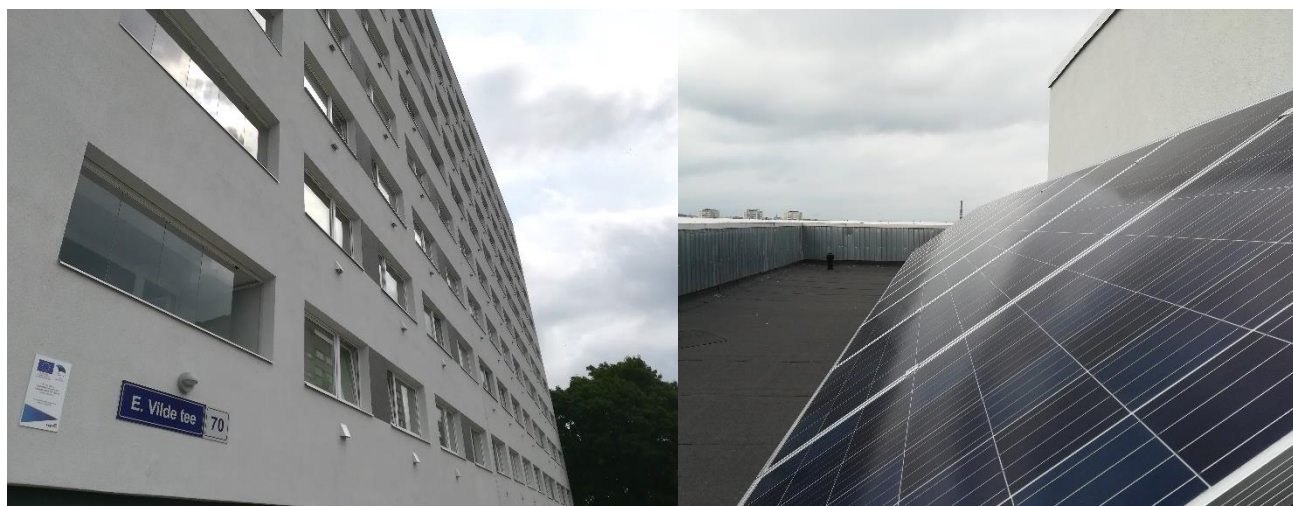


The Housing Association Vilde 70 in Tallinn, Estonia carries out an energy efficiency renovation including a solar PV installation



Highlights

- The housing association Vilde 70 carried out a renovation project to ensure a healthy indoor climate and better energy efficiency.
- Although the project received approximately one third of the total financial investment from a state grant, it was difficult to bring all the house owners together.
- In Estonia, there are good incentives for small-scale energy production and energy efficiency. However, there is a general distrust towards collective solutions.
- Renovation projects have indirect yet important benefits in terms of job created and tax returns to the state budget.

Background information

In Estonia, approximately 65% of the population lives in apartment associations. These are non-profit organizations established by apartment owners for the management of the common spaces of a building and to represent the interests of the association members. To date there are 10,100 active associations throughout Estonia.

The housing sector in Estonia was privatized after the fall of the Soviet Union in the beginning of the 90's. The privatization movement was primarily driven by the citizens' rejection of the Soviet system based on collective solutions and state control in favour of individual solutions, responsibility, and liberty. As a result of the privatization a very small share of the today's housing stock is rental housing. In addition, the dwelling units built during the soviet era have high energy costs.

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The Housing Association Vilde 70 is located in Mustamäe neighborhood in Tallinn. It has 54 apartments housing approximately 120 people. Over the past year, the Estonian government has offered reconstruction grants and loan guarantees to promote the renovation of the building stock and to increase energy efficiency.

Brief description of what was done

In 2014 a large renovation project to ensure a healthy indoor climate and achieve energy class C was carried out in the Housing Association Vilde 70. The renovation project included the following tasks: insulation of the facade and the roof, closing of the open entryways running on the ground floors, installation of triple glazed windows, replacement of the heating system, building of a ventilation heat recovery system with heat pumps, and replacement of elevators. In addition, a 15 kW PV system was installed on the roof to increase the level of energy efficiency. The solar PV was designed to supply electricity for the communal spaces and sell the surplus electricity to the grid. The total sum invested was 1,424,637 €.

Project champions and motivations

The main project champions were the board members of the association. They wanted to renovate their building to reduce energy consumption, save money, and ensure a better indoor climate. The board members were not interested in the payback period of the investment since the building was in dire need of renovation. They talked individually to the other apartment owners to explain the benefits of the project. A technical consultant from Kredex who acted as the project manager played an important role as he provided all the technical knowhow and supported the housing association in the grant application.

