



# MULTI-APARTMENT BUILDING RENOVATION (MODERNISATION)

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## SUMMARY

### The Relevance of the Audit

There are about 38,000 multi-apartment buildings in Lithuania, where more than half of the country's population lives. A large proportion (35,000 units, or 90%) of these houses were built before 1993 and are energy inefficient. Their normative consumption of thermal energy is twice as high as that of apartment buildings built after 1993 and is 160-180 kWh / m<sup>2</sup> per year. Modernisation of these multi-apartment buildings extends their operation period, increases market value, reduces thermal energy costs, improves their aesthetic appearance and improves the quality of life of their inhabitants. Energy efficiency is also increasing, thus reducing carbon emissions and contributing to climate change mitigation.

In Lithuania, the implementation of the Energy Efficiency Directive of the European Parliament and of the Council<sup>1</sup> resulted in approved the long-term national building fund upgrade plan<sup>2</sup>, which provides for the upgrade of energy inefficient residential and non-residential buildings, and improvement of their energy consumption efficiency.

In order to encourage the owners of multi-apartment buildings and other premises to modernise multi-apartment buildings, the Government approved the Multi-apartment building renovation (modernisation) program<sup>3</sup>: which provided to reduce the thermal energy consumption of these buildings by at least 1,000 GWh and carbon dioxide emissions to the atmosphere by at least 230 thousand tonnes (compared to 2005) before 2020. To achieve these objectives, it is planned to modernise 4,000 multi-apartment buildings and, on the

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<sup>1</sup> Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012 on energy efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC, article 4.

<sup>2</sup> 30 May 2014 Order of the Minister of Energy Order No. 1-149 approved Energy consumption efficiency improvement action plan for 2014-2016

<sup>3</sup> Multi-apartment house renovation (modernisation) program, p. 15 and table 3, approved by the 23 September 2004 Order of the Government No. 1213.

initiative of apartment owners and other premises owners, to install 10,000 energy-saving measures in apartment buildings.

According to the Ministry of Environment, during the implementation of the program, between 2005 and 2018, 2,941 multi-apartment buildings were modernised and 10,869 energy-saving measures were implemented, reducing thermal energy consumption in renovated apartment buildings by 857 GWh. Since during the period of 2017-2018, on average, 313 apartment buildings were modernised, therefore without changing the pace of modernisation, all multi-apartment buildings with the highest thermal energy consumption could be modernised only in 2120, i.e. 100 years from now.

In order to implement the objectives of the European Union<sup>4</sup>, so that the energy, consumed in buildings, would be used especially efficiently and buildings to be restructured to almost zero energy houses by 2050, thereby reducing carbon emissions, a smooth modernisation process should be ensured, allowing for a timely and high-quality upgrade of the most inefficient multi-apartment buildings.

Recognizing the importance of modernisation and seeking to assess the efficiency of this process and if it is ensuring the smooth implementation of projects, the Supreme Audit Institution has carried out an audit of renovation (modernisation) of multi-apartment buildings.

## The Audit Objective and Scope

The objective of the audit is to evaluate the efficiency of the apartment building renovation / modernisation process.

Key audit issues:

- whether proper implementation of multi-apartment building modernisation projects is ensured;
- whether the developed apartment building modernisation policy ensures the involvement of the owners of apartments and other premises in the multi-apartment building modernisation process;
- whether there is proper monitoring of the apartment building modernisation process, allowing its results to be used to improve the renovation (modernisation) process.

Audited entities:

- Ministry of the Environment, which develops state policy and coordinates its implementation in the field of multi-apartment building modernisation;
- Public Company Housing Energy Efficiency Agency, which administers the implementation of the multi-apartment building renovation (modernisation) program.

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<sup>4</sup> Directive (EU) 2018/844 of the European Parliament and of the Council of 30 May 2018 amending Directive 2010/31/EU on the energy performance of buildings and Directive 2012/27/EU on energy efficiency.

The period of 2014-2018 is chosen for audit. In order to assess changes and compare data, in some cases the factual data for the period of 2005-2013 and perspective data for the period of 2019-2020 are used.

The audit was conducted in accordance with the National Auditing Requirements of the National Audit Office and international Standards of Supreme Audit Institutions. The scope and methods of the audit are described in more detail in Annex 2, Audit Scope and Methods (page 36).

