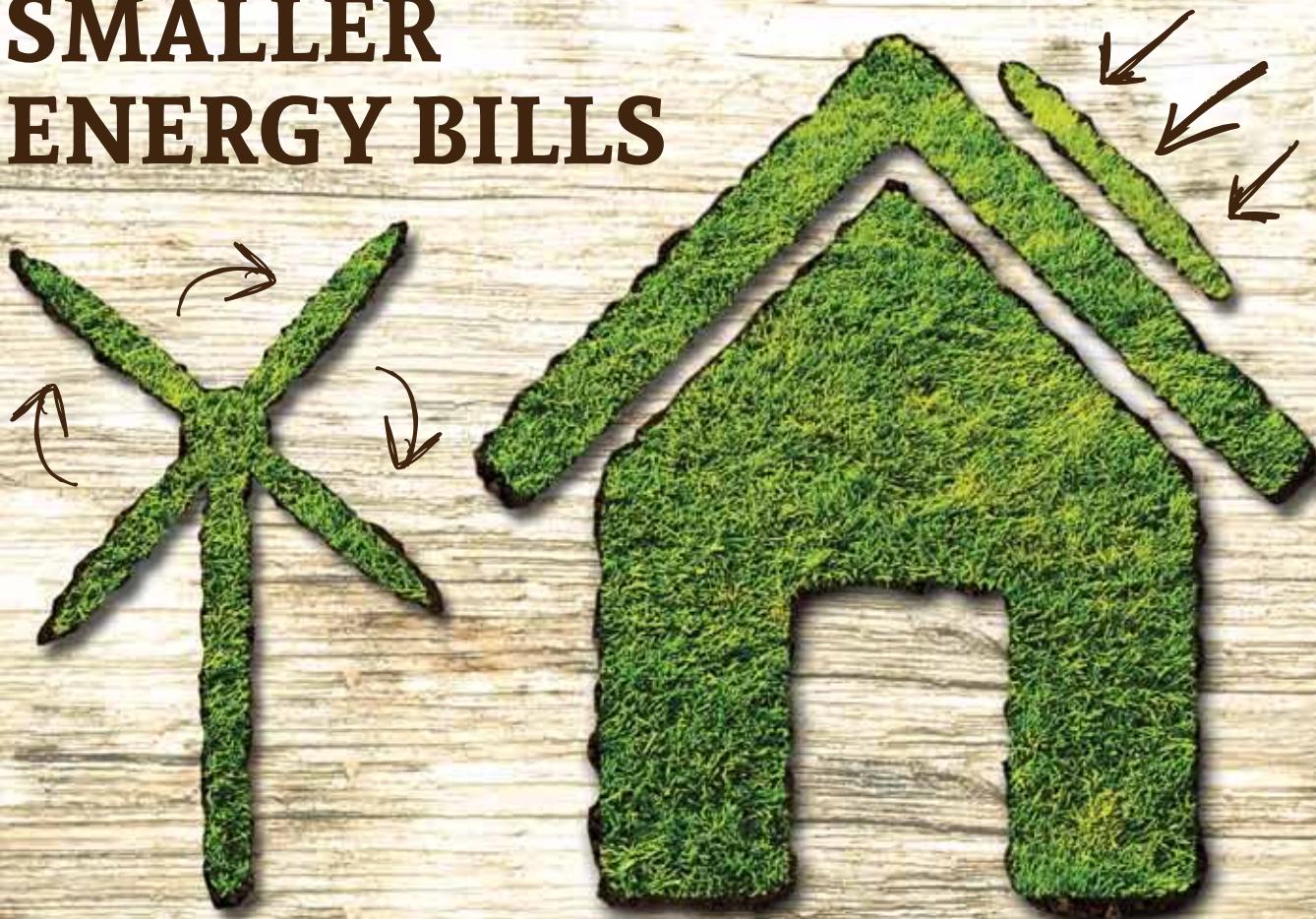


# **GREATER ENERGY EFFICIENCY, SMALLER ENERGY BILLS**



South East Europe  
Sustainable Energy  
Policy



EUROPEAN UNION

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# GREATER ENERGY EFFICIENCY, SMALLER ENERGY BILLS

## WHAT CAN LOCAL GOVERNMENT DO IN ORDER TO REDUCE CITIZENS' ENERGY BILLS?

Instead of building large energy compounds, such as big hydro plants or thermal energy plants, small steps towards energy efficient everyday life is certainly a big step towards sustainable future and an expression of concern for the environment. A **preserved kilowatt-hour of energy can be up to 10,000 times more cost-effective than producing a new kilowatt-hour of energy!**

