



REPORT

on status quo of EPC markets in the City of Zagreb

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1 Conditions of EPC implementation

1.1 Potential of EPC implementation in the City of Zagreb

The City of Zagreb is the capital of the Republic of Croatia with a population of approximately 800.000 inhabitants, according to the 2011 population census. The City of Zagreb has become a signatory of the Covenant of Mayors in 2008 and has adopted its Sustainable Energy Action Plan (SEAP) in 2010.

According to the data presented in the Zagreb SEAP, approximately 7.500 GWh or 65% of total energy consumption is attributed to the building sector. Out of the total consumption of buildings approximately 7,5% or 550 GWh accounts for public buildings owned or operated by the City of Zagreb. In total there are over 1.700 public buildings in the City of Zagreb, while the average energy consumption for heating purposes in Zagreb public buildings ranges from 150 to over 300 kWh/m², with the highest energy consumption for buildings in the health sector.

Considering the mentioned figures it can be concluded that there is a rather high potential in the City of Zagreb for public buildings retrofitting and certainly a large part of these could be realised through the energy performance contracting model.

Looking at the national level, according to the Draft Programme of retrofitting of public buildings developed and coordinated by the Ministry of Construction and Physical Planning, the number of public buildings owned by various ministries of the Croatian Government as well as other Croatian cities and counties which are suitable for EPC model implementation is estimated at 400 with a total heated area of approximately 1.000.000 m² and total estimated needed investments of 1,125 bil kn (approximately 150 mil eur).

1.2 Existing Energy Efficiency Documents for the City of Zagreb

The City Assembly of the City of Zagreb has officially adopted the following documents related to energy efficiency:

- Sustainable Energy Action Plan (SEAP) for the City of Zagreb, adopted in April 2010;
- Programme of Energy Efficiency in Final Energy Consumption for the City of Zagreb for 2010 to 2012;
- Plan of Energy Efficiency in Final Energy Consumption for the City of Zagreb for 2011;

The update and revision of the City of Zagreb SEAP has been undertaken in January 2013 and includes the addition of the industrial sector to the already covered buildings, transport and public lighting sector. The official adoption by the City Assembly is expected by summer of 2013.

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Currently the Programme of Energy Efficiency in Final Energy Consumption for the City of Zagreb for 2013 to 2015 is in preparation and is expected to be adopted by October 2013.

The preparation and adoption of the Programme and Plan of energy efficiency is specified as a requirement for all Croatian counties including the City of Zagreb (regional government level) within the Law on Rational Use of Energy in Final Energy Consumption (O.G. 152/08, 55/12).

All mentioned documents are in line with National Programme on Energy Efficiency for 2008 to 2016 and the First National Action Plan on Energy Efficiency for 2008 to 2010 and Second National Action Plan on Energy Efficiency for 2011 to 2013 which were all adopted by the Croatian Government.

Within the mentioned documents of the City of Zagreb one of the most important measures regarding increasing energy efficiency is the reconstruction of buildings, both residential and non-residential (public and private). The total planned investment in measures related to public buildings retrofitting by 2020 amount to approximately 550 mil kn (74 mil eur). The measures define various options for financing the reconstruction of buildings and ESCOs are specified as one of the possible options.

Looking at the strategic documents and activities at the national level, apart from the already mentioned national programme and action plan, the Government of the Republic of Croatia has created a special agency entitled Center for Monitoring Business Activities in the Energy Sector and Investments - CEI (www.cei.hr) through the adoption of special Law. The main goal of CEI is to enable the transparent administration, monitoring and implementing of the energy strategy of the Republic of Croatia, and in a systematic manner to cover and provide support in managing investments of the state and of state-owned companies. Among other activities, CEI is in charge of implementing the Programme of retrofitting of public buildings initiated by the Government, and as such also prepares tenders for reconstruction of public buildings owned by the state based on the EPC model. However, so far the number of implemented EPC projects in public buildings through the CEI tenders is of a very limited level, as presented in chapter 1.5. Barriers to EPC implementation.

1.3 Potential target groups and buildings for EPC implementation

Public sector

Potential buildings for reconstruction through EPC model in the public sector within the City of Zagreb include all public buildings owned and operated by the City of Zagreb.

