

RESKILLS

Assessment of life-cycle skills and training needs in the renewable and energy efficiency sectors:
the cases of the wind energy and electric mobility and smart grids.

Minutes of the mission to Belgium

On 10th September 2013 took place in Belgium the second Reskills mission. The team met the Flemish Electric Vehicle Living Lab, visited the MOBI - Mobility, Logistics and Automotive Technology Research Centre, visited the EDUCAM (training centre for the automotive industry) and met EANDIS a Flemish Electricity and Gas Distribution System Operator.

The following persons joined the mission:

Ana Claudia Valente, CEPCEP, Universidade Catolica Portuguesa
Candida Soares, CEPCEP, Universidade Catolica Portuguesa
Gabriela Prata Dias, Energy Charter Secretariat / CEPCEP- Universidade Catolica Portuguesa
Peter Van den Bossche, MOBI, Vrije Universitet Brussel
Silvia Heyvaert, Flemish Electric Vehicle Living Lab
Thierry Coosemans, MOBI, Vrije Universitet Brussel
Tomas Ramos, CENSE, Universidade Nova de Lisboa

MORNING SESSION – FLEMISH ELECTRIC VEHICLES LIVING LAB AND MOBI

The mission started at 9:45 at the building of the Vrije Universiteit Brussels in Anderlecht, Brussels. The meeting started with a project presentation and the description of the point of the situation of the tasks to be developed. During the meeting was agreed the following:

- a) Peter Van den Bossche to send the technology description to project leader as soon as possible, not later than the week of 16th September;
- b) Tomas Ramos to send literature review to project leader as soon as possible, also not later than the week of 16th September;
- c) Gabriela Prata Dias to prepare the draft paper to be submitted to EVS 27 during the week of 16th September;
- d) The set of 15 interviews and focus groups should be done and reported to the project leader by October 31st and the questionnaire to be used is the one sent by the project leader on a previous occasion;
- e) The mission to Spain should if possible be postponed to 17th October so that more members of the consortium could participate. The focus subject of the mission should be discussed in further detail with the Spanish partner;
- f) Gabriela Prata Dias informed that an abstract to the forthcoming Cedefop/OECD LEED Forum on Green Skills, which will be held in Paris on 14th February 2014 was accepted. The final paper should be submitted by 13 November 2013. By then the consortium should have most of the conclusions of the project reported.

Ms. Silvia Heyvaert then presented the Flemish experience of the Electric Vehicle Living Lab, which is a large scale experiment of the introduction of electric vehicles in Flanders. The project is supported by the Regional Administration and covers users, researchers, companies and public authorities. The initiative includes the development of actions divided into 5 Standard Platforms. The Living Lab addresses the topics of the technology, energy, new products, services, businesses and mobility behaviors and concepts.

The development of the project incorporated the assessment of the user acceptance of the electric vehicles in the region, based on concrete experiments on the ground with selected private voluntary test users. As a curiosity Ms. Heyvaert referred that voluntary test users were mainly male genre.

Mr. Thierry Coosemans presented a couple of FP7 projects where the University is involved which also complement the Reskills project, namely: Smart Electric Vehicle Value Chains (SMART EV.VC), Ego Motion and Inovates.

The most relevant project to Reskills is the SMART EV.VC project which makes a thorough analysis of what should be done by EU to support the deployment of EV and the design of a European roadmap for R&D activities. This project also covers matters as how to harmonize the training and education in Electric vehicles, being done by a curricula assessment and questionnaire targeting higher education.

It was agreed that both projects could be associated to each other, giving the opportunity to learn for each others results.

The meeting was then followed by a visit to the Vrije Universitet Brussel Fab Lab, a fabrication laboratory where students and visitors can develop and build prototypes. Finally, was made a visit to the MOBI - Mobility, Logistics and Automotive Technology Research Centre, where electric vehicle batteries are tested, namely being put in extreme wear and weather conditions.

