



Accelerate SUNSHINE

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MAKING DEEP RENOVATION THE STANDARD

ESCO market assessment and market monitoring



PROJECT REPORT

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INTRODUCTION

This report gives an overview and an update on the market for Energy Performance Contracting (EnPC) in the public sector in Latvia. The EnPC market of Latvia has been slowly developing in recent year thanks to the activities carried out in SUNShINE and Accelerate SUNShINE¹. However, several barriers hinder the spreading of innovation and the development of novel mechanisms to deliver energy efficiency and building renovation projects.

This report first provides key information regarding the public building sector in Latvia and about ongoing energy efficiency programmes for public buildings renovation. This analysis gives an idea of the market size and potential for EnPC.

The potential for EnPC is hamper by several barriers: market barriers, regulatory barriers, and financial barriers. On top of this, the lack of qualified human resources further impedes the use of EnPC. These barriers are listed and described in this report.

The report then includes the description of the first examples of building renovation projects carried out by municipalities in Latvia including an energy performance guarantee. Based on this experience, the report includes a set of recommendations for supporting EnPC market developments in Latvia.

The information provided is mainly based on existing statistical data, literature review, state strategies and development documents as well as information from Accelerate SUNShINE project partners and pilot municipalities.

¹ SUNShINE and Accelerate SUNShINE are two projects supported by the Horizon 2020 programme of the European Union

1. OVERVIEW OF THE PUBLIC BUILDING SECTOR

The State Land Service information system has indicated approx. 30,000 non-residential buildings in Latvia, corresponding to total area of about 26.4 million m². The distribution of non-residential buildings, by the type of use, is shown in Figure 2. [1]

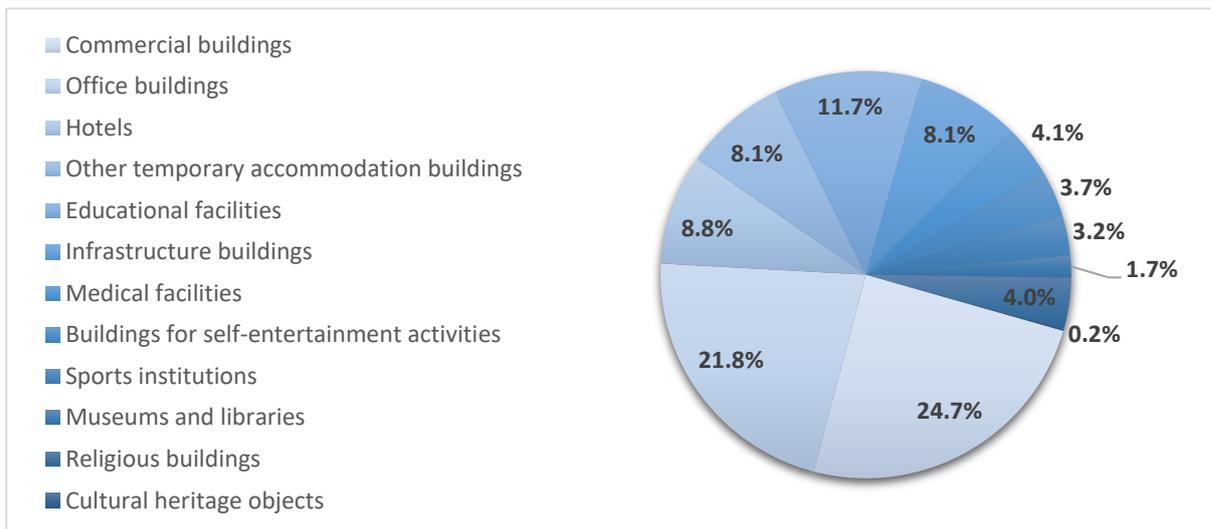


Figure 2. Non-residential buildings in Latvia

According to the State Construction Control Bureau of Latvia (SCCB), there are approximately 10,000 public buildings (with 100 or more users) under their supervision. Public buildings by the type of use can be divided into the following main groups: educational facilities (24%), office buildings (21%) and commercial buildings (11.4%). The distribution by the type of public building is presented in Figure 2. [2]

