

Review of: "The Application of PROMETHEE with the recalculated weight method as a more accurate measurement for the selection of the best Hybrid Renewable Energy Technology for a slum building"

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Potential competing interests: The author(s) declared that no potential competing interests exist.

Review

1. Notes on the format of the text of the article:

The formulas in the pdf file are hard to read. Symbols are shifted. The reader must guess.

2. The methodology is described casually.

There are no references in the text. Twice "References"

It is required to describe Nomenclature: and indexes of variables are very important.

There are n alternatives ($i=1, \dots, n$) and m criteria ($j=1, \dots, m$) in the work,

$D=(x_{ij})$ – decision matrix (natural values),

r_{ij} – decision matrix (normalized Sum-method values) formula (9),

R_{ij} – decision matrix (normalized Max-Min-method values) formula (26) benefit criteria,

R'_{ij} – decision matrix (normalized values) formula (27) cost criteria.

In formula (5), v_{jk} is a linear correlation matrix. Formula (6) must precede (5).

The notation R_j in (5) is unfortunate. Possible confusion with R_{ij} .

Criteria not described – benefit and cost criteria should be specified.

In the Entropy-method, an inversion of the cost criteria is required. Incorrect use.

Judging by the vectors Best and Worst 4,5,6 and 7, the criteria are cost criteria.

Description of AHP is very bad. If you are too lazy to write a detailed and correct text, it is better not to write at all. Give a link.

3. The weights according to the CRITIC and Entropy methods were not calculated correctly.

4. There are errors in the presentation of the original data

Table 2. Decision Matrix: 113,331 & 13,331 ?? Maybe 113331.

Table 3. Normalized Decision Matrix: C1-not normalized

5. PROMETHEE is poorly described. What modification of PROMETHEE-1, 2, 3 or 4

Many methods have modifications. Therefore, it is important to give the exact version of the method in the article.

Otherwise, the results will be different.

6. I performed the calculations according to your data and I got the following weights:

Critic	Entropy	AHP-EVM
0.1291	0.1432	0.2069
0.1103	0.3127	0.1334
0.0858	0.0327	0.0857
0.0714	0.0266	0.1691
0.0713	0.0266	0.1007
0.0648	0.0249	0.0669
0.0674	0.0249	0.0531
0.1307	0.2046	0.1334
0.1270	0.0990	0.0330
0.1422	0.1047	0.0179

Even the AHP is different. Most likely, the author used (again one has to guess) an approximate formula for λ_{\max} .

7. How the combination of weights according to the article is performed is not clear. Specify the technique!

Resume:

Further, I will not review such an unfinished text. Pity your time.

Look at the following articles exactly in your research topic:

<https://www.dmame.rabek.org/index.php/dmame/article/view/194/75>

<https://www.techscience.com/cmc/v68n2/42160>

<https://doi.org/10.1016/j.seta.2022.102118>

The fundamental mistake is that there is no method for recalculating weight as a more accurate measurement. It is possible to carry out a more accurate measurement of which indicator. But there is no more accurate method.

Предположим, мы знаем точные веса w^* . Тогда точность метода можно определить как невязку $!ж - ж^*$!. Однако w^* неизвестно. Все методы оценки веса являются относительными. Если несколько методов дают коррелированные результаты, это повышает достоверность оценки!