PARTNERSHIP PROFILE FORM

(PROJECT SEARCH)

Coordinator Contact Data

Organisation Name: Dublin Institute of Technology, DIT, Focas Institute

Type of organisation Research Institute

Organisation Size -----

General Activity Research

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Type of entity:

☒ *Research Center* ☐ *SME* ☐ *Big Company*
☐ *R&D Institution* ☐ *University* ☐ *Other*

Company Expertise

Entity experience on participation in R&D European, national or regional projects

Within our Energy research group at the Dublin Institute of Technology, DIT, we work on a number areas of PV and solar thermal research. I would like to highlight one particular area of expertise I feel DIT can make a significant contribution to within the FP7 ENERGY.2011.1-1 call.

The most significant part of a ENERGY.2011.1-1 proposal would be the development of the materials and processes to achieve 50% efficiency of the multi junction III-V CPV cells. However, thermal regulation of these cells is also an important issue to consider to maintain high efficiencies in operational modules.

At DIT we have extensive experience in thermal regulation of PV cells, and in using "Phase Change Materials" (PCM), in particular, to achieve this. By using Phase Change Materials (PCM), thermal energy available at the cells is transferred to the attached unit containing PCM. The thermal energy is absorbed by the PCM as latent heat at a constant phase transition temperature. Temperature increase in the cell is, therefore,

reduced and higher efficiencies are attained. Research at DIT into the application of PCM on silicon PV modules is currently being carried out;

"Evaluation of phase change materials for thermal regulation enhancement of building integrated photovoltaics", Solar Energy, 2010, 84,9, 1601-1612. A Hasan, S.J. McCormack, M.J. Huang, B. Norton.

The PCM technology and approach developed to date for silicon PV modules can be optimised to be suitable also for cooling of CPV modules..

Added value (of having your organisation as Project Partner

Topics/Areas/ R&D Programs of interest

ENERGY.2011.1-1 proposal

Other information:

If you would like to forward my email or contact details to any potential collaborative partners, we would be happy to discuss further our PCM thermal regulation research.
I would like to enquire whether you are aware of any potential Spanish partners (or, indeed, elsewhere) which may be interested in a collaborative proposal with DIT for this call (ENERGY.2011.1-1). Thermal regulation is the area which DIT can make the most input to in a project of this type.

Key words: Development of the materials and processes to achieve 50% efficiency of the multi junction III-V CPV cells.