

Agency AGRICULTURAL RESEARCH SERVICE	Type of Instrument Memorandum of Understanding		Authority see MOU
Title of Project Cooperation on Data, Research, and Information Systems for Life Cycle Assessment Analysis	Agreement Number/FAIN 58-8260-9-001-M	Type of Action New	Correction N
	Period of Performance Start 12/18/2018 End 12/17/2023		(Reserved) 10.001
Agency Administrative Point of Contact/ADO INGRID S CHARLTON USDA, REE, ARS, AFM, FMAD GRANTS AND AGREEMENTS MANAGEMENT BRANCH 5601 SUNNYSIDE AVE, MS-5110 BELTSVILLE MD 20705-5110 Phone: 301-509-7635 Fax: E-mail: INGRID.CHARLTON@ARS.USDA.GOV	Total Federal Amount \$0.00	Federal Amount Obligated by This Action \$0.00	Indirect Cost Rate 0.00%
	Non-Federal Entity/Federal Agency (Legal Name and Address) ENVIRONMENTAL PROTECTION AGENCY 26 MARTIN LUTHER KING DR Cincinnati OH 45220-2242 USA POC: WES INGWERSEN NATIONAL RISK MANAGEMENT RESEAERCH LABORATORY Phone: 513-569-7602 Fax: E-mail: ingwersen.wesley@epa.gov DUNS ID: 029128894		
Agency Principal Investigator EZRA V KAHN USDA, ARS, NAL, KSD 10301 Baltimore Avenue BELTSVILLE MD 20705 Phone: 301-504-9831 Fax: E-mail: Ezra.Kahn@ars.usda.gov	Non-Federal Entity/Federal Agency Principal Investigator SKONE TIMOTHY NATIONAL ENERGY TECHNOLOGY LABORATORY U.S. Department of Energy 626 Cochrans Mill Road PITTSBURGH PA 15236 USA Phone: 412-386-4495 Fax: E-mail: timothy.skone@netl.doe.gov		
	Method of Payment <input type="checkbox"/> HHS/Payment Management System <input type="checkbox"/> Advance Payment Authorized <input type="checkbox"/> EFT/Treasury Check <input type="checkbox"/> Pre-Award Costs Authorized <input type="checkbox"/> Agency Receives Funds <input type="checkbox"/> UES (for FAS awards only) <input type="checkbox"/> ASAP <input type="checkbox"/> IPAC		
Agency Finance Office			

PROVISIONS

This Agreement incorporates the following:

- ☐ Statement/Scope of Work
- ☐ Proposal
- ☐ Non-Federal Entity Proposal/Award/Agreement
- ☐ Research & Related Budget (Total Fed + Non-Fed) or REE-454
- ☐ Research & Related Budget or REE-455
- ☐ Prime Award attached (for subrecipients)
- ☒ Comments (REE-451, page 2)

These are available at <http://www.afm.ars.usda.gov/agreements/partnership.htm>:

- ☐ Conflict of Interest Policy
- ☐ USDA Civil Rights Policy Statement
- ☐ ARS-157 - Research Support Agreement Management Report Template
- ☐ USDA Civil Rights Poster (AD-475-C)

Reporting Requirements:

Submit to: ☐ Agency PI ☐ ADO ☐ Non-Federal Entity/Federal Agency

Performance Reports

- ☐ Quarterly
- ☐ Semi-Annual
- ☐ Annual
- ☐ Final

Financial Reports

- ☐ Quarterly
- ☐ Semi-Annual
- ☐ Annual
- ☐ Final

Management Reports

- ☐ Monthly
- ☐ Quarterly
- ☐ Semi-Annual
- ☐ Final

☐ Intellectual Property Reports (www.iEdison.gov)☐ Form SF-428-B Tangible Personal Property Report - Final ReportApplicable Regulations, Terms and Conditions, and Required Certifications (available at <http://www.afm.ars.usda.gov/agreements/partnership.htm>)

- ☐ 2 CFR Part 200 and 2 CFR Part 400
- ☐ 7 CFR Part 550 - General Administrative Policy for Non-Assistance Cooperative Agreements, published 10/11/2016
- ☐ General Provisions, Research Support Agreement (REE-452R)
- ☐ General Provisions, Trust Fund and Reimbursable Cooperative Agreements (REE-22)
- ☐ AD-1047 - Certification Regarding Debarment, Suspension and other Responsibility Matters - Primary Covered Transactions
- ☐ AD-1048 - Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transactions
- ☐ AD-1049 - Certification Regarding Drug-Free Workplace Requirements (Grants) - Alt I - For Grantees Other Than Individuals
- ☐ AD-1050 - Certification Regarding Drug-Free Workplace Requirements (Grants) - Alt II - For Grantees Who Are Individuals
- ☐ AD-1052 - Certification Regarding Drug-Free Workplace State and State Agencies
- ☐ AD-3031 - Assurance Regarding Felony Conviction or Tax Delinquent Status for Corporate Applicants
- ☐ Certification Regarding Lobbying
- ☐ REE-26 - Organization Information, Representations, Assurances & Certifications

This agreement, subject to the provisions above, is executed by the United States Department of Agriculture:

Signature	ADO Name	Federal Award Date
	REFER TO ATTACHED MOU FOR ALL SIGNATURES	

By signing this agreement, the signor certifies that they are vested with the authority to enter into this agreement.

