Brightway: An open source framework for Life Cycle Assessment

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Summary

Brightway is an open source framework for Life Cycle Assessment (LCA) calculations in Python. The combination of a modular structure, the expressiveness and interactivity of Python and in particular Jupyter notebooks, and tuned calculation pathways allows for new research directions in Life Cycle Assessment. Brightway has been used in papers on meta-analysis of many inventory datasets (Wernet et al. 2011), regionalized LCA (Mutel, Pfister, and Hellweg 2011), and sensitivity analysis (Mutel, Baan, and Hellweg 2013). Brightway consists of three main modules: Brightway2-data (Mutel 2012c) manages how data is stored and accessed; Brightway2-calc (Mutel 2012b) does static and Monte Carlo calculations; and Brightway2-IO (Mutel 2015c) handles the import and export of LCA data from various sources. In addition to these libraries, helper libraries provide documentation and application examples (Mutel 2012a), support for parameterized inventories (Mutel 2015b), and a format for LCA data in arrays (Mutel 2013). A web page (Mutel 2016), documentation (Mutel 2015a), and a development blog (Mutel 2014) are also available.

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