

Title of the measure:	LV 11 Investments in Public Territories' Lighting Infrastructure to Reduce GHG emissions <i>(Siltumnīcefekta gāzu emisiju samazināšana pašvaldību publisko teritoriju apgaismojuma infrastruktūrā)</i>
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General description

Latvia, due to active participation in the GHG emissions trading mechanism, has the revenues from the sale of GHG emissions under procedures pursuant to Article 17 of the UNFCCC Kyoto Protocol. Part of these revenues had been allocated as the national Climate Change Financial Instrument (CCFI) programme for CO₂ emissions reduction by implementing environmentally friendly techniques and technologies allowing to decrease electricity consumption in the public territories which are municipal property (roads, streets, bikeways, squares, parks etc.). The measure is noted in the Tertiary sector of Latvia's 2nd EEAP for years 2011-2013 [1] and continued in following years 2014-2015, thus contributed in achieving the indicative national energy efficiency targets in 2014-2016 and a cumulative end-use energy savings target determined in accordance to the Article 7 of the Directive 2012/27/EU [2].

The particular measure had been implemented by the 4 open tenders announced in years 2011, 2013 and 2015 [3]. The activities within the 4th tender should be implemented until 26 June 2015 at the latest (Article 5.¹ of [3]). The Ministry of Environmental Protection and Regional Development (MEPRD) was responsible for the implementation of the measure, the responsible institution supervising implementation – state ltd. company “Latvian Environmental Investment Fund” (LEIF, *valsts sabiedrība ar ierobežotu atbildību “Latvijas vides investīciju fonds”*) [4].

Projects' applicants might be municipalities, municipal institutions and business entities having on their balance sheet the lighting infrastructure in municipal public territories. The beneficiary ensures that the given lighting infrastructure will be used for the purposes stated in the application at least 5 years after the completion of the project.

Financing. *The total support by CCFI within the four tenders constituted ~ 10.5 MEUR* (Table 1 of [13]). The maximum rate of support by CCFI had been stated 70%.

The maximum financial support for 1 project, provided by the CCFI, had been defined 498 thsd EUR for the 1st tender and 1423 thsd EUR for the following 2nd- 4th tenders. The threshold for minimum financial support for 1 project, provided by CCFI, had been stated 14.23 thsd EUR for the 1st tender and 21.343 thsd EUR for the following 2nd- 4th tenders.

The project's financing by CCFI was based on the principle of additionality, namely, to implement the project the beneficiary had not received a co-financing within the framework of other financing programmes (including the programmes of the national operational programme “Infrastructure and Services 2007-2013” co-financed by EU Structural Funds), from other financial instruments, European Union or foreign financial assistance resources for the eligible costs financed by the CCFI.

The eligible activities within the project included:

1. dismantling, replacing or reconstruction of existing lamps to provide the switch to energy efficient lighting (new energy efficient lamps should be installed or the parts of existing ones should be changed/renovated);
2. installation of new energy efficient lamps,
3. installation of automatic equipment¹ regulating and protecting lighting regimes¹,

¹ The activity was eligible only if it had been done in relation and together with the first two activities mentioned above.



4. installation of connecting cables between the regulating equipment and new installed lamps, not longer than 15 metres²,
5. change or reconstruction of existing support elements of lighting system (physical support constructions and fastening wires, distribution panels, cables and air wires, eligible within the 2nd – 4th tenders.).

Dismantling costs should not exceed 7%, assembling/installation works – 10%, costs of regulating equipment – 25% of the total eligible costs.

Only the additional costs necessary to reach higher energy efficiency were defined as eligible. Based on this condition, the eligible costs were calculated by subtracting so called “fossil base” which was defined as the number of new or changeable lamps multiplied by 28.46 EUR.

When evaluating the projects’ quality, the reduction of CO₂ emissions, the replacement of most non-effective incandescent lamps, luminous flux ratio to nominal capacity, efficiency coefficient of lamps’ ballasts, technical lifetime of lamps were taken into account (see Table 2).

