Solar panel makes light of a sudden downpour

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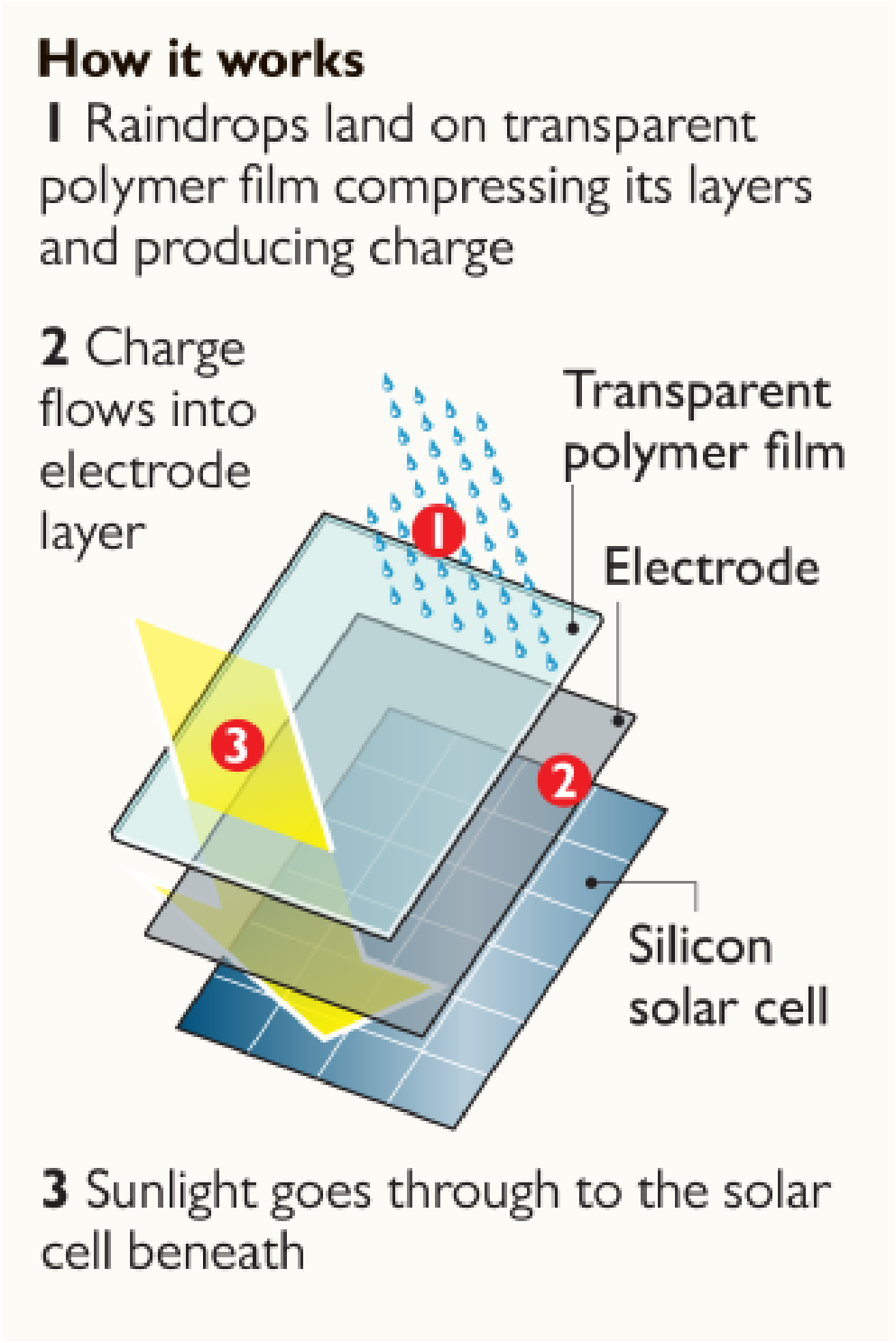
On sunny days Britain can produce more than 8GW of solar energy, but on dull days during the winter months this can fall well below 1GW
CHANDAN KHANNA/AFP/GETTY

Solar panels are all very well, but what Britain really needs is a rain panel.

While on sunny days the UK can produce more than 8GW of solar energy, enough to meet almost a quarter of its demands,

rays to capturing the mechanical energy from falling raindrops.



They say that the technology could be incorporated into electricity-generating raincoats that power the wearer's gadgets

rain to a triboelectric nanogenerator (Teng), which converts the downwards force exerted by the rain into electricity.

The physics is fairly straightforward. The ancient Greeks noticed that when some materials, such as fur and amber, were rubbed together, the contact appeared to result in a charge. We know today that this is because electrons are transferred from one material to the other, leaving a net negative charge on one surface and a net positive charge on the other.

The Teng channels this charge into an electrode through electrostatic induction. Zhen Wen and his colleagues at Soochow University in Jiangsu province are not the first to use Tengs to glean energy from the rain. Their innovation was to hook the solar cell up to a transparent Teng through a shared electrode. When raindrops fall on the panel, they compress the Teng, generating an electric current that flows through the electrode.

This design also uses the Teng to protect the solar cell. Its chief limitation is that the rain and sun functions cannot operate at the same time. “We are now designing a fibre-shaped device and expect to weave them together as a fabric,” Dr Zhen told the website Phys.org. “My wish is to fabricate clothing that can generate electricity from sunshine and raindrops.”