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Estonian grant scheme for renovating apartment buildings

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Abstract

In Estonia there is a total of approximately 27,000 apartment buildings, and approximately 90% of all apartment buildings were built before 1990. The majority of those buildings have same typical problems: high energy consumption levels, insufficient ventilation, uneven indoor temperatures, and insufficient thermal comfort levels. Therefore, a pretty extensive, or 'deep' level of renovation is required. Any large-scale and systematic renovation process for apartment buildings in Estonia is complicated due to the fact that a total of 82% of dwellings are privately owned. Apartment buildings are generally managed by apartment associations which means that all of the apartment owners in each building must agree on the volume of any renovation work and also on the budget for such work.

During the period between 2010-2014, a total of 663 apartment buildings have undergone renovation work in Estonia thanks to a support scheme that is joint-financed by Assigned Amount Unit trading and a government budget, administered by Fund KredEx. The total of investment in relation to apartment associations and the grant scheme amounted to 151 million euros, of which 38 million took the form of grants. Average energy savings per apartment building were 43% and the total annual energy saving was approximately 60GWh. The main lessons learned have been that preparation with an apartment association in regard to renovation work takes time - up to two years - and there is no direct way in which apartment associations can be guided when it comes to renovation work; this can only be managed through raising awareness and though good example.

A total of 102 million euros of European Union Structural Funds will be used in a new grant scheme which started in 2015, to renovate existing apartment buildings in Estonia. This paper describes the new grant scheme and measures to avoid and overcome the main problems which occurred in previous grant schemes.

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Keywords: apartment buildings; renovation work; renovation grant

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1. Introduction

It is estimated [1] that there is 25 billion metres squared of useful floor space in the EU27 countries, plus Switzerland and Norway. Residential buildings account for 75% of that building stock. Approximately 17% of total primary energy consumption and 25% of final energy consumption figures are used in residential buildings [2] and energy use in buildings is constantly rising. Energy consumption in European building stock has increased at a rate of 1.5% per annum [3]. Large energy consumption levels also introduces a range of possibilities when it comes to making energy savings, and the residential sector has the biggest potential for cost-effective savings [2]. At the European level, over 40% of energy savings could be obtained by having residential building stock applying a 'standard' renovation programme, and in some countries up to 86% could apply an 'advanced' renovation programme [4].

The full estimated saving potential is often no achieved. A study conducted in Lithuania [5] concluded that potential savings in renovation work were not being achieved due to a lack of transparency in the building modernisation process. Apartment owners were unable to receive any tangible guaranties that the declared energy saving benefits would actually be reached. One way to overcome this problem is the ESCO scheme, but in Europe ESCO has mainly be used in public, commercial, and industrial buildings [6]. A study covering the various options available when it comes to renovating large residential districts in Russia [7] concluded that large-scale district renovation work is required and, compared to simply renovating individual buildings, industry participants could be more interested in utilising a holistic approach due to the much greater scale involved. For the public sector, district-wide renovation work would provide greater opportunities when it comes to enforcing higher-level environmental and social policy targets. In addition, inhabitants will profit through an upscaling of the entire district. The same study also highlighted the fact that, although technical solutions do exist, the main barriers to any large-scale renovation work are financing the work and joint decision-making between apartment owners.

Estonian housing stock is no exception when it comes to high energy consumption. Previous studies [8 & 9] have shown that average heating energy consumption levels for apartment buildings falls between 136-150 kWh/(m^2·a), while when preparing domestic hot water the figures are 27-39 kWh/(m^2·a), and for electricity they are 32-35 kWh/(m^2·a). Low energy efficiency level is only one of the problems in existing apartment buildings. Common problems also include insufficient ventilation, uneven indoor temperatures, and insufficient thermal comfort levels. Therefore it is clear that extensive, 'deep' levels of renovation work are required. A study that was conducted in order to develop the Estonian energy roadmap, ENMAK 2030+ [10], pointed out that in order to realise the full potential in terms of energy saving, support schemes are necessary, especially in residential buildings, as financial support allows requirements to be set out for the required renovation measures and helps to promote extensive integrated renovation work. Setting up the correct requirements is crucial in any renovation scheme. Experiences in Germany [11] have shown that compulsory renovation standards can lead to a slower rate of renovation work than expected due to mismatches between policy, the nature of existing residential buildings, and the normal financial aspirations of home owners.

Financial incentives is the primary method for achieving energy saving targets and, when public funds are used, renovation work should focus on extensive renovation work. Support schemes for renovation projects which have only minor energy savings should be abolished due to their ineffectiveness and inefficiency [12]. Subsidies for minor energy savings targets create barriers against achieving the more ambitious energy savings goals, and buildings that have undergone minor renovation work will probably not be fully renovated within the next fifteen to thirty years. So the full energy saving potential for those buildings will not be realised.

During the period 2010-2014, a total of 663 apartment buildings underwent renovation work in Estonia under the umbrella of a support scheme that was joint-financed by Assigned Amount Unit trading and a government budget, with administration of the scheme being handled by Fund KredEx [13]. In addition to the renovation grant, there was also renovation loan with low interest rate and long repayment period. Renovation loan was financed by European Structural Funds. Total investments from apartment associations and the grant scheme was 151 million euros, of which 38 million euros were grants. Average energy savings for each apartment building were at 43%, and the total annual energy saving was approximately 60 GWh [14]. A total of 102 million euros of the European Union Structural Funds will be used in the new grant scheme that started in 2015, which will focus on renovation work for existing apartment buildings in Estonia. This paper describes the new grant scheme and measures to avoid and overcome the main problems that occurred in the previous grant programme.