

Collection of existing financing mechanisms - case: Croatia

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1. INTRODUCTION

As any activity, energy renovation has its related costs, which vary according to the depth of the refurbishment, i.e. number and complexity of implemented energy efficiency (EE) measures. Therefore, any decision on energy renovation of a building must carefully evaluate these costs and ensure financing, in order to reap the benefits after the implementation.

The aim of this document is to present the possibilities for financing EE projects in the public sector and more specifically in schools. For that purpose, the most common and real-life financing model in Croatia, financed by EU grants, will be presented in chapter 2. Alternative financing models will be briefly presented in chapter 3, while in chapter 4 a comparative analysis of all mentioned financing models will be presented. On the end, the Project partners' feedback, current usage and planned usage of different financing models will be provided.

2. ENERGY RENOVATION OF BUILDINGS AND USE OF RENEWABLE ENERGY SOURCES IN THE PUBLIC SECTOR BUILDINGS (EU GRANTS)

This Call is financed by European Regional Development Fund under the "Operational Programme Competitiveness and Cohesion 2014 - 2020", priority Axis 4 "Promoting Energy Efficiency and Renewable Energy Sources", specific target (ST) 4c1 "Reduction of energy consumption of the public sector buildings". Main target groups and beneficiaries of ST 4c1 are public bodies/institutions/bodies (owner of public buildings).

The purpose of mentioned Call, which is conducted as an open procedure in the modality of a permanent Call, is to achieve energy savings or reduce energy consumption in public sector buildings. Energy renovation measures will be supported, which will result in a reduction of the energy for heating / cooling by at least 50% on an annual basis (kWh / yr), compared to the annual heating / cooling energy consumption before the implementation of the above mentioned measures and the use of renewable energy sources.

The total of 1.110.000.000,00 kuna has been secured from the European Regional Development Fund for the renovation of the public sector buildings. The lowest amount of the grant to be awarded for the financing of eligible costs of the project is 80.000,00 kuna, and the highest is 40.000.000,00 kuna.



Table 1 - Table of aid intensities

| Activities | The co-financing rate according to the development index of local and regional self-government units | | | | | | The maximum amount of eligible costs and / or grants per individual project proposal |
|---|--|-----|------------------------|---------------------|-----|-----------|--|
| | Coastal Croatia | | | Continental Croatia | | | |
| | I | II | III IV | I | II | III IV | |
| PROJECT DOCUMENTATION | | | | | | | |
| Development of the main project for energy renovation (and related studies if applicable) | 85% | 85% | 85%¹ | 85% | 85% | 85% | The maximum amount of eligible costs within this activity is 60,00 kn/m ² CGA ² . The maximum amount of grants that can be awarded for this activity is 400.000,00 kuna. |
| Energy inspection and energy certificate before renovation for buildings whose total usable area does not exceed 250 m ² | 85% | 85% | 85% | 85% | 85% | 85% | The maximum amount of eligible costs within this activity is 15,00 kn/m ² CGA. The maximum amount of grants that can be awarded for this activity is 3.200,00 kuna. |
| ENERGY RENOVATION | | | | | | | |
| Implementation of energy efficiency measures | | | | | | | The maximum amount of eligible costs within this activity is 2.500,00 kn/m ² CGA. The maximum amount of grants that can be awarded for this activity is 38.336.800,00 kuna. |
| Use of renewable energy sources | 45% | 40% | 35% | 60% | 55% | 50% | |
| Horizontal measures | | | | | | | |
| Expert supervision of construction | | | | | | | The maximum amount of grants that can be awarded for this activity is 1.150.000,00 kuna, and must not exceed 3% of the total value of works. |
| Project monitoring | 45% | 40% | 35% | 60% | 55% | 50% | |
| Occupational safety coordinator during the construction work | | | | | | | |
| Energy inspection and energy certificate after renovation | 85% | 85% | 85% | 85% | 85% | 85% | The maximum amount of eligible costs within this activity is 15,00 kn/m ² CGA. The maximum amount of grants that can be awarded for this activity is 50.000,00 kuna. |
| Project management and | 85% | 85% | 85% | 85% | 85% | 85% | The maximum amount of grants that can be |