From the morning session the team gathered the following impressions relevant to the project:

1. Still work at R&D level is necessary in improving the performance of batteries of electric vehicles, also in developing prototypes for vans, trucks and buses with electric propulsion, therefore skills at research level are needed;
2. Still from the point of view of the user of electric vehicles and the daily management of the battery load, training on how to use the vehicles is needed targeting the final users. Perhaps a female gender targeted approach would benefit the acceptance of the technology (at least in Belgium).

AFTERNOON SESSION –ELECTRIC VEHICLES TRAINING & SMART GRIDS

The first visit of the afternoon was to the EDUCAM, a training centre promoted by the automotive industry where several types of professional profiles are trained regarding the risks associated to work with an electric vehicle. The reasoning behind the activity of EDUCAM is that electric vehicles represent an increased complexity to conventional vehicles in technology terms, which is accompanied by new hazards. Electricity may convene a series of new risks specially associated with using, repairing or just moving the vehicles. Electric vehicles are silent vehicles and before any intervention one should be sure that the system is off in order to avoid any accident.

Several level training courses are provided by EDUCAM according to the type of interaction that is expected from the student with the electric vehicles. From this visit the project partners could learn that there is a need for specific training which includes:

- Diagnostic and specialists that can work on “live” high voltage: e.g. mechanics, body work repairers, breakdown assistance staff, etc.;
- Competent laborer working on “dead” high voltage (the same as above);
- Alert laborer who does not work directly with electric vehicles but might have to interact with it: emergency responders (firemen), shipping workers (loading & unloading), tow truck operators, vehicle body work repairers, garage or concessionaire space cleaning personnel, etc.

The first two types of workers should have already basic knowledge of electricity (quantities and its relationship among them), notions of alternate current and direct current.

Examples of these training courses already exist both in Belgium as in other places of EU (Netherlands, Germany, Portugal, etc). With the penetration of electric and hybrid vehicles in the market, the degree of exposure to these hazards is becoming greater.

The main contents of the training course deal with:

1. knowing the structure of the an electric and hybrid vehicle;
2. Awareness of the main risks associated with the parts of these type of propulsion systems;
3. knowledge on a safe operating mode and how to implement it when intervening in the vehicle;
4. knowing how to choose the personal protective equipment and adequate measuring equipment.

Visit to Eandis headquarters in Melle

The project team visited the Distribution System Operator of Flanders where it was acquainted with the main tasks and challenges regarding expansion of decentralized generation, smart grids and smart metering.

Like any other DSO in Europe it is under the pressure of the investment plans for the deployment of smart meters. At the same time, new policies on further deployment of renewable energies and decentralized generation, is creating a new paradigm for electricity network management. The main issues addressed were the following:

1. With the deployment of new decentralized renewable energies (namely solar PV and small wind) has created in a first stage an impact on electrical installations. Frequent breakdown and the consequent repair needs were calling often for first intervention teams. This problem is now overcome but it had to be solved through further training to installers of decentralized generation equipment. This first intervention stage was mostly done by trained electricians of medium level (bachelors). However, the company showed concern on the scarcity of labor force with complete electricity skills;
2. The deployment of decentralized generation had also put pressure on the need to reinforce the grid and therefore on grid investments. Further electrical material is being purchased. The main concern is whether this material is being manufactured in EU or abroad, with evident impacts on the number of jobs and skills.
3. The expansion of smart metering is bringing the need for new equipment to be bought, therefore jobs and skills associated with the production of this material is relevant at EU level. Moreover, at the DSO domain of operation, training is needed on how to operate smart meters therefore, labor force with IT skills is becoming a top priority. Concerns were expressed over the speed of deployment of smart meters as although efforts are being done for retraining staff, if the rollout of smart meters is very fast it will not probably be able to be followed by the retraining capacity (i.e. meter readers posts will certainly be destroyed).
4. A strong note was put on the IT qualifications of future staff with the event smart metering and bi-directional energy flows associated with the deployment of decentralized energy. Intelligent ways of following a consumer profile, make the grid design and deal with large amounts of new information which has to be managed and follow correctness standards will be the most important skills profiles.

5. As a general conclusion, regarding the deployment of smart meters and smart grids, there will be a shift of skills to new jobs bringing importance to information aggregators, data managers, and digital and electrical hardware manufacturers.

Mission ended at 17:00.