Lcopt - An interactive tool for creating fully parameterised Life Cycle Assessment (LCA) foreground models

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Summary

Lcopt is an open source Python package for creating fully parameterised Life Cycle Assessment (LCA) foreground models. Lcopt includes an intuitive Flask (Ronacher 2017) based user interface to greatly simplify the modelling process for LCA practitioners and researchers. Background Life Cycle Inventory (LCI) data from the ecoinvent 3.3 database (Ecoinvent Centre 2016), or the FORWAST I/O database (Forwast 2007) can be linked to the foreground models. Models are created by drawing flow sheets. Each link in the flow sheet is assigned a parameter which can either be set directly or calculted using user defined functions. Any number of parameter sets representing variations of the model can be created in order to undertake scenario analysis and options appraisal. Once created, the models can be analysed directly from within the Flask interface, utilising Brightway (Mutel 2017) to generate the LCA results. This includes hotspot identification, process contribution and scenario comparison. If required, the models can also be exported to commonly used LCA softwares (Brightway (Mutel 2017) and SimaPro (Pre Sustainability 2014)) for further, more comprehensive analysis. The source code repository is hosted on github (Joyce 2017b) and full online documentation is available (Joyce 2017a).

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