¹ The percentages that refer to the Split-Dalmatia County are bolded and marked with light green color

² CGA - Construction Gross Area



| | | | | | | | |
|---|-----|-----|-----|-----|-----|-----|---|
| administration | | | | | | | awarded for this activity is 40.000,00 kuna. |
| Promotion and visibility of the project | 85% | 85% | 85% | 85% | 85% | 85% | The maximum amount of grants that can be awarded for this activity is 20.000,00 kuna. |

Eligible applicants within Call are:

- government bodies, ministries, central state offices, state administrative organizations and state administration offices in counties
- units of local or regional self-government
- public institutions or institutions performing social activities³
- religious communities performing social activities
- associations performing social activities and have public authority regulated by a special law

Eligible activities:

- Project documentation
 - Preparation of project documentation
 - Energy inspection of the building, preparation of a report on energy inspection of the building and on energy certificate
- Energy renovation
 - Renovation of the building envelope
 - Installing a new high-efficiency heating system or improving the existing one
 - Replacement of the existing DHW (domestic hot water) system that uses renewable energy sources (RES)
 - Replacing or installing a cooling system with high efficiency systems or improving existing ones
 - Replacement or installation of ventilation system with a high efficiency system or improvement of the existing one
 - Replacing interior lighting with more efficient one
 - Installation of photovoltaic (PV) modules for the production of electricity from RES
 - The introduction of automation system and building management

³ Social activities include pre-school education, primary and secondary education, higher education, formal adult education, scientific activity, theatrical activities, audio-visual activities, library activities, archival activities, museum activities, health activities, social welfare activities, administrative and / or office activity, judicial activity, sports activities, community housing, fire-fighting, protection and rescue and humanitarian aid activities



- Installation of remote readout system for energy and water consumption
- Horizontal measures
- Expert supervision of construction
- Project monitoring
- Service of occupational safety coordinator during the construction work
- Energy inspection of the building, preparation of a report on energy inspection of the building and on energy certificate
- Project management and administration
- Promotion and visibility of the project, etc.

In order for the project proposal to be acceptable it must meet certain criteria:

- 15 points for 1. criterion “The value for money that the project offers”,
- 1 point for 2. criterion “Financial Sustainability of the Project”,
- 12 points for 4. criterion “Projects design and maturity”,
- A minimum of 51 points for all criteria.

As previous mentioned, this Call is conducted as an open procedure in the modality of a permanent Call. The deadline for submitting project proposals began on January 15, 2018. The Call was temporarily suspended on February 5, 2018. Due to the lack of sufficient financial resources, the Call was closed on February 4, 2019.

Furthermore, it is considered that the mentioned Call may be re-activated in the foreseeable future (version 3 of the Call) or a new Call will be initiated with the same or similar conditions.

3. ALTERNATIVE FINANCING MODELS FOR EE PROJECTS IN THE PUBLIC SECTOR

In this chapter, a very brief general (not country related) overview of alternative financing models for EE in public buildings is given.

3.1. Own funding

Traditional financing of projects in cities and municipalities relies dominantly on the use of own budget. One of the financing challenges facing municipalities, more often for smaller municipalities rather than larger ones is the insufficient revenue base with which to fund projects (not only EE projects, but also other development projects as well). An insufficient revenue base, which may be the result of a small number of tax-paying commercial businesses and/or high-income residents, can reduce the availability of adequate funds for capital investments. Municipalities depending on revenue transfers from regional or national governments often have limited revenue-raising powers. Such limitations imply that any



decision to invest in an EE project either requires the municipality to reallocate funds or convince higher levels of government that the EE project is economically viable. This may often not be a simple task. Reliance on transfers from other levels of government also exposes municipalities to the risk that permitted levels and uses of funds may be affected by changes in national budgetary or political priorities. This introduces further uncertainties and makes commitment to multi-year programs of capital expenditures more difficult.⁴

3.2. Loan financing

When it comes to loans, i.e. borrowing, national governments often impose limits on borrowing by municipalities to prevent them getting into financial difficulties. These restrictions may take the form of limits on the use of loan funds and/or on the total amount that municipalities may borrow. In both cases, EE projects are likely to lose out, because they are not typical capital expenditure projects that can be readily assessed and approved by higher authorities. In addition, when debt ceilings are in place, EE projects, with relatively low public profiles, are likely to have a lower priority than other pressing or mandated needs.⁵

Soft loans are dedicated credit lines for EE measures extended to end users at preferential terms in terms of maturity and/or interest rates. Such credit lines are often provided by national or international development banks (such as European Investment Bank (EIB) and European Bank for Reconstruction and Development (EBRD) and are further distributed to designated markets through regional partner retail banks.

