Title of the measure:	**LV16** **Increasing Energy Efficiency in State (Central Government) Public Buildings : EU Programming Period of 2014-2020** *Energoefektivitātes pasākumi valsts ēkās 2014-2020*

General description

The low energy efficiency (EE) in the final consumption sectors is the challenge stated by the Latvian National Reform Programme for Implementation of „Europe 2020" Strategy (NRP). The Latvian NRP sets the following targets for 2020: total savings of primary energy 0.670 Mtoe (28 PJ), savings of final energy – 0.457 Mtoe (19 PJ), increase of share of renewable energy in the gross final energy consumption up to 40%. The noted energy savings are pursuant to Article 3 of Directive 2012/27/EU.

Improvement of EE in public buildings is defined as one of the priority tasks of the Strategic Objective (SO) "Energy Efficiency and Energy Production" of the National Development Plan for 2014-2020 financial planning period. The goal of this SO states ensuring the sustainable use of the energy resources required by the national economy by promoting the availability of a market for the resources, a decrease of the energy intensity and emission intensity in certain sectors, and an increase of the proportion of renewable energy sources (RES) in the total consumption, while focusing on competitive energy prices [1, sections 191-207]. The measures to be implemented are in line with "Latvian Energy Long Term Strategy 2030 - Competitive Energy for Society" [2], in which the increase of EE is set as national priority.

A lengthy period for return of investments and limited assets hinder the performance of EE measures in buildings owned by the State. To contribute in solving this problem, increasing of EE in public buildings of central government is supported within the framework of the Operational Programme "Growth and Employment 2014-2020", Thematic Objective No4 "Supporting the shift towards a low-carbon economy in all sectors", Investment Priority 4.2. "Support energy efficiency, smart energy management and use of RES in public infrastructure, including in the public buildings and housing sector", the Specific Objective 4.2.1. "To increase energy efficiency in public and residential buildings" corresponding to this Investment priority [3, sections 306-311].

The measure is the national alternative measure to be implemented in combination with energy efficiency obligation scheme to achieve the cumulative end-use energy savings target pursuant to Article 7 of Directive 2012/27/EU [3, section 291].

These investments will ensure conformity to the EU Council Recommendations in the area of EE and fulfilment of the obligations set in the Directive 2012/27/EU on energy efficiency. Starting from 2014, pursuant to the Article 5(1) of the Directive 2012/27/EU, 3% of the total floor area of central government buildings will be renovated so that they meet minimum energy performance requirements. The yearly area to be renovated has constituted in years 2014-2017 around 70 thsd m2 average for year[1]. Owing to

[1] In accordance with Article 5(5) of Directive 2012/27/EU, every year the Ministry of Economics draws up a list of buildings owned, managed or used by the State. According to the list of buildings as on 01 January 2014, the 3% renovation target for 2014 corresponded to an area covering 77679 m2. According to the list of buildings as on 1 January 2015, the 3% renovation target for 2015 corresponded to an area covering 74908 m2. According the list of buildings as on 1 January 2016, the 3% renovation target for 2016 corresponded to an area covering 66175.4 m2. According the list of buildings as on 1 January 2017, the 3% renovation target for 2017 corresponds to an area covering 59980.1 m2. On 31.12.2015 it was done renovation of an area covering 368790.3 m2, thus the target for 2017 is already fulfilled and the rest of renovated area (94047.8 m2) is included in the fulfilment of the targets for years 2018 and 2019 [5].

the renovation efforts, central government will fulfil an exemplary role and facilitate the energy certification of buildings [3,4].

Taking into account that the majority of Latvian buildings have low EE indicators, the first priority is to reduce their energy consumption. The sector of public buildings has the potential for the use of RES as well. According to the Article 5 of Latvian Law On the Energy Performance of Buildings [6] when designing buildings, the option of using high efficiency systems that rely on RES is evaluated. This ensures fulfilment of requirements stated in Directive 2009/28/EC about promoting use of RES.

The total public financing for the given programme "*Increasing Energy Efficiency in State (Central Government) Public Buildings : EU Programming Period of 2014-2020"* is planned **115.127 MEUR**, of which 97.858 MEUR provided by the ERDF and 17.269 MEUR provided by the state budget [7, Annotation]. This financing is divided between two tenders:

- The first tender (~ 70% of the total public financing, namely 68.382 MEUR ERDF financing and 11.505 MEUR state budget financing) starts at the 2nd half of 2016,
- The second tender for the rest of the financing will be announced later.