The publication in front of you gives an overview of a number of models on increasing energy efficiency on a local level, in cooperation with all the stakeholders. In all of these models the lead is given to the public administration because their decisions are the most important and have the largest long-term impact. Local initiatives and activities are presented, as well as effective ways of implementing national and European programmes.

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### ***What does local government gain by increasing energy efficiency?***

- By restoring public buildings they meet the obligation under Article 18 of the Law on the efficient use of energy for direct use
- By increasing energy efficiency in the buildings, the construction sector is revived, the quality of life in the buildings is increased, and the level of informal economy is decreased
- Contribute to reducing energy consumption and CO<sub>2</sub> emissions
- Contribute to the realization of Croatian and European strategic goals
- Contribute to the increase of employment in „green“ jobs

# Supporting energy efficiency in Croatia

The „Supporting Energy Efficiency in Croatia“ project („EE project“) was launched in July 2005., as a joint project of the Ministry of Economy, Labour and Entrepreneurship and the United Nations Development Programme (UNDP) with the financial support from the Global Environment Fund (GEF), and later the Fund for the Protection of the Environment and Energy Efficiency. (FPEEE). The guiding principle of the project is capacity-building for the implementation and application of a systematic and continued energy management in all public sector buildings in Croatia. The main activities and results of the projects in six and a half years of active implementation are as follows:

- The Energy Charter was signed by 127 cities and 20 counties. The charter is a declaratory act that expresses a commitment to efficient energy management at the local level;
- In 77 cities and 16 counties **offices for energy management and EE teams**, with a total of **402 employees who actively monitor and plan** energy consumption have been established;
- In **82 cities and 19 counties** a preliminary

list of all the objects owned by the city/county has been made;

- Energy screening for more than 1.300 buildings has been carried out, triggering the realisation of **more than 150 projects** to improve energy efficiency worth more than **130 million kuna, and the total potential investment estimated at 1,59 billion kuna**;
- Through the Energy Management Information System (EMIS), nearly 4,500 buildings owned or used by cities and counties established the practice of regular control of energy costs through monitoring energy bills, while in over 1,500 buildings the energy consumption is monitored through energy and water meter readings twice a week;
- More than 5,800 local administrative staff has been educated on the need and possibilities for efficient use of energy
- In 47 cities and 12 counties, 107 so called EE info points have been established – a place where citizens can be informed on the possibilities of improving energy efficiency.

## INTERESTED?

The project „Energy Management System in the Cities and Counties in Croatia“ (SGE project) has been recognized as a project of national interest and a way of fulfilling the existing legal obligations. If your city is not yet included in this project, the first step is to contact the project office<sup>1</sup> and sign a letter of intent, which will further regulate the activities to be carried out in the city. You will receive all the technical support needed to establish an organizational structure and procedures for monitoring and planning energy consumption from the project team, therefore providing for the possibility or energy costs (covered by the city budget) reduction up to 20 percent. More information at <http://ee.undp.hr/sge>

# City of Koprivnica – low-energy city

The city of Koprivnica was the first in the Republic of Croatia to adopt a decision on the construction of low-energy housing project. According to the detailed development plan for the zone DPU „Lenišće – East Zone“ a construction of seven apartment buildings energy class A + is planned. So far, two buildings have been constructed, so-called houses of savings, with a total of 56 apartments.