3.3. ESCO model

The terms “energy services”⁶ and “energy service companies (ESCO)”⁷ are already well known and established in the energy efficiency field. They were defined already in the Energy Services Directive (2006/32/EC). There are many initiatives to promote ESCO model in the EU, due to its potential to remove several important barriers to energy efficiency in public sector - availability of up-front capital needed for EE investments and lack of technical knowledge and capacities to develop, implement and monitor EE projects. ESCOs are companies that work on a basis of energy performance contracts (EPC). In an energy EPC arrangement, the ESCO is responsible for optimizing building services systems and system operations in existing buildings across all branches of construction and maintenance. The main service provided by the ESCO is a guaranteed level of savings over a defined period.

⁴ Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH: “CF4EE - Crowdfunding for Energy Efficiency”, October 2016, available at: <http://www.ieadsm.org/wp/files/2016-10-28-CF4EE-Feasibility-Study-final.pdf>

⁵ *Ibid.*

⁶ ‘Energy service’: the physical benefit, utility or good derived from a combination of energy with energy efficient technology and/or with action, which may include the operations, maintenance and control necessary to deliver the service, which is delivered on the basis of a contract and in normal circumstances has proven to lead to verifiable and measurable or estimable energy efficiency improvement and/or primary energy savings

⁷ ‘Energy service company’ (ESCO): a natural person or legal entity that delivers energy services and/or other energy efficiency improvement measures in a user’s facility or premises, and accepts some degree of financial risk in so doing. The payment for the services delivered is based (either wholly or in part) on the achievement of energy efficiency improvements and on the meeting of the other agreed performance criteria



Basic concept of EPC is shown in Figure Błąd! W dokumencie nie ma tekstu o podanym stylu.-1.

Before a tender is made, an energy cost baseline is determined for the building (or building pool) or facility. This is usually based on the energy consumption of the calendar year prior to commencement of the EPC, which is often also compared to the two preceding years in order to eliminate extreme climatic influences, usage fluctuations, etc. The evaluated baseline data is climate adjusted on the basis of mild or hot days (annual degree days). Proceeding from the energy cost baseline, the ESCO guarantees an annual energy cost savings (in EUR, calculated on a fixed price basis with the energy prices of the reference year) to the customer over the entire contract period. A fixed proportion of these guaranteed savings is set as the contracting fee, which the ESCO receives from the client to finance the investment, maintain the installations and attain a profit margin. Usually, the fee is set lower than the guaranteed saving in order for client to immediately benefit from savings.

Energy Performance Contracting (EnPC)

