

Life cycle analysis of Fronius Tauro ECO 100 inverters

Critical review report and statement

Reviewer: Dipl.-Ing. Karsten Schischke

Berlin, 9 February 2022

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1 Basic data

Title of the study:

Lebenszyklusanalyse von Fronius Tauro ECO 100 Wechselrichtern (Life cycle analysis of Fronius Tauro ECO 100 inverters)

In detail, the study covers the following models:

- Tauro ECO 100-D
- Tauro ECO 100-P

Commissioner of the LCA study:

Fronius International GmbH

Practitioner of the LCA study:

Harald Pilz, to4to – together for tomorrow

Final version of the LCA study:

Version 1.0 dated 2 February 2022

Reviewer:

Karsten Schischke, Group manager Product Ecodesign and Circular Materials at Fraunhofer IZM, Berlin

2 Critical review process

The review was carried out by an external expert, based on ISO 14044:2006, 6.2.

The review was carried out in parallel to the LCA study, including five virtual meetings to discuss the progress of the study.

The review included the evaluation of the life cycle inventory model.

The review included an analysis of individual data sets in consultation with the commissioner and the practitioner of the LCA study. Implausible data in the Ecoinvent database were discussed, mostly at the suggestion of the LCA practitioner, and communicated with the database provider for clarification. Adjustments to this secondary data were made, where advised, with the consent of the reviewer.

Comments were documented in particular on the basis of a commented draft version of the LCA study report and were taken into account and incorporated by the LCA practitioner. Due to the iterative approach and thanks to methodological issues already discussed in a previous LCA study, only minor intervention by the reviewer was required.

Comments of the reviewer concerned in particular

- Modelling of selected components (especially electronics),
- Modelling of metal working processes,
- Modelling of the use phase and assumptions on product lifetime.

All questions and requirements on the part of the reviewer were answered by the author of the study in such a way that conformity with the requirements of ISO 14040 and ISO 14044 was established.

The critical review verified that

- the methods used to carry out the LCA are in accordance with the ISO 14040 and 14044 standards;
- the methods used to conduct the LCA are scientifically and technically valid;
- the data used are appropriate in relation to the objective of the study;
- the interpretations reflect the identified limitations and the objective of the study;
- the documentation of the study is transparent and consistent.

To exchange information on the progress of the study and to discuss interim results and open questions, online meetings with the reviewer took place on the following dates:

- Kick-off meeting with discussion of goal and scope (6 September 2021)

- Status meeting with discussion of life cycle inventory data (25 November 2021)
- Status meeting with discussion of interim results (16 December 2021)
- Status meeting with discussion of draft report (12 January 2022)
- Final review meeting (28 January 2022)

The reviewer had access to

- draft versions of the report
- component parts lists and their assignment to generic data sets
- detailed data model
- photographic documentation of the equipment layout
- product data sheets

3 Review statement

It is confirmed that the life cycle assessment study meets all relevant criteria and complies with the principles of good scientific practice.

Conformity with ISO 14040 and ISO 14044 is established for the study "Lebenszyklusanalyse von Fronius Tauro ECO 100 Wechselrichtern" and its results.

Berlin, 9 February 2022



- Karsten Schischke -
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