

Nano-thermal Coatings Enhance the Efficiency of Wind Farms by 25%

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WINDGO, a research and development company specializing in smart materials and vibrational transfer technologies, has registered numerous patents in the field of nanotechnology. This company has recently announced that they will expand their thermal coatings into airflow systems using their registered nanotechnology patents. These thermal coatings could be used for de-icing generator blades or helicopter wings. Thanks to this technology, energy production in wind farms could be increased by 25% in the winter months when a wind turbine is experiencing ice buildup on its blades.

[WINDGO, Inc.](#), a research and development company specializing in smart material and vibrational transfer technologies, announced today that they are expanding their thermal coatings into airflow systems based on multiple patents in their nanotechnology coatings patent portfolio. Based on recent advancements related to airplane and helicopter wing thermal technologies, WINDGO is expanding their active nano-thermal coatings to energy generation efficiency enhancement through the application of de-icing generator blades in wind farm applications.



WINDGO Nanotech Thermal Coatings Help Prevent Wind Turbine Ice Build-u

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A wind turbine generator can produce converted electrical energy up to approximately 45% of the kinetic energy in theoretical air-flow wind patterns. Any mechanical friction or resistance to rotation will inevitably cause a reduction in the overall energy efficiency of the electrical output through wind energy production. Examples of friction are bearing wear, rust, dirt buildup, bending of structures, or other non-ideals of mechanical aging.

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Temperature and humidity can cause ice build-up on the blades that distorts the air flow patterns into a non-ideal flow against the leading edge of the wind turbine blades. The overall effect can cause a reduction in energy output of 20% inefficiency of generated power.

This means that there is an opportunity to increase production of wind farm power by as much as 25% during winter months when a wind turbine is experiencing ice buildup on its blades. This opportunity to recover efficiency is significant and has caused many methods in the industry to be explored. Methods have been used such as heated air, thermal blanket layers on blades, colored coatings to enhance black-body radiation, and helicopters spraying jet fuel onto frozen blades.

WINDGO has patented this unique nanotechnology active thermal coating technology that evolved from their Smart Damping Adhesive US Patent 9,759,286 and their Vehicular Neurology US Patent #10,266,139.

"By coating the leading edges of a wind turbine's blades with active nanoparticles a small excitation current can be applied to the coating to start a high frequency vibration that causes a warming effect," says VP of R&D, David Strumpf. "The net effect when used on a leading edge surface of a wing or a blade is a significant increase in the efficiency of energy generation due to de-icing."

This new technology is in line with WINDGO's emphasis on energy, resonance and vibration technologies and products. WINDGO, Inc. is focused on the IoT End-Node market expansion

that is forecasted to exceed one trillion dollars by 2025. This new invention is based on technologies that evolved from the original works of inventor Fielding Staton. His invention of the Absorbud in 2013 has led to industry changing advancements in macro, micro, and nano-based technologies.

Read the [original article](#) on PR Newswire.