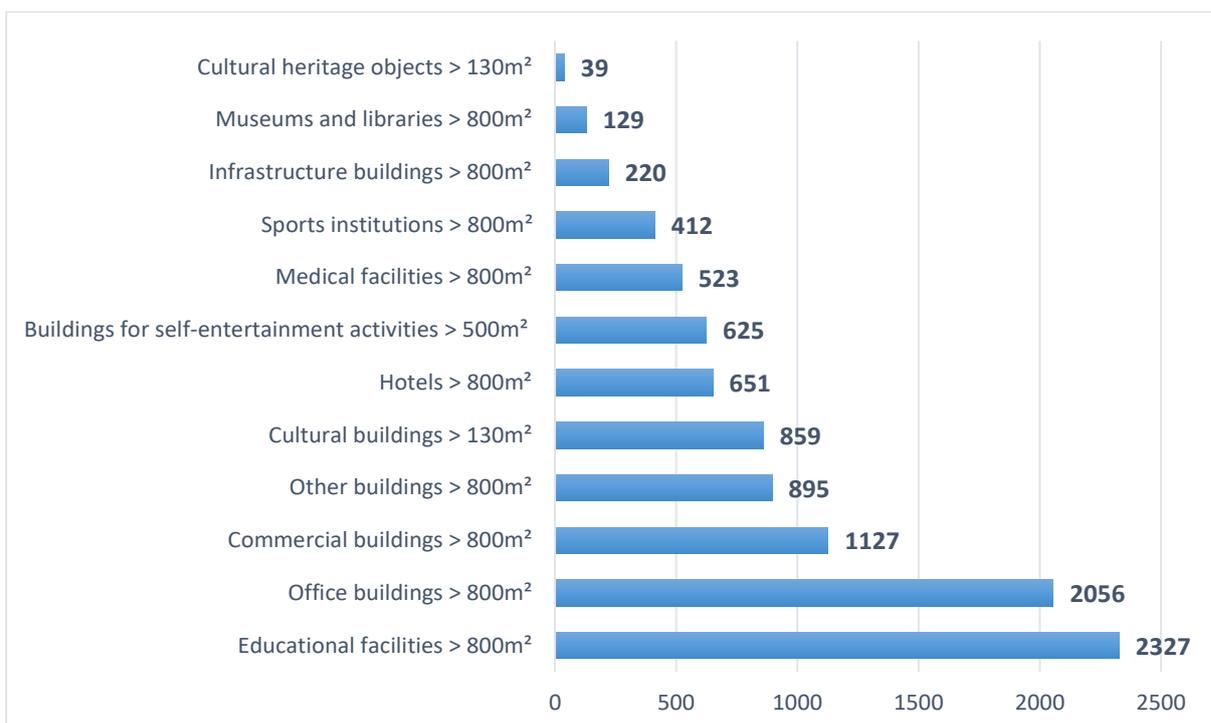


Figure 2. Public buildings in Latvia (with ≥ 100 people)

No official statistical data on the exact number of public buildings in Latvia exists. Also, there is no information regarding the distribution of buildings owned by the municipalities, state government or private owners. According to the SCCB, there are 838 public buildings (total area of more than 250m²) owned, possession and in use by the state government with total area of 1.8 million m² [3].

The register of building energy performance certificates in the Construction Information System (CIS) has been introduced in Latvia since 2016. According to the energy data from the CIS, the energy performance of public buildings has changed over the years (see Table 1). In the table the figures represent the results of all public buildings, that are registered in the CIS as office buildings and educational facilities.

Table 1. The average specific energy consumption, kWh/m² year [4]

Type of public building	2016	2017	2018	2019
Office buildings	134.02	115.63	118.61	114.57
Educational facilities	162.29	154.13	157.34	148.05

Since 2014, two financial programs for renovation projects of public buildings owned by the state government and municipalities are still ongoing (see Table 2).

Table 2. The summary of programs for public building renovation projects in Latvia [1]

Program Title	Target audience	Duration of the program	Objectives	Responsible organization
Activity 4.2.1.2. To facilitate the energy efficiency of the state buildings	Owners and users of state buildings	Until 31 st December 2020	Reduction at least 36 347 000 kWh of yearly primary energy consumption. Additional capacity of 4.8 MW from renewable energy resources. Reduction of at least 22 039 CO ₂ equivalent GHG emissions.	Relevant State Ministry
Activity 4.2.2. Promote energy efficiency and use of renewable energy recourses in municipal buildings in line with the local government's integrated development programmes	Municipalities, municipal institutions, municipal companies	Until 31 st December 2022	Average specific heat consumption for heating – not more than 120 kWh/m ² year. (Reference for 2012 – 150 kWh/m ² year) Reduction at least 20 536 239 kWh of yearly primary energy consumption. Additional capacity of 1.8 MW from renewable energy resources.	Ministry of Environmental Protection and Regional Development

The results of the implementation of above-mentioned programs, so far are available only for 4.2.1.2 program. According to the Ministry of Economics, until 20th December 2019 only 230 out of 838 state buildings have been renovated [5].

