



COORDINATING RESEARCH COUNCIL, INC.

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August 15, 2008

In reply, refer to:

CRC Project No. E-88

Dear Prospective Bidder:

The Coordinating Research Council (CRC) invites you to submit a written proposal to provide services for "**Review of Transportation Fuel Life-Cycle Analysis**" (CRC Project No. E-88). A description of the project is presented in Exhibit A, "Statement of Work."

Please indicate by letter, fax, or email by August 25, 2008, whether 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 and government 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 be no longer than 10 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.

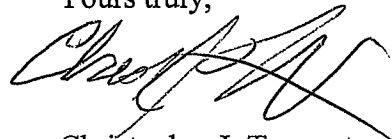
Thirty (30) copies of the technical proposal and three (3) copies of the cost proposal (or one each electronic-copy) should be submitted to:

Dr. Christopher J. Tennant
Coordinating Research Council
3650 Mansell Road, Suite 140
Alpharetta, GA 30022

Phone: 678-795-0506
Fax: 678-795-0509
E-mail: ctennant@crcao.org

The deadline for receipt of your proposal is **September 4th, 2008**.

Yours truly,



Christopher J. Tennant
Deputy Director

Exhibit A
Statement of Work

CRC Project E-88

Review of Transportation Fuel Life-Cycle Analysis

Background: There is increasing interest in energy use and GHG emissions from use of transportation fuels. A life-cycle or well-to-wheels analysis is required to estimate the energy use and GHG emissions from use of transportation fuels. This analysis consists of a well-to-tank (WTT) portion which covers the steps required to deliver the finished fuel to the vehicle and the tank-to-wheels portion which covers vehicle use of the fuel.

Previous studies include:

- JRC/CONCAWE/EUCAR 2005
- GM/ANL 2001, 2003, 2005
- GM/LBST 2002
- UCD/LEM 1997-2005
- CEC TLAX 2007

A number of models have been developed to aid in conducting transportation fuel LCA analyses including GREET, LEM, and GHGenius. In addition to these models which cover entire fuel cycles other models have been developed to study portions of fuel cycles like BESS a WTT model of biofuel production. The TTW portion of the transportation also uses separate models to evaluate fuel and powertrain effects on vehicle fuel consumption and GHG emissions. US examples are ADVISOR and PSAT developed by NREL and Argonne. Output from these models may be used to provide factors or input to GREET and other models.

Recently land-use has been identified as a key component of biofuels pathways and a number of studies have estimated the impact of direct and indirect land-use change (Searchinger et. al, Fergione et,a;l). Land-use impacts are also being considered in LCA analyses conducted by EPA and for CARB (EPA and UCB presentations) Generally a separate modeling effort is conducted to estimate land-use impacts which are then introduced as factors into models such as GREET. Models used to assess land-use impacts include FASOM, FAPRI, DAYCENT, GTAP and CENTURY.

There is particular interest in analysis of biofuels LCA due to: increasing commercial interest in biofuels and resulting rapid growth, wide range of GHG/energy impacts projected in previous studies, the complexity of biofuels pathways, the development of new biofuel pathways and potential for both direct and indirect impacts. An important issue is the scale of biofuels production since impacts may change as scale increases.

Objective: Conduct a broad review of the methodology, analytical tools and models used in transportation fuel LCA with a particular focus on biofuels. Identify gaps and provide recommendations for improvement in methodology, data, analysis tools and models.

Specific Tasks

Task 1 - Literature review of LCA Studies:

1. Provide an overview of the scope and methodology of each study
2. Summarize results from previous studies
3. Identify gaps and describe limitations in data and analysis tools
4. Assess sensitivity of results to key parameters
5. Develop a ranking of the uncertainty in each component and how uncertainties interact to impact the end result

Task 2 - Describe strengths and weaknesses of LCA Models:

1. List important models and their attributes
2. Identify methodology/structure differences between models
3. Evaluate transparency and ease of use,
4. Identify gaps/limitations

Task 3 - Evaluate the relative importance and assess the impact of technical issues related to biofuel LCA including: study boundaries, indirect and direct land use, co-product credits, incremental or average production, GHG species covered, data sources, soil CH₄, and N₂O emissions.

Task 4 - Summarize current understanding of direct and indirect global and use impacts on biofuels GHG:

1. Review methodologies employed in previous studies and summarize results
2. Compare available studies
3. Critically review models used to make land-use estimates

Task 5 - Provide recommendations for future work to better understand LCA sensitivity and uncertainty and to improve methodology, data, analysis tools and models.

References:

1. Well-To-Wheel Analysis of Future Automotive Fuels and Powertrains in the European Context, JRC/CONCAWE/EUCAR, <http://ies.jrc.ec.europa.eu/WTW>
2. E.A.Farrell et al., Science, 311, 506-508 (2006)
3. J.P.W.Scharlemann and W.F.Laurance, Science 319, 43-44 (2008)
4. J.Fergione et al., Science 319, 1235-1238 (2008)
5. T.Searchinger et al. Science 319, 1238-1240 (2008)

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. Thirty-five (35) hardcopies or one 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 thirty-five (35) hardcopies (or one hardcopy and one electronic pdf-compatible 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 fifty (50) hardcopies including a reproducible master copy of the final report. The final report shall also be submitted as an electronic copy in a pdf or pdf-convertible 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 of Contractor 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.