The city of Koprivnica has adopted a decision to lower the communal contribution in order to encourage the building of passive and low-energy houses. With the exception of the City of Koprivnica, this policy has been implemented only in Ivanić Grad. The city of Koprivnica provides the following incentives to the investors:

- to build a passive house or energy class A + residential building an incentive amounting to 100% of communal contributions;

- to construct a low energy building in the energy class A, an incentive amounting to 50% of communal contributions;
- to construct a solar system, or facilities for the production of energy from solar sources, and which are placed on rooftops, or other parts of existing buildings, an incentive amounting to HRK 4 per installed watt of power.

Given the fact that paying the communal contribution is the largest financial cost in the process of issuing building permits, the significance of a measure providing incentives covering up to 100% of communal contribution for the construction of passive houses is clear. If the investor adds, to these funds, the savings realized through the use of a passive housing, it becomes clear that his measure allows for the construction of passive houses, for nearly the same investment as for the conventional construction.

## INTERESTED?

Since these measures have been in place, 12% of family houses and as much as 67% of newly-constructed apartment buildings in Koprivnica are energy efficient class A or A + buildings. The local government is well prepared for the implementation of EU legislation, all public buildings that are being built or are being renovated are low-energy buildings and interested citizens can get all the relevant information.

# The City of Bjelovar for energy efficiency

In 2012 the city of Bjelovar launched a project for co-financing facade renovation and joinery replacement that was continued in 2013. The project foresaw subventions for building/restoring facades and building/replacing joinery amounting up to 40 percent of the investment, or up to a maximum of 20.000kn. Some of the special aspects of this project are:

- The thermal isolation of the complete outer envelope is encouraged. A replacement of just a part of the joinery is exceptionally allowed however the subvention is then reduced to 20% or amounting to a total of 10.000 kuna;
- the conditions for realising the subvention are more stringent than the minimal requirements for thermal isolation and windows then proscribed in the Technical Regulations on energy and thermal protection in buildings (Official Gazette no. 110/2008, 89/2009, 79/2013);
- the award criteria takes into account the usable space and the number of users in the building, the scope of the proposed measures and the existing condition of the building;

- the measures are encouraged in both newly constructed and in existing buildings;
- the subsidy beneficiaries receive a Decision on participating in the project, which allows them to pay the contractor only for the expenses that are not being subsidized, while the City directly pays to the contractor the amount of the total subvention;
- the City has entered into framework agreements with local partners in the project – joinery manufacturers and contractors – in which subsidy beneficiaries by presenting the Decision on participating in the project can receive additional discounts;
- the citizens whose applications meet all the requirements, but due to limited resources were not awarded subsidies, can obtain a Certificate of participation in the project, with which they receive additional discounts with local partners in the project.

The City of Bjelovar ensures the funds for this program through the Environmental Protection and Energy Efficiency Fund as well as through the city budget.

## INTERESTED?

The City of Bjelovar is an example of the use of energy efficiency as a mechanism for achieving two goals: improving citizens' living conditions and encouraging local entrepreneurship. Terms of the tenders are publicly available and are easily applicable for other local governments, taking into account the possible climate differences. The first step in replicating these practices is most definitely a political decision on the allocation of funds from the city budget, which is a prerequisite for obtaining additional funds from the Environmental Protection and Energy Efficiency Fund. Also, prior to the tender, it is necessary to publically promote the program and to collaborate with the local entrepreneurs. More information at <http://www.rerabbz.hr>

# ZagEE – Zagreb energy efficient city

The city of Zagreb through the City Office for Energy, Environment and Sustainable Development and in cooperation with the Regional Energy Agency for the Northwest Croatia (REGEA) submitted a project – Zagreb energy efficient city in MLEI (Mobilising local energy investment<sup>1</sup>) call for proposals in 2012. The implementation of the project started in April 2013 and will end in late March 2016.

The project is worth around 1.8 million Euros, of which 75 per cent is provided by the European Union. The resulting grants will be used for the preparation of project documentation, obtaining the necessary permits and funding from the banks and EU structural funds. The implementation of the foreseen projects will require investments of around € 29.4 million. Funding

for the implementation of the foreseen projects will be secured, by the City of Zagreb, from the EU Structural Funds and loans from the European Investment Bank as well as the Croatian Bank for Reconstruction and Development and in small part from the city budget.

