Environmental benefits of parking-integrated photovoltaics: A 222kWp experience - DTU Orbit (17/11/2019)

Environmental benefits of parking-integrated photovoltaics: A 222kWp experience
The life cycle assessment of a grid-connected, parking integrated, 222kWp cadmium telluride photovoltaic system has been performed. The system was built at the University of Murcia and has been monitored for 2.5 years (sampling data every 5 min). The detailed material inventory, the energy embedded in the system, the energy payback time, and the energy return factor of the facility have been obtained and are 6.31 TJ equivalent primary energy, 2.06 and 12.16 years, respectively. The average performance ratio is 0.8 with a slight monthly variation. Additionally, the environmental benefits of the architectural integration (in this case parking integration) have been quantified using a standard methodology for the calculation of several environmental parameters. Finally, the environmental benefits of renewable energy generation because of the savings of producing the same amount of electricity by the Spanish grid system have been assessed. © 2013 John Wiley & Sons, Ltd.

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