

Review comments by Anders Wickström and Nermina Saracevic on the paper:

” Power fluctuations in high installation density offshore wind fleets”

Juan Pablo Murcia Leon, Matti Juhani Koivisto, Poul Sørensen, Phillippe Magnant (2020)

(2nd revision)

We wish to thank the authors for revising the manuscript in line with the earlier suggestions. The text is well improved with respect to recommendations on the following points:

1. Justification, hypothesis, methodology, scenarios
2. Explanation of time series simulations for wind speed and turbine/plants simulations
3. Description of CorRES
4. Description of high wind speed technologies
5. Grammar, wording, and consistency

However, there are few final suggestions on referencing and grammar to assist the authors with final revision.

I. REFERENCING

The manuscript needs to be slightly revised to reflect the Harvard style. When paraphrasing an author at the beginning or in the middle of the text, only a year is written in parenthesis (not the author) and the sentence should not start with the parenthesis. At the end of the sentence it is OK to put both author and year in the parenthesis (this part is generally OK in the manuscript, with few exceptions that are outlined below).

The following are examples of referencing at the beginning, in the middle and at the end of the text.

Beginning of the sentence:

61: “(Pfenninger et al., 2014) presents a literature review on large energy system models ...”

It should read as:

“Pfenninger et al. (2014) presents a literature review on large energy system models...”

71: “(Ekström et al., 2017), (Koivisto et al., 2016), (Klöckl and Papaefthymiou, 2010) and (Olauson et al., 2017) are examples of applications ...”

It should read as:

“Ekström et al. (2017), Koivisto et al. (2016), Klöckl and Papaefthymiou (2010) and Olauson et al. (2017) are examples of applications ...”

Middle of the sentence:

64: "Furthermore, (Engeland et al., 2017) present a review of the modeling approaches..."

It should read as:

"Furthermore, Engeland et al. (2017) present a review of the modeling approaches..."

85: "Example applications of weather driven wind generation simulations can be read in: (Nuño et al., 2018; Olauson and Bergkvist, 2015; Marinelli et al., 2014; Leahy and Foley, 2012; Von Bremen, 2010; Staffell and Pfenninger, 2016; Thomaidis et al., 2016; Staffell and Pfenninger, 2018)."

It should read as:

"Example applications of weather driven wind generation simulations can be read in: Nuño et al. (2018), Olauson and Bergkvist (2015), Marinelli et al. (2014), Leahy and Foley (2012), Von Bremen (2010), Staffell and Pfenninger (2016), Thomaidis et al. (2016), Staffell and Pfenninger (2018)."

On another hand, when there is no paraphrasing it is OK to use author and year in the parentheses:

94: "Spatial resolution of 10 km is widely used in wind energy (González-Aparicio et al., 2017)...."

End of the sentence:

22: "Nevertheless, Belgium is expected to increase the share of renewable energy sources, with an expected increase of wind energy share of between 37% to 44% by 2050 (Mikova et al., 2019)."

This is well referenced.

33: "Several studies explore the effects of the distance among wind power plants in the fleet/portfolio wind production such as: (Santos-Alamillos et al., 2017; Tejada et al., 2018; Roques et al., 2010; Koivisto et al., 2016)."

It should read as:

"Several studies explore the effects of the distance among wind power plants in the fleet/portfolio wind production such as: Santos-Alamillos et al. (2017), Tejada et al. (2018), Roques et al. (2010), Koivisto et al. (2016)."

This is because authors are enumerated and mentioned after "such as".

90: "The simulations can be extended to cover larger periods of time, which will be necessary for reliability or extreme event probability estimations, (Pfenninger, 2017)."

This is well referenced, just remove comma after "estimations".

II. GRAMMAR CORRECTIONS

131: "Two turbine technology scenarios are propose in this paper.."

It should read as:

"Two turbine technology scenarios are proposed in this paper.."

133: "The range of difference in rated power from different manufacturers is expect..."

It should read as:

"The range of difference in rated power from different manufacturers is expected ..."

291: "Over all, the distribution.."

It should read as :

"Overall, the distribution ..."

304: .."with respect the 2.3 GW scenario."

It should read as:

"...with respect to 2.3 GW scenario."

324-326: "The extreme ramping events during low wind speeds are lower than the ramps at high wind speed for BE 2028 and BE 4.4 GW with 25 m/s direct cut-off. While the 2.3 GW and 4.4 GW with HWS deep scenarios show similar negative extreme power ramp values for low and high wind speeds."

We suggest to remove "while" and start the next sentence with "The 2.3 GW and 3.4 GW with HWS..."

331: "... tables 4 and 5 shows that ..."

It should read as:

"..... tables 4 and 5 show that ..."

336: "trend in increasing rotor sizes and taller tower, see table 1, this occurs even though there is an increase in wake losses due to the farm to farm interaction in BE 2.3 GW, see figure 3."

Suggested to reformulate as:

" ...trend in increasing rotor sizes and taller tower (see table 1), which occurs even though there is an increase in wake losses due to the farm to farm interaction in BE 2.3 GW (see figure 3)."