The comments have generally be addressed very satisfactory. Only on the reply to the first general comment, I would like to comment. Below, only the open comments are listed (authors' reply is in italic and new comments in normal serif). I used the line numbers from the review report.

l. 265: *Thank you for the thoughtful suggestion. According to your suggestion, we produce the following plot as the new Figure 9. This figure replicates Fig. 8, while only the data with the modelled-observed absolute error in wind speed smaller than 1 m s^{-1} and the absolute error in wind direction smaller than 5°. In other words, the WRF model reproduces accurate ambient winds in these data points. Different colours represent different lidar-measured wind directions and the ns are respective sample sizes.*
From the new figure 9, it seems to me that stability and wind direction could be both key parameters.

l. 280: *In Fig 8d, although the correlation between power bias and stability is only -0.06 if we include all the data points, when we only consider data points when the WRF model simulates accurate wind speed and wind direction, the correlation increases to -0.42. In the new Fig. 9, the general trend of the negative relationship between power bias and measured wind speed shown in Fig. 8a remains prominent. When wind speed is below 9 m s^{-1}, power bias is mostly above -30 MW, regardless of wind direction.* The power depends strongly on the wind speed, therefore the power bias in function of the wind speed can be expected to increase with wind speed. To me, it seems that the positive power bias for wind speeds up-to 8-9 m s^{-1} is mainly mainly caused by the unstable atmospheric conditions.

l. 290: *From the new Fig. 10 (the original Fig. 9), power bias overall is positively correlated with wind speed bias, such that overestimating wind speed leads to power overestimation. The new Fig. 9 shows that even without large errors in simulating wind speed and wind direction, strong winds (in this case, wind speed at around and beyond 10 m s^{-1}) actually lead to under-prediction of power. The power underestimation is associated with southerly to south-westerly winds, and the respective wind speeds are also relatively large. Hence we cannot confidently conclude the interactions between wind direction and wind-farm layout and their resultant influence on power production and wake effects as suggested by the reviewer.*
The increasing negative power bias for higher wind speeds in stable conditions is probably the result of the wind's dependency on the power. To me figure 9d shows that the model generally overestimates the power generation in unstable/near neutral conditions (underestimates the wake losses) and underestimates the power generation in stable conditions (wake losses are too high). Figure 9b, shows that for 160° (mostly stable) the bias is around 0%. For southerly wind directions the bias becomes negative in stable cases. Then, for south-westerly winds it goes only back to around 0% only because the atmospheric conditions changed to unstable/neutral. Therefore, for similar atmospheric stability there

is a sensitivity to the wind direction. Namely that for southerly winds where wake losses in reality are expected to be low (since the turbine spacing is larger then with e.g. 270°) the model overestimates the wake losses. What is your opinion?

l 295: *One possible factor contributing to the consistent underestimation of power production during south-westerly flow is the wake interactions within a grid cell. However, we have already shown that inter-cell wake effects are not the critical factor to power error (the new Fig. 12b). The inability of the WFP to simulate intra-cell wake effects can explain the large negative biases when many of the turbines experience unobstructed south-westerly flow.*
Couldn't figure Fig. 12b indicate that for southerly winds the first row systematically underestimates the power production, which can only be due to grid-cell internal wind speed reductions. Further in the wind farm, it becomes more complicated, since there are grid-cell internal wind speed reductions and reductions caused by upstream turbines. The fluctuations in power bias in the following rows could then be caused by wind speed reductions from upstream turbines. Unfortunately, there is no data for 90 or 270°, but for those directions the opposite could hold. In case the power bias in Fig. 12b is calculated in the same way as in the previous plots, shouldn't the vertical axis be reversed (since the bias was previously mostly negative).

l 335: *Following the suggestion, we have explored different ways of considering the turbine positions in the grid-cell, and we found no sensitivity. Below we first show the mean power bias in each turbine-containing grid cell of the ERA12WF simulation as a function of the mean distance between the actual turbine locations and the centre point of their respective grid cells, within a grid cell.*
My comment was more related to the previous discussion that in reality it can happen that there is no (180°) or a very intensive (270°) interaction between turbines in one grid-cell, whereas the wind speed reduction in the model would be exactly the same. Since the wind farm operates in complex conditions and the data amount is limited it is not straight to assess this.