Decision making process

All the decisions were made by the members of the housing association. In the first meeting they decided to order an energy audit, which was the first step in the funding procedure of Kredex. The results of the auditing showed the type of possible interventions and benefits that could have been achieved through an energy efficiency renovation.

Following the audit, members of the association decided on which technical design would be adopted and subsequently which construction company to carry out the work. In these meetings, a majority vote by attendees was required to pass a decision. Subsequently, when a decision regarding a bank loan was discussed, a majority vote of the apartment owners was required to pass the decision. According to the apartment association law in Estonia, each apartment owner is entitled to one vote.

Ownership model adopted

The apartment association not only owns the renovated building, but also the solar PV system which has been installed on its roof. Both the energy savings achieved through the renovation project and the income generated from the surplus electricity generated by the solar PV system are redistributed to the apartment owners based on the number of square meters they own.

Financing and economic viability

The investment was financed 60% with a 20-year bank loan and 40% (564,445 €) by the Kredex renovation grant. The bank did not require any seed money nor collateral since the housing association had started the application for the Kredex renovation grant. The monthly payments to

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repay the loan is 1,25 €/m² which represent a very small increase in monthly payments that each apartment owner pays to the housing association. The project is economically viable because it generates savings on the building's heating costs.

Project implementation

Project implementation started in 2015 when following an investigation into the design documents by a third-party expert from Kredex the funding decision was made. The first step was the tendering with contractors followed by the construction and commissioning. The actual grant payment by Kredex was made after the renovation work was completed.

Project benefits

The renovation project has had numerous benefits. First, it has increased the quality of indoor climate and contributed to a reduction in energy costs. The energy costs following the renovation project, including monthly loan payments and interest, are lower or about the same as the energy costs prior to the renovation. The project has also resulted in a 10% increase in the price per square meter for the renovated apartments.

Renovation projects such as the one at the Housing Association Vilde 70 have had a positive impact on the Estonian economy by indirectly creating jobs and tax returns to the state budget. According to some estimations, renovation projects directly generate 10 jobs on the construction site and 1-6 jobs in the consultancy and manufacturing industry combined. On the other hand, tax revenues associated with renovation projects are at 28% but when considering the revenues from the consultancy and manufacturing firms, this percentage increases to 32–33%.

Barriers

Some of the main obstacles faced by the renovation project were fear to renovate, declining costs of district heating, old age of the apartment owners, diffidence in the Russian-speaking minority towards the subsidies offered by the Estonian government, bureaucracy, difficulty in understanding the importance of the project to all the apartment owners, and people's unease with collective solutions. The scale of the renovation project created concerns by some of the building's inhabitants. For example, the senior apartment owners were not motivated by the opportunity to increase their apartment value since they had no interest in selling them. To address the apartment owners concerns, the board members went door-to-door talking to them and explaining the benefits of the project. As a result, the project did not face any major opposition apart from the case of one apartment owner who blocked the construction work for some time.

In Estonia, the booming of CHP power plants is reducing the heat prices resulting in a longer payback period for energy efficiency projects. Furthermore, the attitude of the Russian-speaking minority towards government subsidies causes some problems. This is due to the fear that the state may take back what they have given the people. As a result, Russians living in Estonia often prefer to renovate their apartments without state grants or bank loans. The negative experiences of collectivism under the Soviet Union also made some residents feel uncomfortable with the idea of carrying out an energy efficiency and generation project with their neighbors.

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Main lessons learned

- Being able to work together and have trust, especially between the board members and the project manager is crucial.
- Paper work, planning, as well as the quality standards of the construction companies must be good to produce the desired results.
- Going door-to-door to all the apartment owners and explaining the benefits of the project proved to be important to reduce opposition to the renovation project.

Project champions' recommendations to policy makers

- Renovation grants for energy efficiency projects should not be removed because they generate economic benefits both for the beneficiaries and society as a whole.
- Uncertainties regarding support measures for renovation projects should be reduced otherwise the market cannot continue to grow and projects are stalled.

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Sources

- The Estonian Union of Co-operative Housing Associations, 2018.
<http://ekyl.ee/organisation/who-we-are/?lang=en>
- How Estonia is Managing Major Housing Reform, 2018.
<https://housing-futures.org/2018/04/05/how-estonia-is-managing-major-housing-reform-2/>
- Kährik, A. 2000. Housing privatization in the transformation of the housing system - The case of Tartu, Estonia.
https://www.researchgate.net/publication/261285997_Housing_privatisation_in_the_transformation_of_the_housing_system_-_The_case_of_Tartu_Estonia
- Pikas, et al. 2015. Quantification of economic benefits of renovation of apartment buildings as a basis for cost optimal 2030 energy efficiency strategies.
<https://www.sciencedirect.com/science/article/pii/S037877881400824X>
- Ruggiero, S. 2018. Interviews with project leaders and community energy experts.