Non-Federal Entity/Federal Agency Signature	Name and Title	Date
	REFER TO ATTACHED MOU FOR ALL SIGNATURES	
Non-Federal Entity/Federal Agency Signature	Name and Title	Date

12/19/18

U.S. DEPARTMENT OF AGRICULTURE - RESEARCH, EDUCATION, AND ECONOMICS

Award Face Sheet

REE-451, Page 2

Agreement Number/FAIN: 58-8260-9-001-M

Type of Action: New

Project Number: 8260-88888-002-09M

Accession No.: 431188

Agency Control No.: 42649

BOC:

PO No.:

Comments:

*** THIS AWARD FACE SHEET, REE-451 IS ONLY FOR INFORMATIONAL PURPOSES ***

This is a MOU between the U.S. Department of Agriculture, Agricultural Research Service, the U.S. Environmental Protection Agency and U.S. Department of Energy .

The attached document is the official MOU signed by all three parties. Agency points of contact for this MOU are found on page 4.



MEMORANDUM OF UNDERSTANDING
among the
U.S. DEPARTMENT OF AGRICULTURE,
U.S. ENVIRONMENTAL PROTECTION AGENCY,
and the
U.S. DEPARTMENT OF ENERGY,
for
COOPERATION ON DATA, RESEARCH, AND INFORMATION SYSTEMS
FOR LIFE CYCLE ASSESSMENT/ANALYSIS

I. AUTHORITY AND PARTICIPATING AGENCIES

The following parties (hereinafter referred to as "Agency" and "Agencies") enter into this agreement:

The U. S. Department of Agriculture (hereinafter referred to as "USDA") enters into this Memorandum of Understanding (hereinafter referred to as "MOU") in accordance with National Agriculture Research, Extension, and Teaching Policy Act of 1977, Pub. L. 95-113, Sec. 1410A, 7 U.S.C. Sec. 3125a.

The U.S. Environmental Protection Agency (hereinafter referred to as "EPA") enters into this MOU pursuant to Section 8001 of the Solid Waste Disposal Act, 42 USC 6981.

The U.S. Department of Energy (hereinafter referred to as "DOE") enters into this MOU under the authority of section 646 of the Department of Energy Organization Act (Pub. L. 95-91, as amended; 42 U.S.C. § 7256).

II. PURPOSE

The purpose of this MOU is to establish a formal working relationship among the Agencies to collaborate on the development of environmental Life Cycle Assessment/Analysis (hereinafter referred to as "LCA") data, research, and information systems. The Agencies under this MOU

each invest Federal funding to conduct LCAs in support of their mission and programs, advance the field of LCA, and manage information systems to enable public access to Life Cycle Inventory (hereinafter referred to as “LCI”) data and models. The formal relationship will serve to coordinate Federal expertise and knowledge to advance the missions and programs of the Agencies.

The goals of this MOU (and its value to the public and the Federal government) are to:

1. Advance Federal LCA data, research, and information systems by leveraging multi-Agency resources and expertise,
2. Improve consistency in LCA methods developed by each Agency to develop LCA results for decision-making and public disclosure, and
3. Enhance public and Agency access to Federal LCI data in a standardized searchable format from a common repository.

III. BACKGROUND

LCA is a systems analysis approach to assess the environmental impact of a product, service, or system along the entire supply chain – from cradle to grave. A core set of LCA methods have been codified by the ISO 14000 series of standards and the field continues to be developed through ongoing research. Below are examples of how LCA is being used within the Federal government to assist decision-making in research and development of technologies, policy making, public information, and product declaration.

The EPA Office of Land and Emergency Management’s Sustainable Material Management program is built on an LCA approach for economy-wide prioritization as well as providing specific LCA tools for waste management and remediation. The EPA sustainable purchasing program is starting to rely on LCA support from the Office of Research and Development to inform recommendations to standards such as Electronic Product Environmental Assessment Tool (EPEAT). The Office of Air and Radiation has used LCA to assess compliance of biofuels under the Renewable Fuel Standard (RSF2) and has used LCA to inform programs related to greenhouse gas (GHG) reductions such as vehicular GHG standards for light-duty and heavy-duty vehicles. Offices within EPA maintain several LCA based models including: the Waste Reduction Model (WaRM), the MSW Decision Support Tool, and the TRACI Life Cycle Impact model.

