

The Rõuge Energy Park for renewable energy sources

Rõuge`s Municipality, Estonia

Summary

This project aims for the establishment of an energy park and energy track in the Rõuge rural municipality, in the middle of an attractive tourism area. Rõuge Municipality is located in Võru County in South Estonia. The project is lead by the Municipality of Rõuge and mainly financed by Phare CBC SPF funding.

The main aim of the project is to establish the energy park to open-up for new technologies, and serve as a development and training site. The energy park will demonstrate innovative energy-saving solutions, support economic development, gather information in the field of renewable energy and constitute a tourist attraction in this agricultural region. The project idea carries in itself large and rather different target groups including house owners, farmers, planners, students and pupils, local government members, power energy specialists, alternative energy NGO members, local tourism firms etc.

End-user area	Target Audience	Technical
<input type="checkbox"/> New buildings	<input checked="" type="checkbox"/> Citizens	<input checked="" type="checkbox"/> Energy efficiency
<input type="checkbox"/> Refurbishment of buildings	<input type="checkbox"/> Households	<input type="checkbox"/> Heating
<input type="checkbox"/> Transport and mobility	<input type="checkbox"/> Property owners	<input type="checkbox"/> Cooling
<input type="checkbox"/> Financial instruments	<input checked="" type="checkbox"/> Schools and universities	<input type="checkbox"/> Appliances
<input type="checkbox"/> Industry	<input type="checkbox"/> Decision makers	<input type="checkbox"/> Lighting
<input type="checkbox"/> Legal initiatives (municipal regulations, directives, etc)	<input checked="" type="checkbox"/> Local and regional authorities	<input type="checkbox"/> CHP
<input type="checkbox"/> Planning issues	<input type="checkbox"/> Transport companies	<input type="checkbox"/> District Heating
<input checked="" type="checkbox"/> Sustainable communities	<input type="checkbox"/> Utilities	<input type="checkbox"/> Solar energy
<input type="checkbox"/> User behaviour	<input type="checkbox"/> ESCOs	<input checked="" type="checkbox"/> Biomass
<input checked="" type="checkbox"/> Education	<input checked="" type="checkbox"/> Architects and engineers	<input type="checkbox"/> Wind
<input type="checkbox"/> Other	<input type="checkbox"/> Financial institutions	<input type="checkbox"/> Geothermal
	<input type="checkbox"/> Other	<input checked="" type="checkbox"/> Hydro power
		<input type="checkbox"/> Other

Context

The project is implemented in Rõuge, which is a rural municipality located in South Estonia. The rural forested and agricultural area has 2365 inhabitants and is located in the middle of a nature park. The project facilitates the aims that are stated in the development plan of the municipality – to promote sustainable community in Rõuge, renewable energy production and energy savings, and contribute to the developments of the tourism sector.

Objectives

The main aim of the project is to establish the energy park to open-up new technologies, and serve as a development and training site. The energy park will demonstrate innovative energy-saving solutions, support economic development, gather information in the field of renewable energy and constitute a tourist attraction in this agricultural region. The project aims to develop the energy park for increasing the usage of renewable energy sources and innovative energy devices in the rural countryside. The emphasis is

on improving the end-use energy efficiency. To achieve this goal, the set of technological solutions, energy devices, software, engineering advisory services, tourism activities, training facilities will be concerted to create adaptive prototype infrastructure.

The novel deliverables of the project are:

- ❑ The energy park that promotes new autonomous solutions for the energy sector over different assets of local energy infrastructure.
- ❑ Promoting a new and sustainable consumption model in rural and remote areas for households and other consumers, by providing information and training on renewable energy and energy efficiency.
- ❑ Transferring European experience into Estonia and finding opportunities for co-operation.

Process

Activities are chosen according to the objectives and are divided in two approaches: (1) innovation and engineering, and (2) visiting and training. The Rõuge Energy Park has an essential role in raising awareness for renewable energy technologies and the solutions these can bring in the wider context of sustainable development.

