

Wind Energ. Sci. Discuss., referee comment RC1
<https://doi.org/10.5194/wes-2022-100-RC1>, 2022
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Comment on wes-2022-100

Anonymous Referee #1

Referee comment on "Comparison of optimal power production and operation of unmoored floating offshore wind turbines and energy ships" by Patrick Connolly and Curran Crawford, Wind Energ. Sci. Discuss., <https://doi.org/10.5194/wes-2022-100-RC1>, 2022

General Comments:

Overall, this research adds value to the existing literature. It is crucial to compare the existing innovative ideas so that developers and researchers are able to enhance the design.

Specific Comments:

Regarding the UFOWT's applied forces, two main resistant forces were neglected:

- **Mean Drift Force:** It is crucial to show that the mean drift force is negligible. Either by referring to existing literature or, **preferably**, by comparing the drift force to the other applied forces and proving that it can be neglected.
- **Residual Resistance:** This force was considered in the ES design, for good reasons for some hulls this force is important and represents a major part of the total resistant forces. For the platform design used, it is crucial to show that the residual resistance force can be neglected.

Regardless of whether these resistive forces are individually negligible, it is important to include them in the design. The reason is, referring to figure 14, it was shown that the difference between the two designs is small. Accordingly, any minimal change might

change the conclusion. In addition, without considering these forces, the FOWT is considered to achieve rated power, which will not be the case otherwise.

Technical Comments:

- line 51: use the present tense.
- line 163: **an** unstable.
- Be consistent with the font type for TWS, TWA, AWA, etc.
- Equations are part of the text, it is important to use the right punctuation. This will enhance the reading experience.
- line 224-225: mention the source of the drag coefficient.
- Table 1: You have unintentionally written that the propellers have a hub height of 150 m.
- Suggestion: Add the dimensions of the FOWT's platform, either in table 1 or in a schematic.
- Figure 4: Add label ticks (x-axis: 2.0, y-axis: 0.8).
- Be consistent in the font types used for graphs. For example, figure 11 and figure 8 have different font types.
- Have you explained what regions I, II, III, and IV mean? Probably it is good to include them in the power curves (figure 11 and figure 14)
- No need to include the references websites. (Suggestion)

Please also note the supplement to this comment:

<https://wes.copernicus.org/preprints/wes-2022-100/wes-2022-100-RC1-supplement.pdf>