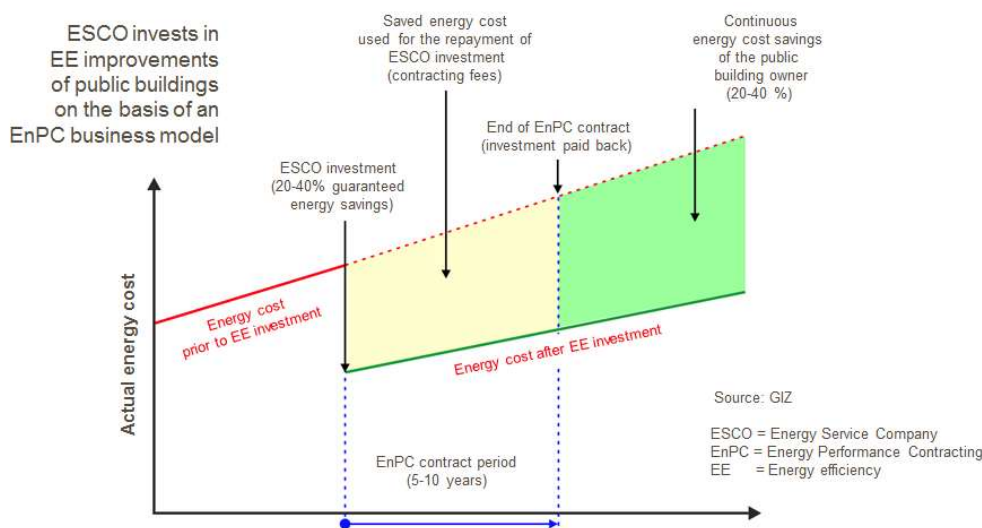


Figure Błąd! W dokumencie nie ma tekstu o podanym stylu.-1 - Basic concept of EPC and ESCO operation

In order to verify the annual energy savings, incurred energy consumption costs are converted into the reference year basis and then compared to the baseline during EPC bill audits. For the sake of ensuring this comparability, energy supply bills received by the client need to be adjusted for the following factors:

- deviations from the reference year in climatic conditions (annual degree days);
- changes in energy prices compared to the reference year (energy bills received by the customer must always be converted into the energy prices of the reference year);
- changes in building/facility usage compared to the reference year (insofar as these may cause energy consumption changes).



If the difference between the adjusted energy cost savings and the guaranteed cost savings is zero, the ESCO is exactly within the performance parameters of its contract. If the difference is greater than zero, contract over-performance sets in (savings are greater than guaranteed); in this case, the extra savings can be shared among the ESCO and the client. If the difference is negative, the ESCO has not achieved its savings goal and must reimburse the customer with the resulting difference (because, according to EPC, ESCO guarantees savings).

If energy prices rise, the energy cost savings of the customer increase (energy saved multiplied by energy Price increases). This delivers additional budgetary benefit for the customer.

Contractually agreed one-off payments at the beginning (e.g. investment or building cost contributions) or at the end of the contract term (redemption sum) are also possible. With this solution, higher investment costs do not necessarily lead to higher contracting fees or longer contract durations.

Financing of EE project may or may not be ensured by ESCO⁸. There are two basic cases:

1. Customer financings - this model is usually referred to as “guaranteed savings”. Here, an ESCO guarantees the outcome of investment in EE measures, but the customer (client) covers the whole investment and is responsible for accounting. This model is suitable if the customer has access to capital and if ESCO is a rather small company with limited balance sheet total.
2. ESCO financing - this model is usually referred to as “shared savings”. Here, ESCO provides the financing, and is thus also responsible for the accounting, for all necessary investment, normally by borrowing from a bank. The customer pays a fee to the ESCO for the services rendered and for investment payback. Under a shared savings EPC arrangement, the client participates in the energy cost savings from the start of the main performance obligation period. The level of a client’s share in cost savings must be stipulated in the contract. Typically, a client’s profit share is between 10% and 20% of the savings achieved. Profit-sharing from the start results in shared savings EPC contracts having longer periods than a fixed-term arrangement, being that the annual contracting fee available to the ESCO for refinancing investment costs is lower. The benefit is that the customer’s budgeted costs are directly reduced during the main performance obligation period of the savings guarantee agreement.

3.4. PPP model

A Public-Private Partnership (PPP) arrangement differs from conventional public procurement in several respects. In a PPP arrangement the public and private sectors

⁸ Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH: “Assessing Framework Conditions for Energy Service Companies”, September 2012, available at: <https://www.giz.de/fachexpertise/downloads/giz2013-en-esco-guide.pdf>



collaborate to deliver public infrastructure projects (e.g. roads, railways, hospitals) which typically share the following features:

- a long-term contract between a public procuring authority (the “Authority”) and a private sector company (the “PPP Company”) based on the procurement of services, not assets;
- the transfer of certain project risks to the private sector, notably with regard to designing, building, operating and/or financing the project;
- a focus on the specification of project outputs rather than project inputs, taking account of the whole life cycle implications for the project;
- the application of private financing (often “project finance”) to underpin the risks transferred to the private sector; and
- payments to the private sector which reflect the services delivered. The PPP Company may be paid either by users through user charges (e.g. motorway tolls), by the Authority (e.g. availability payments, shadow tolls) or by a combination of both (e.g. low user charges together with public operating subsidies).

