

Description of Pilot Projects

CTR Carinthian Tech Research AG

Based on the preliminary work in the project CTR developed a research program for solar technologies and aligned it with CTRs strategy for smart energy research. In that respect CTR deepened the relationships in the network to set up research projects and consortiums of science and industry. The research activities will significantly expand the innovation site Villach and further strengthen the location. Potential synergies and possible participation in projects of the other partners in the network were clarified and implemented accordingly.

Main networking activities included:

- Active participation in the Technology Platform Photovoltaics Austria (<http://tppv.at/>)
 - Co-organization of 3 TPPV Workshops:
 - TPPV-Workshop „Solar- und Leistungselektronik in der Photovoltaik“ on 13.05.2014 at AIT
 - TPPV-Workshop „INTEGRATION VON PHOTOVOLTAIK IN FASSADEN“ on 13.10.2014 at WKÖ Wien
 - TPPV-Workshop „Qualität und Zuverlässigkeit in der Photovoltaik“ on 10.12.2014 at PCCL Leoben
 - Participation at Photovoltaics-Conference Austria on 19. and 20.11.2013 in St. Pölten
 - Participation at Photovoltaics-Conference Austria on 03. to 05.04.2014 in Linz
- Smart Energy Workshop of Me2C-Cluster on
- BMVIT, fti Remixed (November 2012)
- RMA – Smart City Call (Dezember 2012)
- Curriculum-Definition of the study course for mechanical engineering and energy technologies at the Carinthian University of Applied Sciences (February 2013)
- Workshop cross- border project collaboration with Slovenia (March 2013)
- Contribution to the definition of the Energy Master Plan for Carinthia
- Several further meetings and workshops with potential project collaborators

During the project runtime the efforts of CTR resulted in 5 national and 2 international project proposal, some of them already approved:

- EVAnetz: Online Ethylen/Vinylacetat Degree of Crosslinking Control in Photovoltaic-Moduls (national, approved)
- PV@fassade Fassadenelemente mit PV-aktiven Schichten (national, approved)
- InnoModu : Leadfree Modules with Low Silver Content and Innovative Busless Cell Grid (Solar.era.ne, approved)
- photoVmodell Thermomechanische Modellierung von Photovoltaik-Modulen (national)
- EVAnalysis- Entwicklung von Methoden zur in-situ Bestimmung von Essigsäure in Photovoltaik Modulen (national)
- ElWISS-PV” – Electroplated Wire Interconnection System for advanced Solar Cells and PV Modules (Solar.era.net)
- INFINITY Climate sensitive long-time reliability of photovoltaic (national)

Beside the development of project proposals for collaborative research projects in photovoltaics CTR focused on knowledge building for concepts of building and neighbourhood energy management resulting in 8 scientific publications. These publications are further described in the document Technology Analysis: Energy Management of renewable energy sources.

- Battery Storage versus Neighbourhood Energy Exchange to Maximize Local Photovoltaics Energy Consumption in Grid-Connected Residential Neighbourhoods
- The Influence of Battery Storage Size on Photovoltaics Energy Self-Consumption for Grid-Connected Residential Buildings
- Cognitive Architectures as Building Energy Management System for Future Renewable Energy Scenarios – A Work in Progress Report
- Renewable Energy Self-Consumption versus Financial Gain Maximization Strategies in Grid-Connected Residential Buildings in a Variable Grid Price Scenario
- East-West Orientation of PV Systems and Neighbourhood Energy Exchange to Maximize Local Photovoltaics Energy Consumption
- Energy management in storage-augmented, grid-connected prosumer buildings and neighbourhoods using a modified simulated annealing optimization
- Grid-Price-Dependent Energy Management in Microgrids Using a Modified Simulated Annealing Triple-Optimizer
- A Cognitive Decision Agent Architecture for Optimal Energy Management of Microgrids

Beside these core activities CTR launched 23 marketing relevant publications and a special issue of the CTR Times magazine with focus on Energy technologies in March 2014. Dr. Rosemarie Velik got awarded as FEMtech expert in January 2015 for her research on energy technologies.