COORDINATING RESEARCH COUNCIL, INC.
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Sep. 29, 2025
In reply, refer to: CRC Project No. SM-F-2023-2

Dear Prospective Bidder:

The Coordinating Research Council (CRC) invites you to submit a written proposal to provide services for "Sustainable biomass availability for existing refinery infrastructure" (CRC Project No. SM-F-2023-2). A description of the project is presented in Exhibit A, "Statement of Work."

Please indicate your intention to bid at **this link** on or before **October 13, 2025** 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 at least one week before the proposal submission deadline here: **Q & A Link**. CRC will then return written answers to all of the bidders, along with a copy of the original questions. Questions submitted within a week of the deadline may not be answered before the proposal submission deadline.

A CRC technical group composed of industry representatives will evaluate your proposal. CRC reserves the right to accept or reject any or all proposals. Key contract language examples are presented in Exhibits B, C, D, and E. CRC must adhere to standard contract language with minor adjustments only in extraordinary circumstances. Failure to agree to these contract clauses as written may result in the project being awarded to another contractor.

Important selection factors are listed in Exhibit F. 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 should not be longer than 10 pages in length (not including resumes). The schedule / timeline information must be included in the technical proposal; failure to do so may result in your proposal being set aside as non-responsive.

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 Prem Lehr. E-mail: premlehr@crcao.org

The deadline for receipt of your proposal is **November 7, 2025.**

Thank you,
Prem Lehr, CRC Project Manager

EXHIBIT A

SM-F-2023-2 Statement of Work

"Sustainable biomass availability for existing refinery infrastructure"

Motivation:

Co-processing of bio-based oils with petroleum-based feedstock and the transition to biorefineries is a growing trend among conventional petroleum –based refineries. Studies such as the DOE 2023 Billion Ton Report and the OGCI Biomass for Marine 2025 white paper state there is sufficient volume to support such transitions. However, it is unclear if the supply of biomass feedstock (e.g., municipal and industrial waste oils or woody biomass for pyrolysis) is within a distance from refineries and/or other processing facilities that would make such co-processing or transitions attractive. Additionally, the carbon footprint of transporting these feedstocks to refineries can partially or completely negate the carbon reduction potential of the biomass depending on travel distance and preprocessing requirements.

Goal:

A sensitivity analysis of carbon reduction potential and the hypothetical volume of biomass feedstock available as a function of delivery distance to select US refineries and/or other processing facilities located in biomass-rich regions (e.g. regions identified in the Billion-Ton Report maps).

Project Description:

Assess the quantity of sustainably-sourced biomass available to refinery/processing facility locations in the US, as well as the estimated yield of drop-in biofuel available for blending. Project prioritization will be based on filtering methods that quantify realistically available biomass by type (e.g., loose, packed, pyrolysis oil, etc.). Include key constraints/characteristics which would limit processing (co-processing limits, derating of the refinery, etc.). Examples of characteristics for consideration: carbon availability, oxygen content, acidity (TAN), moisture content, contaminant/impurities, etc.

Locations of interest may be constrained to several areas in North America (exact locations will be selected after an initial review with the vendor). The threshold of feasible distance from biomass source to refinery will be determined by the break-even point between the carbon reduction potential of the feedstock and the emissions produced during collection, transport, and conversion. A sensitivity analysis should include variables such as location (i.e. distributed vs. co-located biocrude processing) and types of pre-processing and conversion (based on shape, form, and type of biomass), modes of transport (e.g. truck, rail, ship) including logistics route optimization, types of biomass feedstock.

Not all biomass can be transported the same way, and constraints on certain feedstocks must be considered as well as implications of the biomass processor being co-located with the refinery or placed separately (needing additional transportation). Since many biomass conversion

technologies are not yet fully commercial, the most recent techno-economic analyses should be included (or referenced from existing studies) to estimate the operating efficiencies of any new equipment required for off-site preprocessing and on-site conversion.

Potential future work (please provide costs for these separately):

- Sensitivity analysis of renewable fuel output based on the process unit used for biomass feedstock and its impact on site utilities (e.g., natural gas usage)
- Effectiveness of refinery modifications or new builds required to process biomass (e.g., installation of a new gasifier)
- Impact of co-processing on current production volumes and fuel quality

Deliverables:

1. **Kickoff Call:** A call with the CRC project panel and contractor to discuss project scope and align expectations.
2. **Mid-Project Call:** A call with the CRC project panel and contractor to discuss preliminary results and identify any information gaps before finalizing findings and starting the final report.
3. **Additional Calls:** The CRC project panel may schedule additional calls with the contractor as needed during the project duration to discuss issues that arise, provide updates on progress, and update the project timeline.
4. **Final Report:** A draft of the final report will be reviewed by the CRC project panel and Sustainable Mobility Committee before final release.

