COORDINATING RESEARCH COUNCIL, INC.
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ATLANTA, GA 30328
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WWW.CRCAO.ORG

January 30, 2026
In reply, refer to:
CRC Project No. SM-LCA-2023-1

Dear Prospective Bidder:

The Coordinating Research Council (CRC) invites you to submit a written proposal to provide services for "Literature Review: Environmental Impacts of Current vs. Prospective Critical Mineral Pathways for EV Components" (CRC Project No. SM-LCA-2023-1). 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 **February 13, 2026** 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 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.

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 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 considered 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:

Prem Lehr
Coordinating Research Council
1 Concourse Parkway, Suite 800
Atlanta, GA 30328

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

The deadline for receipt of your proposal is **February 27, 2026.**

Yours truly,

Prem Lehr
Project Manager

EXHIBIT A

SM-LCA-2023-1 Statement of Work

"Literature Review: Environmental Impacts of Current vs. Prospective Critical Mineral Pathways for EV Components"

1.0 Introduction and Background

Electric Vehicle (EV) production relies heavily on critical minerals for components like batteries and motors. While there is a growing body of knowledge regarding the environmental impacts associated with the extraction and processing of these minerals using current technologies, there is far less visibility about the potential environmental impacts of changes in component design and supply chain changes. These future developments could include novel resources or extraction pathways, advanced material processing technologies, and/or shifts in mineral demand driven by new battery chemistries or motor designs.

This project seeks to conduct a focused literature review to synthesize the current understanding of environmental impacts from established critical mineral pathways, compare this to the available information (or lack thereof) regarding the potential environmental impacts of prospective future feedstocks and technologies, and highlight the variability and uncertainty in existing findings. The review will identify critical knowledge gaps concerning these future pathways to inform future research needs in this space.

2.0 Objectives

The primary objective of this project is to conduct a focused literature review to:

- Synthesize existing published research and relevant reports on the environmental impacts associated with the cradle-to-gate (extraction and initial processing and/or recycling of black mass) stages of key critical minerals used in current EV batteries and motors.

- Identify and gather available information regarding the potential environmental impacts of significant prospective future pathways for obtaining and processing these minerals or alternative minerals relevant to future EV component technologies.

- Compare the state of knowledge between current and prospective future pathways and identify significant knowledge gaps within the existing literature concerning the environmental impacts, particularly focusing on gaps related to mineral sourcing/potential resources, processing technologies, data availability (especially primary data), and methodological consistency, to inform future research priorities.

3.0 Scope of Work

The awarded contractor shall perform a focused literature review encompassing the following:

- **3.1 Minerals:** The review shall focus on critical minerals relevant to current EV batteries (Lithium, Cobalt, Nickel, Manganese, Graphite) and EV motors (Neodymium, Dysprosium). The review should also seek literature on other critical minerals potentially relevant to identified prospective future EV component technologies (e.g., related to solid-state batteries, Li-S, Na-ion), subject to discussion with the review panel.

- **3.2 Life Cycle Stages:** The scope is limited to the cradle-to-gate stages, specifically mineral extraction and initial processing/refining. The vehicle use phase and end of life is out of scope for this review. Recycled feedstock materials should be considered.

- **3.3 Environmental Impact Categories:** The review shall prioritize identifying literature that assesses environmental impacts including, but not limited to: climate change, energy consumption, and water consumption. The review should also note if studies report on other environmental impact categories (e.g., land use, toxicity, resource depletion) and briefly summarize findings for those if significant, particularly for prospective pathways where less might be known.

- **3.4 Pathways:** The review shall explicitly consider literature covering:

    - Established, current extraction, and processing technologies.

    - Identified significant prospective future pathways, which may include, but are not limited to, novel sourcing and extraction methods (e.g., deep-sea mining or unconventional resources like produced water), and advanced processing and refining technologies (e.g., direct lithium extraction, or bioleaching).

- **3.5 Geographic Scope:** The review shall consider studies and data relevant to the global supply chain for these critical minerals.

- **3.6 Literature Identification and Synthesis:** The contractor shall employ a methodology (to be proposed by the contractor) to search for, identify, screen, and synthesize relevant peer-reviewed academic literature, conference proceedings, reputable industry reports, and relevant government publications. The synthesis should clearly differentiate findings related to current pathways versus prospective future pathways and summarize the methodology, data sources (primary/secondary), and key assumptions used in the reviewed studies. The synthesis should also note findings related to uncertainty and sensitivity analyses reported in the literature.

- **3.7 Gap Identification:** Based on the synthesis and comparison, the contractor shall clearly identify and describe significant knowledge gaps regarding the environmental impacts of the *prospective future pathways*. A particular focus should be placed on identifying gaps related to the environmental impacts associated with different mineral sourcing/potential resources and specific processing and recycling technologies within these future scenarios. Gaps related to data availability

(especially primary data for emerging technologies) and methodological consistency should also be highlighted.

- **3.8 Scope Refinement:** The contractor, in consultation with the CRC project leads and the project review panel, will have the opportunity to refine the specific focus minerals, prospective pathways to be investigated, and the overall approach of the literature review during the project's initial phase to ensure alignment with CRC priorities and available resources.

4.0 Deliverables

The project deliverable is a final comprehensive report detailing the findings of the literature review.

5.0 Timeline

The project shall be completed within a period not exceeding one (1) year from the contract start date.

6.0 Required Expertise

The contractor shall demonstrate expertise in conducting comprehensive literature reviews, life cycle assessment (LCA) principles, and critical mineral supply chains.

7.0 Reporting and Communication

The contractor shall communicate periodically (typically monthly) with the CRC project leads and the designated CRC project review panel to provide updates on progress, present findings using appropriate presentation materials, and discuss any proposed scope refinements. The final report will be submitted to the project leads and review panel for their review and approval.

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).

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. Reports submitted to CRC shall be written with a degree of skill and care customarily required by professionals engaged in the same trade and /or profession.

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.