It is important to mention that the City of Zagreb is coordinating the project IEE MLEI ZagEE (full acronym Zagreb – Energy Efficient City) which started in April 2013. The main objective of the project is the reconstruction of 87 public buildings as well as a large part of the public lighting system in the City of Zagreb. Project activities include the preparation of necessary documentation for reconstruction of buildings (main project design, detailed project design), obtaining the necessary permit and starting the tender procedures for the reconstruction. The financing of the

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reconstruction is planned through a combination of own funding from City of Zagreb, loans and EU funding, while ESCOs are also mentioned as a possible option. However, as stated in the ZagEE project description, currently there is a lack of quality ESCOs and certain legal barriers still exist regarding EPC model implementation (more details are provided in this document in the chapter on barriers to EPC).

A second target group could be public buildings owned and operated by the Government of Croatia, since all government ministries and many of the national agencies are located in the City of Zagreb. Even though this target group is not the primary focus of the EESI2020 project, all relevant ministries and national agencies will be regularly informed regarding the EESI2020 activities and progress and possible cooperation opportunities will be investigated.

Private sector

The consumption of the private sector buildings (households, commercial sector) in the City of Zagreb amounts to approximately 6.950 GWh and is over 12 times higher than the public sector. As such the potential for EPC implementation within this target group is considerably higher than the public sector.

1.4 Attitude of the local/regional authorities to EPC

The attitude of the City of Zagreb authorities toward EPC implementation in public buildings is generally positive and supportive. However, the main barriers to EPC implementation (described below) cannot be directly resolved by City of Zagreb initiatives and as such a wider consensus is needed at the national level.

1.5 Barriers in EPC implementation

In June 2012 the Government of the Republic of Croatia adopted the *Regulation on contracting and implementation of energy services in the public sector (O.G. 69/12)* which defines modalities of energy services contracting, obligations of energy services providers and clients, content of energy services contracts and other important aspects for the development of the EPC market. However, in practice the implementation of all topics covered within the regulation is still lacking coordination between different governmental ministries and some barriers to EPC implementation still remain.

One of the most important barriers for EPC implementation in public buildings owned by municipalities, cities and counties prior to the adoption of the mentioned regulation was the treatment of investments made by ESCOs as public debt. This meant that even in the case that the total project investment in a public building was covered by an ESCO, for municipalities, cities and counties this still counted as public debt which is limited according to a special law. However, even though the governmental regulation prescribes that ESCO investments are not counted as public debt anymore, the Ministry of Finance still has to approve every project and the procedure of approval and the necessary documentation is the same as if the project was counted as public debt.

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This in practice prolongs the procedure of EPC project implementation for municipalities, cities and counties for a few months. Furthermore, in several instances where cities were ESCO clients the Ministry of finance issued negative decisions.

Another main barrier to EPC implementation prior to the adoption of the Regulation on contracting and implementation of energy services in the public sector was the situation with financing the energy expenses of schools, hospitals, social care institutions and fire fighting institutions. Local and regional authorities (i.e. municipalities, cities and counties) have to pay the energy expenses for the mentioned types of institutions, while the Government provides additional financial support for these expenses. According to the *Law on financing of local and regional authorities (O.G. 117/93, 69/97, 33/00, 73/00, 59/01, 107/01, 117/01, 150/02, 147/03, 132/06, 26/07, 73/08, 25/12)* the Government of the Republic of Croatia each year adopts a special regulation which defines the method of calculating the financial support for municipalities, cities and counties related to the payment of operating expenses of mentioned institutions (*Regulation on the means of calculating financial support for levelling of decentralised functions for local and regional authorities for year 2013 (O.G. 29/13)*). The calculation of the financial support is based on various factors, for example for elementary schools on number of pupils, classes and schools for each municipality, city or county. However, the energy characteristics of a particular school are not taken into consideration. According to the rules within the financial support regulation, in the case that for example schools (the statement is also valid for other mentioned types of institutions) within a particular municipality, city or county do not spend all the funds envisaged for operating expenses calculated according to the regulation, the surplus has to be paid back to the state budget account. The Regulation on contracting and implementation of energy services in the public sector stipulates that in the case of EPC projects payments to ESCOs can be treated as operating expenses, thus enabling the principle that the savings can be used to repay the investment. However, after the expiration of the contract with the ESCO, if a client is a city, municipality or county, savings are in essence paid back to the state budget. Another problem with the presented financial support mechanism is that it basically de-stimulates energy savings achieved through behaviour change of building users, in which case the savings should again be paid back to the state budget.

