Tips Learned

1st Interregional Event

Country: **Spain**

Region: **Extremadura**

Host partner: **AGENEX – Extremadura Energy Agency** [Agencia Extremeña de la Energía]

Dates: **22nd – 23rd February 2017**

Abstract of the event

The 1st Interregional Event was divided in two stage. The first was held on Wednesday afternoon where AGENEX team introduced the visit and workshop for the next day and some data and Key Performance Indicators (KPIs) of the installations were given.

The second stage was composed by a workshop where attended partners, stakeholders (including Spanish), and experts and professional in energy field. Later on, a visit to the installation analysed in the workshop and seminar was done.

Workshop and seminar

A first introduction and deep discussion with partners and stakeholders was held on Wednesday afternoon. AGENEX summarized and introduced the seminar and installations that could be view at the next day. The KPI's that could be shown in this document was advanced to the attendees.

At the next day, a seminar with 128 attendees (145 people registered) was held on the School for Industrial Engineers (University of Extremadura).

This seminar was dedicated to show the Spanish situation related to Renewable Energy Sources (RES) for self-consumption in buildings. In fact, several conferences was focused in Solar Photovoltaics facilities due to the current legislation changes in this field.

The seminar started with an introduction on ENERSELVES project describing its objectives, activities and results. In this part a brief summary on Interreg Europe program was done.

The second conference showed several installations promoted by AGENEX – Extremadura Energy Agency. All these installations will be collected in the "Guide of best practices for supporting the integration of RES for self-consumption in buildings". Three kind of installations from different buildings were showed:

- Solar Photovoltaics installations for self-consumption in several buildings. Since several years ago, AGENEX has promoted this RES in several buildings belonging to Regional Government, County Councils of Badajoz and Cáceres and municipalities. These activities help to Extremadura region in order to position as one of the Spanish regions with higher production of Solar Photovoltaics Energy.
- Solar Thermal installation for Sanitary Hot Water in the University Residential and AGENEX´s headquarters in Badajoz.
- Geothermal installation for HVAC (Heat, Ventilation and Air Conditioning) for self-consumption in an office building belonging to Extremadura Regional Government. This installation was one of the first geothermal installations of the region.

The third conference was on the first nearly Zero Energy Building promoted by the Extremadura Reginal Government and one of the first in the region. This building has several facilities that use RES such as Solar Photovoltaics, Biomass, etc… and many other dedicated to the low consumption of energy and saving energy.

The fourth conference showed the regulation and last changes in the field of Solar Photovoltaics Source for self-consumption. The speaker did a deeply explanation on the Spanish Law XXX that regulates the tax for the self-consumption of Energy produced by RES installations. This tax is known by the Spanish citizens as the Tax for the Sun. However, not all these installations are submitted to the tax. This depend on the kind of installation the surplus energy to the grid, etc…

Finally, the conference closed with a discussion panel where several doubts from the public were solved and where the point of view from some ENERSELVES partners was pointed out. As for example, the partners from Lazio Region commented that they have a similar but soft tax to this kind of installations.

Summary of agenda including speakers

In the following lines, the agenda of the event summarizing the speaker can be check it:

Day 1. 22nd February 2017
Internal workshop (partners and stakeholders)

- 15:15-16:30 Technical activities. RES installations for self-consumption in buildings.
  Mr. Francisco Márquez. Technician at AGENEX – Extremadura Energy Agency

Day 1. 22nd February 2017
Seminar (dissemination event)

- 10:15-10:30 Welcome
  Mr. José Luis Canito. Director at School for Industrial Engineers (University of Extremadura).
  Mr. Cosme Segador. Director at AGENEX – Extremadura Energy Agency

- 10:30-11:00 ENERSELVES project. Renewable energy for Self-consumption in buildings
  Mr. Fernando Collado. Technician at AGENEX – Extremadura Energy Agency

- 11:00-11:30 Energy self-consumption facilities in buildings promoted by AGENEX - Extremadura Energy Agency
  - Photovoltaic Energy Facilities in several buildings.
  - Solar Thermal Energy facilities in Hernan Cortes students' residence.
  - Geothermal facilities in an Administrative Building.

