Review of: "Increasing Renewables and Building Retrofit in a Coal-Based Cogeneration District Heating System"

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Potential competing interests: No potential competing interests to declare.

The paper is well-written and deals with an interesting case study about the retrofit improvement of an existing district heating network to increase the penetration of renewable energy sources. The results are promising and propose a clear path to decarbonize the analysed system.

In my opinion, the paper only needs minor modifications.

See the comments below for details.

Abstract

The main results are described in the abstract, but they are not quantified. I suggest reporting also the main numerical results.

1. Introduction

It is stated in the introduction that DHN generations are classified based on the water temperature. However, the 5th generation DHN can use also different fluids. This aspect should be specified.

The gap in the literature that the proposed work aims at filling is not clear, and, in turn, the novelty results to be not so clear. I suggest better discussing these aspects.

2. Methods

When the inputs and outputs of the model are described, imports and exports are present both in the input side and in the output side. I suggest defining the imports/exports that are inputs and those that are outputs.

Table 1 is introduced as “the table below. Please be sure that tables and figures are always introduced with their corresponding numbers (Table 1 in this case).

It is not clear whether the heating demand reductions in Table 1 refer to the entire heating demand or only to that covered by the DHN.

4. Results and Discussion

It is stated at the beginning of section 4.2 that “Table 1 shows the results” of the proposed scenarios. Isn’t it Table 4?

5. Conclusions

In the conclusions, the reference to all the proposed scenarios should be avoided. I suggest focusing only on the most relevant results by linking them to the corresponding assumptions on the demand covered by the DHN, demand reduction, …