The activities in the project are the following:

- ❑ Elaboration of comprehensive renewable energy and technology support strategy for South-Estonia;
- ❑ Establishment of a co-operation network between respective institutions and target groups;
- ❑ Creation of an infrastructure for transferring renewable energy technologies;
- ❑ Elaboration of a development plan for the energy track;
- ❑ Selection and preparation for implementation of tourism infrastructure.

Phase one

The first phase included planning of the Rõuge Energy Park and development of the core area. Sites were contracted, restored and protected as part of the business development and the local rural heritage. A demonstration centre was created for information, promotion and providing training courses and seminars on energy, environment and business development. The park is opened to visitors.

Phase two

The Rõuge Energy Park has representation of many types of renewable energy including water turbines and pumps, bio energy solutions, solar energy collectors and heat pumps, all used to generate green electricity and heat. Equipment has been chosen to conform to automation regimes, remote control and strict environmental criteria. A database is set up on resources, technological solutions and infrastructure.

The solar energy system will be positioned on the roof of the Rõuge school building and will be connected with heat pumps to create a universal system of heat supply. The heat pumps are equipped with energy meters and for the solar energy systems energy meters will be installed. The energy meters are connected to a computer in the school, so that all persons who are interested can follow the system's energy production on the computer. In addition the project will elaborate and deploy to the school a RETS (Renewable Energy Technology Simulator) with instructions of usage. In addition all energy modules with output measuring tools will be connected to the computer into a single system, in order to be able to see the working parameters of different energy modules (i.e. power, energy production etc.) on a computer screen.

For further management and internal monitoring of tourism sub-projects, a working group of the Rõuge Energy Park will be created (according to the Implementation Arrangements). The main task of the working group is selection and preparation for implementation of so-called site-projects - components of tourism infrastructure in the Rõuge region.

Financial resources and partners

The cost of the project is 48000 EUR, granted by Phare CBC SPF. In the framework Phare project different activities are financed – arranging seminars, publishing materials (handbook for hydro-electricity users, bulletins about energy track objects), deployment of equipment, the development and installation of software. The major cost in the project will be equipment and software, also the solar energy system.

The leader of the project is the Municipality of Rõuge and its partners are the Tourism Association of “Maliena” (Latvia, Aluksne region), the Estonian Alternative Energy Development Chamber, the Võrumaa Tourism Association, and the Business Advisory Centre of Võru County.

Results

As this is a small demonstration project of renewable energy, it does not essentially influence the structure of the energy sources used in Rõuge. The impact of the project is long-term implementation of biomass and hydroenergy. Areas of impact are listed below:

- ❑ 7 jobs would be created to set up the Park and 3 to run it once fully operational;
- ❑ Business consultancy;
- ❑ Specialist and engineering training courses at the Park to stimulate the 'greening' of businesses and industries;
- ❑ Promotion of new practical ideas and opportunities for small and medium sized companies, and for farms in order to benefit the local economy, the environment, and job creation;
- ❑ For the local people who would gain valuable practical, technical and office experience whilst making a contribution to an energy project, contact with neighbouring countries, especially people-to-people;
- ❑ A range of courses, conferences and seminars on renewable energy generation and energy conservation;
- ❑ A guiding principle of the energy park is technical excellence working in harmony with nature. The Energy Park project is devoted to demonstrating how major environmental improvements and energy efficiency on a local scale can result from a new approach to the generation of power and use of energy;
- ❑ The Park, being a natural historic site marred by elements of a rural past, will be improved with landscaping and sensitive building design;
- ❑ Public access to the energy park with visitors able to use the energy centre facilities for studies and Ööbikuoru paths for nature walks, surrounding areas set aside for picnics and play.

The main result of the project is to facilitate the use of renewable energy installations and sustainable energy use in general, in addition, to increase the attractiveness of the municipality (40000 visitors annually).

Lessons learned and repeatability

Introducing Rõuge`s beautiful landscape and the possibilities of implementing renewable energy sources the project can impact the development pattern of the area. It also improves the business environment and employment.

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