Comment on essd-2020-312 Reviewer 2

Hannah C. Bloomfield et al.

Author comment on "Sub-seasonal forecasts of demand and wind power and solar power generation for 28 European countries" by Hannah C. Bloomfield et al., Earth Syst. Sci. Data Discuss., https://doi.org/10.5194/essd-2020-312-AC2, 2021

Thank you for the very positive feedback on the article. We are thrilled you believe it will be useful to develop future collaborations between energy and meteorology and this was our primary aim. We have been through and clarified any uncertainties in the methods relating to the energy models, forecast structure or skill score interpretation, grammatical errors and removed any repetition in the article. We have also included reference to the suggested papers and included a section highlighting how these datasets could be used to investigate windows of opportunity in forecasts. A few more detailed comments below:

- We agree that the definition of the weeks is non-traditional. The definitions are used following on from the sub-seasonal to seasonal prediction for energy (S2S4E) project. This was chosen due to climate services requiring time to process data once it is released from an operational centre. To maximise the usefulness of a 'week 1' forecast that may take a few days to be processed then days 5-11 were chosen. The definition also takes into account that the extended range forecasting systems are not designed to be used for 'weather forecasting' i.e. days 0-5. We therefore exclude this early period. This weekly definition is used in Weigel et al., (2008) and highlighted in Coelho et al., (2019) as a common timescale for verification of S2S forecasts.
- The limitation to winter is an interesting point. We had limited the discussion in the paper to winter for brevity (and due to this being the season with most promising skill levels). However, increased discussion about the year-around skills levels in Figure 1 are now included, as promising skill levels are seen throughout the year.
- We agree that there is the potential to investigate windows of opportunity (e.g. related to modes of atmospheric variability, MJO, ENSO, Sudden Stratospheric warmings.) However, this was beyond the scope of the current study which aimed to give an overview of the available data and a general indication of the skill levels present. This is an excellent topic for future work and we've included this in the discussion, referencing papers by Bueler et al., and Lledo et al., (2020) looking at skill during different stratospheric states and Madden Julian Oscilation phases respectively.

References: Weigel, A. P., Baggenstos, D., Liniger, M. A., Vitart, F., & Appenzeller, C. (2008). Probabilistic verification of monthly temperature forecasts. Monthly Weather Review, 136(12), 5162-5182.

Coelho, C. A., Brown, B., Wilson, L., Mittermaier, M., & Casati, B. (2019). Forecast Verification for S2S Timescales. In Sub-Seasonal to Seasonal Prediction (pp. 337-361).

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A line by line response to the comments can be found attached to the previous comment to Reviewer 1 if you would like more details.