2. BARRIERS TO ENERGY PERFORMANCE CONTRACTING IN LATVIA

2.1. Market barriers

Market inertia

Inertia in science is a term that describes the tendency of a physical object to resist change. In marketing, the term is used to describe a business that do not adapt or change its strategy to meet growing consumer concerns, changes in the marketplace or economic situations. In Latvia, Energy Performance Contracting has not been able to overcome the market inertia around energy efficiency projects. Latvian municipalities prefer conventional procurement supported for projects mostly financed with grants (most often national and EU grants) and there is a general lack of interest in EnPC for public building renovation. The political interest is to show a renovated building rather than the form of contract or mechanism used or the level of saving achieved. Municipalities have learned to use and otherwise wait for grants; renovating one building by one (one building one project approach), copying and pasting the process, the tenders, and the construction contracts. This process is not the most cost effective and entails multiple tenders with high administration costs; but it is the process used and tested in Latvia; supported by the Ministry of Finance, Ministry of Economics and Ministry of Environment and Regional Development and used by Latvian municipalities for building renovation. The introducing of mechanism must face this strong inertia.

Lack of client trust, awareness, and understanding

The development of track records for public sector EnPC project is important for nurturing trust in EnPC model. This is missing in Latvia, which linked to the market inertia is a major barrier. Since the first EnPC projects implemented in the residential sector there has been an increasing awareness and understanding regarding the opportunities and needs of EnPC mechanism; however still a lot of misunderstanding and biases are recurring in the market. For example the “Long-term building renovation strategy” of Latvia [6] indicated as a barrier: *“Energy service companies are interested to disconnect buildings from district heating and install a local heat station, thus increasing the profitability of the project. Thereby the heat is provided by the local heat station in the building, but for the pick loads the heat is purchased from district heating. This provides a negative impact to other central heating consumers because they subsidies the cost for pick loads, that exceeds the approved costs of heat tariff.”* Although there is not a single building in Latvia reflecting and proving this statement, and there is not any official survey on which is based; this argument reveals a basic lack of trust and understanding on EnPC and it was firstly lunched by district heating and energy supply companies.

Competing contracts

Alternative contracts as barriers to the development of EnPC markets is an important barrier in Latvia. For energy efficient renovation of public buildings, the choice is to use standard building construction contracts without any link or guarantee for energy efficiency. For building operation and maintenance, the most common option are short term contracts (max 5 years) with no focus on energy efficiency but related to facility management.

Regarding energy efficiency, consultancy is the preferred option in Latvia for delivery of energy efficiency services. But performance guarantees are not included in these agreements and they are all short-term contracts.

The most significant problem for Energy Performance Contracting compared to competing contracts is the negative perception that EnPC are costly. The problem is that no one in a municipality takes the responsibility to carry out enough detailed project life-cycle assessments of EnPC options, whereas other options are readily available and accepted.

Availability of providers, facilitators, in-house capacity

The role and specialization of providers and facilitators is very important for the development of EnPC in the public sector, especially in the process of adopting neutral off-balance sheets contracts.

Regarding facilitation, the role and specialization of actors in Latvia was of relevance to the development of EnPC in the public sector. Through Accelerate SUNSHINE, templates, and guidelines for EnPC were developed and, despite all barriers, the first EnPC contracts implemented in three municipalities.

The Latvian market has several Energy Service companies but is lacking providers with experience in EnPC. Regarding building renovation there are only two companies who delivered EnPC in the residential sector. In the public sector four companies have been recently contracted by municipalities for building renovation based on EnPC.

So far One-stop-shops initiatives have not been successful.

2.2. Regulatory barriers

Off-balance sheet treatment

The lack of experience with EnPC and of off-balance sheet contracts and experience represents a lost opportunity for market development in Latvia. The debt neutrality of EnPC contracts is still questioned by the Ministry of Finance; while the Ministry of Economy has not been delivering guidelines, instructions, and templates to public bodies.

