



## From the Library

### BEES 3.0: LCA Software Makes a Quantum Leap

Building for Environmental and Economic Sustainability, software from the Building and Fire Research Laboratory, National Institute of Standards and Technology (NIST). Free download from [www.bfrl.nist.gov/oa/bees.html](http://www.bfrl.nist.gov/oa/bees.html) or order from the U.S. EPA's Pollution Prevention Information Clearinghouse, 202/566-0799, [ppic@epamail.epa.gov](mailto:ppic@epamail.epa.gov). For further information, contact Barbara Lippiatt, 301/975-6133, [blippiatt@nist.gov](mailto:blippiatt@nist.gov).

NIST's ongoing commitment to developing BEES and taking advantage of developments in the field of life-cycle assessment (LCA) is evident in the new version 3.0, released on October 31, 2002. With this new version, BEES incorporates new systems for calculating aggregated LCA scores, introduces additional impact categories, and adds a whole new feature in the form of brand-specific products. These changes go a long way towards addressing the concerns we've raised about BEES over the years (see *EBN* Vol. 9, No. 9 for our review of version 2.0).

While the look-and-feel of BEES hasn't changed much since its first release, under the hood it is substantially improved. Some of these improvements are based on newly available resources from the U.S. Environmental Protection Agency (EPA) that make it possible to normalize results and compare dissimilar impacts in more meaningful ways (see "Life-Cycle Assessment for Buildings," *EBN* Vol. 11, No. 3 for an overview on TRACI and other tools).

In previous versions, a product's score within any environmental impact category was relative to other products being compared. Now the scores are calculated on an absolute scale, which means that, for the first time, it is possible to compare and combine environmental impact scores for products in different applications. A user can compare, for example, a roofing or flooring product to see which has higher greenhouse gas emissions on a per-square-foot basis. The additional impact categories mean that the collection of impacts that BEES ignores is dwindling, at least for the products that use the full set of categories (some older, generic products and some of the new, brand-specific products still use the reduced set of impact categories).

A total of 23 building elements are represented in BEES 3.0, with 118 generic products and 80 brand-specific products from 14 companies. Interestingly, some of the brand-specific products included in BEES don't score particularly well. Companies had the option of removing their products from BEES before it was released if they weren't happy with the results, but only a handful of products were dropped, according to project director Barbara Lippiatt.

As in past versions, the best way to learn about products and understand the assumptions used to generate BEES results is to read the *User Guide*. This guide is available for download from the BEES Web site but, unfortunately, is not included by default with the software. The information in the *User*

*Guide* is so critical to interpreting BEES results that it should be integrated into the program and accessible directly from the results pages.

Perhaps BEES' most significant remaining limitation is that the underlying LCA data remains unavailable to users. As a result, users can view the flows of resources and pollutants by life-cycle stage and by component of a product, but tying those flows to specific processes remains a guessing game. Happily, Lippiatt reports that NIST plans to work with the ATHENA Sustainable Materials Institute to integrate the publicly available data sets that ATHENA is developing into future versions of BEES.

Regardless of the tool used, we strongly recommend taking LCA results with a grain of salt, and questioning the underlying assumptions before relying on the outcomes. BEES results are still heavily dependent on many debatable assumptions, and they are subject to very large margins of error. (It would be nice if the tool were able to reflect those margins in some way.) But the remaining drawbacks are more a reflection of the state of life-cycle analysis today than they are a problem with BEES itself. With version 3.0, BEES has finally arrived as a tool well worth using as part of any green product selection process. — NM

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