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Interactive comment on "Characterization of wind power resource in the United States" *by* U. B. Gunturu and C. A. Schlosser

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Miller and Kleidon, in their short comment, discuss the interesting question of generation of kinetic energy in the atmosphere. We thank them for their valuable discussion and for bringing forth the issue of sustainability of wind harvesting. It is certainly true that the rate at which the kinetic energy in wind is replenished is an important consideration.

The main objective of the present study is to generate a characterization of the statistical nature of the wind power density in the US. We wanted to add further characterization to the US Wind Atlas to facilitate strategic planning of deployment of wind turbines.

We also recognize that all the kinetic energy in the wind can not be extracted. While one of the assumptions of this study is that 'wind power density' and 'wind power resource' are synonymous, we also assume that the boundary layer comes into a steady state in reasonably short time scale. We also assume that once these wind turbines are deployed, the boundary layer flow will come into equilibrium with these obstacles to flow. Further, as they rightly point out, one can not assume that all of the kinetic energy flux can be converted into wind power as we know from Betz's law and that is the reason that the wind turbines have a power curve that tries to optimally extract power from wind.

So, under our assumptions, 'wind power density' and 'wind power resource' are synonymous.

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