## Key Results of the Audit

The importance of modernising multi-apartment buildings to reduce energy consumption is evident, as most buildings will be renovated by 2050 at the latest and must become carbon neutral and will be converted in a cost-effective way to housing that consumes no energy. The results of the audit show that energy efficiency measures implemented in multi-apartment buildings contribute to the overall energy saving target and to the reduction of carbon dioxide emissions. However, we have identified the need to improve the multi-apartment building modernisation process, to provide measures to improve the efficiency and smoothness of the renovation of these houses, to accelerate thermal energy savings and to increase the involvement of apartment and other premises owners in the modernisation process, and for the monitoring results to be used to improve this process.

### 1. The smooth implementation of multi-apartment building modernisation projects must be pursued

- The smooth implementation of the multi-apartment building modernisation process requires the involvement of apartment and other property owners. In the year 2013, municipalities in their areas have selected 2,329 lowest energy efficiency multi-apartment buildings with a thermal energy consumption of more than 150 kWh / m<sup>2</sup> per year and have prepared investment plans. The audit found that the owners' objection to the modernisation has led to 35% (822 out of 2 329) of all projects being not implemented by July 2019 (section 1.1, page 14).
- The quality of the multi-apartment building modernisation investment plan determines the smooth implementation of the modernisation stages, i.e. the preparation of the technical project for the modernisation of the house and the results of the construction works. Responsibility for the quality of the investment plan preparation lies with the administrators of the apartment and other premises owners or the multi-apartment housing modernisation project administrators, appointed by the municipality. However, they do not ensure that these plans are of good quality, as the Public institution Housing energy efficiency agency returns 78% of all applications for adjustment due to investment plan preparation issues. Approximately 29.3% did not correct the discrepancies or adjust the applications and are rejected.

In addition, 9% of the investment plans were adjusted during the modernisation of the multi-apartment building due to discrepancies found in them. The adjustment had the following effect: 31% the project implementation period was delayed by more than 18 months. With prolonged implementation,

residents of these houses will be uncomfortable due to long-term debris, dust and noise on the construction site. This may adversely affect the decision of other multi-apartment house apartment owners and other premises owners to participate in the modernisation process (section 1.2, page 14).

- Administrators of multi-apartment building modernisation projects, representing owners of flats and other premises in multi-apartment houses, do not perform the duties of the builder (client) properly, i.e. when they are arranging the technical maintenance of multi-apartment building renovation works, they do not ensure that the works are performed without defects and in accordance with the multi-apartment building modernisation investment plan.

After analysing the modernised multi-apartment buildings inspection certificates issued by Public institution Housing energy efficiency agency for the period of 2016-2018 (132 of 2 525), we have found out that in 43 cases (33 percent), the works were executed with deficiencies. In addition, after analyzing 20% (86 out of 434) of resident complains during the audit, we found all of them to be due to improper implementation of project administrator functions.

Failure to ensure the proper performance of the duties of the builder (client) result in deficiencies in modernised multi-apartment buildings being revealed at a later time (after completion of the construction works) and can cause additional costs for their repair (section 1.3, page 19).

## 2. Multi-apartment building modernisation planning needs improvement

- The Energy Efficiency Directive of the European Parliament and of the Council<sup>5</sup> requires Member States to develop a long-term strategy for the renovation of their buildings, which should include policies and provide measures to promote cost-effective and multi-stage building modernisation.

Lithuania has a policy formed and measures provided to promote multi-apartment building modernisation, but lacks conditions for apartment and other premises owners to receive state support for specific multi-apartment building energy efficiency improvement measures (except for modernisation of heat substations since 2020). Thus, the opportunity to increase owners' involvement in the modernisation process by creating conditions for the implementation of thermal energy saving measures in stages and thus promote energy savings is missed (Section 2.1, page 22).

- Starting from 2017, the Ministry of environment started system of selection of applications for multi-apartment house modernisation and this system does not ensure the provision of state support to the projects that save the most thermal energy.

The project selection analysis carried out during the audit revealed that all the 27 June 2018 financed project list has included (according to priority order) all 168 projects, provided under city block energy efficiency increase programs. When executing the selection according to determined criteria and assessing

<sup>5</sup> Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012 on energy efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC, article 4.

the price of saving 1 kWh of thermal energy, 25% (41 of 168) of these projects, were less effective than 213 projects, that were not included for the financed project list. This saves less on thermal energy and creates the preconditions for using the state budget funds in ways that are not the most efficient (Section 2.2, page 23).

- The Ministry of the Environment, when providing invitations for the submission of applications for the modernisation of multi-apartment buildings, did not assess the financing possibilities of the projects under the agreements concluded with banks and other financial institutions, since the need for funds for 1 221 project applications received in 2017-2018 according to invitations and harmonized with the Public institution Housing energy efficiency agency (519,85 million Eur) Is almost two times higher than agreed with financiers regarding the provision of soft loans for their financing. This can lead to delayed funding and stop project implementation (section 2.3, page 25).

