

Promotion of energy research, innovation and entrepreneurship by bilateral and international projects between Tunisian research center and private/public European institutions

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Abstract

Bilateral and international projects present a very important framework for cooperation between research and industrial institutions from European and African countries. In this paper, we present some success stories of research and technologies center of energy (CRTEn) in Tunisia with these projects.

In the framework of seventh Framework Program for research and technological development 'FP7', a desalination plant operating by photovoltaic and wind energy was installed in CRTEn. The electricity produced by the hybrid system is also injected into the grid through a robust and smart installation with performance supervision system. In the same framework, CRTEn was a partner in international project called ETRERA aiming to knowledge transfer on fuel cells technology. In this context, PEMFC membranes were synthesized and test station was developed. The success of this project made the extension of African-European cooperation possible in the framework of 'Horizon2020'. Consequently, CRTEn was selected as a partner in the energy consortium 'ETRERA2020' with more than 8 partners from Europe and North Africa. In this context, many activities were carried out like workshops organization, visits of CRTEn's engineers to industrial companies in Europe, and training courses on patenting and intellectual property to develop the entrepreneurship of CRTEn staff and bridge the gap between research and innovation.

On another hand, in the framework of Italian-Tunisian bilateral cooperation project, 15KW photovoltaic field was installed in both CRTEn and Valderice municipality in Italy. Using smart inverters, produced electricity can be injected to grid or directly supply an off-grid network inside CRTEn. Also, the cooperation between CRTEn and Turkish research center allowed to synthesize high efficiency solar cells in clean room using silicon carbide as passivating layers.

Projects presented above allowed to setup decentralized and grid connected renewable energy, to face financial problems and to promote energy research, innovation and entrepreneurship within CRTEn.

Keywords

African-European cooperation; Photovoltaic system; Fuel cell; Innovation; Entrepreneurship.