

AEROMINE

Patent Pending
SD# 14543

Technology Readiness Level: 3

Concepts have been demonstrated experimentally in a wind tunnel, with field tests scheduled for 2020, and disclosed in a DOE-wide pitch competition



AeroMINE is a low impact wind energy generation technology, aimed at new and existing commercial buildings. It is environmentally friendly, scalable, cost effective, and reliable. AeroMINE provides an aesthetically and functionally attractive alternative to existing distributed wind energy generation technologies.

Technology Summary

Rotating wind turbines in distributed applications suffer from many fundamental challenges. They are small and produce proportionally small energy. The blades often produce significant aero-acoustic noise, visual disturbances, light induced flickering, and impose wildlife mortality and human risks. The rotating components are subject to vibrations, highly variable loads, and harsh weather conditions, reducing their reliability and adding to overall cost of ownership. These technical challenges add significantly to the cost of the turbine itself, and the electricity produced. In contrast, distributed wind energy generated by AeroMINE modules eliminates these challenges. AeroMINE technology combines the best features of distributed generation, while eliminating the disadvantages of existing distributed wind turbines.

Description

AeroMINE technology extracts energy from wind without any exterior moving parts. AeroMINE modules can be integrated into buildings, or function as stand-alone devices. This gives them advantages similar to solar panels, but with the added benefit of operation in cloudy or dark conditions. While AeroMINE is complementary to rooftop solar, AeroMINE modules can be manufactured with less environmental impact. Power generation is isolated internally by the pneumatic transmission of air, with the outlet air-jet nozzles amplifying the effectiveness and efficiency of the unit. Multiple units can be connected to one centrally located electric generator. AeroMINE modules are ideal for the as-built environment, with numerous possible configurations, ranging from architectural integration to modular bolt-on products.

TECHNICAL BENEFITS

- Locally produced electricity – no transmission costs or losses
- Complementary to rooftop solar and other building infrastructure
- Lower costs

INDUSTRIES & APPLICATIONS

- Wind energy harvester
- Building installation on new and existing commercial buildings
- Remote installations and microgrids

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