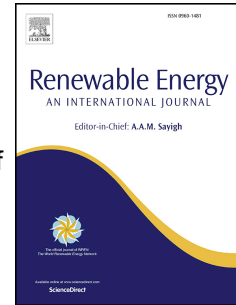


Accepted Manuscript

Optimization of PV powered SPD switchable glazing to minimise probability of loss of power supply

Aritra Ghosh, Brian Norton



PII: S0960-1481(18)30912-1

DOI: [10.1016/j.renene.2018.07.115](https://doi.org/10.1016/j.renene.2018.07.115)

Reference: RENE 10389

To appear in: *Renewable Energy*

Received Date: 17 January 2018

Revised Date: 20 May 2018

Accepted Date: 23 July 2018

Please cite this article as: Ghosh A, Norton B, Optimization of PV powered SPD switchable glazing to minimise probability of loss of power supply, *Renewable Energy* (2018), doi: 10.1016/j.renene.2018.07.115.

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Optimization of PV powered SPD switchable glazing to minimise probability of loss of power supply

Aritra Ghosh^{*1,2}, Brian Norton¹

¹Dublin Energy Lab, Dublin Institute of Technology, Dublin, Ireland

²Environmental and Sustainability Institute, University of Exeter, Penryn, Cornwall, UK

*Corresponding author:

email: a.ghosh@exeter.ac.uk aritrighosh_9@yahoo.co.in

Nomenclature

a_1	Ideality factor of 1 st diode
a_2	Ideality factor of 2 nd diode
C_{batt}	Battery capacity
DOD	Depth of discharge
E_b	Generated power from battery
E_L	Generated power from load
E_{pv}	Generated power from PV
I_v	Vertical plane global solar radiation (W/m^2)
I_{pv}	Photovoltaic current (A)
I_{01}	Diode saturation current of 1 st diode (A)
I_{02}	Diode saturation current of 2 nd diode (A)
I_{D1}	Diode current of 1 st diode (A)
I_{D2}	Diode current of 2 nd diode (A)
G	Variable input solar radiation (W/m^2)
G_n	Solar radiation at STC condition (W/m^2)
I_{sc}	Short circuit current (A)
I_m	Maximum current (A)
K	Stefan Boltzmann constant ($1.3806503 \times 10^{-23}$ J/K)
LPS	Loss of power supply
LPSP	Loss of power supply probability
N_{pv}	Number of PV
N_{batt}	Number of battery
N_{inv}	Number of inverter
SOC	State of charge
P_{invout}	Inverter output
$P_{inv,norm,out}$	Normalised inverter output
$P_{inv,rate}$	Inverter rated input
$P_{inv,norm,in}$	Inverter normalised input
P_{max}	Maximum power from photovoltaic

Download English Version:

<https://daneshyari.com/en/article/6763713>

Download Persian Version:

<https://daneshyari.com/article/6763713>

[Daneshyari.com](https://daneshyari.com)