



COORDINATING RESEARCH COUNCIL, INC.

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May 2, 2017

In reply, refer to: CRC Project No. RW-104

Dear Prospective Bidder:

The Coordinating Research Council, Inc. (CRC) invites you to submit a written proposal on a "Literature Review to Assess the Use of Stock and Flow Models Compared to Other GHG Methodologies to Model Biofuel GHGs," as described in the attached Statement of Work, Exhibit A.

Please indicate via email by **May 16, 2017** whether or not you or your organization intends to submit a written proposal for the project. 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.

The CRC technical group composed of equipment, petroleum, and government representatives will evaluate your proposal. CRC reserves the right to accept or reject any or all proposals.

The reporting requirement will be text, data and charts to CRC in accordance with Exhibit A - Statement of Work. A Final Report documenting the results of the study will be published by CRC. The reporting requirement is described in more detail in the attachment entitled, "Reports" (Exhibit B).

The "Intellectual Property Rights Clause" (Exhibit C) and "Liability Clause" (Exhibit D) will be a part of the agreement, which may be executed as a result of this Request for Proposal solicitation.

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.

CRC expects to negotiate either a cost reimbursable or a fixed price contract. 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 separate technical and cost proposals should be submitted to:

Dr. Christopher J. Tennant
Coordinating Research Council, Inc.
5755 North Point Parkway, Ste. 265
Alpharetta, GA 30022

Phone: 678-795-0506, Ext. 105
Fax: 678-795-0509
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The deadline for receipt of your proposal is **May 26, 2017**.

Sincerely,
Dr. Christopher J. Tennant
Deputy Director

EXHIBIT A

STATEMENT OF WORK

Literature Review to Assess the Use of Stock and Flow Models Compared to Other GHG Methodologies to Model Biofuel GHGs

1. Background

Attributional lifecycle assessment (LCA) models have been used by researchers and policymakers for a number of years. Due to their limitations in addressing certain aspects of the lifecycle of biofuels, the scientific literature from researchers and LCA practitioners has put their effectiveness into question. As the practice of GHG assessment has expanded, new approaches have emerged, providing better definition and answering new questions. Although LCA models have continued to update and become more complex, their underlying methodologies are limited.

Policy makers traditionally use LCA models such as GREET and GHG Genius to estimate the carbon footprint of biofuel pathways by providing a GHG value to a unit of fuel. The underlying methodologies must be subject to scrutiny to ensure that they are providing the right information to meet policy demands. Notably, LCA models heavily depend on input parameter assumptions, so results vary widely across studies. Further, most models do not take into account major sources and sinks ; and therefore, do not address the overall impact of production and use of feedstocks and fuels (as a perturbation) to the global and/or U.S. carbon cycle.. Impacts to broader sustainability metrics, including ecosystem services are also important. This project is intended to inform stakeholders on the effectiveness of using different modeling approaches to measure GHG footprints, the overall effect on atmospheric GHG concentrations, and the effectiveness of biofuel policy and investments on sustainability and ecosystems.

The life cycle assessment (LCA) models used in the Renewable Fuel Standard (RFS) in the U.S. and the Low Carbon Fuel Standard (LCFS) in California provide an estimate of the likely life cycle carbon fluxes of transportation fuels. Although the LCA models associated with these regulations have been widely used, there is little information about their effectiveness, and whether the government programs have actually achieved the atmospheric greenhouse gas reductions the models calculated.

Further, Section 712 of the Energy Independence and Security Act (EISA) of 2007 mandated the U.S. Department of the Interior to develop a methodology and conduct an assessment of carbon stocks, sequestration and fluxes of United States ecosystems¹. These efforts are paving the way to gaining a more comprehensive view of how carbon moves based on anthropogenic activities and changes in the natural environment.

2. Scope

A comprehensive review of existing literature and a study of the strengths and weaknesses of stock and flow models compared to other methodologies such as the more traditional attributional and consequential LCAs used by policy-makers. Literature and models will cover approaches to measuring GHG values, sustainability, and ecosystem service effects of biomass and plant-based fuels from seed to consumer use.

3. Project description

¹ Energy Independence and Security Act of 2007 - <https://www.gpo.gov/fdsys/pkg/PLAW-110publ140/html/PLAW-110publ140.htm> (Accessed 2nd February, 2017)

The CRC is requesting proposals for a comprehensive literature review and the development of a white paper on the greenhouse gas accounting methodologies used to assess GHG values and/or carbon stocks and flows for biofuels. The white paper should also identify the gaps that are bridged by the use of dynamic stock and flow approaches and other models and techniques. The literature review should:

- Describe the carbon stocks and flows methodology and models, potential improvements to models, and explain data requirements to use these models as a tool to measure GHG flows and develop a carbon cycle budget.
- Be comprehensive in scope, and catalog peer reviewed literature and studies that have a sufficiently broad scope and cover the breadth of modeling and analysis approaches, are process-based, whether empirical or theory-based.
- Include a technical critique (i.e., strengths, weaknesses, and limitations) of the methodologies/models found in the literature
- Explain the uncertainty associated with different models and how the models can be validated.
- Explain whether LCA models can be modified to estimate carbon flows associated with biofuels on a global level
- Include a section on knowledge and research gaps and areas of emerging analysis related to carbon stock and flow models of biofuels
- Avoid recommending specific values or models for policymaking

4. Work request

The contractor will provide a list of methodologies, approaches, and models/publications that will be subject to review as well as a proposed outline of the white paper. Upon approval by the CRC LCA Panel, the contractor will submit a draft report that complies with the specifications listed above. After the first draft is complete, the Panel will provide comments and recommendations before the contractor delivers the final product.

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.

FINAL REPORT

The contractor shall submit to or distribute for CRC an electronic (Microsoft Word) copy 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) hardcopies including a reproducible master copy of the final report. The final report shall also be submitted as electronic copies in a pdf and Microsoft Word 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.