The project ZagEE includes the replacement of 3,000 street lights with LED fixtures with control system, restoration of 87 buildings owned by the City through the implementation of energy efficiency and renewable energy mechanisms. The implementation of the project will achieve total annual energy savings of around 32 GWh, 290 MWh of electricity will be produced from renewable energy sources and CO2 emissions will be reduced by over 8,000 tons per year.

## INTERESTED?

The example of the ZagEE project is an example of good practice which can be followed by other local and regional self-government. However, it should be noted that the first step is adopting appropriate strategic documents, such as the Action Plan for Sustainable Development of a city/region (SEAP: Sustainable Energy Action Plan), in which such activities will be clearly defined. The existence of these strategic documents with clearly defined priority measures is a prerequisite for application to MLEI and other similar EU programs. More information at <http://eko.zagreb.hr/default.aspx>

<sup>1</sup> More information on the MLEI program can be found at: [http://ec.europa.eu/energy/intelligent/getting-funds/project-development-assistance/index\\_en.htm](http://ec.europa.eu/energy/intelligent/getting-funds/project-development-assistance/index_en.htm)

# State subsidies for the local level

More information at <http://www.fzoeu.hr>

The Environmental Protection and Energy Efficiency Fund (EPEEF) launched a program of cooperation with the Local and Regional Self-Government Units (LRSGU) for joint financing of energy efficiency and renewable energy in households. In addition the EPEEF can authorise financial assistance amounting to 40 percent of eligible investment costs. The maximum amount per project for a single family home depends on the type of the project, and typically ranges from 12.000 to 30.000 kuna (including VAT) .

To participate in this program, LRSGU must apply to a EPEEF tender, and provide own resources for the projects in the amount of at least 10% of eligible investment costs. Eligible costs under this program are related to the

cost of equipment and works that incur after the date of publication of the tender. So far, the following types of energy efficiency and renewable energy projects for households have been co-financed through the cooperation of the EPEEF and the LRSGU:

- The system for the remote reading of the electronic distributor of thermal energy and thermostatic valves;
- Construction/reconstruction of facades and building/reconstructing joinery;
- Solar thermal collectors for hot water or hot water and heating support;
- wood chip/pellet boilers or wood pyrolytic boilers for hot water and heating;
- a system of photovoltaic collectors and accumulators for generating own-use electricity;
- systems of wind turbines and batteries to generate electricity for own-use.

## INTERESTED?

The EPEEF program allows all LRSGU to provide their citizens with financial assistance for improving energy efficiency. In order to spread this good practice, the EPEEF must further improve the promotion of this program. Thus, a public campaign is suggested, in which EPEEF should, together with the LRSGU that have experience in participating in such a program, target new potential participants in order to transfer their experiences and provide information about the activities that need to be undertaken in order to realise this form of cooperation. On the other hand, the LRSGU must make a political commitment on allocation of funds from their budget to subsidies additional household energy efficiency projects.

# Green Public Procurement

Green Public Procurement is a type of procurement ensuring that during their lifespan the goods, labour or services have a reduced impact on the environment and equal or better quality in comparison to the conventional procurement. Green procurement requires an estimate of the total revenues and expenses throughout the life of an asset, such as the costs of operation, maintenance, energy, decommissioning and disposal.

At the EU level, Manuals on environmentally-friendly public procurement have been developed (and are available in 22 languages). Most member states have developed national action plans for the implementation of green public procurement.

Croatia is one of six member states (along with Estonia, Greece, Hungary, Luxembourg and Romania), whose national action plan and instructions are not available from the pages of the EU, but has, as a part of the project within the framework of promoting energy efficiency in Croatia, published a manual for sustainable public procurement. The manual contains instructions for specific products and services (buses, cleaning and maintenance, electricity, food, computer equipment).

