

Earth Syst. Sci. Data Discuss., referee comment RC1
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Comment on **essd-2021-436**

Anonymous Referee #1

Referee comment on "Hourly historical and near-future weather and climate variables for energy system modelling" by Hannah C. Bloomfield et al., Earth Syst. Sci. Data Discuss., <https://doi.org/10.5194/essd-2021-436-RC1>, 2022

General Comments

The data is accessible from the provided links and in good shape. I was able to download the data, load it into memory and inspect it. It would be helpful to mention that the climate projected data comprises "only" 3 years. The major drawback is the confinement of the sub-national datasets to the UK (and Ireland for offshore). However the data will be useful for studies focused on UK and potentially the North-Sea area where major investments in offshore wind power are to expect in the upcoming years.

Specific comments

* Introduction: it was not mentioned that there exist automated tools that convert different kind of meteorological datasets into spatially resolved time-series for renewable technologies, like `atlite` (<<https://doi.org/10.21105/joss.03294>>) or `pvlib` (<<https://doi.org/10.21105/joss.00884>>). These may potentially allow for processing climate projected data.

* Introduction: There have been other approaches made to use climate projected data from EURO-CORDEX for energy system modelling, e.g. (<<https://www.sciencedirect.com/science/article/abs/pii/S0306261918313953>>)

* For now the geographical scope of the national and sub-national dataset are diverging. The sub-national dataset only includes GB (and Ireland for offshore). However, for European energy system models we need a sub-national resolution across multiple countries. For a future project it would be helpful to create datasets on NUTS1/NUTS2 resolution for same set of countries as included in the NUTS0 dataset.

* The section 4.2. "How could climate change impact past power system extremes?" is a bit poor. The authors set a strong focus on the extreme temperature periods. However it is rather the interplay between renewable power potential and the demand that is

important here. Dark, cold periods with weak wind potential are the most challenging for the (renewable) energy supply. How and to what extent are these changing in the climate projections?

* The python scripts in <https://researchdata.reading.ac.uk/331/> rely on a long deprecated python package `mpl_toolkits.basemap` which was deprecated in the favor of Cartopy. When including such a package it would be helpful to provide a general conda `environment.yaml` file or a pip `requirements.txt`. Otherwise it is hard for users to run the scripts.

Technical Corrections

* Equation (5) misses a closing parenthesis