

## These municipalities did it, when will you?



### Energy Retrofitting in Tartu, Estonia

**Tartu,  
ESTONIA**

93.124 inhabitants  
17 private condominiums

**Timeframe:**

01/02/2016 to 31/07/2021 for the project  
– retrofitting in Tartu ended 12/2019

### + Quick Tour: What's in it for you?



The City of Tartu participated in the Horizon2020 project SmartEnCity as a lighthouse city. The project's main goal was the reduction of energy consumption in condominiums built during the Soviet era. There are an estimated 6 000 buildings of this construction type in Estonia.

In Tartu, 17 condominiums in the city center were retrofitted within the scope of the project: All renovated condominiums are now in line with the standards of nearly zero energy buildings and are equipped with solar panels and smart energy home solutions that help monitor energy consumption. They also provide improved, high-quality living environments for residents, encouraging them to be more environmentally aware on a daily basis.

In this case study, you will learn how the City of Tartu and the Tartu Regional Energy Agency worked with residents to retrofit condominiums in order to increase energy efficiency and housing comfort.

# Accelerating Condominium Energy Retrofitting: how Tartu aced it

## To support owners (the demand side)

All involved condominiums were privately owned, the owners were organized in housing associations. All final decisions had to be made by the housing associations, majority decisions were required to participate in the project. The city provided information and guidance, but did not offer any official consultation or construction management. The Tartu Regional Energy Agency (TREA) helped housing associations acquire all needed knowledge to start the renovations. They set up a project website and a mailing list for residents and housing associations to provide information and support throughout the whole process. The TREA also organized regular information meetings and workshops for the residents and study visits to similar construction sites.

The city's cooperation with residents can be divided in five phases:

1. First, the city launched an information campaign to create a positive image of the retrofitting project and to encourage housing associations to participate.
2. Then, city officials and TREA experts joined housing association meetings to provide information about the project and collect feedback and suggestions from residents.
3. Technical consultants supported the housing associations to develop renovation plans in cooperation with contracted engineering companies.
4. Emphasis was then put on educating residents about energy efficiency and savings. The City of Tartu, TREA, the Institute of Baltic Studies (IBS) and the University of Tartu organized events and workshops to inform residents of ways to reduce their energy consumption in everyday life. This included instructions explaining the smart technologies that were installed in the renovated buildings.
5. After the retrofitting, TREA monitors the buildings' energy performance and provides feedback to its residents on costs and consumption patterns.

The city also supported the housing associations with any problems or concerns regarding KredEx, the national financing foundation, by reaching out to them on behalf of the residents.

## To federate building professionals (the supply side)

Technical consultants employed by the housing associations were in charge of finding architects, engineers and construction companies. The national funding laws stipulate that housing associations have to get three estimates from construction companies before choosing a contractor. Overall, five head building contractors were employed for the 17 buildings in Tartu.



### To link the demand and the supply sides

When applying to KredEx funding, the housing association had to employ a technical consultant. The technical consultants were trained by KredEx before the 2017 round of funding. To qualify for training, prior experience as a head of a housing association or as a property manager was mandatory. Some housing associations already had contracts with property management companies who provided a technical consultant for them. However, it was obligatory to be a certified KredEx consultant to work for a housing association on this project.

The technical consultants linked housing associations with construction companies. They found architects, engineers and construction companies for their housing association and were in charge of the general organization. They also took care of the paper work for national and local funding.

## + How much does it cost?



The total costs added up to about 9 million Euro. In Estonia, the average price of retrofitting condominiums is 250 €/m<sup>2</sup>. However, 350 €/m<sup>2</sup> to 850€/m<sup>2</sup> were set for this renovation project, as it aimed at a higher level of energy efficiency. Costs depended on the building size as well as the extent of retrofitting: Condominiums that only focused on energy retrofitting paid less than buildings that extended the renovations to improve the overall living quality.

In general, apartment associations in Estonia can benefit from financial support from KredEx, a foundation set up by the Estonian Ministry of Economic Affairs and Communications to provide financing solutions for companies as well as private individuals searching to renovate their dwellings to improve energy efficiency. To receive financial support, the concerned buildings must have been built and entered use before 1993. The KredEx support can be combined with other financial aids such as loans or subsidies. In order to obtain this financial support, renovation plans must aim at an improvement to energy class C, which equals 122kWh/m<sup>2</sup> per year or less. In Tartu, the housing associations received a KredEx support of 40% of the total renovation costs.