### 3. Monitoring of multi-apartment building modernisation needs improvement

- Public institution Housing energy efficiency agency did not ensure proper selection of implemented projects for the execution of energy audits and expert inspections, since during the period of 2013-2019, it was choosing modernised multi-apartment buildings without the application of the Ministry of Environment selection principles. Therefore, the conclusions of energy audits and expertise on solutions for the modernisation of multi-apartment buildings, quality of construction works, and energy and technical efficiency of multi-apartment buildings may be unrepresentative, i.e. not reflecting the true outcome of modernisation (Section 3, page 27).
- Thermal energy savings (176.4 GWh) at the initiative and at the expense of apartment and other premises owners in 2011-2017 were implemented through the installation of energy efficiency improvement measures (10 869 units) are not calculated accurately, because the Public institution Housing energy efficiency agency:
  - is not in a position to ensure that all multi-apartment building managers provide data on the energy efficiency measures implemented in these buildings, as they are not obliged to collect and provide such data;
  - does not have sufficient data (i.e. the amount of work done, characteristics of building materials used, etc.) to calculate the thermal energy savings achieved by the implemented measures.

For these reasons, there may be inaccurate data on the aggregate thermal energy savings of apartment buildings (Section 3, page 27).

- The Agency reports annually, monthly and weekly to the Ministry of the Environment on the monitoring of multi-apartment building modernisation, but the Ministry has no procedures in place to evaluate and use data that would allow to determine whether decisions made to improve the modernisation process are substantiated. In addition, the Ministry did not provide evidence during the audit on how it analyses and utilizes monitoring result data, whether it identifies potential risks and makes timely and informed decisions to improve the modernisation (Section 3, page 27).

## Changes during the Audit

In order to ensure the smooth modernisation of multi-apartment buildings and continuity of the long-term renovation of the Lithuanian national building fund after 2020:

- With the adoption of the amendments to the Law on State support for the renovation (modernisation) of multi-apartment buildings<sup>6</sup>, starting from 1 January 2020, the owners of flats and other premises in multi-apartment buildings will be entitled to receive state support for the modernisation of house heating substations, heating and / or hot water systems by installing individual heating meters or heat distribution system and other energy efficiency improvement measures defined by law.
- The Ministry of Environment, in implementing the directive's<sup>7</sup> requirement for Member states to prepare a long-term building renovation (modernisation) strategy by 10 March 2020, has announced a procurement of services to prepare a study for the preparation of a long-term building renovation (modernisation) strategy on 9 October 2019. Objective: to prepare a study on the basis of which a long-term Lithuanian building renovation strategy will be developed. While issuing action guidelines, which specify the measures and measurable indicators of progress, set by Lithuania, taking in account the long-term 2050 objective of reducing the EU greenhouse gas emissions by 80-95% compared to 1990, so that the national building economy would use energy very efficiently and for it to be independent from fossil fuel, as well as in order to create more favourable conditions for the economically-effective remodelling of current buildings in to almost zero-energy buildings. The action guidelines foresee indicative intermediate targets 2030, 2040 and 2050 and specify how they contribute to achieving the objectives of the Energy Efficiency Directive of the European Parliament and of the Council.
- The Ministry of Environment and the Agency, have publicly announced the 2014-2018 Multi-apartment building renovation (modernisation) program implementation monitoring reports on their websites, starting May 2019.

## Recommendations

### To the Ministry of the Environment

1. In order to ensure the continuity of the multi-apartment building modernisation process, faster thermal energy savings and greater involvement of apartment and other premise owners in multi-apartment building modernisation in order to achieve the goals of Directive 2010/31 / EU, we propose to determine measures and facilitate conditions their implementation(Key Audit Results 1 and 2);

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<sup>6</sup> 14 March 2019 Law on amending article 3 of the State support for the renovation (modernisation) of multi-apartment buildings No. I-2455, No. XII-1996, article 1

<sup>7</sup> Directive (EU) 2018/844 of the European Parliament and of the Council of 30 May 2018 amending Directive 2010/31/EU on the energy performance of buildings and Directive 2012/27/EU on energy efficiency

2. Provide measures to ensure that monitoring data on the modernisation of multi-apartment buildings is used to allow making substantiated regarding the improvement of the process (Key Audit Result 3)

Measures and deadlines for the implementation of recommendations are given in the "Recommendation implementation plan" (page 32).