

TRANSPARENT AND COLORFUL PHOTOVOLTAIC PANELS



Challenge

Conventional photovoltaic panels are typically made from highly purified silicon, and require expensive equipment for their fabrication. New generation photovoltaic technologies aim at simple manufacturing methods while reducing the use of expensive materials. Groundbreaking advances in the field were brought by Professor Graetzel et al. at EPFL in the early 1990s. Their work unveiled a new and easier way to assemble solar cells, using fewer and less expensive materials. Those promising results were obtained on hand-made laboratory solar cells of a few square millimeters, leaving much work to translate the scientific discovery into an industrial product. The feasibility of such photovoltaic devices at a larger scale needed to be proven, and their long term stability needed to be guaranteed before they could enter the market.

Solution

In the mid-1990s Solaronix acquired a technology license from EPFL for Professor Graetzel's Dye Solar Cell (DSC) work and began the tasks of rationalizing and upscaling the production of the specific materials used in DSCs. These products are now distributed worldwide to other public and private research institutions. In addition the stability of the dye solar cells was intensively investigated using solar simulators produced by Solaronix. Test cells and modules have successfully endured thousands of hours of continuous illumination, and the technology has been deemed mature enough graduate to the industrial level. Meanwhile Solaronix has developed its own DSC photovoltaic panels at the square meter scale. The panels



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are produced in different colors and transparencies, a unique feature that allows for a variety of atypical applications. Now nearly 20 years of intense efforts have culminated in the production of a 300 square meter transparent and multicolored façade for EPFL's new congress centre, the Swiss Tech Convention Center, the world's first large scale public DSC installation.