Political commitment

Latvian actions related to Energy Efficiency Directive (Art. 5) and the Energy Performance Building Directive (Art.2a) showed limited political commitment to energy efficiency and EnPC in general. For example, Article 5 of the Energy Efficiency Directive advises that public bodies: *“use, where appropriate, energy service companies, and energy performance contracting to finance renovations and implement plans to maintain or improve energy efficiency in the long term”*. However, regulatory barriers to EnPC were not removed and public bodies keep using other competing contracts.

The Energy Efficiency Directive requires public bodies to prefer high energy-efficiency performance services, products and buildings and assessing the possibility of concluding long-term energy performance contracts that provide long-term energy savings shall be the norm. This is basically never carried out in Latvia.

There is not clear political commitment and a general lack of requirements for guaranteeing savings and leveraging private investment through EnPC. Instead, public bodies are incentivised to use grants funded from EU structural funds and eventually State loan from Latvian Treasury.

Regarding energy efficiency targets, lack of commitments has also affected the EnPC market. Limited commitment to saving energy and using EnPC in the public sector caused market uncertainty. Particularly problematic is the limited commitment of the Ministry of Economics towards using EnPC in fulfilment the Energy Efficiency Directive. Prevalence of status quo explains the remaining government opposition to EnPC in Latvia, where subsidized energy prices constitute a deep-rooted barrier to energy performance together with stronger energy taxation and project life cycle assessment.

Procurement bottlenecks and problematic procedures

In Latvia the incompatibility of the national legal and regulatory frameworks with EnPC in the public sector is a major barrier. Since 2016, the Energy Efficiency Law provides a theoretical framework for municipalities to sign up to 20 years energy performance contracts. The four municipalities of Accelerate SUNShINE were the first in 2018 trying to introduce and sign long term EnPC for their building renovation projects. However, when trying multiple barriers arose. One of the most crucial was the contradiction in the Latvian regulatory framework. Even if the Energy Efficiency Law allowed and indicated the use of EnPC, there were other laws preventing its use. For example, the Law on Public Procurement prohibits municipalities to sign service contracts longer than five years. This means that a municipality interested in long-term EnPC (longer than five years), should follow the procedure set in the Law on Public-Private Partnership. This, however, for small energy efficiency projects (€1-2m) is a very demanding, time consuming and costly procedure, which discourage any further undertaking for relatively small projects. Bundling of energy efficiency projects to reduce the fix costs for undertaking a PPP procedure would be a natural undertaking. However, bundling was not an option either because not contemplated in the regulation for the use of available grants.

Design & build”, “Design build and operate” and “Design build finance and operate” are the preferred project delivery models in which an Energy Service Company can be appointed under an EnPC for the deep renovation of a public building. These models encourages an Energy Service Company to develop a project with its long-term performance in mind from the outset, rather than just considering the lowest possible costs option. The Energy Service Company will follow the project from A to Z and will be able to guarantee all the results, including energy savings. During the last five years there have been a lot of discussions in Latvia about introducing these models for deep renovation of public infrastructure; however, no clear policies and guidance were developed. All subsidies’ programmes (85% grant using EU structural funds and state budget) were developed with an application process forcing municipalities to one building one project approach and using a design bid and build approach (first the municipality develops a project technical producing an engineering design company design and then bids for a contractor for civil engineering works based on the developed project design). These subsidies programme turned to be a major barrier to the use of energy performance contracting, as project based on other approaches would not be eligible for subsidies. Municipalities applying for subsidies were scored based on the forecasted energy savings and readiness of the project, i.e., only projects with finalized technical design were awarded. At the same time the “*one building | one project | one application*” rule, excluded any opportunity for

project bundling and therefore for bigger size contracts; which for example are more attractive for models like Design & build”, “Design build and operate” and “Design build finance and operate”.

As a result of these regulatory barriers, public authorities do not have particular interest in Energy Performance Contracting. Figure 3 gives a comparison between the current approach used by public authorities and supported by available grants and the most critical issues for undertaking a project based on Energy Performance Contracting.

