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The most compelling aspect of biomimicry, as showcased in the presentation, is its capacity to derive inspiration from nature's designs, such as the aerodynamic properties of maple samaras, and apply these principles to enhance technology, exemplified by wind turbines. The seamless integration of these natural principles into wind turbine design, particularly through the application of PowerCone technology, is particularly captivating. This technology channels wind from the central root section to the outer radial spans of the turbine blade, effectively mimicking the way maple seeds interact with turbulent air. This process is known as Time-Dependent-Energy-Transfer. What's compelling is how this biomimetic approach substantially improves wind turbine efficiency. By drawing inspiration from nature's perfected designs, wind turbines become more stable, reliable, and capable of capturing wind energy efficiently, ultimately making renewable energy production more sustainable and cost-effective.

Exploring the world of biomimicry through this presentation has significantly shifted my perspective of nature. I now view nature as a vast reservoir of ingenious, time-tested solutions. It's awe-inspiring to think that nature has developed and refined these designs over millions of years, making them highly efficient and sustainable. This newfound perspective fosters a deeper appreciation for the intricate, adaptive, and innovative systems that exist in the natural world. Recognizing and respecting the wisdom of nature encourages us to think more holistically and to look for sustainable solutions that align with the environment, fostering a more harmonious coexistence with our surroundings.

These biomimicry systems can be applied to my own life, on my campus, and within my community by advocating for and adopting sustainable and eco-friendly practices. For instance, in daily life, this might involve using design principles inspired by the aerodynamics of maple samaras to improve the energy efficiency of personal vehicles or home appliances. On campus, we can explore nature-inspired transportation systems that minimize environmental impact, like electric shuttles designed based on the efficiency of bird flight. In the community, promoting waste management processes that mimic natural cycles for decomposition and recycling can reduce pollution and waste. Additionally, biomimicry can inspire green infrastructure projects, such as designing urban parks using principles from ecosystems to enhance water retention and reduce runoff. Embracing biomimicry can lead to more sustainable, efficient, and environmentally friendly choices in various aspects of our daily lives, ultimately benefiting both individuals and the planet by reducing our ecological footprint and advancing the cause of sustainability.

**Post:** (link to slides for higher resolution:

<https://docs.google.com/presentation/d/17PnluggVYyeJrFi-vEA-m80mopw2OX1fJztsr1taeNU/edit?usp=sharing>

Caption:

Learning about this brilliant example of biomimicry: using the unique aerodynamic design of maple samaras to optimize wind turbines. The ability to draw inspiration from the intricate design of maple samaras and use it to enhance wind turbines is awe-inspiring. I'm captivated by the idea of wind turbines mimicking the way these tiny seeds interact with turbulent air over extended time spans. The concept of Time-Dependent-Energy-Transfer, as showcased in the PowerCone technology, not only improves wind turbine efficiency but also brings us closer to a more sustainable and eco-friendly future. It underscores the beauty of nature's design and the potential it holds for creating advanced, efficient, and environmentally responsible solutions.

Moreover, exploring these biomimicry principles has altered my perspective of nature. I now view it as an abundant source of wisdom and innovation. It's fascinating to think that nature has perfected designs that are not only highly effective but also sustainable, and it invites a profound appreciation for the complex and ingenious systems at play in the natural world. This shift in perspective makes me more conscious of the importance of respecting and conserving our environment, and it fuels my enthusiasm to explore nature-inspired solutions in various aspects of life. @TurningGreenOrg @BiomimicryInstitute #PGC2023 #BiomimicryChallenge



# BIOMIMICRY IN MAPLE SEEDS AND WIND TURBINES

Green Goblins 2023

## THE POWER OF BIOMIMICRY

Biomimicry is a powerful approach that draws inspiration from **nature's time-tested solutions**. These designs have evolved over **millions** of years, making them highly effective and efficient. By emulating nature's innovations, we can create cutting-edge technologies that are both **sustainable** and **efficient**.





