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## Wind turbines for the high Antarctic plateau

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At the University of New South Wales we are designing a wind turbine for the conditions found at China's Kunlun Station at Dome A in Antarctica. While Dome A is the least windy place on Earth, renewable energy from the wind is still possible and has many advantages over the diesel engines that are typically used: for example, wind energy reduces the need to transport and store fuel while reducing pollution and lowering maintenance requirements. Our baseline design is a horizontal axis wind turbine with three 6m long fixed-pitch blades and a 21m monopole tower. A 10kW alternator is driven directly from the hub. We anticipate a yearly average power of 1kW. Both the tower and blades will be made of carbon fibre due to its excellent structural properties even at low temperature. All components must be chosen to work at low temperature and optimised for the low wind speeds that are found at Dome A. We are also considering ease of construction, installation, and maintenance.

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