

Response to Report #1

Thank you for addressing my comments thoroughly and carefully. My raised points are solved appropriately. The presentation of the results has been largely improved. I am convinced, and I am happy to see this work published.

Just one final thing on my mind:

In the changes accepted manuscript lines 49-51, I recognized that this argument is not up to date, as ERA5 provides 100 m wind speed at the hourly temporal resolution and is the most widely used dataset in this field nowadays. Using an old product as an example, here MERRA-2, does not help set up the scene; quite the opposite:

Thank you for your kind comments and feedback. We appreciate the time and effort you have devoted to reviewing this work!

Thank you for pointing this out! You are correct that ERA5 does make 100m winds available for download via Copernicus. One of the motivations for utilizing high-resolution SCREAM-CARRM data for energy modeling was that we noticed that ERA5 had large biases in wind capacity factors in regions of strong topography (e.g., Millstein et al., 2023). We've now included this as part of our motivation:

“Many widely used reanalyses such as MERRA2 provide only near-surface wind speed and total shortwave radiation, requiring additional assumptions such as vertical extrapolation based on boundary-layer wind profiles, or radiation decomposition. Other reanalyses, such as ERA5, provide 100 m hub-height winds; however, ERA5 has a horizontal resolution (31 km) that is too coarse to adequately resolve winds in some regions (e.g., areas with strong elevation gradients).”

Response to Report #2

I appreciate the authors' careful and thorough efforts in addressing all of my comments. The revisions have significantly improved the clarity and robustness of the manuscript. I have no further concerns and recommend acceptance.

Thank you for your kind comments and feedback. We appreciate the time and effort you have devoted to reviewing this work!

General revisions (editorial requirements)

In addition to addressing all reviewer and editor comments, we have carefully checked the manuscript for typos, terminology consistency, author information, as well as all tables and equations.