09 August 2016 the Cabinet of Ministers had adopted the Cabinet of Ministers Regulation No 534 on Energy Efficiency Measures in State Buildings co-financed by the EU ERDF [7, latest amendments 10 July 2018]. These Regulations define the procedure **for the first tender of the programme.** The aim of the given programme is to promote increase of EE, smart energy management as well as use of RES in the buildings (owned or used) of (1) direct state management authorities, (2) institutions supervised by them, (3) derived public persons - state high schools/universities and research institutions, (4) state capital companies which fulfil the management of state real estates (Section 13 of the Regulations)[2],[3]. Responsible ministry for implementation – Ministry of Economics (ME).

The first tender is organised as the restricted tender. Namely, the available financing is proportionally divided among ministries according the total heated area in buildings used by them as well as the financing for EE renovation of the Cabinet of Ministers central building is foreseen. The ministries shall provide that at least 40% of this financing will be used outside capital city Riga[4]. To be beneficiary building, the building (i) shall be included in the list of buildings owned, managed or used by the State which is drawn up by the ME, or (ii) the Cabinet of Ministers (Governmental) Ordinance shall be adopted that the given building fulfil the state / state delegated functions. The total area of the building to be renovated shall be above 250 m2. The form of financial support - grant, the beneficiary shall provide at least 15% own co-financing.

The projects shall be implement during 4 years after signing the contract with the EU funds financing supervising authority – Central Finance and Contracting Agency (CFCA) of the Republic of Latvia – but not later than **31 October 2022.** After implementing the project, at least 5 years the building shall be used for state functions.

The project's costs are eligible, if as the result of the implementation of the project it will be reached [Section 31 of the Regulations]:

- **at least 30% of heat energy savings**,
- planned thermal energy consumption for heating is not higher **90 kWh/1 m2/ year**[5] ,
- the minimum requirements of the Latvian Construction Standard 002-15 "Thermotechnics of Building Envelopes"[6] are fulfilled

[2] The buildings owner or used by the Central Bank of Latvia, Republic of Latvia Parliament (*Saeima*) and Constitutional Court (*Satversmes tiesa*) are not included for this first tender.

[3] The part of building which is used for supplementing commercial activities shall not exceed 20% of the total area of the building.

[4] Requirement might not be implemented, if the territorial division of the buildings supervised by the ministry does not allow such allocation or it is economically justified to use another division of allocations

[5] In case, the building's floors are 3.5 meters high (in average) this value is recalculated

The upper threshold level of project's eligible public financing per 1 m2 of the total area of the building is stated, namely, 250 EUR/1 m2.

In case the RES are used to prduce heat energy for the building, the following rules are applied for CO2 savings and primary energy calculation:

- CO2 factor 264 kg/MWh is applied,
- The conversion factor to pimary energy 1.0 is applied

Supported activities include [Section 21 of the Regulations]:

- renovation of buildings for the increase of EE: construction works (insulation) of buildings' delimiting (boundary) structures[7], insulation of coverings of cellars and upper floors;
- reconstruction, renovation or establishment of engineering communications of buildings,
- purchase and installation of RES using heat energy production equipment - - installation of such RES systems is acceptable if these systems are of high efficiency, the installation is economically justifiable and the total costs of energy end-user are decreased.
- purchase and installation of energy control and management equipment.
- preparation of the projects' technical documentation, energy certification of buildings[8],
- projects management and supervision, including supervision of construction works and author supervision
- projects publicity activities.

Costs are eligible starting from the 1st January 2016. The eligible are those measures for EE improvement which are foreseen in the energy certification of the building prepared by the independent expert.

Beneficiary responsibility. In case, the responsible financing supervising authority (CFCA) recognise that the beneficiary might not achieve contracted savings, the authority might contract out of an agreement.

On-going implementation.

On 30 June 2018 it was submitted 82 projects requiring in total around 55.5% (54.3 MEUR) of available ERDF co-financing.

Impact evaluation

As a result of the implementation of the particular measure, EE in the sector of state public buildings will be improved, by decreasing heat consumption and ensuring sustainable use of energy resources. It is anticipated EE renovation of 290 State buildings; the economical benefits, according the estimated of the Ministry of Economics, is anticipated annually up to 3.3 MEUR[9].

Table 1 presents the planned output indicators regarding energy savings, RES use and CO_2 savings after implementation of the programme, in year 2023. Important, CO_2 savings within the given programme arise both from energy efficiency improvements (7217 tons in 2023) and new renewable heat production capacity (2240 tons in 2023,*see footnote 11*). These savings relate to ERDF financing only. If state budget financing is included, the final energy savings might raise up to 33 GWh (0.12 PJ), 2.4 MW additional RES capacity and 11.2 thousand tons of CO_2 savings.

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[6] For details see the MURE database Tertiary sector measure TER-LV12.

