

H.J. Sutherland, "Preliminary Analysis of the Structural and Inflow Data from the List Turbine", *2001 ASME Wind Energy Symposium*, AIAA/ASME 2001, pp. 173-183.

PRELIMINARY ANALYSIS OF THE STRUCTURAL AND INFLOW DATA FROM THE LIST TURBINE^{*†}

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ABSTRACT

The Long-term Inflow and Structural Test (LIST) program is collecting long-term, continuous inflow and structural response data to characterize the extreme loads on wind turbines. A heavily instrumented Micon 65/13M turbine with SERI 8m blades is being used as the primary test turbine for this test series. This turbine is located in Bushland, TX, a test site that exposes the turbine to a wind regime that is representative of a Great Plains commercial site. The turbine and its inflow are being characterized with 60 measurements: 34 to characterize the inflow, 19 to characterize structural response, and 7 to characterize the time-varying state of the turbine. In a companion paper, Sutherland, Jones and Neal¹ give a detailed description of the turbine, the site and the instrumentation. In this paper, a preliminary analysis of the structural and inflow data is presented. Particular attention is paid to the determination of the various structural loads on the turbine. Long-term fatigue spectra are also presented.

^{*}Sandia is a multiprogram laboratory operated by Sandia Corporation, a Lockheed Martin company, for the U.S. Department of Energy under contract DE-AC04-94AL85000.

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