The rationale for using a PPP arrangement instead of conventional public procurement rests on the proposition that optimal risk sharing with the private partner delivers better “value for money” for the public sector and ultimately the end user.

PPP arrangements are more complex than conventional public procurement. They require detailed project preparation and planning, proper management of the procurement phase to incentivise competition among bidders. They also require careful contract design to set service standards, allocate risks and reach an acceptable balance between commercial risks and returns. These features require skills in the public sector which are not typically called for in conventional procurement.⁹

3.5. Combination of different financing models

Usually, energy efficiency projects in public buildings combine two financing models. Rarely, more than two financing models are used. Research of usual practices in the Project Partner countries showed that dominantly grants (if available) are combined with own financing.

Recently, with the availability of EU structural and investment funds for energy efficiency across the MS, the blending of such funds with other financing models becomes increasingly interesting. The blending refers to combination of EU grants with other financing mechanism such as loans or ESCO/PPP model.

⁹ EIB European PPP Expertise Centre: <http://www.eib.org/epec/g2g/intro2-ppp.htm>



4. Comparative analysis of financing models

All financing models described above may be compared based on several important criteria as demonstrated in the Table below. There is no universally best solution, but for each particular situation (country, region, building) an optimal solution should be tailor-made.

TableBłąd! W dokumencie nie ma tekstu o podanym stylu. 2 - Comparative analysis of considered alternative models

| Criteria/ Model | EU GRANTS ¹⁰ | Own financing | Loan financing | ESCO model | PPP model |
|---|---|--|---|--|--|
| Neutral impact on government debt | 😊 | 😊 | 😞 | 😐 | 😊 |
| Administrative procedure complexity | 😐 | 😊 | 😐 | 😐 | 😐 |
| Guarantee of savings / service standard | 😐 | 😞 | 😞 | 😊 | 😊 |
| Capacities and capabilities of the public bodies to implement the model | 😐 | 😊 | 😐 | 😞 | 😞 |
| Estimated multiplier effect | 😐 | 😞 | 😞 | 😊 | 😊 |
| Projects for which the model is appropriate | More complex projects, with longer pay-back periods | Simple EE measures with short pay-back periods | Simpler EE measures with shorter pay-back periods | Highly complex projects, with moderate pay-back periods (up to 10 years) | Highly complex projects, usually with new buildings, long-term |

5. EXISTING FINANCING MECHANISMS IN CROATIA

5.1. Summary of available financing mechanisms

EE projects in the public sector in Croatia are supported through grants, loans and ESCO model, all based on the Government programmes for energy renovation of public buildings. The 1st Programme was adopted for the period 2014-2015 and was based on the combination of ESCO model with grant of up to 40% provided from the Environmental Protection and Energy Efficiency Fund. The 2nd programme envisages use of different financing models for energy renovation of public buildings. The dominant model is based on the EU grants ensured from the European Regional Development Fund. Grant rate is diversified by the development index of the municipality in which the project is being implemented - the more developed municipality is, the lower grant rate is available for that municipality. If the municipality is not able to ensure the financing for the rest of the investment costs, it is allowed to take a loan from Croatian Bank for Reconstruction and Development (HBOR), which is ensured also from the ERDF, and has very favorable interest rates of up to 0,5%. ESCO model is still underutilized in the public sector but increasingly considered, while PPP development is still in very early phase.

¹⁰ This refer to the Call “Energy renovation of buildings and use of renewable energy sources in the public sector buildings”



An overview of available financing mechanisms for EE projects in schools is given in Table below, while details are given in the Section 5.2.

