《神奇的新科技：用影子发电》

It sounds like something from a sci-fi movie, but the newly revealed Shadow-Effect Energy Generator (SEG) is a real prototype device. The fascinating concept could help us to transform the way renewable energy is generated indoors.

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The SEG uses the contrast between darkness and light to produce electricity. It's made up of a series of thin strips of gold film on a silicon wafer, placed on top of a flexible plastic base.

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(Royal Society of Chemistry)

Whereas shadows are usually a problem for renewable solar energy production, here they're actually harnessed to keep on generating power. The technology - which is cheaper to produce than a typical solar cell, according to its developers - produces small amounts of power and could be used in mobile gadgets, for example.

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"Shadows are omnipresent, and we often take them for granted," says materials scientist Tan Swee Ching, from the National University of Singapore (NUS). "In conventional photovoltaic or optoelectronic applications where a steady source of light is used to power devices, the presence of shadows is undesirable, since it degrades the performance of devices.

?????????????Tan Swee Ching??“??”

"In this work, we capitalised on the illumination contrast caused by shadows as an indirect source of power. The contrast in illumination induces a voltage difference between the shadow and illuminated sections, resulting in an electric current. This novel concept of harvesting energy in the presence of shadows is unprecedented."

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