

Sustainable NREL: Laboratory Life Cycle Assessment of Environmental Footprint

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As a part of its sustainability program, Sustainable NREL, the National Renewable Energy Laboratory (NREL) has recently undertaken the development of an LCA based CO₂ "environmental footprint". This assessment is the baseline against which the Laboratory measures its progress to achieve a sustainability goal of working to achieve "environmental neutrality" in all its operations.

When quantifying the energy consumed at the laboratory in terms of CO₂ production, it is practical to break down Laboratory activities into major categories. Transportation, energy use, waste disposal, and water are the four major categories being analyzed. Each of these categories is in turn disaggregated into subcategories to effectively facilitate the analysis. Transportation has subsets of fleet data, air travel miles, and commuting averages. Likewise, energy consumption is divided into natural gas and electricity. Waste disposal has two areas of concentration, solid waste being dispensed to the landfill and the positive effects of recycling materials. Water has two elements of analysis. The first being the amount of CO₂ emitted in wastewater treatment and second, the CO₂ emitted from distribution and pumping of water to the Laboratory site.

This baseline information provides a common denominator for the assessment of the environmental impacts of Laboratory activities and thus a basis for making sound management around Laboratory sustainability activities.

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