b). A description of the project is presented in Exhibit A, "Statement of Work."

Please indicate by letter, fax, or email by **November 18, 2014**, 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).

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 ten pages in length.

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

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.

Electronic copies of the technical and cost proposals should be submitted to:

Dr. Chris Tennant
Coordinating Research Council
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Phone: 678-795-0506
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The deadline for receipt of your proposal is **December 4, 2014**.

Yours truly,

Christopher J. Tennant
Deputy Director

EXHIBIT A

Statement of Work - Request for Proposal

Project E-88-3b

Follow-On Study of Transportation Fuel Life Cycle Analysis: Review of EPA and CARB Estimates of Land Use Change (LUC) Impacts

Background

Over the past several years, significant efforts to improve and refine the life cycle assessment (LCA) of transportation fuels have taken place as the science evolves. This has become particularly important as regulatory efforts of the U.S. Environmental Protection Agency (EPA), the California Air Resources Board (CARB), and other agencies have used LCA as the basis for determining compliance with transportation fuel regulations such as the EPA's Renewable Fuel Standard (RFS2) and CARB's Low Carbon Fuel Standard (LCFS). Although those regulations have been finalized and are now in effect, there remain certain aspects of LCA that continue to be subject to considerable uncertainty and debate.

The Coordinating Research Council (CRC) previously funded a study of transportation fuel LCA (CRC Project E-88) that was intended to review the state of the science, compare the results of different models, and provide information on key inputs to LCA modeling that contribute to uncertainty in the emissions estimates. That study was also to lay out specific recommendations for targeted research to reduce those uncertainties. That report was finalized in 2011 and can be found on CRC's website¹.

To address a number of gaps and uncertainties highlighted in the E-88 study as well as those identified by participants of the 2009 CRC Workshop on the LCA of Biofuels², CRC funded the E-88-2 project as a follow-on to the E-88 study³. The E-88-2 study focused on issues related to indirect land use change (iLUC) and agricultural N₂O emissions.

The E-88 and E-88-2 studies were followed up with a more targeted assessment of the economic models used for estimating land use change effects. That effort, designated as CRC project E-88-3, was recently completed and the final report can be found on CRC's website⁴. The models evaluated in the E-88-3 study included:

¹ See <http://www.crcao.com/reports/recentstudies2011/E-88/E-88%20Report%20v8%20Final%202011.03.02.pdf>.

² See http://www.crcao.com/workshops/LCA%20October%202009/CRC_LCA_Workshop_Summary_01-12-10.pdf for a summary of that workshop.

³ See <http://www.crcao.com/reports/recentstudies2012/E-88-2/CRC%20E-88-2%20Final%20Report.pdf>.

⁴ See <http://www.crcao.org/reports/recentstudies2014/E-88-3%20Study%20of%20LCA%20-%20Review%20of%20Economic%20Models/LCA-CRC%20E%2088-3%20CRC%20July28%20FINAL.pdf>.

- Forest and Agricultural Sector Optimization Model (FASOM)
- Food and Agricultural Policy Research Institute (FAPRI) Model
- Global Trade Analysis Project (GTAP)
- Modeling International Relationships in Applied General Equilibrium (MIRAGE) BioFuel (BioF) model

The FASOM and FAPRI models have been used by EPA to assess land use change effects for the RFS2 regulations, GTAP has been used by CARB to estimate land use change effects for the LCFS regulations, and the MIRAGE-BioF model is an adaptation of the GTAP database used by the European Union.

While the E-88-3 study investigated a number of important issues with respect to the agro-economic models outlined above, it did not include a critical review of the specific land use change estimates prepared by EPA and CARB. Because CARB is in the midst of updating the land use change estimates for the LCFS and EPA has published several updated pathways since the RFS2 rule was finalized, an independent review of those estimates is desired.

Scope of Work

As noted above, both EPA and CARB have relied on agro-economic models as the basis of the LUC estimates for biofuels included in their RFS2 and LCFS rulemakings. Estimating LUC continues to be an oftentimes contentious issue, and the models (and inputs to those models) used to estimate LUC continue to be refined. Under this project, the following tasks would be performed. Note that the contractor can bid on one or both of the primary tasks outlined below.

Task 1, Review of CARB LCFS LUC Estimates – Under this task, the contractor would perform a critical review of the version of GTAP that is currently being used by CARB to estimate LUC emissions for the LCFS. Note that CARB presented preliminary results from its most recent analyses at workshops in March and September of this year⁵. In particular, we are interested in the various parameters that CARB is using as input to the GTAP model and how those parameters compare to literature values. If possible, the contractor should attempt to replicate CARB’s estimates and perform sensitivity runs around reasonable ranges of the most important economic parameters. The focus of the analysis should be on corn ethanol and soybean biodiesel with an emphasis on the assumptions driving the results; other fuel pathways will be considered as optional tasks.

In addition to the economic parameters input to GTAP, the contractor should review and assess the land cover data that are being used in CARB’s analysis (i.e., emission factors by Agro-Economic Zone). The impacts of alternative choices of land cover emission factors should also be assessed.

The intent of this review is to provide a critical review in the form of a peer review; it is important for the contractor selected for this effort to maintain impartiality throughout the study.

⁵ See http://www.arb.ca.gov/fuels/lcfs/lcfs_meetings/iluc_presentation_handouts_031014.pdf and http://www.arb.ca.gov/fuels/lcfs/lcfs_meetings/092914iluc-prestn-color.pdf.

Task 2, Review of EPA RFS2 LUC Estimates – Under this task, the contractor would perform a review of the LUC estimates prepared by EPA for the RFS2 rulemaking. The focus of this effort should be on the new work conducted by EPA. This would include a review of several new pathways (e.g., biodiesel from palm oil, ethanol from grain sorghum) that have been published by EPA since the RFS2 rulemaking was finalized.

We understand that attempting to replicate LUC results has the potential to be extremely time-consuming. We also understand that the EPA methodology relied on a variety of different models and databases, some of which are not publicly available and can only be exercised by a small cadre of researchers. Thus, we are looking to the contractor to target the effort under this project to what they feel are the important pathways and issues to investigate.

Task 3, Reporting – The results of Tasks 1 and 2 shall be documented in a draft report submitted to CRC for review and comment. Comments received on the draft report shall be addressed, and a final report shall be prepared and submitted to CRC.

Schedule – We would like the immediate focus of this effort to be on Task 1, Review of CARB LCFS LUC Estimates, with a target completion date of a draft report two months after initiation of the contract. The overall project should be completed in a six- to eight-month timeframe.

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 (pdf or Microsoft® Word compatible) file (<3 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.

FINAL REPORT

The contractor shall submit to or distribute for CRC an electronic Microsoft® Word compatible file transmittable via email) of a rough draft of a final report within thirty (30) days after completion of the technical effort specified in the contract. The report shall document, in detail, the test program and all of the work performed under the contract. The report shall include tables, graphs, diagrams, curves, sketches, photographs and drawings in sufficient detail to comprehensively explain the test program and results achieved under the contract. The report shall be complete in itself and contain no reference, directly or indirectly, to the monthly report(s).

Within thirty (30) days after receipt of the approved draft copy of the final report, the contractor shall make the requested changes and deliver to CRC ten (10) printed and bound copies of the final report. The final report shall also be submitted as an electronic copy in both a pdf and a Microsoft® Word compatible file format. 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.