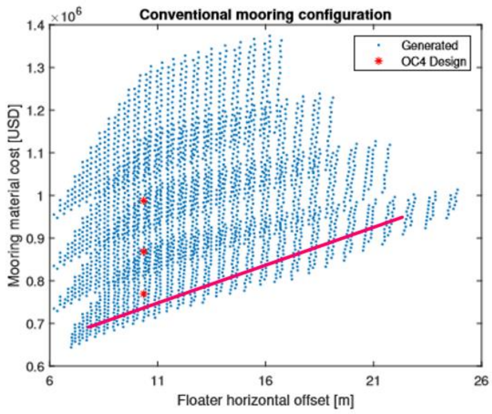
The paper presents a quasi-static approach to design shared mooring systems for 2 turbine and 3 turbine shared farm. Dynamic simulation for selected cases is presented using Fast.farm. The paper presents several interesting ideas. However, the conclusions arrived by comparing the shared and individual mooring is not fair as detailed in comment 10.

1. Literature survey:
    a. Line 50-54 – It is mentioned that in Liang et al (2020)'s work it was found that static mooring restoring forces are insensitive to surge and was strongly sensitive to sway. Even though the S2 layout in the current paper matches with Liang's paper, it may be a good idea to reframe this in terms of the displacements relative to the shared line headings instead because the surge and sway referred in Liang's paper is not the same as what is used in the current paper.
    b. Line 59-61 - Here a contradiction on the effect of shared line on floater motion is pointed out between studies of Munir et al. (2021) and Gözcü et al. (2022). Its unclear what is meant by "floater motions" from static tests.
2. Figure 1 and Figure 2 – Figure 1 indicates the FOWT model used in the study and I assume (since it is not specified anywhere), the same model is used for both M1 and M2 mooring configuration shown in Figure 2.
    a. For M2 configuration it is unclear how the fairleads are attached to points where there are no outer columns in the semi-sub.
    b. If M2 configuration is considered as a 180 deg. rotation of M1, meaning it requires transformation of the hydrodynamics of the semi-sub, mass properties etc. Please explain if this approach was followed as these are essential to understand the Fast.farm results presented later.
3. Figure 5 – the workflow for shared line design. Some explanation of the workflow in Figure 5 is provided in lines 223-225. But the methodology and the assumptions made are not completely clear:
    a. Please provide more clarity on what the input variables are, the bounds applied on the input variables and the constraints. In my understanding, 3000/4000/6000 designs which are generated in the study results from the permutation of 4 design variables : Length ratio, chain dia, chain grade and characteristic similarity as per Table 3 and the input block in the flow chart. If the rest are design constraints, please explain clearly how the constraints are derived from the design variables. Specifically, please explain how the following constraints are obtained from the 4 design variables using catenary equations over which a constraint is enforced:
        - Constraint 2 - Total length of anchor lines
        - Constraint 4 - distance between the turbines
    b. Is the location of the anchor fixed with respect to the platform? If so, please mention the anchor scope.
    c. In the input block, what is meant by 'Line length properties? Is a range of lengths assumed for shared and anchor line along with a R_L for each? Please clarify if R_L is an input variable or a design constraint as in Line 282 it is also presented as a design constraint. If it is a design constraint, please explain how this is determined from the 4 design variables using catenary equations.
4. In section 3.2 design constraints
    a. The constraint on R_L already ensures that that at least 30% of suspended length is laid on the seabed for anchor lines, then what is the purpose of the additional constraint "Non-shared line lay-down length $L_{Lay} > 0$ " in Table 3.

b. How do you ensure that the initial pretensions tensions as defined by the pretension ratio (R_T) will keep the platform in horizontal equilibrium when we consider the total force actng on the floater?
c. The term ‘horizontal offset’ has been used in general throughout the paper. Please define this term: are you referring to the surge displacement of the floater or the Euclidian distance which takes into account the surge and sway displacements from the initial position. Even though only 0 deg loading is considered in the paper, for the configuration S3 with 3 turbines, its essential to distinguish between the two.
d. In Line 280-281, I would think that for a given water depth, the same standard (maximum offset) will be applied for the export cables for different mooring designs. I do not follow the argument that the standard can be changed based on the realised mooring stiffness of the designed system.
e. It is unclear why strength criteria is not considered in the quasi-static mooring design workflow.
f. Line 228 Its not clear why R_L is also enforced on shared line or why the shared line is designed to touch the seabed? Dragging the lines on the seabed will create large friction forces, has this been considered in the Fast.farm analysis? What is the practical relevance of this design?

