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## Solar paint on steel could generate renewable energy - Report

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It is reported that, in three years, buildings covered in steel sheets could be generating large amounts of solar electricity, thanks to a new photovoltaic paint that is being developed in a commercial partnership between UK university researchers and the steel industry.

As per report, these new solar cells also have the advantage of being able to absorb across the visible spectrum. That makes them more efficient at capturing low radiation light than conventional solar cells, and so well suited to the British climate with its many cloudy days.

The photovoltaic paint is made up of a layer of dye and a layer of electrolytes and can be applied as a liquid paste. Altogether, the sheets of steel get four coats of solar paint namely an undercoat, a layer of dye-sensitized solar cells, a layer of electrolyte or titanium dioxide as white paint pigment and, finally, a protective film. The paste is applied to steel sheets when they are passed through the rollers during the manufacturing process. The four layers of the solar cell system are built up one after the other in rapid succession.

Light hits the dye sensitized solar cells, exciting the molecules that act as a light absorber or sensitizer. The excited molecules release an electron into the nanocrystalline titanium dioxide layer, which acts as an electron collector and a circuit. The electrons finally move back into the dye, attracted by positively charged iodide particles in a liquid electrolyte. The solar electricity that the area covered with paint generates is collected and provides power for whatever application it is connected to.

A laboratory built to develop the new solar technology that replicates plant's photosynthesis is due to start work on October 30th 2008 in Shotton, North Wales.

Mr Steve Fisher spokesperson of the Corus Group, that is believed to be pouring tens of millions of euros into the venture, said that "If the solar cell paint can be successfully brought to the market, it could spell big changes when it comes to the future production of electricity."

Mr Stephen Fisher said that Corus was developing the photovoltaic paint as part of its commitment to reducing greenhouse gas emissions. He added that "Although typical CO<sub>2</sub> emissions per tonne of steel are now around 50% lower than they were 40 years ago, the steel industry is still a significant contributor to global CO<sub>2</sub> emissions. We invest significant amounts every year reducing the environmental impact of our processes and work hard to ensure we continuously improve our performance beyond mere compliance."

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