Renovations to Achieve Nearly Zero Energy Buildings, Tartu

Good Practice example for participatory energy planning

Tartu, Estonia

Tartu City Government, Energy Companies and Experts, Technology Providers, Housing Associations and Property Owners

Since 2016

Background

The City of Tartu's urban structure is characterised by a large number of 1950s panel buildings (Khrushchyovkas), which have an average life cycle of 30-40 years. Many of these buildings are outdated and in disrepair, which poses a threat to residents. Since 2016, the City of Tartu, local residents, energy companies and technology providers have joined efforts in the Horizon 2020 project SmartEnCity to develop smart solutions for retrofitting panel buildings to achieve a near zero energy (nZER) standard. New approaches are tested in a pilot area in the Tartu's city centre which comprises around of 40 Khrushchyovkas.

Key Challenge

The transformation of outdated panel buildings into energy-efficient and high-quality living environments requires improvement in the buildings' energy performance and changes in current energy consumption patterns. Renovation processes rely on a combination of public and private investments. Yet, the mobilisation of private financial contributions is only possible when tenants and flat owners are convinced of the need and added value of renovation. The analysis and visualisation of energy data is important for raising awareness and environmentally conscious decision-making. The collection, processing and preservation of energy data, requires close collaboration between residents, energy companies and new technology providers.

Initiative

In the SmartEnCity project, the City of Tartu engaged property owners and tenants from the pilot area in a flexible, on-going collaboration process. The process included face-to-face consultations between energy experts and residents, as well as a series of workshops and seminars. In the process, a thorough renovation package for the area was jointly developed. The implementation of the package will reduce the energy consumption in the pilot area's building stock from the current level of ca. 270 kWh/m2y to standard measuring 90 kWh/m2y, below the nZEB requirements.

Stakeholder Workshops

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It will also encourage behavioural change of residents and the use of new technologies for energy saving. So far, 17 out of 42 Khrushchyovkas from the pilot area have already been renovated, or are in renovation process. During the renovation, the apartments are supplied with a smart home system that connects to the Cumulocity cloud platform and enables data exchange and monitoring. The renovation activities are funded by an Estonian national support scheme for building renovations, the Horizon 2020 Programme and dwelling owners' private investment.

Success Factors

The renovation process undertaken in the Tartu City Centre pilot area successfully managed to mobilise both public and private funds for renovation activities. This was only possible due to the series of community meetings, which importantly established resident needs, technical consultations and information campaigns.

Further Information

Renovations and other activities in the Tartu SmartEnCity pilot area is available at SmartEnCity and Tark Tartu.