

<b>Title of the measure:</b>	EST 19 Support scheme for energy efficient renovation of apartment buildings (2010–2014)
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### General description

Since 2003, the State has supported the repair work related to the reconstruction and renovation of the main structures (load-bearing and enveloping structures) of apartment buildings built before 1990. The *National Development Plan for Housing Sector 2008–2013* (Eesti eluasemevaldkonna arengukava 2008–2013) approved by the Government in 2008 was the general basis for supporting renovation of residential buildings up to 2014. In 2013, the drafting of the housing sector development plan was started within the framework of the *Estonian National Development Plan of the Energy Sector until 2030+*, which involves visions up to 2050. The new development plan of the sector mostly focuses on reducing the energy consumption of buildings.

All the measures for improving living conditions in apartment houses related to energy consumption can be considered as the elements of a support scheme of measures that includes following elements from the state:

- grants;
- loans;
- loan guarantees.

In some cases the set of measures has been complemented with the support for designing the renovation projects. At the same time, all these measures have been accompanied by several country-wide training courses and media campaigns on energy performance of buildings.

#### Grants

In August 2010 the Minister of the Economic Affairs and Communications issued a Regulation No. 52 (17.08.2010) “Terms and Procedures of Using Green Investment Scheme *Apartment Building Renovation Grants*”. In September 2010 state owned foundation KredEx started to issue renovation grants in the amount of 15–35% of the total cost of renovation project. The grant is first of all meant to accompany the renovation loan of KredEx (issued by Swedbank and SEB Bank – see the measure HOU EST 21) to decrease the required share of self-financing, but the grant may also be combined with own funds of the applier.

The grant is financed from the sales of unused assigned amount units (AAU; Kyoto Protocol) to Luxembourg in frames of the green investment system (GIS). The grant limits are 15%, 25% and 35% of the total project cost depending on the level of integration in reconstruction of apartment buildings. To obtain a grant of 15%, an apartment building shall achieve energy saving of at least 20% in an apartment building with closed net area of 2000 m<sup>2</sup>, at least 30% in an apartment building with closed net area of over 2000 m<sup>2</sup>, fulfil recommendations provided in energy audit and requirements of programme “Renovation Loan of Apartment Building”. By performing reconstruction work, the accordance of indoor climate to requirements shall be ensured, and the apartment building shall achieve at least energy label class E (i.e. annual specific energy consumption in range of 201...250 kWh/m<sup>2</sup>).

To obtain a grant of 25%, in addition to the fulfilment of the above terms, an apartment building shall reconstruct the heating system so that it is locally adjustable, and mount devices that make it possible to divide and measure heating costs individually by apartments, partly or fully insulate and reconstruct the façade, replace all windows with energy-saving ones, insulate or/and reconstruct the roof, achieving energy saving of at least 40%, resulting in being eligible for receiving energy label class D (151...200 kWh/(m<sup>2</sup>·a)).



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To obtain a grant of 35%, in addition to the fulfilment of all above terms, the applicant for the grant shall install a ventilation system with heat return, achieving at least 50% of energy saving from consumption of heating energy, and energy label class C (121...150 kWh/(m<sup>2</sup>·a)) for the building.

The funds for issuing the grant ran out in March 2014 and the call for applications was closed. The results of the whole grant programme are presented in Table 1 and in Figure 1.

Table 1. Grants for renovation of apartment buildings

	2010	2011	2012	2013	2014*	Total
Number of buildings	36	158	310	102	57	<b>663</b>
Number of apartments	2 101	8 856	12 003	3 441	2 299	<b>28 700</b>
Area of apartments, 10 <sup>3</sup> m <sup>2</sup>	146.5	621.9	814.9	230.0	155.3	<b>1 968.6</b>
Sum of grants, M€	0.980	5.946	17.123	8.997	4.968	<b>38.014</b>
Investment sum, M€	5.768	28.865	68.800	30.638	17.372	<b>151.443</b>
Expected energy saving, %	35.0%	40.0%	44.6%	53.5%	49.7%	<b>43.9%</b>

\* preliminary data

Source: Foundation KredEx

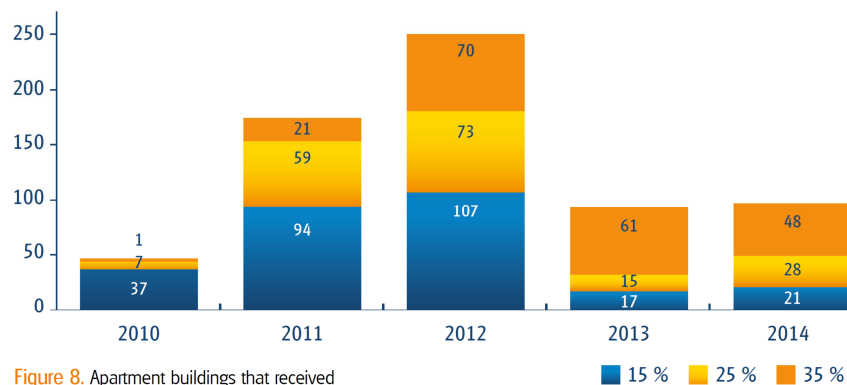


Figure 8. Apartment buildings that received the grant decision by grant % 2010-2014

Figure 1. Grants awarded to apartment buildings by grant percentage

### Loans

In 2009 a loan for renovation of apartment houses was made available under cooperation agreements with banks (Swedbank and SEB Bank from Estonia in cooperation with the German Development Bank KfK Bankengruppe – see the measure HOU EST 21).