EXHIBIT B

REPORTS

A. CONTRACTOR shall submit a technical progress report covering work accomplished during each month of the contract performance. 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.

B. CONTRACTOR shall submit to CRC a draft final report on or before DRAFT FINAL REPORT DUE DATE. The *Draft Final Report* shall be reviewed and returned to CONTRACTOR with comments no later than forty-five (45) days thereafter. The report shall document, in detail, all of the work performed under the contract including data, analyses, and interpretations, as well as recommendations and conclusions based upon results obtained. The report shall include tables, graphs, diagrams, curves, sketches, photographs, and drawings in sufficient detail to comprehensively explain the results achieved under the contract. The report shall be complete in itself and contain no reference, directly or indirectly, to the monthly progress reports and should be suitable for publication in the peer-review literature. Additional rounds of review may be required prior to acceptance of the Final Report. If applicable, data from the research shall be provided in a format suitable for releasing to the public along with the final report.

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 report structure that includes:

- CRC Title Page and Disclaimer Statement (both provided by CRC)
- 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 (may also include Recommendations if CRC requests them)
- List of References
- 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.

EXHIBIT C

INTELLECTUAL PROPERTY RIGHTS

NOTE: This example language describes CRC's preferred approach to IP. There are alternative clauses to IP that can be used if necessary. All approaches require unlimited royalty-free access to any IP generated by CRC-funded research for CRC and its members.

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 shall promptly disclose to CRC any Invention which is made or conceived by CONTRACTOR, 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 by CRC or its Participants. CONTRACTOR 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 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, CONTRACTOR 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 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

RELATIONSHIP OF PARTIES

It is agreed and understood that CONTRACTOR is acting as an independent contractor in the performance of any and all work hereunder, and to the extent caused by CONTRACTOR, CONTRACTOR shall be solely liable and responsible for the payment of all legal claims for damages made by its employees or agents, or by another person or persons, on account of any property damage or on account of personal injury sustained or suffered by, or on account of the death, of any person or persons, or on account of any other legal claims arising or growing out of CONTRACTOR's negligence in the performance of the agreement; and CONTRACTOR undertakes to indemnify CRC against any such liability.

EXHIBIT E

KEY PERSONNEL REQUIREMENTS

Certain skilled experienced professional and/or technical personnel are essential for successful performance by CONTRACTOR of its obligations and work under this Agreement. These personnel are persons whose resumes were submitted for evaluation of the Proposal and are identified by CRC as "Key Personnel". CRC awards contracts based on several requirements and the reputation and experience of Key Personnel are a significant requirement. CONTRACTOR agrees that CONTRACTOR will not remove or replace any Key Personnel from the contract work without compliance with paragraphs (a) and (b) hereof.

(a) If any Key Personnel for whatever reason becomes, or is expected to become, unavailable for work under this Agreement (or any specific Project) for a continuous period exceeding thirty (30) work days, or is not expected to perform the work hours and volume of work indicated in the proposal or initially anticipated, the CONTRACTOR shall immediately notify CRC and shall, subject to the concurrence of CRC, promptly replace such Key Personnel with personnel of at least substantially equal ability and qualifications acceptable to CRC.

(b) All requests for approval of substitutions of Key Personnel hereunder must be in writing to CRC and provide a detailed explanation of the circumstances necessitating the proposed substitutions. Requests for substitution must contain a complete resume for the proposed substitute Key Personnel, and any other information requested by CRC needed to approve or disapprove the proposed substitution. CRC will evaluate such requests and notify CONTRACTOR of approval or disapproval thereof in writing. CRC is not responsible for, and shall not be charged, any fees or other costs related to such replacement Key Personnel's performance of the services until the replacement Key Consultant has obtained the same proficiency and knowledge regarding the services as the former Key Personnel.

(c) If CRC determines that suitable and timely replacement of Key Personnel who have been reassigned, terminated or have otherwise become unavailable for the contract work is not

reasonably forthcoming or that the proposed replacement Key Personnel would impair the successful completion of the contract or the services ordered, at the option of CRC, (i) the Agreement (in whole or in part related to the applicable contract work) may be terminated by CRC or (ii) the contract price or fixed fee may be equitably adjusted downward to compensate CRC for any resultant delay, loss, or damage, in an amount acceptable to CRC

EXHIBIT F

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.