5. In line 214 ρgAz is buoyancy per unit length
6. Figure 6 : Mooring material cost against offset – A general intuition is that if larger offset is permitted, the minimum mooring cost achievable would become smaller (meaning the red line in the plot will have a negative slope). Why is this trend not observed in the results?



7. Figure 7 and 8 – the y axes is marked as WT cost. Is this mooring cost per turbine?
8. Figure 9, Lines 322-324 – It is argued here that the skew of the shared designs indicates greater potential of shared mooring configurations to provide lower cost designs.
   a. In figure 6 we clearly see 4 sets of designs corresponding to the 4 grades (I beleive). This seems to create a greater spread of the cost in the design space for individually moored case. Such an observation is not seen in the shared cases. Can you explain why this is the case. This can possibly explain the higher standard deviation and skew towards higher cost seen in the individually moored case compared to shared case.
   b. If we focus on the most optimum design achievable which has the minimum cost, which is the objective of the exercise, Table 4 indicates that shared mooring configuration S2 is more expensive compared to individual mooring by around 6%. This does not exactly align with the conclusions drawn in the paper presented in the abstract or in the conclusions. Further, the savings achieved is only 2% with a 3-turbine shared mooring case over individual mooring.

9. Line 359-361 and Table 6 – Here the shared mooring configuration is shown to have a cost savings over 'preliminary' design. However, this comparison is unfair as it is not clear if the 'preliminary' design has been produced to meet the same set of constraints as that was used for producing the shared mooring designs – for example do they have the same constraint on the offset limit and pretension requirement? See comment 8b, which is a fairer comparison and shows S2 has a cost disadvantage over individually moored case.
10. Line 426-429 – It is specified that the anchor lines of the individually moored turbine is same as that used in the shared mooring implying, they are highly overdesigned as shared mooring would require the anchor lines to be stronger to account for thrust accumulation. So, any performance comparisons made between the two cannot be interpreted as a comparison of performance of an optimum shared mooring design and an optimum individually moored turbine, but a comparison between an optimum shared mooring design and a possibly overdesigned individually moored design.
11. In line 443-44 it is concluded that shared mooring shows greater potential for power production enhancement.
    a. For S2 case, it will be more interesting to look at the sway offsets seen by the turbines. See comment 10, since the conventional moored turbine is excessively stiff, I would expect it to have a lower sway displacement causing a larger power loss as it is unable to move out of the wake of the upwind turbine. I am not sure if this can be used to conclude that shared mooring can lead to higher power production.
    b. For S3, Table 8, v = 13 m/s shows that the total power production (considering 3 turbines) is in fact slightly higher for individually moored case than shared mooring cost-based design. Further, here the higher stiffness becomes an advantage for WT3 and we see a higher power production in individually moored case for both cost and distance based designs. So, I don't see any conclusive evidence of power enhancement due to shared mooring.
12. Figure 13
    a. For S3, cost driven model has a larger distance between the turbines (11.7D) as compared to distance driven model (9.5D). Therefore, I would expect a closer agreement between static results in cost driven case than in distance driven cases, as in the former case there will be a reduced wake effect. But in the figure for S3, we see a better agreement with the static results for WT2/WT3 in distance driven cases rather than cost driven case. Can you please explain this anomaly.
    b. For S3 design it appears from the comparisons presented that there is a large difference between the offsets predicted by the static tool and the actual offset seen in the dynamic simulations. If so, how effective is the design methodology proposed in the paper in identifying optimum designs in the design space?
13. Conclusions – as detailed in comment 10, the comparisons drawn between shared mooring and individual mooring can be made if the design arrived at in Table 4 M1/M2 is used ensuring they are also the most optimum.

General optional suggestions:

14. Figure 3 and Figure 4 – In the presentation of the results (for example see Figure 16 and 17) – it might be easier if the fairleads are labelled in figure 3 and figure 4 for easier interpretation of the results.
15. The term 'non-shared line' has been used throughout the text. I would recommend just using anchor line instead, if you are referring to the line connected to anchors.