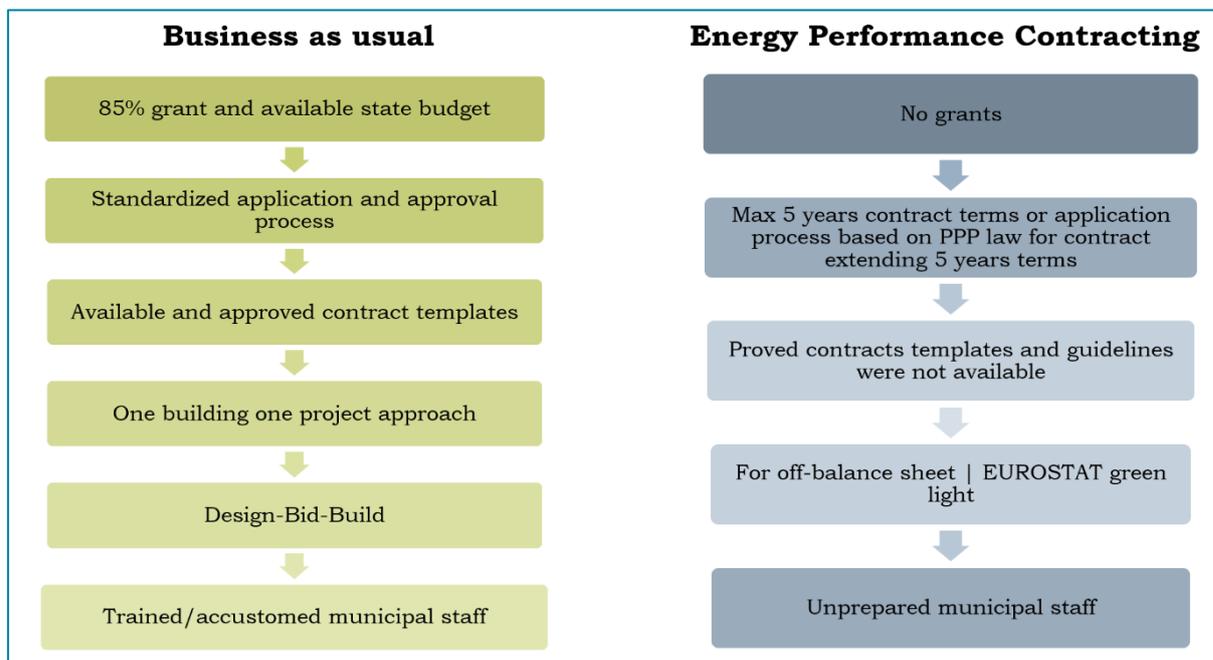


Figure 3. Comparing energy efficiency project in the public sector carried out as “business as usual” and based on “Energy Performance Contracting”

Second national roundtable of financing energy efficiency in Latvia

More specific regulatory and administrative barriers were identified during the “Second national roundtable of financing energy efficiency in Latvia” in April 2019 [7]:

- The 2019 Budget Law stipulates that municipalities may enter into service agreements lasting for a term of up to 5 years. Also, in the case of EPC. This timeframe is too short. If this problem is solved, the next regulatory obstacle would be that every project requires a technical and economic feasibility assessment. This will be an additional cost for the municipality and lead to lengthy EPC project implementation times.
- Projects implemented with EU funding are not eligible for private funding, which, if reversed, would enable higher quality, more sizeable and sustainable projects.
- The energy savings of district heat supply companies resulting from investments on the end-user’s side are not counted towards the EED's target of 1.5 % if EU funds are involved.
- The public-private partnership regulatory framework is the only solution for EPC project implementation, but the procedures are too complicated and time-consuming (each project can take up to 3-5 years) and no standardized approach can be implemented.

2.3. Financial barriers

Limited access to financing for providers

Problematic access to financing for providers to engage in EnPC in public sector contracts may become a barrier in Latvia in case a demand for this service develops. Currently, access to private financing involves both high equity interest (10-12%) and high interest on debt financing (4-8%), making EnPC less competitive with currently available public funding (<2%). At the same time debt financing from bank is made difficult by a lack of track records, about the general lack of understanding of EnPC and lack of clear collateral from energy service companies.

Competing and incompatible financing

In the public sector EnPC is perceived as costlier than direct public investment and contracting modalities without performance guarantees. Public sector access to low interest rates (e.g., loans from Latvian Treasury) and grants programmes that cannot be blended with private funding, puts the private financing of EnPC providers at a great disadvantage.

