

Southern Estonia

Renewable energy mix - Rõuge. Renovation of the village hall

Goals and objectives

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

The pilot project focuses on renovation of the Rõuge village hall, including the selection and installation of renewable energy technologies.

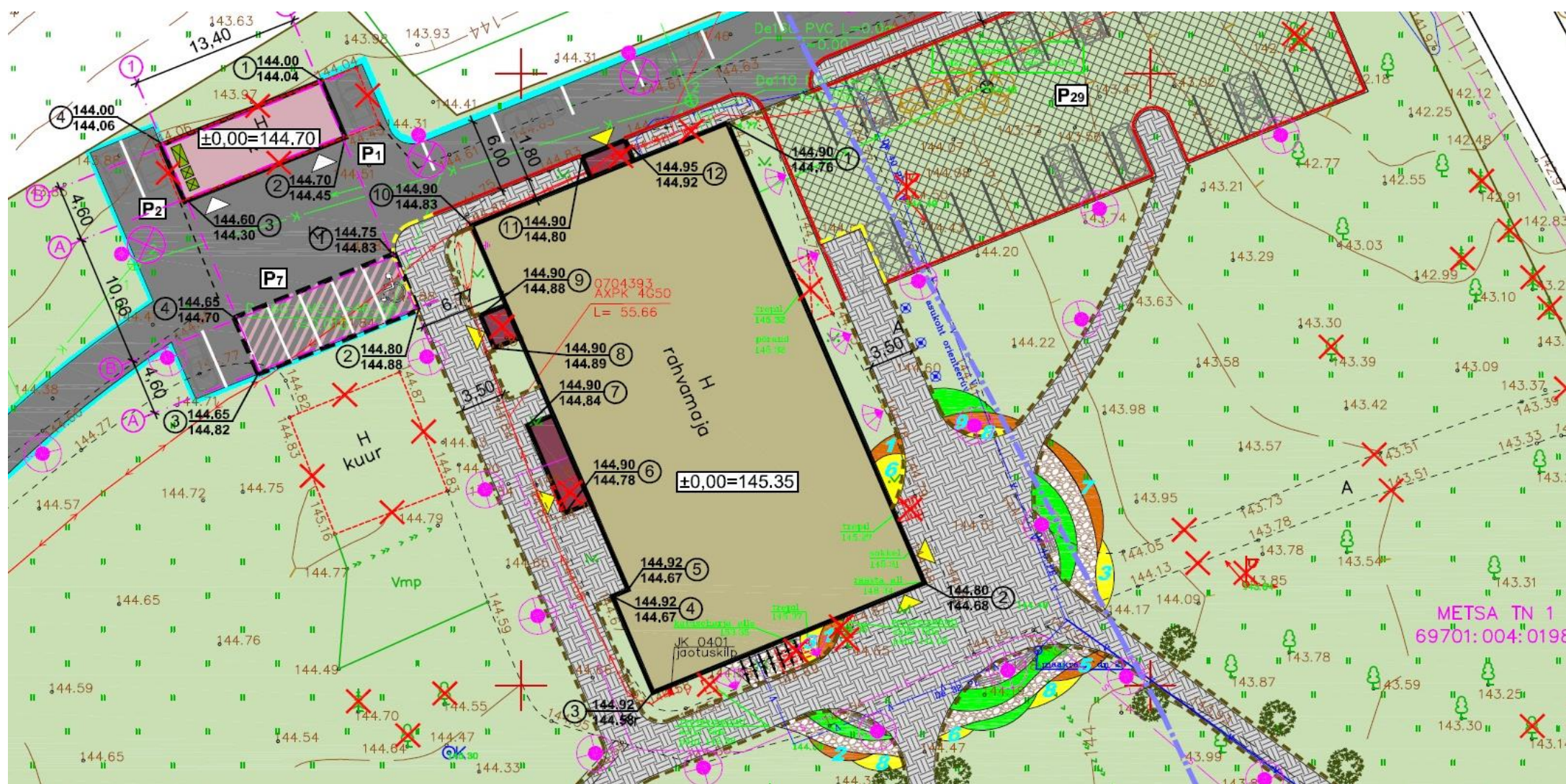


Figure 1. Layout of Rõuge village hall plot. Designed by ROK-Projekt.

Main results

The project concept is based on place-based renewable energy production and use. The renovation and landscape design of Rõuge village hall is chosen to implement pilot project on RES mix in peripheral regions. Overall planning area is 2 ha, net floor area is 1200 m². 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. 80 kW (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.



Main aspects and lessons learned

Spatial planning. The RES-focused renovation project is conditioned by the principles, standards and requirements of zoning, the task which directly practices the spatial planning methods, addressing the basic 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 built environment, plus facilitating renewable technologies.

Key issues discussed and agreed:

- General and façade design feasibility (energy efficiency)
- Engineering of renewable energy mix
- Climate-sound allocation and design of parking slot, public places, surfacing materials
- Allocation functional areas, entrances, proper space utilisation
- Cost-efficiency of energy engineering and design solutions



Stakeholder approach. The pilot project re-examined all the above-mentioned circumstances and addressed directly spatial, architectural and engineering compromises which succeeded in multiple expert discussions and public hearing. Stakeholder approach aiming the integrity of combined formal and informal, innovative, experimental and standard methods and procedures reaching the acceptance and approval design drafts and energy engineering.



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

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