In addition, the City of Tartu provided extra funding for owners and housing associations that were willing to extend renovations to reach the energy efficiency of a Nearly Zero Energy Building (energy class A, 92 kWh/m<sup>2</sup> per year or less). The city provided a subsidy of 102 €/m<sup>2</sup>. To benefit from this subsidy, apartment associations had to agree on having artwork added to the outside of their buildings. The additional costs incurred by this were also partly carried by the city. The budget was 8 000€ per building, with the city providing 5 000€ from the city budget and the housing associations covering the remaining costs.



The financial aids by KredEx and the city covered about 2/3 of all renovation costs. For the remaining costs, housing associations took out loans.

## + And how is the project organised?

The City of Tartu led the information campaign beforehand to get condominium owners and housing associations to participate in the project. The TREA also provided information beforehand and throughout the course of the renovation, and technical consultants worked with the housing associations to find construction companies. They also managed the whole renovation process for the housing associations.



In order to benefit from the city's renovation subsidy, the housing associations had to agree to have their building decorated with artwork. The city launched an international art competition to find artists and set up a team of curators who worked with the housing associations to find suitable artwork for each building.

## + Some figures

The project first concentrated on 42 buildings in the city center. In the end, 619 apartments in 17 buildings were retrofitted, which equals 32 072m<sup>2</sup>. About 1500 citizens were impacted.

Retrofitting aimed at a reduction of energy consumption to Efficiency Class A requirements and included the following measures:

- + Insulation of all outer walls with pre-insulated panels
- + Insulation of the roof
- + Replacement of all windows with triple-glazed windows
- + Replacement of all front doors to reduce heat loss
- + Installation of a ventilation system with heat exchangers
- + Reconstruction of the central heating system and installation of thermostatic valves that allow to adjust room temperature in the range of 18-23°C
- + Adding low-temperature cooling systems to complement the district heating system
- + Installation of photovoltaic panels to provide additional energy

Condominium owners of two additional buildings started renovations alongside the project, but decided not to use the city's financial support. They still relied on KredEx financing to retrofit their buildings to Energy Efficiency Class C.



## Here is some advice if you'd like to do it in your city

Residents are often skeptical of retrofitting, even if they are aware of the need of it. Negative experiences by other owners might influence them, hence hindering them to commit to retrofitting. Therefore, direct communication and the city officials' personal presence right from the beginning are key. It is helpful if they are from a higher administrative level. In Tartu, TREA experts, city officials and the deputy mayor responsible for the SmartEnCity project management attended all meetings of all 44 housing associations.

It is important to be proactive and approach residents about possible questions to establish an ongoing dialogue between the city officials and owners. Maintaining open, personal communication throughout the entire retrofitting process is crucial. Tartu officials were in weekly contact with the housing associations, always asking about problems and giving them the possibility to ask questions themselves. It is also good to share previous experiences of retrofitting and remind owners of deadlines for reporting or grant applications.



## Any question?



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## Information



<https://smartencity.eu/about/lighthouse-cities/tartu-estonia>  
<http://tarktartu.ee/eng>  
<https://www.kredex.ee/en/services/elamistingimuste-parandamiseks/renovation-support>

### **You too are facing the challenge of the energy retrofitting of privately-owned condominiums in your city?**

The ACE-Retrofitting project aims to develop a governance model facilitated by cities linking owners and building professionals to accelerate condominium energy retrofitting. The French CoachCopro tool will be upgraded and adapted to other countries.

The consortium is composed of Agence Parisienne du Climat (France), Maastricht University (the Netherlands), Energy House Antwerp (Belgium), the City of Liège (Belgium), Aberdeen City Council (UK), Frankfurt Energy Agency (Germany), the City of Maastricht (the Netherlands), Changeworks (UK) and Energy Cities (coordinator). Study visits are organised in the partner cities of the consortium.

[www.nweurope.eu/ace-retrofitting](http://www.nweurope.eu/ace-retrofitting)

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**North-West Europe**  
**ACE-Retrofitting**  
European Regional Development Fund

This case study has been drafted by



**ENERGYCITIES**