

Authors response and changes in the manuscript to RC #1 from 24 September 2023

1. You mentioned: *“The scope of CAFIPLA has been limited to the biomasses mentioned because of their technical and legal suitability for the technologies developed in the project. However, the types of biomass included in the study are determined by the context of the CAFIPLA project. Straw and municipal solid waste are two of the top 10 biogenic residues, by-products and wastes in Europe in terms of their technical potential, according to a literature review by Karras et al. (2022). Outside the context of the CAFIPLA project, it will be useful to extend our model to other biogenic residues, by-products or wastes, such as forest residues or manure, as these biomasses have great potential in Europe. For the units, we believe that the conversion increases the error, as factors, thresholds and restrictions also vary according to the authors' choices. A more detailed explanation is added in line 120ff.”*

- *Apparently, audiences won't care or know your project limit. I recommend adding limitations/future work to detail related concerns. The very first question I had was how large the residual biomass potential of the sources studied here is relative to the total potential. I would appreciate a clarification or some discussion of future work on this.*

- *More importantly, the unit conversion uncertainty point is taken, but it is not the reason for not trying. Authors need to understand fresh tons are different units by source and the aggregation of which might not be useful.*

Answer:

We have included information in the manuscript about the limitations and future work of the dataset produced and, in particular, the unit FM. The choice of unit required for further work with our data product is left to the user, as is the choice of conversion factors used. For this study, the focus has been on regionalisation and validation. However, we will consider including more units in future published datasets.

In addition, the work of Karras et al. (2022) has been included in the manuscript, demonstrating the importance of the biomass potential of straw and municipal solid waste in Europe. We agree that consideration of other biomasses such as woody residues and animal by-products should be considered in the expansion of the database.

As discussed in the paper, there are many data gaps, different methodologies, changing definitions of biomasses, and missing or aggregated biomasses in other studies, that make a statement about the total biomass potential questionable, and an estimate of the portion of the biomass potential covered by this study does not, in the authors' view, add value.

In the script several sentences on this topic have been added in the introduction, line 95f and in the discussion 437ff.

2. *Another point related to future work is to scale the data to a global scale. Will that be possible? E.g., FAOSTAT might have some useful source data.*

Answer:

We believe that with current improvements in satellite imagery and classification, forest and agricultural residues can be better estimated and regionalised globally, including FAOSTAT data. However, changes in administrative units must always be taken into account when constructing timeseries. Regionalisation of livestock data from FAOSTAT will already be more difficult on a global scale due to spatial data gaps. For biogenic industrial residues, data problems also remain in FAOSTAT. Biogenic municipal waste has, in our view, one of the greatest future potentials, but the collection rate is very regionally specific, as shown for Europe, and a global estimate will have a high estimation error. Nevertheless, future work in this area is of great interest to us and we will continue to work on it, taking into account your suggestions.

In the script 3 sentences have been added in line 445ff to include this question.