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State scientists' solar power plan to lift cost cloud

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Ahmedabad: Researchers here claimed to have developed a simple way of making graphene-based solar cell, whose use may reduce the cost of producing solar power considerably.

"A simple and economical way of processing to fabricate graphene-based solar cell has been developed by our scientists," Gujarat Energy and Research Management Institute (GERMI) director T Harinarayana said.

"Graphene, a single layer of carbon atoms arranged in a hexagonal lattice, has many novel properties that attracted researchers around the world. High electrical conductivity (better than copper) and very high (90%) transparency makes graphene an ideal material for fabrication of transparent and current spreading electrodes," GERMI said in a research paper.

The research was undertaken by Sanjay Behura, Sasmita Nayak and Omkar Jani of GERMI and Indrajit Mukhopadhyay of Pandit Deendayal Petroleum University (PDPU), Gandhinagar. The paper detailing the new research is expected to appear in journal 'Carbon' in February.

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component of solar cells, which is expected to reduce manufacture cost by 10-15 per cent.

At present, silicon is being used for making these cells (also called photovoltaic cells) as it is considered energy efficient. However, this material is expensive, and squeezing higher efficiencies out of silicon-based solar cells has proved a challenge. The simple fabrication technique of graphene and silicon can be exploited for other applications also.

Various forms of conventional silicon are currently used in solar power plants. However, if graphene can be used to produce low-cost solar cells, the cost of setting up such plants will come down substantially, the paper said.

Currently, setting up a solar power plant is very costly. The scientific breakthrough, researchers said, can give impetus to solar energy, a clean and environment-friendly form of power.

A solar cell is an electrical device that converts the energy of light directly into electricity. TNN AND AGENCIES