Industrial innovation in food systems resources list

This is a list of technical resources and tools that the MPCA Industrial Innovation in Food Systems program team has compiled to help eligible grant entities in estimating GHG emission reductions and developing and evaluating projects. This list is not meant to be exhaustive.

GHG Inventory and Energy Protocols

GHG Protocol Corporate Standard

GHG Project Protocol

NREL Commercial and Industrial Lighting Evaluation Protocol

NREL Commercial and Industrial Lighting Controls Evaluation Protocol

NREL Chiller Evaluation Protocol

NREL Peak Demand and Time-Differentiated Energy Savings Cross-Cutting Protocol

NREL HVAC Controls Evaluation Protocol

NREL Combined Heat and Power (CHP) Protocol

NREL Compressed Air Evaluation Protocol

NREL Strategic Energy Management Evaluation Protocol

Department of Energy Better Climate Challenge – Industrial Onsite Renewable Energy and Storage Working Group

GHG and Energy Calculation Tools

ReFED's Impact Calculator – Food waste by food type in manufacturing sector.

EPA's Simplified Greenhouse Gas Emissions Calculation – Process and fugitive emissions, and waste reduction.

EPA's Greenhouse Gas Equivalencies Calculator

EPA's Waste Reduction Model (WARM) – Anaerobic digestors and food system organic waste reduction.

ORNL Electrification Impact Calculator – Electrification of equipment modeling for carbon emissions and energy reduction.

ORNL's MEASUR for Industrial Equipment – Assessment modeling of systems to discover opportunities for energy efficiency across process and equipment types.

ORNL's Carbon Emissions Calculator – Fuel switching emissions calculator.

EPA's AgSTAR Biogas Toolkit – Landfill and wastewater treatment facilities and agriculture biogas tools.

NREL REopt Webtool – Evaluate the economic viability of distributed energy resources (DERs) for a building, campus, or microgrid. Optimize system sizing, identify cost-saving strategies, support emissions goals, and estimate DER backup duration for critical loads during grid outages.

Department of Energy, Lawrence Berkely National Laboratory (LBNL), and University of California, Davis (UC Davis) Industrial Assessment Facility Sankey Tool – Visualize a facility's energy use and Scope 1–3 emissions by process using an interactive Sankey diagram, helping identify major energy users, emissions hotspots, and key trends.

Department of Energy, Lawrence Berkely National Laboratory (LBNL), and University of California, Davis (UC Davis) Industrial Assessment Levelized Cost Curve Tool – Estimate the levelized cost of conserved energy and CO_2e abatement based on lifetime costs and savings of energy-saving measures. Assists in comparing measures and prioritizing energy conservation and decarbonization strategies.

Department of Energy, Lawrence Berkely National Laboratory (LBNL), and University of California, Davis (UC Davis) Industrial Assessment Pinch Heat Integration Tool – Optimizes industrial processes by maximizing heat recovery and minimizing external heating/cooling through heat pump and exchanger opportunities. Generates pinch diagrams and simulates heat exchangers and heat pumps between plant streams.

Department of Energy, Lawrence Berkely National Laboratory (LBNL), and University of California, Davis (UC Davis) Industrial Assessment Electric Load Planning Tool – Analyzes electricity use, costs, and Scope 2 emissions to identify savings from load management strategies like shifting, shedding, and planning. Uses Time-of-Use tariffs and hourly emissions data to highlight cost and emissions savings through visualizations.

Berkely Lab Industrial Applications Energy Performance Indicator Tool Lite (EnPI Lite) – Estimates energy savings based on variables like production levels and weather. Use this online regression-based calculator to model facility-level energy performance. EnPI Lite is recommended but not required for 50001 Ready energy reporting.

Department of Energy's Advance Manufacturing Office (AMO) Footprint Tool

Clean Energy Resource Teams (CERTs) Minnesota Solar App – Provides quick assessment of site for solar energy suitability.

Emission Factors

EPA's Emission Factors Hub (2025)

The Climate Registry's 2023 Default Emission Factors

Technical Resources

EPA's CPRG Tools and Technical Resources – Electric Power Sector Webpage

EPA's Guidebook for Energy Efficiency Evaluation, Measurement, and Verification

EPA's GHG Reporting Program (GHGRP) Database

EPA's GHGRP Facility Level Information on GHG Tool (FLIGHT)

EPA's Emissions & Generation Resource Integrated Database (eGRID)

EPA's CPRG Tools and Technical Resources – Waste and Materials Management Sector Webpage

RTI International Municipal Solid Waste Decision Support Tool (MSW DST)

EPA's Landfill Methane Outreach Program (LMOP) Landfill and Project Database

EPA's Guide to Conducting and Analyzing a Food Waste Assessment

EPA's Energy Use Assessments at Water and Wastewater Systems Guide

EPA's Energy Use Assessment Tool (EUAT) Guide

EPA's Energy Efficiency for Water Utilities Webpage

Buy America Preferences for Infrastructure Projects – Federal program compliance

DOE's Better Building Emissions Reduction Planning Toolkit

EPA's Permitting and Regulations for Anaerobic Digestors

EPA's Opportunities for Combined Heat and Power at Wastewater Treatment Facilities

EPA's AgSTAR Biogas Recovery in the Agriculture Sector

MISO Grid Emissions Map Tool

Department of Energy, Lawrence Berkely National Laboratory (LBNL), and University of California, Davis (UC David) Industrial Assessment Guidance

Measurement and Verification Protocols for Large Custom Conservation Improvement Programs Projects – Calculating cost savings or production volume changes from changing or integrating additional efficiency equipment (implementing EM(s)).

EPA's Toxics Release Inventory Reporting Requirements Basic Concepts – Determining production ratios of energy used for product units produced.