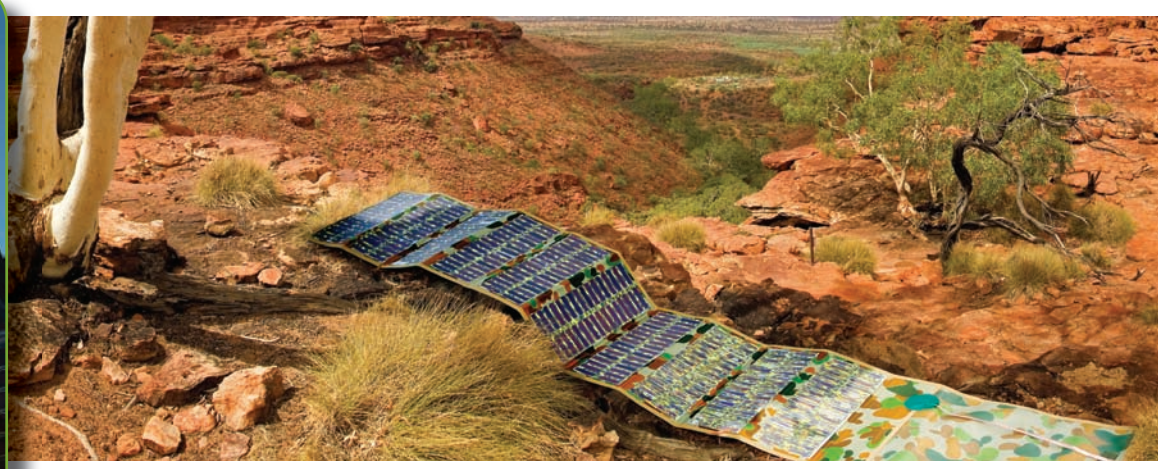


Nanotechnology at work

Nanotechnology is an emerging scientific field creating materials, devices, and systems at the molecular level. By being able to work at this ultra-small scale, nanotechnology is being used to deliver innovations in industries including clean energy, environment, health and personal care, electronics, transport, construction, telecommunications, manufacturing and mining.

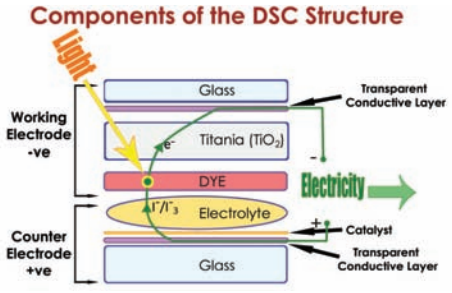
The sunshine sponge

Humans have harnessed energy, light and heat from the sun since ancient times, using a range of technologies that are continually evolving. Scientists continue to learn from the world's most efficient converters of sunlight into useable energy - plants.

Nature's process of photosynthesis used by plants was the catalyst for Australian firm Dyesol to develop their dye solar cell (DSC).

The DSC technology leverages nanotechnology and bio-mimicry as the basis for its solar cell devices. This 'artificial photosynthesis' uses an electrolyte, a layer of nanoparticulate titania and ruthenium-based dye, sandwiched between a transparent layer, which faces the incident light, and a glass or opaque layer as the reverse surface. Light striking the dye excites electrons which are absorbed by the titania to become an electric current many times stronger than that found in natural photosynthesis, thus converting light into green power.

The dye solar cell essentially acts as a 'light sponge', harnessing sunlight from a wide range of light conditions. DCS's panels are more versatile as they are less sensitive to the angle of the solar radiation, allowing them to be installed on vertical walls (e.g., glass office buildings) and in places with poor light. DSCs are also made of environmentally friendly materials, ensuring no production of toxic emissions in manufacture or service.



Dyesol's dye solar cell technology is being integrated into metallic cladding for roofs and walls, glass facades of commercial buildings, and recharging systems for electronic equipment, to list but a few examples.

Once again we see the benefit of taking a process that occurs in nature and translating it to the human world, to produce a globally competitive product. In this case, with nanotechnology as a core part of the process.

DYESOL

ABOUT DYESOL LTD

Dyesol is the leading supplier of 3rd generation solar technology. They supply organisations the world over, with high purity dye solar cell (DSC) materials.

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Images courtesy of Dyesol Ltd