

ELECON Secondments UNESP → OvGU

Magdeburg, June – August 2014

UNESP – Univ Estadual Paulista “Julio de Mesquita Filho”, Brazil

OvGU – Otto-von-Guericke-University Magdeburg, Germany

Justo José Roberts, PhD Student from the UNESP, Campus of Guaratinguetá, has spent two months at the OvGU, during the research secondment extended from the 1st of June to the 1st of August, 2014.

Mr. Roberts was invited to participate in the research secondment in Germany as part of the EU Marie Curie IRSES, to work at the work package 2 topic: Electricity Consumers Profiling. Within this topic, Mr. Roberts analyzed the electricity consumption characteristics of the different end-use sectors of Brazil.

During his stay, Mr. Roberts was greatly supported by the colleagues of the LENA research group in the Institute of Electrical Energy Systems, OvGU. It was possible to gain in-depth insight of different topics related to renewable energy sources. By the participation in discussions and presentations of students and professors of the different research areas of LENA, such as fuel cell, photovoltaics, windpower, EV and PQ, among others, it was possible to take advantage of the experience and knowledge of the LENA members in renewable energies implementation and integration.

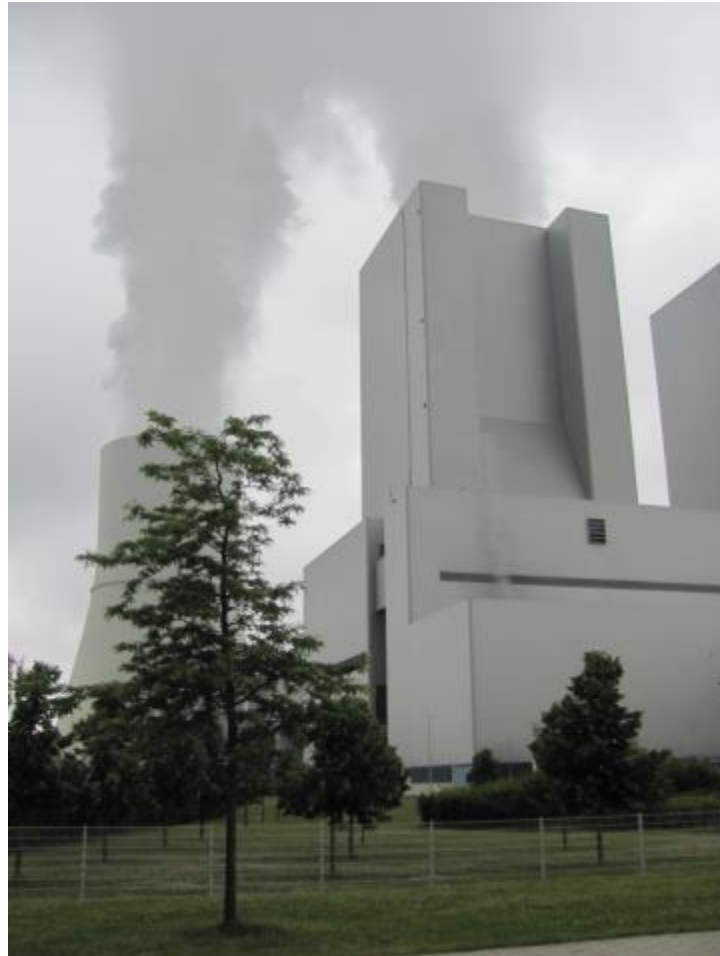
In addition, Mr. Roberts had the opportunity to participate in a student excursion to Prague organized by LENA. During this excursion it was possible to visit the Lippendorf Power Station, located near Leipzig, where the group had a guided visit to the installations. It was visited the Czech Technical University in Prague, where the head of the Department of Electrical Power Engineering presented the high voltage laboratory. We also had the opportunity of visiting the headquarters of the ČEZ a.s. Group, where two lectures related to the energy market were held. Subsequently it was visited the ČEPS a.s. electric utility control room and a high voltage substation by them

operated. Finally we visited the largest hydroelectric dam in the Czech Republic, Orlík Dam, where we had a guided tour through the installations.

As a result of its staying in OvGU, Mr. Roberts delivered an extended report and an article entitled “Electricity Consumption Characterization of the Different End-use Sectors of Brazil” which was presented in the Second ELECON Workshop.

The study presents the major findings of a literature review aiming to characterize the Brazilian electricity consumer sector. The characteristics of the residential, commercial and industrial subsectors that comprise the electricity sector are presented in the work, as well as further information about their consumption profile.

Firstly it is presented a brief description of the electrical system in Brazil, describing the characteristics of the generation, transmission and distribution sectors in which it is divided. Secondly, it is introduced further information about the present situation of electricity consumption in Brazil displaying graphics on the historical development of this sector. The characteristics of the residential, commercial and industrial sectors are given in the sequence. Also, the load profile of these sectors is characterized based on information obtained from a literature review. The conclusions of the research point out a higher amount of works devoted to study the residential sector, but on the contrary there is a lack of newly researches focusing on the commercial and industrial sectors in Brazil.



Lippendorf Power Station, Germany.



High voltage laboratory, Czech Technical University, Czech Republic.



ČEPS a.s. control room and high voltage substation, Czech Republic.



Orlík Dam, Czech Republic.