

## ***Interactive comment on “Wind inflow observation from load harmonics” by Marta Bertelè et al.***

**Anonymous Referee #1**

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Excellent paper with clear explanations and detailed analysis. The introduction and conclusion sections are especially well crafted in explaining the motivation, background references and motivations for the work. The analysis is convincing and thorough. Great!

Some comments:

One detail I struggled to comprehend was the distinctions made on page 8 and continuing, regarding white box (I don't know what this is, could you define?), gray box and black box. The authors say they are switching to black-box from page 8 forward, and yet it still seems a lot of internal structure is maintained, for example which harmonics to include in the model. Somehow when I hear black-box, I think of completely blind structures, like neural networks, where there is an input-output relationship, but the internal structure is not physically meaningful in anyway. I prefer the approach in

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the paper which I would have thought is gray in that it seems like estimation of harmonic coefficients, but is that a misunderstanding? Or is the translation to harmonics performed external to the black box?

Also on page 8 it is said that the disadvantage of black-box is a necessary rich data-set. I typically add that the internals of a black-box are perhaps without physical interpretation, but this is somehow not true of this work? Sorry for a long point, but perhaps some further explanation around this point could be included.

Another point of confusion for me is at the top of page 14, there is a 2xRev harmonic discussion, but I thought I had understood from earlier explanations that only 1xRev harmonics are included because of challenges in interpreting 2XRev.

Small comments: equation (37), what is meant by the tildas? figure 15, what is the averaging window length?

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