An example of purchasing a printer, which takes into account life expectancy and usage, shows that the cost of the printer should not be the deciding factor for the purchase. Assuming that the printer is used to print 20,000 pages a year, and depreciation period is five years, the largest life cycle cost will apply to cartridges. In this mode of operation more energy will be

consumed for stand-by than for useful activities. In this case, the cost of a cartridge as well as energy consumption in standby should influence the decision to purchase a printer.

The examples of good practice for green public procurement provide insight into possible technical specifications and selection criteria which do not discriminate, and at the same time allow for the development of local entrepreneurship and contribute to environmental and social objectives. In addition to the products and services where energy consumption is a significant characteristic (lighting, heating, cooling, cars, buses) green public procurement can be applied to other areas, such as food or clothing.

For instance, in the Scottish region of East Ayrshire, green public procurement has been implemented since 2008 for the procurement of food for the 44 primary and 9 secondary schools. The changed purchasing criteria has enabled the implementation of better nutritional standards and has reduced the amount of processed foods, reducing the amount of packaging and redirecting communities towards organic production.

Technical specifications included labels of organic origin, compliance with regulations on animal welfare, the HACCP system, and issues related to transportation and manufacturing. Criteria for selection included the price (50%), the ability to respect deadlines (15%), the quality and type of food (15%), treatment of food (10%) and use of resources (10%). The crite-

ria shift resulted in a significant increase in usage of fresh, unprocessed and organic food. The price of the meal increased, however there were significant multiply effects: for each euro invested the local community gained six euro through the impact on the employment, environment, health and social benefits. The significant increase was noted in the number of children eating at school and more than 70% of purchased food is locally produced, although this was not required in the tender. The same is true for procurement at the national level. Among the examples of good practice

identified by the European Commission is the acquisition of naval uniforms in France. Previously, the key selection criteria were quality (60%) and price (40%). The offers were largely of the same quality, and thus the price was the determining factor. Since 2010. selection criteria that includes quality (45%) price (35%) and sustainability (20%) is applied. Sustainability means that during the production of a uniform key Conventions of the International Labour Organisation are respected, which consequently excluded a significant number of bidders and gave an advantage to the local producers.

### INTERESTED?

Because of the Croatian accession to the EU, the Public Procurement Act has been amended (Official Gazette No. 83/13), and thus the same thresholds applies in Croatia as in the EU. The Guidelines for the selecting of the best offer allows for the use of a relative model in defining the economically best offer. The most economically advantageous offer, as presented examples of good practice show, is not necessarily the cheapest one. Existing guidelines for choosing the best offer do not include examples that include energy efficiency criteria. Examples of good practice identified by the European Commission could assist in defining capability requirements and criteria for selection of the most economically advantageous offer to promote local development, and are at the same time transparent and non-discriminatory. More information at [http://www.javnabava.hr/userdocsimages/userfiles/file/Smjernice/Smjernice\\_01-ENP.pdf](http://www.javnabava.hr/userdocsimages/userfiles/file/Smjernice/Smjernice_01-ENP.pdf)

# European examples

Buildings are large energy consumers. In Croatia, this makes for approximately 40% of total final consumption, which is comparable with the level of consumption in the European Union. Increasing energy efficiency of buildings encourages the development of the construction sector and increases the quality of life in those buildings. Therefore, at the EU level, financial support for energy efficiency of buildings is provided, and most member states have introduced various support schemes. Below, we will present two models that have proven successful – the Latvian model, which includes the use of European funds, and tax deductions that are being implemented in Italy.<sup>1</sup>

## LATVIA

The Latvian National Operational Programme „Infrastructure and Services for Realising Priorities“ launches measures for energy-efficient housing. Regional Energy Agency ZREA launched a project for the renovation of apartment buildings in Zemgale which has a population of about 163,000 inhabitants, making up 15 % of the population of Latvia.

The first step was an information and communication campaign and ensuring technical assistance in order to raise awareness about the building renovation. Seminars and separate meetings with the co-owners of the buildings were held, emphasising the better living conditions, increased property value and energy savings up to 40%, which implies a significant

reduction in energy bills. These activities were proven crucial for convincing the owners of the importance of renovating the buildings.