Table 3 - Overview of financing mechanisms for EE projects in schools

| Criteria/ Model | EU Grants | Own financing | Loan financing | ESCO model | PPP model |
|----------------------------|-----------|---------------|----------------|------------|-----------|
| Availability | √ | √ | √ | √ | √ |
| Previous and current usage | - | - | - | - | √ |
| Planned usage | √ | √ | - | √ | - |

5.2. Detailed feedback on financing mechanisms

| 1. General information | | | | |
|---|--|-----------------|----------------------------------|----|
| Name of partner | City of Split | | | |
| Type and number of schools chosen for pilots | Primary | Elementary | College | |
| | 8 | / | / | |
| Who is the legal owner of schools | City of Split | | | |
| Who pays utility bills and regular maintenance for schools | City of Split | | | |
| What is the source for those costs | city budget, national budget | | | |
| Who is responsible for making decisions on implementation of energy renovation projects | City of Split | | | |
| What is the source for the cost of energy renovation | national, European budget | | | |
| Which department (sector, institution) is responsible for implementation of energy renovation (in public buildings) | Department for construction and development project management | | | |
| 2. Financing EE projects using EU grants | | | | |
| Is this kind of financing available for you? | Yes | | | No |
| | Source (national, EU funds, other) | Grant rate % | Max. amount of grant per project | / |
| | Name of grant, subsidy or incentive: Energy renewal and use of renewable energy sources in public sector | 35% / 85% | 5.405.405,41 € | |



| | | | | |
|---|--|---------------------------|-------------------------|---|
| | buildings <u>Name of institution responsible for disbursement:</u> Ministry of construction and physical planning <u>Source of funds:</u> ESI funds (ERDF) | for Split-Dalmatia County | | |
| Do you have plans to invest in EE projects in schools using this model | Yes | | | No |
| | No specific plans yet, but this possibility will be investigated. | | | / |
| Have you conducted EE project in schools co-financed by grants, subsidies or other incentives | Yes | | | No |
| | / | | | Lack of European and national incentives as a key spark for enrolling in such financing. |
| 3. Financing EE projects using own funds | | | | |
| Do you have funds in your budget allocated for EE projects in public buildings | Yes | | | No |
| | 150.000,00 € | | | |
| Do you have funds in your budget allocated for EE projects specifically in schools | Yes | | | No |
| | 120.000,00 € | | | |
| Have you already implemented EE projects in schools using own funds | Yes | | | No |
| | / | | | Lack of incentives. There would be more local projects if European and national funds would make energy efficiency public building renovation an acceptable activity and cost for co-financing. |
| 4. Financing EE projects using credit or loan funds (debt) | | | | |
| Is this kind of financing available for you? | Yes | | | No |
| | Source (commercial bank, development bank, other) | Interest rate | Repayment period | / |
| | Croatian Bank for Reconstruction and Development (HBOR) - EE loan for public buildings (ESCOs or public authorities) | Up to 4% | Up to 14 years | |
| | ----- HBOR ESIF EE loan - for public | ----- Up to 0,5% | ----- Up to 14 years | |



| | | | |
|---|--|--|--|
| | authorities that have already received grants from ERDF | | |
| Do you have plans to invest in EE projects in schools using this model | Yes | | No |
| | / | | Credit loans are not acceptable model of financing for City of Split in this area of planning. |
| Have you conducted EE project in schools financed by credit or loan funds (debt) | Yes | | No |
| | / | | Credit loans are not acceptable model of financing for City of Split in this area of planning. |
| 5. Financing EE projects using ESCO model | | | |
| Is this kind of financing available for you? | Yes | | No |
| | There are ESCOs operating in Croatia, so this kind of financing is available. There was a government programme for energy renovation of public buildings using ESCO model with subsidies up to 40% from Environmental Protection and Energy Efficiency Fund. | | / |
| Do you have plans to invest in EE projects in schools using this model | Yes | | No |
| | ESCO model hasn't been acceptable as much as it had been expected of it so far. There are indications of will of governing bodies of City of Split to take this kind of financing into consideration. | | / |
| Have you conducted energy efficiency project in schools financed by credit or loan funds (debt) | Yes | | No |
| | / | | ESCO model hasn't been acceptable |
| 6. Financing EE projects using PPP model | | | |
| Is this kind of financing available for you? | Yes | | No |
| | Yes, there is a legislative framework for PPP projects in Croatia. Its utilisation for EE projects in buildings is very limited. | | / |
| Do you have plans to invest in EE projects in schools using this model | Yes | | No |
| | / | | The procedures for PPP are too complicated. |
| Have you conducted energy efficiency project in schools financed by credit or loan funds (debt) | Yes | | No |
| | / | | / |