

Affordable solar technology

January 6 2011, By Cath Harris



An innovative Oxford company has developed new solar cell technology that is manufactured from cheap, abundant, non-toxic and non-corrosive materials and can be scaled to any volume.

Harnessing the Sun's energy, the [solar cells](#) are printed onto glass or other surfaces, are available in a range of colours and could be ideal for new buildings where solar cells are incorporated into glazing panels and walls.

Oxford Photovoltaics (Oxford PV), formed with the help of Isis Innovation, Oxford University's technology transfer company, has combined earlier research on artificial photosynthetic electrochemical solar cells and semiconducting plastics to create manufacturable solid-

state dye sensitized solar cells.

The device is a form of thin film solar technology, a relatively new development in solar energy generation.

Leading thin film technologies are currently hampered by the scarcity of minerals used. Other dye-sensitized solar cells are being held back by the volatile nature of liquid electrolytes.

Oxford PV's technology replaces the liquid electrolyte with a solid organic semiconductor, enabling entire solar modules to be screen printed onto glass or other surfaces.

Green is the most efficient "semi-transparent" colour for producing electricity, although red and purple also work well.

The materials used are plentiful, environmentally benign and very low cost.

Oxford PV predicts that manufacturing costs of its product will be around 50% less than the current lowest-cost thin film technology and expects its new mechanism will eventually match the unsubsidised cost of electricity generated from fossil fuels.

The technology could revolutionise the incorporation of photovoltaic materials into windows and walls and other parts of buildings. CEO Kevin Arthur said: 'This technology is a breakthrough in this area. We're working closely with major companies in the sector to demonstrate that we can achieve their expectations on economic and product lifetime criteria.'

The technology was developed by Dr Henry Snaith, of Oxford University's Department of Physics, who said, 'One of the great

advantages is that we can process it over large areas very easily. You don't have to worry about extensive sealing and encapsulation, which is an issue for the electrolyte dye cell.'

Provided by Oxford University

Citation: Affordable solar technology (2011, January 6) retrieved 23 April 2024 from <https://phys.org/news/2011-01-solar-technology.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.