[7] In case after EE improvement works the restoration works is need to restore buildings outer or inner visual performance, these restoration works are eligible up to 30% of total project eligible costs as well

[8] Total "soft" costs shall not exceed 10% of the total eligible costs of the project

[9] Announcement of the Minister of Economy, 09 august 2016, https://em.gov.lv/lv/jaunumi/10987-atbalstam-valsts-eku-energoefektivitates-paaugstinasanai-bus-pieejami-826-miljoni-eur

The final energy consumption in Latvia Tertiary sector (public and commercial, in total) in years 2010-2015 varied in the range 23.4-26.1 PJ (average ~ 25 PJ) [9]. Thus *ex-ante* expected final energy savings will constitute up to 0.5 % of this consumption. The impact of the measure might be attributed as medium.

Table 1. ERDF common output indicators – target values in year 2023

	1st tender , [7, Section 8]	2nd tender, [7, Annotation]	TOTAL
	at least		
decrease of annual primary energy consumption of state public buildings, in MWh	26084	10263	36347[10]
additional renewable energy production capacity installed in state public buildings, in MW_{heat}	1.48	0.58	2.06
CO_2 savings, in tons	6787	2670	9457[11]
Decrease of annual primary energy consumption of 36.347 GWh corresponds to the decrease of annual final energy consumption of 27.960 GWh (0.1 PJ), *see footnote 10*			

However, the Latvia national Plan of the Alternative Measures of Energy Efficiency Policy to Reach the Target of Energy End-Use Consumption Saving 2014-2020 [12] envisages the 2020 cumulative energy savings of 306.2 GWh (1.1 PJ) due to implementation of the measure. Thus, if assuming the impact period 2018-2020, the 2020 annual savings should be at least 0.55 PJ.

Interaction of measures

The Cabinet of Ministers (Governmental) Regulations [10] states six (A-F) energy efficiency classes of non-residential buildings (see the Table1 in the MURE Tertiary sector measure TER-LV15 "Energy Certification of Non-Residential Buildings"). The "F" class (more than 150 kWh/1m2 annually for heating[12]) is stated as energy efficiency requirements' non-corresponding class in which EE improvement measures shall be implemented.

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[10] ***Impact Calculation Methodology for Energy Savings***
(developed by the Ministry of Economics, according: *Output indicator passports of specific measures of the Operational Programmes "Growth and Employment 2014-2020"* [8])
Basic data

- average specific costs of public buildings renovation = 140 EUR/1 m2
- total amount of investments, invested in energy efficient renovation = 96879392 EUR (ERDF financing)
- total amount of renovated area: 96'879'392 EUR / 140 EUR/1m2 = 691996 m2

Energy Savings

- anticipated specific energy savings 40 kWh/ 1m2 renovated
- total anticipated **final energy savings** 40 kWh/1 m2*691996 m2 = **27680 MWh**
- conversion factor to primary energy = 1.3
- total anticipated primary energy savings = 27680 MWh * 1.3 = 35984 MWh annually
- anticipated CO2 savings due to energy efficiency measures = 7217 tons

New Renewable Capacity

- for this purpose ~1% of total measure budget is anticipated. The installation of 2.06 MW new RES heat capacities with annual load of 4870 hours are anticipated.

[11] **Impact calculation methodology for CO2 savings from new renewable heat capacity**
(developed by the Ministry of Economics, according: *Output indicator passports of specific measures of the Operational Programmes "Growth and Employment 2014-2020"* [8])
new renewable heat capacity – 2.06 MW_{th}
annual load – 4870 hours
efficiency coefficient before project implementation – 0.9 (assuming use of natural gas)
CO2 savings due to new renewable heat energy - – 2.06*4870*0.201/0.9 = 2240 tons of CO2

[12] for the buildings which have rooms of 3.5 meters high, for higher rooms the value is recalculated.

The EE investments in public buildings in 2014-2020 financial programming period are supplemented with the investments to improve efficiency of district heating systems, foreseen by the [3, sections 334-345].

Historical data

The funding for the promotion of EE in public buildings in previous period was available within the framework of national green investment scheme - Climate Change Financial Instrument (CCFI). The particular CCFI programmes, related to EE in public building sector, implemented in years 2010-2015 are described in the MURE database Tertiary sector - see the Latvia measures:

(i) TER-LV7 "*Investments in Public Buildings' Energy Efficiency to Reduce GHG Emissions*"

(ii) TER-LV8 "*Investments in Complex Solutions for GHG Emissions Reduction in Vocational Education Institutions' Buildings and Investments in Higher Education Institutions Buildings' Energy Efficiency to Reduce GHG Emissions"*

As on the 1st January 2015, 53 buildings owned, managed or used by the State, with a total floor area of 232635 m2 have been renovated under the CCFI budget programmes [5].

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