Author Comments for Anonymous Referee #2

The authors are grateful for the comments, suggestions, and insight from the reviewer. Please find responses below.

Question #1: The quality of figures in the paper needs to be improved through using larger font size and increasing the resolution.

> *AR* We are working to recreate many of figures with larger font and increased resolution. This a large task coordinating between the three authors and work that in some cases is several years old.

Question #2: The introductory section needs to be expanded. For instance, a review of relevant studies on the probabilistic design of wind turbine blades should be added.

> *AR* Prior studies on the probabilistic design of wind turbine blades have been mentioned in section 2.2. The authors are working to redraft the introduction to better address this prior art.

Question #3: More details of the wind turbine blade used in the case study should be given

> *AR* Additional details will be added to describe the 8.325m wind turbine blade with fiberglass spar based on the Sandia Blade System Design Study (BSDS) used in this study. The blade was designed as mechanism to study large scale commercial blade construction at a smaller and more manageable subscale size.
>
> The following reference will also be added:
>
> Berry, D. "Blade System Design Studies Phase II: Final Project Report" *No. SAND2008-4648. Sandia National Laboratories, 2008*.

Question #4: It would be appropriate to use a table to list all the stochastic variables considered in the study. Additionally, the distribution type, characteristic values, standard deviation of each stochastic variable should be given.

> *AR* A table will be added.

Question #5: It would be appropriate to add a case study to validate the FEA model of the wind turbine blades used in this paper

> *AR* Section 4 describes briefly the physical testing of a subscale wind blade with introduced flaws. More details will be added to reference prior usage of the NUMAD preprocessor and its validation as well as the results of the testing performed in this work, wherein actual strain data collect on the test specimen was consist with FEA model predicted values.
>
> The following reference will also be added:
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> Resor, B., Paquette, J. "A NuMAD Model of the Sandia TX-100 Blade" *No. SAND2012-9274. Sandia National Laboratories, 2012*.

Question #6: The target probability of failure for wind turbine blade given by design standards is generally, very low. Can authors justify why the calculated probability of failure (e.g. the results presented in Fig. 15) is much higher than the target probability of failure given by design standards?

> *AR* Additional details will be provided which describe a background to the failure of probability analysis. The Probably of failure is artificially high as the load case in this analysis was chosen intentionally to yield a fatigue failure of the blade (using a safety factor of 1.3) in 20 years. Using

this as the starting point, a stochastic analysis is performed in addition to using the safety factor and the results compared.