

ELECON Secondments OVGU -> IFSC / UFSC

Porto, June - September 2013

Philipp Kühne, PhD student and ER of the OVGU, has been in IFSC, Brazil during a secondment from 27th of June 2013 till 30th of September 2013.

During his stay at the IFSC he analyzed current practices for communications in power systems in Brazil. During his stay at the IFSC Mr. Kühne was greatly supported by the colleagues of LABPLAN and UFSC. With the help of this cooperation, it was possible to take advantage of widespread competencies and gain a first impression of the situation of the electric sector in Brazil. By various discussions with students, researchers and professors, a coherent picture of the role of smart grids in the future Brazilian power grid could be created. In addition, Mr. Kühne got the opportunity to visit some companies and institutions such as the Sapiens Park in Florianópolis, which deals with the integration of distributed renewable energy with help of smart grids. In a self-organized excursion Mr. Kühne could also visit the bi-national hydroelectric power plant Itaipu, which is currently the second largest power plant in the world. Mr. Kühne summarized his experience in a comprehensive report.

The work is introduced by an overview of the current situation of the energy sector (generation, transmission and distribution) and the markets. Then the focus changes to smart grid technology in Brazil and to communication technologies in the power networks, relating to the tasks that are given in work package 4. The different communication technologies and protocols are characterized and compared to the Brazilian conditions. Finally, an overview about current smart grid pilot projects in Brazil is given and some representative examples are presented in detail.