The availability of EU and national investment grants discourages any interest in EnPC in public sector markets. These funds have reduced the full potential for the take-off of EnPC for building renovation. Additionally, public financing channelled through specific grant programme and public funds mechanisms is a fundamental reason for public bodies to disregard EnPC, as there are very loose requirements for measurement and verification of archived energy savings.

SUNSHINE delivered the Latvian Building Energy Efficiency Facility, which with a forfeiting transaction supports ESCOs to free their balance sheets and takes commitments for developing new projects. The market would benefit from public support combined with forfeiting and off-balance sheet contracts, gaining scale, and engaging with more challenging projects such as deep renovations. However, there are concerns about the compatibility of forfeiting with off-balance sheet treatment and financial support from public source, and the effort that each time may take to clear the matter.

2.4. Lacks resources and capacity for developing EnPC projects

Accelerate SUNSHINE has come across different barriers. Beside the major regulatory barriers, the most taxing and time-consuming challenge throughout the whole project has been persuasion of municipal staff. All the involved staff acknowledged the importance of energy efficiency, of quality of construction works, of the achievement of energy savings and even the advantages of Energy Performance contracting to reach these targets. However, when the time for decision arrives, the time for preparation is past [Thomas S. Monson] and all got impossible. For example, considering that most of the public buildings in Latvia have so far been renovated using EU structural funds with an obligation to report achieved energy savings, and a penalty for missing planned energy efficiency targets, the idea of an energy efficiency guarantee was supposed to be attractive. However, the procurement departments of the municipalities were not cooperating with the development departments and were extremely against the idea of including any sort of energy efficiency guarantees in the tenders for public building renovation. Often the municipal staffs started to care more about the additional 'burden' of a potential contractor rather than about the economic, technical, and social interest of the municipality.

3. EXAMPLES OF PROJECTS

The Accelerate SUNSHINE project supported Deep renovations of Public Buildings and Multi-Family buildings using long term Energy Performance Contracting. Ideally the proposed concept In Accelerate SUNSHINE included deep renovation of public buildings in 4 municipalities using long term EnPC (20 years), including third party financing. Current market and regulatory barriers prevented the use of such sort of contracts within the time frame of the project; at the same time the availability of grants and “soft” loans to municipalities from the Latvian Treasury, did not live any open window of opportunities for third party financing.

Inverting market inertia needs initiatives and any small steps helps to move the market; the introduction of an energy efficiency guarantee in current building construction contracts, which are used by municipalities for building renovation project, was considered a valid alternative to be tested in Accelerate SUNSHINE. The template of construction contract widely used in Latvia was updated including as annex the description of an energy efficiency guarantee and the required operational and maintenance activities (mostly linked to the provision of training and energy monitoring). These construction contracts have five years, and they are backed up by a contract performance bond, which compensates the client (municipalities) in case of contract defaults. Figure 4 shows a comparison between the idea of Energy Performance Contract included in the original Accelerate SUNSHINE concept and the tested Energy Performance Contract developed amending a Construction contract.

