

A Novel Alternative of Solar Collector – Curtains used in Buildings

There are two different types of technologies for harnessing the sun's energy to generate electricity, namely the solar thermal electric power plants and photovoltaics. The first one use reflectors to concentrate sunlight on a receiver that uses the sun's heat to drive a turbine and generate electricity. The latter one uses photovoltaic (PV) panels convert sunlight directly into electricity without the use of a generator or any moving parts. In Hong Kong, nearly the entire external walls of most of the modern buildings have large size windows. Curtains, blinds etc., are commonly placed adjacent to windows for shielding the heat and light coming from the hot sun. This project uses the curtains not only as shelter but also as PV-based solar collector. Flexible PV panels and smart designs have been used to design the solar energy curtains and maximize the absorption of solar energy respectively. One of the flexible panels and part of the smart design are shown in Figure 1. The smart design has been proven that it can gain at least 50% more in absorbing solar energy than that using the PV alone. This project involves the team work of lecturer, research staff and students.



Fig. 1 Part of the smart design for maximizing the absorption of solar energy.

For more details, please refer to the website: <https://www6.cityu.edu.hk/seam/>