

Researchers team up with architects to create bladeless wind electricity generator

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(Phys.org) —Faculty members at Delft University in the Netherlands have teamed up with architectural firm Mecanoo to develop a new way to generate electricity using wind energy. The result is the Electrostatic Wind-energy CONvertor, (EWICON)—a windmill with no moving mechanical parts. Its creators say that it makes no noise, won't break down or cast a shadow and it won't cause bird deaths—all problems associated with traditional wind turbines.

Traditional [wind turbines](#) take advantage of moving air to convert [kinetic](#)

[energy](#) into [mechanical energy](#) to create electricity. This new windmill uses a different process altogether. It looks rather like a giant tennis racket with an insulated base instead of a hand grip. It takes advantage of wind moving over the inner grid—positively charged [water particles](#) are carried (via spraying) away from the small inner tube mesh, leaving negatively charged particles behind. That causes a decrease in the voltage of the system and allows for electricity to be captured. The design is simple enough that the frame can be any shape desired and allows for windmills of virtually any size, though the researchers acknowledge that a certain size must be used to cause the creation of more electricity than is used to pump the water.

Deriving electricity from wind has met with some resistance in some parts of the world—to be of real use, turbines must be very large, and whole farms of them constructed. Many consider such farms to be an eyesore and say the noise they create causes health problems. The EWICON in contrast, is silent and some suggest it actually looks like a piece of art. Traditional wind turbines also require a lot of maintenance and are frequently damaged by [high winds](#) or lightning. Because the EWICON has no moving parts, it should be less prone to damage from wind, though it would seem to be just as likely to suffer damage from lightning.

The researchers have not yet divulged just yet how efficient the EWICON is, nor whether the new kind of windmill would have to be deployed in vast farms to make them cost effective. Currently the only one built so far is a small prototype that sits in front of the EWI faculty building in the Mekelpark powering a big neon sign.

More information: www.ewi.tudelft.nl/en/current/ewicon/
www.mecanoo.nl/Default.aspx?ta..._aiId=847&pcode=A498

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