  Mr. Francisco Márquez. Technician at AGENEX – Extremadura Energy Agency

- 11:30-12:00 Coffee break

- 12:00-12:30 "III Millenium" building promoted by Regional Government of Extremadura. Integration of renewable energies
  Ms. Esther Gamero. Head of service of Architecture, Quality and Accessibility. General Directorate of Architecture. Regional Government of Extremadura.

- 12:30-13:00 Technical standards and legislation in photovoltaic facilities for self-consumption
  Mr. Daniel Encinas. Technician Coordinator at AGENEX – Extremadura Energy Agency

- 13:00-13:15 Conclusions and roundtable
  Moderated by: Mr. Cosme Segador. Director at AGENEX – Extremadura Energy Agency

- 13:15-15:00 Break for Lunch and departure from University Campus to the "Edificio Rojo"

- 15:30-18:00 Visit to the Edificio Rojo, an Administrative building equipped with self-consumption facilities (photovoltaic and geothermal energy)

Study visit

At the end of the conferences, a study visit was done to two facilities that use RES for self-consumption in the same building. This building, known as “Edificio Rojo”, hosts the Territorial Service of Environment from the Regional Government and is located at Street San Vicente 54, Badajoz (Spain).

Due to the high number of attendees, several groups were made for visiting the facilities. The building has a room dedicated to a small “Interpretation Centre on Renewable Energies” where both facilities are schematized.

Figure 1. Interpretation Centre on Renewable Energies in the building.

These facilities were installed in 2014. First, the Solar Photovoltaics of 5 kW was installed with annual production of 8,440.50 kWh/year. This production is a few low for the energy consumed by the building but the facilities can be easy expandable in the future. In fact, a power of 15 kW was calculated at the beginning but, due to several issues, only a third part could be installed.

Later on, the geothermal facility was installed and its main characteristic can be view in the following lines:

- Boreholes: 6 with a depth on 100 metres
- Power of Geothermal Heat Pump: 100 kW
- Water tank: 3,000 litres.
- Estimated budget: 66,652.89€.

In 2014, the building become in one of the most innovative building of the region in the field of the energy and its divulgation. The following innovative factors were pointed out:

- The first geothermal facility for self-consumption in public buildings in the region.
- One of the first photovoltaics facilities for self-consumption in public buildings in the region.
- First building fully monitored energy consumption and production, in the region.
- Cross-border nature and strategic location.
- Didactic and interactive contents, designed for using on mobile devices
- Contents specially designed for students in several levels.
- Web designed for participation of the educational community

Data and Key Performance Indicators

In the following table, some data and Key Performance Indicators (KPIs) of the installations visited are showed:

Building 1:	**Territorial Service of Regional Ministry of Environment (Edificio Rojo)**
Website:	http://www.edificiorojo.com/ (only in Spanish and Portuguese)
Installation 1:	Solar Photovoltaics Installation for Self-consumption
Renewable power (kW):	5 kw
Type of energy generated:	Electricity
Energy generated per year (kWh):	8,440.50
Energy Self-consumed per year (kWh):	8,440.50
Emissions Saved (tCO_2/year):	2,87 tCO_2/year
Investment (€):	9,900.00€
Payback (year):	10 years (without grant and due to taxes)
Save Annual Cost – average – (€):	815.8 €/year (6% aprox. of total energy consumed)
Grant type (if any):	Grant from EU project “ALTERCEXA”
Total quantity of grant (€):	7,425.00€
Installation 2:	Geothermal Installation for HVAC
Renewable power (kW):	100 kW
Type of energy generated:	Heat/cool energy
Energy generated per year (MWh):	83.80 MWh/year
Energy Self-consumed per year (MWh):	83.80 MWh/year
Emissions Saved (tCO_2/year):	2,87 tCO_2/year
Investment (€):	66,652.89
Payback (year):	10 years (without grant)
Save Annual Cost – average – (€):	6,500.00
Grant type (if any):	Grant from EU project “ALTERCEXA”
Total quantity of grant (€):	49,900.00

Some photos of workshop and study visits





Figure 2. Images of seminar and workshop.

Figure 3. Images of study visits.