It was relatively unique loan because of its fixed interest rate for a longer period than normally available. The loan program was completed in 2014. The results of the whole program are presented in Table 2.

Table 2. Loans for renovation of apartment buildings

Number of renovated buildings	615
Number of apartments	22 534
Area of apartments	1 492 824
Loan sum, M€	71.97
Investment sum, M€	102.74
Expected energy saving, %	40%

With the help of loans, mainly the insulation of façades (518 cases), roofs (320 cases) and renovation of the insulation and ventilation (233 cases) as well as heating systems (327 cases) of apartment buildings were carried out.

#### *Loan guarantees*

Since 2002 apartment buildings seeking loans from banks for renovation can also apply for a loan guarantee from KredEx. The loan guarantee is suitable for apartment buildings rated at a higher than average risk by a bank due to the apartment building location, its smallness, or number of debtors, or for those seeking the KredEx guarantee to insure the risk of payment difficulties.

Since 2002, the total number of apartment buildings having received a loan for renovation with a KredEx guarantee has been 760, totalling 41.4 million euros.

#### *Additional measures*

In frames of the support scheme, the grants for design of apartment buildings' renovation have been supported. The measure ended in 2014. During 2011–2014 the design of 62 renovation projects (total of 8.25 M€ for 35% grants, i.e. projects with at least 50% energy savings) was supported with 1.34 M€.

In Estonia, the reconstruction of apartment buildings has been supported for more than 10 years. The next opportunity to apply for the grant related to performance of apartment buildings was once again provided from April 2015 (see measure HOU EST 38).

#### **NEEAP**

The measure is included in the National Energy Efficiency Action Plan (NEEAP2) as measure B.09 and indicated in the NEEAP3.

#### **Means and outputs**

*Means* – The total cost of the project: 151.44 M€, financed from the Green Investment System applying revenues from Estonia's sale of GHG emission assigned amount units (AAU) as provided in the Kyoto Protocol. The measure was combined with the relevant loan project (see measure HOU EST 21). Also, the project managing institution Foundation KredEx enabled housing cooperatives to apply for loan guarantees, in case the loans were taken.

*Outputs* – 663 residential houses were renovated, including 28 700 apartments with total area of 1.97 Mm<sup>2</sup>.

#### **Data about energy savings**

The average annual energy saving is estimated to reach 44% of final energy (heat and electricity) used in these renovated apartment buildings. This *ex-ante* estimation is based on renovation project documentation. For assessing the total savings in energy units some special calculations have been made for the Odyssee-MURE project. These calculations, using the average data on energy consumption in apartment buildings, indicate that the total annual energy savings for these 663 residential houses can be in the range of 150–170 GWh. The analysis of project documentation shows that the savings of heat energy may reach even to almost 60%, but the electricity consumption would increase more than 20%. During the period 2014–2020, the energy savings should reach 1 TWh.

#### **Sources of uncertainties about energy savings**

In principal, the uncertainty should be small in case of purchased energy as there is commercial metering in place. If the heat is self-supplied (in-house boiler), the uncertainty may be higher due to poor heat metering. Projecting the annual savings for future periods the climate conditions of every year, i.e. the



annual variations of heating degree-days, add some uncertainty to the actual values. For the past periods this variation can be taken into account.

The problem with having data on actual savings is related to data collection as there is no central institution like the energy agency in Estonia. The institution managing the project is responsible for the activities and data collection up to the end of project only. After the completion of the project data on the actual energy consumption are not collected.

### ***Evaluation of energy savings***

At the current stage, the energy savings are assessed on the basis of calculations in technical projects. Later, it is planned to introduce the monitoring system based on metering of energy consumption.

### ***Other indicators monitored and/or evaluated***

The reduction of CO<sub>2</sub> emission can be estimated based on saved energy amount and average specific emission coefficients for production of heat and electricity. In Estonia, at present, the fuel mixes for heat and electricity production are very different. Due to the high share of oil shale in the electricity production fuel mix the specific CO<sub>2</sub> emission for electricity is almost five times higher than that for heat. Therefore, the CO<sub>2</sub> reduction is relatively smaller – ca 7% (13–17 thousand tons annually) than the total energy saving (ca 40%), as the electricity use increases due the additional ventilation needs as a result of renovation.

### ***Interaction of measures***

There is a direct interaction with household measures:

- HOU EST 11 – Support for reconstruction of apartment buildings
- HOU EST 12 – Support for performance of energy audits and expert assessments of buildings and drawing up of building design documentation
- HOU EST 13 – Information campaigns for energy efficient renovation of residential buildings
- HOU EST 17 – National Development Plan for Housing Sector 2008-13
- HOU EST 18 – Building design and construction supervision support for apartment associations for making preparations for major renovation
- HOU EST 21 – The programme of renovation loan for apartment buildings and indirect connection with household measures
- HOU EST 23 – Income tax exemption for housing loan interests

### ***References***

*Texts of Estonian legal acts (in Estonian language) are available at the homepage of the Riigi Teataja (State Gazette / Official Journal): [www.riigiteataja.ee](http://www.riigiteataja.ee)*

*All national level policy documents (development plans, programmes, etc.) are available at the homepage of the Estonian Government (<http://www.valitsus.ee/et/valitsus/arengukavad>).*

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Web pages:

[www.kredex.ee](http://www.kredex.ee) – Estonian Credit and Export Guarantee Fund (KredEx). Annual reports and current information.

[www.mkm.ee](http://www.mkm.ee) – Ministry of Economic Affairs and Communications.



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