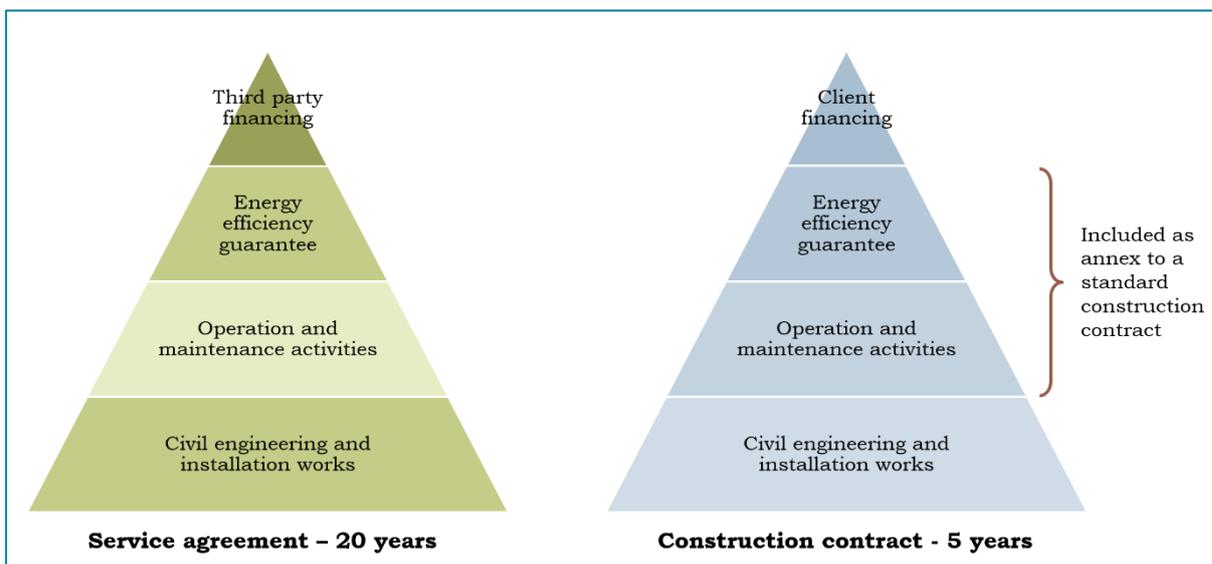


Figure 4. Elements of Energy Performance contracting – Left: the ideal case proposed by Accelerate SUNSHINE where Public Authority procure the implementation of building deep renovation using long term EnPC including third party financing. – Right: adding an energy performance guarantee in existing construction contracts which are included in the tender for building renovation projects.

By the end of Accelerate SUNSHINE, the option of adding an energy performance guarantee in the construction contract was tested in 7 projects implemented in Latvia. Two examples, one in Jurmala municipality and one in Tukums municipality are further described.

3.1. Public building renovation projects in Jūrmala municipality

In 2018 in framework of Accelerate Sunshine project Jūrmala City carried out two public building renovation projects and, in the procurement, documentation included an Energy Efficiency Guarantee (EEG). The basic idea of EEG is, that the construction company ensure that for five years after project commissioning, the energy consumption of the building will not exceed a pre-agreed level indicated in the construction contract. If not, the construction company must repay the difference between the expected and current energy consumption at current energy tariffs. The construction contract includes as annex the pre-agreed energy consumption level that must be reached as minimum target and the measurement and verification protocol to be used. The verification of energy savings and the settlement of the accounts occurs on yearly basis and it is carried out by a third independent party.

One of the projects in Jūrmala was the renovation of the Sport school building, with two swimming pools, and the other project was the renovation of Kauguri Secondary school (see Figure 3). The two projects had separate announcements for the procurement. The Jūrmala city decision on EEG inclusion was not an easy step, mainly because there were doubts that the costs of project development will increase, and the construction companies will not apply for the procurement. During the application process, there was one company that insisted to exclude the requirement of EEG from the tender. As a result, in total four companies applied: one for Kauguri Secondary school and three for Sport school.



Figure 3. Kauguri Secondary School before (left) and after (right) renovation

During the implementation process of both renovation projects, Jūrmala City got different experiences and results of the construction companies' engagement. One of the companies during the project implementation time tried to find various reasons for excluding the EEG from the construction contract and tried to prolong and complicate the whole renovation process. The other company was more open regarding the EEG and tried to fulfil all the requirements. For instance, the company suggested solutions for problems that occurred during the renovation process in case of problems detected in technical design documentation. Also, together with representatives from Jūrmala City they prepared a comprehensive manual for building management and operation. The manual describes the effective use of all installed engineering systems (heating, ventilation etc.) as well as how to operate the building to reach the expected level of energy efficiency. Also, to distinguish the changes in energy consumption due to building construction or how the building is

used, the building management staff must record all the changes that they have done in the building in the working journal. This is one of the solutions that construction company and Jūrmala City come up to carry out the EEG requirements.

As a result, in one case the inclusion of EEG was more successful than in the other. But in both cases the reaction and engagement of building construction companies was more obvious than in other energy efficiency project in Jūrmala without EEG inclusion. This was highly appreciated by the representatives of Jūrmala City and increased the quality of delivery.

3.2. Public building renovation projects in Tukums municipality

In framework of the Accelerate Sunshine project in October 2018 and November 2019 the municipality of Tukums has initiated two public building renovation projects: Kindergarten 'Pasaciņa' and 2nd High school of Tukums. The renovation of kindergarten 'Pasaciņa' was finalized in summer 2020, but the renovation of 2nd High school of Tukums will be initiate in June 2021 (see Figure 4 and 5). Both are co-financed within EU structural funds programmes and were selected as the pilot projects for including the EEG in the construction contract.