DOE and its complex of National Laboratories have utilized LCA to evaluate fossil and renewable energy technologies to better understand the environmental implications and trade-offs of conventional and advanced energy technologies. Historically the focus of the analyses has been around energy and GHGs, however in recent years DOE has begun using LCA to evaluate air, water, and land impacts from energy systems. LCA is also used by DOE to evaluate funding opportunities, determine research priorities, and guide policy. LCA tools and data products developed and maintained by DOE include Argonne National Laboratory’s (ANL) Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation (GREET) model, National Energy Technology Laboratory’s (NETL) Upstream Dashboard Tool and Electricity Grid Mixer,

and National Renewable Energy Laboratory's (NREL) United States Life Cycle Inventory Database (USLCI). Also, NETL created a web repository of LCI data with the intentions of increasing transparency in their modeling and improving public access to underlying data sets.

In 2010, the USDA Acting Undersecretary of Research, Education, and Economics (REE) requested the development of a web-based repository for data related to LCA for U.S. agriculture. In response, the USDA National Agricultural Library (NAL) developed the LCA Commons; a repository for LCI and related data developed or funded by the USDA to improve access to publicly funded research. With the LCA Commons, the NAL has established the information technology architecture to collect, curate, and provide public access to LCA data generated through internal (Federal) and external (including Federally funded) research programs. NAL works with researchers in the system of Land Grant Universities and other research programs funded through the USDA National Institute of Food and Agriculture (NIFA) and the Agricultural Research Service (ARS) to release LCA research data into the public domain in accordance with the Federal Open Data Initiative. NAL has more recently joined this collaboration of Federal agencies to provide support in data collection, curation, access services, and the IT infrastructure to support a wider community of Federal LCA researchers.

Executive mandates include Executive Order 13642, Office of Management and Budget 2009 Memorandum M-10-06 Open Government Directive, Office of Management and Budget 2013 Memorandum M-13-13 Open Data Policy – Managing Information as an Asset, and the White House Office of Science and Technology Policy 2013 Memorandum, “Increasing Access to the Results of Federally Funded Scientific Research”. Together, they require agencies with research budgets greater than \$100 million to provide public access to Federally-funded scientific publications and digital data. These mandates accelerate the need for developing systematic approaches for providing public access to Federal LCA data in standardized and searchable formats.

Between 2011 and 2016, various formal and informal agency-to-agency LCA collaborations emerged. In late Fall of 2014, technical leads in LCA at USDA, EPA, NETL, ANL, and NREL created an informal ad-hoc working group on LCA data interoperability to focus on enabling data interchange and taking concrete steps toward creating a Federal LCA Commons (platform for interagency collaboration and data discovery) using existing resources. The ad-hoc workgroup has worked collectively towards a common vision in the following areas related to LCA:

- Nomenclature and classification,
- Data quality indicators,
- LCI data exchange tools and templates,
- Metadata documentation format, and
- Federal LCA Commons web-based data platform.

This increased Federal expertise in the LCA domain, the mandates for open Federal research data, and the need to provide transparency and accessibility to agency research all support improved collaboration and communication between Federal agencies working in the LCA domain. This MOU formalizes the working relationship between each covered Agency to continue the vision of

a centralized Federal LCA Commons, standardized LCI data documentation formats, and increased multi-agency and public access to LCI data. This MOU also expands the vision to ensure inter-agency collaboration on LCA data, models, and research to maximize value of Federal governmental LCA efforts and results.

IV. RESPONSIBILITIES

Each Agency agrees to collaborate through a working group that meets routinely to achieve the stated goals of this MOU. The Parties intend to:

- Have the working group maintain an Annual Work Plan to define potential collaborating activities.
- Provide one representative to serve on a Steering Committee responsible for governing and communicating the direction of the working group.

The Steering Committee intends to:

- Review and approve activities and outcomes related to this MOU.
- Convene semi-annually to review and approve the Annual Work Plan proposed by the working group.
- Brief their Agency management on the Annual Work Plan for the forthcoming year(s) and report progress against prior year's milestones.

V. POINT OF CONTACT

The points of contact responsible for technical administration of this Agreement are:

USDA: Ezra Kahn, National Agricultural Library, USDA, 301-504-9831,
ezra.kahn@ars.usda.gov

EPA: Wesley Ingwersen, National Risk Management Research Laboratory, US
EPA, 513-569-7602, ingwersen.wesley@epa.gov

DOE: Timothy J. Skone, P.E., NETL, 412-386-4495, timothy.skone@netl.doe.gov

VI. TERMS AND LIMITATIONS

This MOU in no way restricts any of the Agencies from participating in any activity with other public or private agencies, organizations or individuals.

