



Harnessing Wind Power

Mathematics contributes in many ways to the process of converting wind power into usable energy. Large-scale weather models are used to find suitable locations for wind farms, while more narrowly focused models—incorporating

interactions arising from factors such as wake effects and turbulence—specify how to situate individual turbines within a farm. In addition, computational fluid dynamics describes air flow and drag around turbines. This helps determine the optimal shapes for the blades, both structurally and aerodynamically, to extract as much energy as possible, and keep noise levels and costs down.



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