Table 2. Layout of project’s quality evaluation criteria [3]

	Score
1. Reduction of CO ₂ emissions ²	
1.1. reduction of CO ₂ emissions in relation to the lighting capacity to be installed (<i>tons CO₂ annually / MW</i>)	0 - 10
1.2. reduction of CO ₂ emissions in relation to the requested financial support to be provided by CCFI (<i>tons CO₂ annually/ EUR</i>)	0 - 10
1.3. total reduction of CO ₂ emissions during the technical lifetime of the lamp (<i>tons CO₂</i>)	0 - 10
2. Rate of the co-financing to be provided by the project’s applicant (% of the total eligible costs of the project), <i>the level of applicant co-financing to receive the maximal score is above 50%</i>	0-10
3. Financial turnover of the project’s applicant	0 -2
4. Lighting infrastructure is/ is not on the balance sheet of the applicant more than 10 years	1-2
5. Technical sustainability: <i>the maximum score if the lamp may work without maintenance (excluding cleaning work of the lamp) more than 60000 hours.</i>	1-5
6. The full documentation of procurement procedure is prepared or only technical specification for procurement is prepared and submitted	1 -2
7. Replacement of energy non-effective lamps is included in the project; (a) <i>the project foreseen replacement / reconstruction of incandescent lamps – 10 points,</i> (b) <i>the project foreseen replacement / reconstruction of Hg lamps – 5 points,</i> (c) <i>the project foreseen replacement / reconstruction of Na lamps – 0 points</i>	0 – 10
8. Luminous flux ratio to the nominal capacity: (a) <i>higher than 70 Lm/W – 10 points,</i> (b) <i>corresponds to the interval 60 – 70 Lm/W – 5 points,</i> (c) <i>lower then 60 Lm/W – 0 points</i>	0 -10
9. Efficiency coefficient of lamps’ ballasts: (a) <i>higher than 90% - 10 points,</i> (b) <i>corresponds to the interval 80% - 90% - 5 points,</i>	0-10

² Point scoring procedure for the criteria 1.1.-1.3. is based on the comparison of the applicant’s submitted CO₂ emissions reduction values and the average arithmetic CO₂ emissions reduction values calculated taking into account all the projects which had passed administrative evaluation phase.



(c) lower than 80% - 0 points	
Total score available	3 - 81

A beneficiary is responsible for achievement of results specified in the project application and project contract, including reduction of CO₂ emissions. Beneficiary, during 5 years period after completion of the project, shall submit project results' monitoring reports. The monitoring year corresponds to full calendar year (01 January – 31 December). If the responsible institution determines that the financially supported lighting infrastructure is not used adequately and reduction of CO₂ emissions per year specified in the project contract has not been achieved, the responsible institution makes the decision regarding recognition of resources of the CCFI disbursed for the project as ineligible and commence recovery of that part of resources corresponding to the calculated non-conformity.

According [3] the CO₂ saving is defined as the difference between electric energy consumption before and after implementation of the particular project, multiplied by the specific CO₂ emission factor for electricity production and transmission:

$$C = C_{CO_2} \times (E_s - E_b), \text{ where}$$

$C_{CO_2} = 0,397 \text{ tCO}_2/\text{MWh}$; the specific CO₂ emission factor is determined as the emission factor of the last marginal power production unit, including transmission and distribution losses, which may be replaced by renewable technologies.

E_s – electric energy consumption by n number of lamps before the project's implementation, MWh/year;
 E_b – electric energy consumption by n number of lamps after the project's implementation, MWh/year.

Impact evaluation (methods and results)

The evaluation method – “bottom-up”, based on the data provided by the contracted projects. In total the 86 projects had been implemented.

Contracted CO₂ and energy savings. The total amount of contracted CO₂ savings of the 86 projects of whole programme (summing all four tenders) constitutes 3.898 thsd tons of CO₂ [6-9]. Thus it is expected the saving of ~ 9.8 GWh (0.035 PJ) electric energy annually.

Monitored CO₂ and energy savings. The CCFI 2017 monitoring report [13] indicates 3.724 thsd tons of CO₂ savings, reached in total 80 projects. In addition, for 6 projects the monitoring period has ended before 2017, for these projects the previous CCFI monitoring reports data – 0.238 thsd tons of CO₂ savings – might be used. Thus, **in 2017 the CO₂ savings of 3.962 thsd tons** might be accounted which corresponds to **10 GWh (0.036 PJ) electric energy savings**. One can see, monitored CO₂ savings is per ~ 1.6% higher than contracted CO₂ savings.

The total electricity consumption in Latvia Tertiary (commercial + public) sector in years 2011-2015 varied among 8.96-10.4 PJ (annual average ~ 9.8 PJ, [10]). Thus the impact of the measure can be evaluated ~ 0.33% and the semi-quantitative impact might be attributed as medium.

References

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