

## Review of “Grand Challenges in the Design, Manufacture, and Operation of Future Wind Turbine Systems”

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The manuscript is one of the most comprehensive reviews of wind turbine systems that the reviewer has come across. It provides detailed discussions about the range of topics from inflow wind; aerodynamics and aeroelasticity of wind turbines; turbine and wind farm controls; experimental capabilities, modelling, field measurements; offshore wind turbines and so on. The manuscript is well written and is easy to read. The reviewer however suggests the authors to reduce the repetition of the discussions as much as possible. Some discussions in the earlier sections are repeated in the later sections (probably unintentionally). Some minor comments which are listed below. Other than that, the reviewer strongly recommends publication of this manuscript.

### Specific comments:

1. Pg 11, line 282: “The accuracy ...”  
This sentence is not clear
2. Pg. 20, line 519: “However, the size of modern-day turbines ...”  
Are there studies which have investigated how existing inflow models may not be suitable for modern wind turbine size? If so please add them as references over here.
3. Having one sub-sub section 3.5.1 in sub-section 3.5 does not make sense.
4. Pg 31, line 855 to 863  
This paragraph is not very clear. How will the measurement during the development stage pose challenge?
5. Pg. 33, line 907: “...**and damage of the turbine and its components.**”  
I do not think damage of the turbine and its components themselves are uncertainties, but they are the consequence of uncertainties.
6. Figure 6: From this figure, one may interpret that Hybrid RANS-LES is a lower fidelity model compared to LES. This may not be true. Hybrid RANS-LES is more like one of the LES methods. So you can either put the Hybrid RANS-LES figure at the same level as LES or remove it.
7. Pg 58, line 1599: “The highly competitive ... manufactured at costs less than \$20/kg ...”  
Reference is needed.
8. Pg 58, line 1608: Remove **and**
9. Pg 62, lin 1710 to 1719: Do you have reference(s) for this paragraph?