PROJECT RURES

D.T2.1.1 Template for pre-investment report September, 2018

1. Introduction

Project index number and acronym	CE933 RURES
Responsible partner (PP name and number)	PP8 Zala County Government
Project website	http://www.interreg-central.eu/RURES
Investment location	GPS: 16.580784, 46.616920 (Hungary – 8960 Lenti, Szombathelyi str.)
Delivery date	30.06.2019.

2. General description of pilot idea

The basic idea was generated from several local surveys. These surveys made clearly visible that the residents require to be familiarized with intensely practical, specific options for action concerning climate protection and the reduction of the emission of greenhouse gases and there is a strong demand between the local population to get know these technologies.

After conducting the surveys, the next step was the summarizing of the received results in one common strategy which was the Espan West-Transdanubian Regional Energy Strategy. The strategy was a part of the national energy planning, and includes some goals which were basically linked to the national plans but were also actual and important on local/county level.

These main goals were the following on national (and as well as on county) level:

- *The utilization of renewable energy sources are to be increased by taking explicit steps*
- *The production of energy crops should be encouraged*
- *In case of buildings, reducing heating and cooling demands should mainly be focused on*
- *Electricity should be generated by the utilization of solar heat and geothermal energy in the south part of Hungary*

Alongside these aims, an evident and possible solution was the establishment of a local exhibition yard which is perfect way to disseminate the environmentally friendly thinking and connected energy efficient technologies. After the theoretical planning, the idea was conducted into the Espan Strategy as pilot action.

3. Description of pilot investment

3.1. Technical analysis of the current state

An unused area was marked out as the territory of the pilot investment, which was functioned as an elementary school in the previous times. The building has to be renewed which will be driven in synergies with other projects, alternative financing methods (ZalaGreen Mirdocredit and Crowdfunding is also an option) and the own capital of the local governments. The renewing and the installation will be implemented in parallel time.

Current state of the building

Few details about the current state:

- *The building has to be strongly renewed*
- *Currently, it is in the lowest EE category*
- *The electricity system is working, but also has to be renewed*
- *The gas heating will be replaced by EE/RES solution*

3.2. Presentation of implementation of planned pilot investment

The following tools will be purchased:

Solar cell system *average energy consumption 4400-4800 kWh/year*
- power network feeding solar cell system, able to generate 4.000 kWh/year electric energy
- 16 pieces of the solar cells of 250W, perform generation of electric energy of 4.000 kWh/year,
- nominal capacity: 4 kWp
- cost 6.500 €
Solar cell system *average hot water consumption 50 litre/person/day*
- establishing a solar collector of 10-16 m2
- complete system suitable for producing hot water of use and helping the heating
- capacity: 7 kW (10 m2 collector surface) – 11,2 kW (16 m2 collector surface)
- cost 4.500 €
Vertical wind generator
- vertical wind generator of 1000W,
- Size: 1,8m wide x 2,7m high (settled 6 m above the surrounding landmarks)
- Maximum rpm: 180/min, production wind speed: 3m/s
- capacity: 1 kW
- cost 12.500 €
Vegetable oil fed mini power plant
- small power plant operating with used vegetable oil
- capacity of 5 kW, cost 11.500 €

With the help of these EE/RES tools, ZCG'd like to establish a zero emission exhibition yard and conference room in the building. Our plan is to connect the local hotels and apartments with the pilot action, and with the help of this connection, hotels can offer an unusual and unique venue for their conferences. Furthermore, the pilot action will be strongly connected to the ZalaGreen Microcredit Program, we are planning this will be the primer customer service location for this program. Target groups: Tourists, general public (local population), SMEs, governments and schools/universities.

3.3. Energy and emission analysis

With the installation of the solar cell system to replace the heating system (a new electrical heating system has to be out-built), we can save cca. 4 000 kWh/year. On the ground of that fact, the production of 1 kWh means 0,35 kg CO2 emission, we can reduce the CO2 emission with 1.4 tCO2/year.

At the vertical wind generator, if the average wind power is 5 m/s annually, we can calculate with 2000-2500 kWh/year. On the ground of the previous calculation, it can mean 700 tCO2/year at least.

In the case of solar collector, if we calculate with 10 m2 surface, the production is 6.800 kWh/year which means average 2.38 tCO2/year CO2 emission reducing.

The vegetable oil fed mini power plant will be used for exhibition purposes only, so this tool is not relevant from CO2 emission reducing side. The tool itself will be useful for those farmers and farms which are not connected to the national electricity system and have to find a solution for the electricity demand.