It is important to note that this issue is not relevant for kindergartens, as these institutions are not included in the decentralised financing scheme.

The issue of decentralised financing of expenses is especially critical for the City of Zagreb, considering that in October 2012 the Ministry of finance of the Republic of Croatia issued an administrative ordinance requiring that the City of Zagreb should pay back 337,5 mil kn (approximately 45 mil eur) of unspent expenses for years 2008 to 2011. The City of Zagreb in turn filed a court appeal on the ordinance of the Ministry of finance, and it is expected that the final verdict on this issue would be made by the Constitutional Court of the Republic of Croatia.

Another barrier related to the Ministry of finance that has recently been resolved is the treatment of VAT within EPC projects. Only recently (by end of 2012) has the EPC model been recognised as an individual business model providing a service and not as delivering goods. In the past ESCOs needed

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to pay the VAT on the total equipment value at the moment of installing the equipment and could not invoice their services as a package. This in turn led to higher price of ESCO services.

Overall it can be stated that the EPC market in Croatia is rather underdeveloped, which is especially illustrated by the following conditions/barriers:

- Lack of companies specialised in providing energy services;
- Lack of credit potential/equity of companies interested in providing energy services.

According to the information from the official website of the Center for Monitoring Business Activities in the Energy Sector and Investments - CEI (www.cei.hr), up to 29 April 2013 for only 5 buildings a contract has been signed and 2 more are ready for contract signature. For 12 buildings tenders were launched but no offers were received. These numbers are many times lower than the ones originally planned and announced at the beginning of 2012 by the Ministry of Economy and Ministry of Construction and Physical Planning and illustrate the status of underdeveloped EPC market in Croatia. One of the main reasons stated for the slow start-up of the programme was the lack of energy audits undertaken for public buildings (which are an essential part of the EPC tender documentation), even though this was prescribed as an obligation up to 31 December 2012 for all buildings with area above 1.000 m².

Other important barriers to EPC implementation in Croatia in general are presented in the ESCO Status Report 2010 prepared by the EC JRC (Marino et al, 2010). Even though this report was prepared in 2010, most of the identified barriers are still valid today and can be summarised as follows:

- Lack of appropriate project financing for EPC type projects;
- Mistrust from clients, small size of projects;
- Decision making process very long in public entities, resulting in high transaction costs;
- Solvency problems of private customers, as result of the economic crisis still present in Croatia;
- Potential clients perceive the price of EPC services as high;
- EPC market in Croatia is generally undeveloped, with only a few companies providing energy services, which also corresponds with a lack of knowledge and lack of trust.

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2 Position of the EPC implementation

2.1 Existence of basic instruments for EPC

Due to the undeveloped EPC market in Croatia, there are no publicly available documents in Croatian like standard contracts, manuals, guidelines, technical standard documents, measurement and verification procedures and similar. In this regard the EESI2020 project will be especially useful for Croatian institutions and companies.

2.2 Existence of EPC (Energy Services Companies)

Survey of existing ESCOs

In Croatia EPC was first mentioned within an Energy Efficiency Project started in 2005. The project was initiated by the World Bank (IBRD) and the Global Environmental Facility (GEF) in collaboration with the Croatian Electricity Company (HEP) and the Croatian Bank of Reconstruction and Development (HBOR). The total value of project with the participation of local banks is estimated at 40 mil eur over a period of six years. At start-up of the project, the activities focused on institutional and capacity building of Energy Service Company - HEP ESCO Ltd., created in 2002 as a daughter company of HEP (national electric utility company owned by the Government of Croatia). Within the framework of this project HEP ESCO received a loan by the World Bank in the amount of 4,4 mil eur as well as a GEF grant in the amount of 5 mil USD.