This MOU is strictly for internal management purposes for each of the Agencies. It is not legally enforceable and shall not be construed to create any legal obligation on the part of any Agency. This Agreement shall not be construed to provide a private right or cause of action for or by any person or entity.

This MOU is subject to, and will be carried out in compliance with, all applicable laws, regulations and other legal requirements.

The Agencies may make factual statements to the public which describe its cooperation with the other Agencies.

Each Agency agrees to the use of its name and logo on communication materials (e.g., presentations, handouts, webpages) for the purpose of describing MOU participation and achievements both within and external to member agencies, provided the communication materials only contain content that has been approved by the Steering Committee.

Each Agency maintains the responsibility for preparing and maintaining its own data and any omissions or errors remain the responsibility of the authoring Agency.

Each Agency maintains the right, at any time, to refuse conformance with the practices developed under this MOU if doing so would result in LCA data, models, or tools that jeopardize fulfillment of mission and program objectives.

Each Agency agrees to assume liability for its own risks arising from or related to activities conducted under this MOU.

VII. TERMINATION

Any Agency may unilaterally terminate their participation in this MOU by providing thirty (30) calendar days' written notice to the other Agencies.

VIII. MODIFICATION

This MOU may be modified by mutually acceptable written amendment duly executed by authorized officials of the Agencies.

IX. FINANCIAL OBLIGATIONS

There will be no transfer of funds between the Agencies under this MOU, and each Agency will fund its own participation. All activities under or pursuant to this MOU are subject to the availability of funds, and no provision of this MOU shall be interpreted to require obligation or payment of funds in violation of the Anti-Deficiency Act (31 U.S.C. § 1341).

Nothing in this Agreement authorizes or is intended to obligate the Agencies to expend, exchange, or reimburse funds, services, or supplies, or transfer or receive anything of value.

All commitments made in this MOU are subject to the availability of appropriated funds and each Agency's budget priorities. Nothing in this MOU, in and of itself, obligates the Agencies to expend appropriations or to enter into any contract, assistance agreement, interagency agreement, or other financial obligation.

This MOU is neither a fiscal nor a funds obligation document. Any endeavor involving reimbursement or contribution of funds between the Agencies to this MOU will be handled in

accordance with applicable laws, regulations, and procedures, and will be subject to separate subsidiary agreements that will be effected in writing by representatives of involved Agencies.

X. RELEASE OF GENERAL INFORMATION TO THE PUBLIC AND MEDIA

Each Agency agrees to adhere to standard nondisclosure policies when handling data and documents obtained from other member Agencies for the purpose of collaboration, with the explicit understanding that this MOU in no way authorizes the disclosure of confidential business information (CBI) without proper approval from the appropriate Document Control Officer within the Agency that maintains the data.

XI. DISPUTE RESOLUTION

All disputes arising under this MOU shall be referred in writing to the Steering Committee. The Steering Committee will consult and attempt to resolve all issues arising from the implementation of this MOU. If they are unable to come to agreement on any issue, the dispute will be referred to the signatories to the MOU, as appropriate, or their designees, for joint resolution after the Agencies have separately documented in writing clear reasons for the dispute.

XII. APPLICABLE LAW

U.S. Federal law governs this MOU for all purposes, including, but not limited to, determining the validity of the MOU, the meaning of its provisions, and the rights, obligations, and remedies of the Agencies.

XIII. EXECUTION

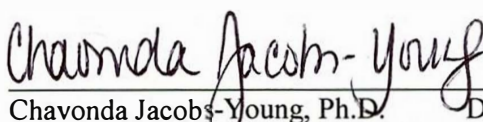
This MOU becomes effective upon the date of the last signature below ("Effective Date") and shall remain in effect until the completion of all obligations of all Agencies hereto, or five years from the Effective Date, whichever comes first.

The Agencies have caused this MOU to be executed in multiple originals by their duly authorized representatives and is effective on the date of the last signature below.

XIV. SIGNATORY AUTHORITY

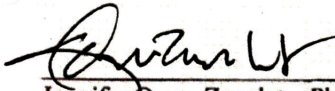
Approved and authorized on behalf of each Agency by:

For the U.S. Department of Agriculture

 4/25/18
Chavonda Jacobs-Young, Ph.D. Date


Acting Deputy Under Secretary for Research, Education, and Economics
58-8260-9-001M

For the U.S. Environmental Protection Agency

 12/18/18

Jennifer Orme-Zavaleta, Ph.D. Date
Principal Deputy Assistant Administrator for Science

For the U.S. Department of Energy

 10/01/18

Mark Menezes Date
Under Secretary of Energy