

## A) General Information



Acronym: EFFICO

Title of the User-Project: **Methodology for an efficient setup design to avoid hot spots on BIPV (Building integration of solar panels).**

TA Call:

Host Research Infrastructure:

RSE- DERRI

Starting Date:

December 10th 2012

End Date:

December 14th 2012

Lead User :

Antonio G. Marijuan

Organization:

Research centre in energy, environment and technology, CIEMAT.

Additional Users:

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## B) Summary of the User-Project

The aim of the EFFICO project is to maximize BIPV production in case of intense shadowing. This is achieved through an efficient inverter set up, isolating affected panels but not those that work properly.

Due to intense shadows, BIPV can experiment appearance of hot spots; this implies that bypass diode disconnect the panel in order not to damage the different cells affected in the panel. As the different panels are set up in circuits, disconnected panels by bypass diode causes that the branch where it lays is also unplugged, and branch production set up to zero, even if the other panels of the same branch were working properly. We will have to set up the circuits so the disconnection of one panel disturbs the working panels in a minimal way in order to maximize production.

A smart methodology for an efficient setup can greatly improve BIPV production, minimizing breakage of modules by hot spots. Based on the test facility (DERRI) provided by RSE, several setups are measured on an experimental basis to determine the more effective.

## C) Main Achievements

- a. Isolate affected branches (BIPV) in the most efficient way.
- b. Minimize the number of inverters on a BIPV set up.
- c. Enhance a maximum in BIPV production.
- d. To strengthen the collaboration between RSE and CIEMAT.

## D) Dissemination of the Results

The results of the project have already been disseminated on the EERA-JP on Smart Cities.

Also, the research output from the EFFICO project is being summarized in a research paper which will be submitted in peer-reviewed journals/conferences.

## E) Use of the Resources

Nr. of Users involved: 1

Access Days: 5

Stay Days: 5