3.4. Social analysis of pilot investment

As we touched in 3.2., ZCG planning this will be the primer customer service location for the ZalaGreen Microcredit program, so on potential user will be the Zala County Foundation for Enterprise Promotion (ZMVA) as a credit intermediary organization. With this development, SMEs can get their loan in a zero emission building which helps them to see the EE/RES solutions in progress. ZMVA will hold open days to represent the credit program and the possible technical solutions in EE/RES field.

Another social impact will be the local tourism. Lenti is quite frequented from touristic side as the city is located in a three boarder area (Slovenia, Croatia, Austria). Several hotels and apartments are operating in the countryside which can also potential stakeholders of the pilot actions as the users of the conference room. With the help of the local conferences (held in the energy yard) business tourists can have some real experience with the EE/RES solutions.

Final social impact is the reach of the school and university stakeholders. As we plan local classes can visit the pilot action and some lessons will be held in the conference room.

3.5. Building and technical legal requirements

Wind generator – not relevant: On a free area, up to 6m and up to 1 kW capacity, permits are not needed.

Vegetable oil fed mini power plant – not relevant: permits are not needed.

Solar collector installation – not relevant – On the ground of "67/2013. (III. 8.) Korm. rendelet 18. § (6) bekezdés 18. pont", solar collector installation is not subject to authorization.

At the solar cell system, permits are needed, it has to be concluded with the local electricity company (e.g. in the Lenti area with the EON). The preparatory steps are on the following link: https://energia.eon.hu/hmke/pdf/2018/HMKE_folyamatosszefoglalo_final.pdf and attached to the pre-investment report.

4. Timeframe of investment

Start date (dd.mm.yyyy.)	01. 11. 2018.
End date (dd.mm.yyyy.)	30. 06. 2019.

5. Financing and co-financing models

Current financing

The total invest costs are the following:

Solar cell system	*6.500 €*
Solar cell system (collector)	*4.500 €*
Vertical wind generator	*12.500 €*
Vegetable oil fed mini power plant	*11.500 €*
All	*35.000 €*

From the whole cost, 85% is the ERDF part 29.750 €, 10% is the national state contribution from tha Hungarian State which is 3.500 € and 5% is the own contribution from Zala County Government which is 1.750 €.

Alternative financing possibilities

From one side Crowdfunding could be a useful option, in the area the community engagement can very strong if the aim is right. E.g. if we liked to plant new trees in the energy yard, we can easily make it with the crowdfunding between the local SMEs and local population. (of course, we are speaking about basic form of crowdfunding, not the updated internet-based version – in this case, it's the expanded concept of crowdfunding).

Another financing tool will be the previously touched ZalaGreen Microcredit Program, which will be strongly connect to the pilot action. It won't be concretely used for the development of the pilot action, but as an EE financing method, it will give another connection point/synergies point to the energy yard in the field of dissemination of EE solutions and new ideas, new projects.

Future projects Basically, as we previously mentioned, Lenti is located in three boarder area (Slovenia, Croatia, Austria). From this fact is evident that it's a good option to continue the development of the pilot action from CBC Program resources. In synergies with the new projects in the framework of the given CBC program, the pilot action can be expanded with new stakeholders and furthermore, even with new infrastructural investments (e.g. geothermal energy tools). But on the project level, the first aim is not the infrastructural investment, but more the utilization of the conference room. In the next project period training courses can be hold here (besides other opportunities of course).

6. SWOT analysis

Strenghts	Weaknessess
- Local governments are committed to energy efficiency, and dissemination of RES solutions - Good natural resources	- Current state of the building
Oportunities	**Threats**
- Demand of the EE solution among the local population and SMEs - Good traffic connections and located in cross-border area (SI-HU, HR-HU, AT-HU) - CBC project possibilities	- Lack of alternative financig possibilities to continue the pilot action - Lack of subcontractors

7. Transferability of pilot investment

- *Public authorities/institutes used to implement this kind of investment in the framework of CBC and from some domestic programs (TOP, EFOP)*
- *The further development will be continued from these programs*
- *We are planning to make strong connections with local accommodations, universities and educational institutes and business support organizations (eg. ZMVA)*

8. Conclusion and further suggestions

This is a first step of a really important development which will be continued on several ways (universities, ZalaGreen, accommodations, new projects etc). All in all, in Hungary the part of the EE/RES energy production is only 7%, but the local population requires the EE technologies that is the aim why is this exhibition, energy park is so useful and important in the life of the area.

9. Appendices – project documentation related to pilot investment and all necessary permits in national language

Please enclose a list of all relevant project documentation that had to be produced before the beginning of the pilot investment as well as all permits that were necessary to obtain.

1. *EON permits (attached the preparatory steps)*
2. *Electrical and mechanical plans (needed for the customer)*