Dear editor,

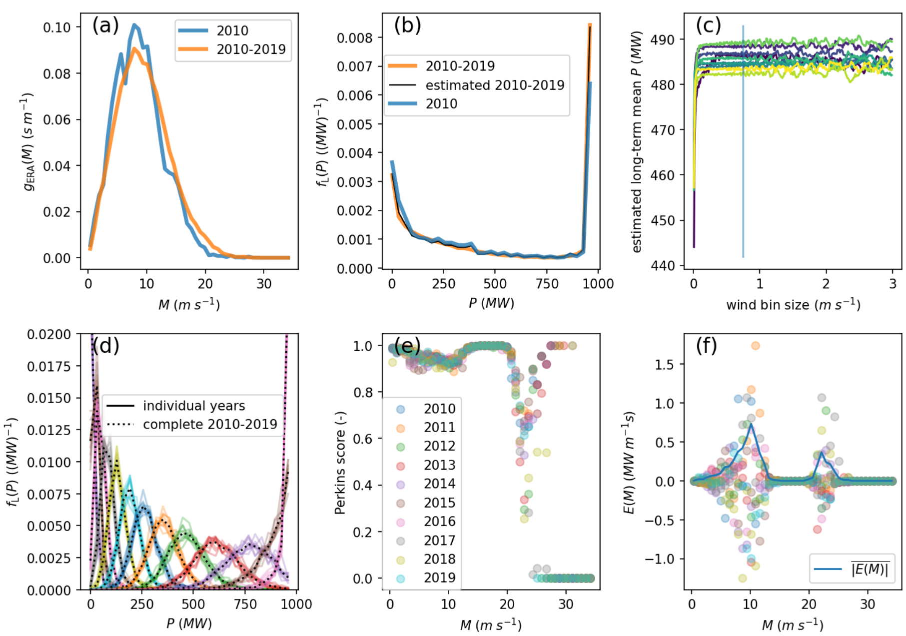
We thank the reviewer for their comments, and we agree that the relevance and novelty of our study is the statistical long-term correction method, and not the use of LES for wind resource assessment in itself. Because the long-term correction method requires time series data, it can be applied to any model that produces time series. The benefits of such models are the possibility to compare to observations, and calculate correlations with e.g. electricity prices. LES is an example of such a model, that is gaining in popularity and usability in wind resource assessment for those reasons. This is why our paper presents the method using LES data. Nevertheless, we agree that it is but one example of a possible application. We have adapted the manuscript to emphasize this, and furthermore changed its title to: *Estimating Long-Term Annual Energy Production from Shorter Time Series Data: Methods and Verification with a 10-Year Large-Eddy Simulation of a Large Offshore Wind Farm.*

The reviewer's second point concerns the effects of other variables than wind on power production, which might be very pronounced in wind farms with irregular layouts. These effects can be quantified by the spread in wind farm power production values at a given wind speed, convoluted with the occurrence frequency of that wind speed. This spread, therefore, should be well-represented in the short term. In the example where a wind farm's power depends heavily on wind direction, this means that all wind directions should be represented. The error caused by the remaining misrepresentation can be quantified as a function of wind speed:

$$E(M) = \int ((\hat{h}_{\mathrm{L}\,|\,\mathrm{ERA}}(P, M) - h_{\mathrm{L}\,|\,\mathrm{ERA}}(P, M))\hat{g}_{\mathrm{ERA}}(M) P dP, \qquad (1)$$

in the notation of the manuscript, also see our reply to RC1. In the revised manuscript, have adapted its Fig. 4 to show $E(M)$ (see panel f in the figure below). Here, we see that the error is indeed mainly caused in the region where the wind farm power curve shows the largest spread. For irregularly spaced wind farms, which might have a larger spread in power given a certain wind speed, we can therefore expect a lower accuracy of the long-term correction method.

We think that showing the accuracy of the method for wind farms with different layouts is out of scope for our study. However, in the revised manuscript, we have elaborated more on this very valid point, and explained how irregularly spaced layouts might affect the accuracy of the long-term correction method.



The new version of Fig 4: Illustration of the long-term correction method. a) ERA5 100 m wind distributions for 2010 and 2010-2019, and b) realistic LES power production distributions for 2010 and 2010-2019, and including the distribution for 2010-2019 as estimated by the long-term correction method from 2010. c) for all years 2010-2019 (increasing from blue to yellow) the long-term mean power as estimated by the long-term correction method, as a function of wind bin size. The chosen value of 0.75 $m\ s^{-1}$ is indicated with the vertical line. d) for wind bins starting between 3 $m\ s^{-1}$ and 12 $m\ s^{-1}$ (indicated by the different colors, increasing from left to right), the power distribution within that wind bin for the years 2010-2019 (different lines). The long-term counterparts are plotted with dotted lines. f) the Perkins Skill Score between the short- and long-term power distribution within each wind bin and for each year. f) the error contribution (and its averaged absolute value) for each wind bin and for each year (same colors as in e).