The co-owners decide on the extent of renovations to be implemented. Typical undertaken measures are thermal insulation of external walls, roof/top floor, changing doors or stairs, a system for closing the door automatically, replacing windows, improving ventilation (cleaning the ventilation system, heating, etc.).

If a decision is made to continue the process, the cost of renovation measures is estimated. If 50% + 1 co-owner accepts the proposed renovation, a project application is written (with the technical assistance of ZREA), in order to provide for co-financing from the European Regional Development Fund (ERDF). The ERDF may co-finance up to 50% of the cost of renovation, to a maximum of 50 euro per m<sup>2</sup>. The rest are own resources, mainly 8 to 12 year bank loans. Monthly installments of approximately 45 euro are almost completely compensated by the energy savings. The program so far covered 60 buildings with an average of 45 apartments (ranging from 20 to 120 apartments per building). The main results are energy savings (approximately 40%) and the reduction of CO<sub>2</sub> emissions (about 40%).

## ITALY

In 2007 Italy introduced a 55% tax deduction for projects improving energy efficiency of exi-

<sup>2</sup> Za dodatne primjere pogledati [http://ec.europa.eu/energy/efficiency/buildings/doc/local\\_investments\\_energy\\_efficiency\\_built\\_environment\\_case\\_studies.pdf](http://ec.europa.eu/energy/efficiency/buildings/doc/local_investments_energy_efficiency_built_environment_case_studies.pdf)

sting buildings, to a maximum cost of 96,000 euros. This applies to thermal insulation, installation of solar panels, replacing heating and cooling systems or comprehensive renovations.

The measure was presented as a measure for combating „gray“ economy, since it is estimated that about one third of gross value added in construction is not reported. In 2009 nearly half of the projects submitted for the tax deduction (115,000 projects out of a total 240,000) were focusing on one of the most commonly unreported construction activity – window replacement, and the total value of these investments amounted to 2.1 billion euros.

The total cost of tax deduction was 0.13 euros / kWh of energy savings, however the estimates show that the benefits outweigh the costs. The total net benefit of tax deductions in the 2007-2010 period is estimated to around 4 billion euros. At the same time, the cost to the state, (i.e., less taxes collected) is estimated at

6.5 billion euros, whereas the benefits to the state (tax that is collected, without tax deduction these activities would go unrecorded) in the amount of 3.3 billion euros, an increase in property value up to 3.8 billion euros and energy savings of 3.2 billion euros.

The effects on employment, reduction of emissions and costs that would result from going beyond the Kyoto Protocol targets are not quantified. In addition, it should be noted that during the crisis, the construction sector in Italy experienced a smaller decline (8% of gross value added, 11% of employees) than the EU average (12% of gross value added, 11% of employees).

In May 2013 the tax deduction was increased to 65%, however it has been announced that this measure will not be continuing in 2014 due to fiscal constraints.

### INTERESTED?

Good practice examples show that careful preparation is a key for successful implementation. The Latvian example shows the necessity of adjusting the national programs to the local needs, and the importance of having the capacity for good preparation, including consensus building. Although the continued implementation of tax incentives in Italy is in question, the elements for assessing the fiscal burden in relation to the expected benefits is available. In Croatia, the Program for energy renovation of the public sector buildings 2012-2013 was presented without sufficient preparation, it was too ambitious, and therefore could not achieve the expected results. On the other hand, with the cancelling of the tax deductions for the housing needs in the 2010 in Croatia and the announcement of the introduction of real estate taxes, the attention was almost exclusively paid to the fiscal effects while the effects to the energy efficiency issues were completely ignored. Therefore, for the effective implementation, careful preparation, including assessment and monitoring of the effects, is crucial. More information at [http://ec.europa.eu/environment/gpp/pdf/national\\_gpp\\_strategies\\_en.pdf](http://ec.europa.eu/environment/gpp/pdf/national_gpp_strategies_en.pdf) and <https://ee.undp.hr/assets/files/shared/list/procura.pdf>

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