Figure 4. Kindergarten 'Pasaciņa' before renovation



Figure 5. 2nd High school of Tukums before renovation

The EEG requirements for the construction companies were the same as in case of Jūrmala. If the required energy efficiency performance level is not achieved, the company must repay the difference. Before announcing the procurement, the municipality organized a pre-tendering meeting for all potential contractor to explain the requirements of EEG, since this was not a typical request in Latvia. In total 15 companies applied: 5 for kindergarten 'Pasaciņa' and 10 for 2nd High school of Tukums. During the implementation time the communication was not hinder between the company and municipality due to the EEG. However, in one case the company was trying to prevent the quality control of the renovation works by not willing to perform the building air permeability test (blower door test). At the end this was resolved, and the company was forced to make the test.

The overall results of the renovation projects are not yet available, since the buildings were only recently commissioned and there are not enough monitoring data for the verification of the archived energy saving. However, the municipality of Tukums is satisfied with the results so far and will include the EEG also in future energy efficiency projects for public buildings. The municipality consider this option an opportunity to achieve the energy efficiency targets and a great support for operation of the building and for reporting the results of the project.

4. RECOMMENDATIONS

During the “Second national roundtable of financing energy efficiency in Latvia” in April 2019, the following recommendations to the above-mentioned barriers were provided [7]:

- The technical support provided within ELENA and PAD programs should be more used in Latvia. This would facilitate the EPC market development in public sector.
- The political support must be provided as well as specific objects must be defined for the market evolvement.
- There is a necessity of a stable financial instrument that is based on a standardized project. This would make the ESCO process clearer for the banking sector and potential investors as well as smaller projects could be combined in bigger packages.
- It is important to understand that one-stop agency does not provide capital investments, but help to analyse, prepare, implement, and supervise the development of EPC projects.
- There is a need of pilot municipalities that would act as an “ice breakers” of the field.

According to the barriers identified in “Long-term building renovation strategy” the following contribution is planned by Ministry of Economics to facilitate the ESCO market evolvement in public building sector [6]:

- The ESCO is responsible for preparation, implementation, and co-financing the energy efficiency project, as well as the explanation of the building. Also, it must guarantee the energy efficiency level after the realization of the project and during the term of the contract (usually 8-15 years). The owner of the building is responsible for provision of remuneration to the ESCO during the term of the contract (per month or yearly). The remuneration should allow the ESCO to recover the costs related to the preparation, implementation, and operation, including the costs related to the financing of the project, and provide a sufficient margin.
- The Ministry of Economics will continue the discussion with Ministry of Finance, municipalities and ALTUM (state-owned development finance institution) for regulatory changes regarding the 5-year guarantee for energy efficiency projects as well as other measures that prevent the ESCO market development in public sector. The objective is to avoid the regulatory barriers according to the Budget Law for 2021.
- An EPC template for public buildings in Latvia has been created in framework of Accelerate Sunshine project. Also, Ministry of Economics has drafted an EPC template. The EPC template for the public buildings must be reconciled with other ministries and stakeholders. It is planned to be prepared until June 2020.
- It is planned to implement at least one ESCO pilot project for public sector combining public (EU funding program on energy efficiency) and private investments in 2020. This would allow better to understand the ESCO principles in public sector e.g., the profitability, financial flows, and payback time, as well as the existing regulatory barriers.
- The guidelines for the preparation of energy efficiency projects and organization of procurement in public sector is planned to be developed. These guidelines should be also available for public.
- The ESCO market will be evolved by preventing the market flaws. It could be also developed by incorporating into legislation that the energy efficiency projects should be implemented using the ESCO approach.

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September 2020

ACCELERATE SUNSHINE: Save your bUildiNg by SavINg. Begin to move more quickly - Grant 754080 – Deliverable 2.6



This project is funded by the Horizon 2020 Framework Programme of the European Union

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Acknowledgment: this publication is the result of four years of hard work of all project partners in ACCELERATE SUNSHINE, namely: Riga Technical University, Ekodoma, Ēku Saglabāšanas un Energotaupības Birojs, Funding for Future, Adazi Municipality, Bauska municipality, Jurmala Municipality and Tukums Municipality

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