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Southern Estonia

Renewable energy mix - Rõuge. Renovation of the village hall

Goals

- Small-scale innovative applications of renewable energy technologies
- Enhancing town environment in the historic memorial park
- Integrity and cost-efficiency of public premises

Objective

The pilot project focuses on renovation of the Rõuge village hall, including the selection and installation of renewable energy technologies. Overall planning area is 2 ha, net floor area is 1200 m^2. The energy and heating systems will integrate ground source heat pumps with PV panels and biomass stoves. The innovative and highly efficient RES technologies to be applied as follows:

1) **Ground source heat** with min cap. 80kW (4500 m horizontal collector pipelines without restricting objects).
2) **Solar energy**: 66 units of PV panels with total capacity 18,15 kW annual production 16 MWh installed according to solar engineering at the parking facilities.
3) **Traditional wood-burning stoves** as fireplaces.

Fig 1. The Estonia Independence Day 24.02.2017 at the Rõuge village hall

Co-operation links with stakeholders

Officials of municipality, users of village hall, neighboring land owners, tourism and other entrepreneurs, community members, cultural and local societies, council members, designers, engineers participated actively in the planning and design drafting process. Wide dissemination of invitation was arranged by social media and personal approaching. The open moderated workshop was the key setting, warmed up and introduced by the Rõuge mayor Tiit Toots. Comprehensive and attractive visualization is given by architect Karmo Tõra. Handouts of drafts are given as take-away.

Figure 3. Public meeting of stakeholders in the municipality 16.02.2017, draft plans distributed, revisions drafted and discussed in the roundtabel format (no ppt!).

Stakeholder involvement

The planning code of densely populated area applies in the Rõuge town. The RES-focused renovation project is conditioned by the principles, standards and requirements of zoning, addressing the key questions of spatial planning where and how. The zoning sets multiple spatial constraints for the cultural and education facilities in the pilot plot, premises and its surroundings in developing a cohesive and sound built environment, facilitating RES. The pilot project re-examined all abovementioned circumstances and addressed directly spatial, architectural and engineering compromises which succeeded in multiple expert discussions and public hearing. Also, it required seeking political consensus among council members.

According to planning and construction code, stated requirements and as a results of stakeholder compromises and trade-offs (councilors, officials, neighbors, environmentalists, engineers, village society etc.) the planning solution for renewables was made feasible using the western side of planned plot.

Fig 2. Public hearing of draft plan and design in the Village Hall 23.02.2017, left – architect Karmo Tõra presents energy engineering and design solutions.

Key lessons learnt (in more general level):

- Separate the professional expert debate from public hearing. Invite key actors personally.
- Keep information short and simple in both expert and public arenas.
- Publicity overdose carries the high risk of 'getting things done' in RES planning and development.
- Balance technical aspects of problem-solving and informal, often value-led stakeholder views with formal institutional public administration.

Fig 4. Areal visualisation of the Memorial Park and the frontal view of the Village Hall by architect Karmo Tõra, ROK-PROJEKT OÜ.

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