With the mentioned initial financing, until 2009 HEP ESCO has implemented more than 50 energy efficiency projects in different sectors (buildings, public lighting, industry, energy supply). However, it is important to point out that almost all of these projects are not pure EPC type projects in the sense that payment is based on a fixed level of energy savings which was defined at the time of contract signature based on project documentation. In other words, energy savings are not verified and monitored during the term of the contract and there are no savings guarantee offered. In the last few years there has been a sharp decrease of projects implemented by HEP ESCO and the main issue mentioned by many potential clients was the high price of their services and the required up-front payment coupled with the lack of savings guarantee.

Apart from HEP ESCO there is a number of small companies offering ESCO-type services, the list of which includes:

- VERITAS TRADE Ltd.
- Eltec Petrol Hrvatska Ltd.
- Circom Inženjering Ltd.
- Rudan Ltd.
- Eko ESCO Ltd.
- Planetaris Ltd.
- Media Verba Ltd.

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However the mentioned companies have in total very few implemented EPC type projects, based on available data on their official websites for most of them their reference list is empty.

Scope of ESCO experiences

HEP ESCO has a reference list that includes projects on reconstruction of public lighting, public buildings, industry facilities and energy supply systems. According to the data on their official website (www.hep.hr/esco) currently there are more than 50 projects in various phases of development, implementation and financing. However, as already mentioned these cannot be categorised as EPC type of projects due to lack of savings guarantee.

Other mentioned companies providing ESCO type of services are relatively small and with limited experience.

Ability to compete

According to the Law on public procurement EPC type projects have to follow public procurement procedures.

Until the market develops and there are at least some 10-20 implemented EPC projects which could serve as best practice examples it is probably better to use the standard public procurement with strictly defined requirements.

However, due to the underdeveloped market there is very little competition among ESCOs.

ESCO associations or other institutions

There are no ESCO associations or institutions in Croatia.

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2.3 Financing and banking sector in relation to EPC projects

Apart from regional funds established by the European commission, EIB and EBRD (Green for Growth Fund Southeast Europe, Croatian Private Sector Support Facility, Western Balkans Sustainable Energy Direct Funding Facility) loan programmes for ESCO and EPC projects are available through Croatian Bank for Reconstruction and Development (HBOR). HBOR has introduced several credit lines designed specifically for supporting projects of renewable energy sources and energy efficiency, two of which are currently active. Loan Programme for the Financing of Projects of Environmental Protection, Energy Efficiency and Renewable Energy Resources was the first credit line in Croatia of such kind, enabling investors from public and private sector to acquire loans under favourable financial conditions. In 2012 a new programme under the European Commission initiative: Energy Efficiency Finance Facility 2006 and 2007 was developed and is currently being implemented in co-operation with the EIB. These loan programmes are also available through commercial banks that have entered into co-operation agreements with HBOR.

Commercial banks have developed their own portfolio of green loans for sustainable energy projects. However, no tailor made EPC loan programmes are currently available, although Zagrebacka banka d.d. has recently introduced project finance models for funding energy projects.

2.4 Existence of programmes for support of EPC

Currently there are no programmes for support of EPC in Croatia.

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3 EPC projects

3.1 Realised projects

EPC realised projects in Croatia are very few. According to data available at the official website of CEI (www.cei.hr/registar/izvjestaj-o-realizaciji-javnih-drustava-esco) at the end of April 2013 only for 5 buildings contracts have been realised with 2 more buildings ready for contract signature. For 12 buildings tenders have been published but no offers were received, while for 23 buildings energy audits are being carried out. 35 more buildings are awaiting ministries approval for start-up of preparatory activities.

HEP ESCO Ltd. has realised approximately 50 projects of increasing energy efficiency in various categories (buildings, public lighting, industrial facilities, energy supply facilities), however as already mentioned these cannot be categorised as pure EPC.

3.2 Prospective projects

At the level of City of Zagreb, prospective EPC projects are mostly the buildings and public lighting included in the IEE MLEI ZagEE project (87 buildings in total), for which the project documentation for retrofitting will be prepared within the following year, after which tenders for retrofitting should be launched. However, the decision on the modalities and sources of financing (which could include EPC model) is still to be made by representatives of the City of Zagreb.

At the national level prospective projects are those included in the already mentioned Programme of retrofitting of public buildings initiated by the Government and managed by CEI.

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4 References

Marino, A., Bertoldi, P., Rezessy, S., *Energy Service Companies Market in Europe – Status Report 2010*, European Commission Joint Research Centre, 2010

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