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## Objective and background

The Energy Services Directive (ESD) encourages Member States (MS) to make use of various incentives to support energy services, including Energy Service Companies (ESCO) activities, in order to promote the development of energy efficiency improvement programmes and measures.

This report provides an overview of the situation regarding ESCOs in the Member States and Croatia and includes some best practice examples.

The overview provided does not necessarily reflect the positions taken by individual participating countries as it is clear that a wide variety of solutions are available where the implementation of legislation is concerned and there is no 'silver bullet' regarding the optimal implementation of the Energy Services Directive. This report does not, in any way, aim to prescribe the best action or best direction.

According to the ESD, an ESCO is "a natural or legal person that delivers energy services and/or other energy efficiency (EE) 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 EE improvements and on the meeting of the other agreed performance criteria".

The CA ESD questionnaire results show that the majority of MS do not have a definition for an ESCO in their legislation. Where MS do have a definition, this is completely or to a large extent identical to the definition in the ESD.

The functions of existing ESCOs include: providing EE improvement projects; managing energy demand in public services; boosting the adoption of EE policies; and information dissemination about energy services.

## ESCO market

Development of the ESCO market could be an important tool for achieving tangible benefit in EE improvement. In some MS this is already ongoing: 3 countries for example have more than 40 active ESCOs with an annual market above 200 million EUR. On the other hand, in most MS, the market is still poorly developed. For example in almost half of the countries the annual ESCO market is below 25 million EUR and there are only a couple of active ESCOs. The approximate size of the ESCO market in MS varies from 0 - 25M€ (in 47% of MS) to greater than 500 M€ (10% of MS).

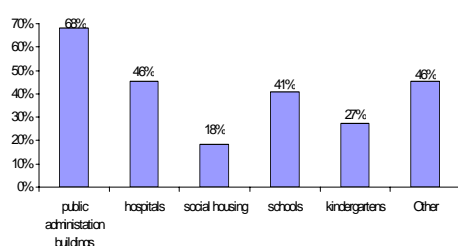
In many countries (68% of MS) the ESCO market is well developed in public administration buildings and in nearly half of MS it is also well developed in hospitals and schools. In the private sector the ESCO market is well developed

in industry (57% of MS), followed by hotels and “others” which mainly include hypermarkets, shops and bakeries.

The ESCO market is mainly private; there are no public ESCOs in the majority of MS.

## Public funding for ESCOs

Some MS have active ESCOs in place, although no public funding is available for the creation of this new business model. On the other hand, in about a half of MS public funding is available for EE projects developed by ESCOs. In different MS there are different approaches for public funding of ESCOs. Some examples include: non-repayable direct investment grants, grants for interest on loans, loans, assumptions of liability financial guarantees. Soft loans for the creation of ESCOs are not used in any country.



**Figure 1:** According to MS, in which public sectors is the ESCO market well developed?

In about a half of the countries, public subsidies are available for projects developed by ESCOs. Soft loans for projects developed by ESCOs are available in less than a third of countries, whilst financial guarantees are provided in only a couple of countries. Generally, no financial support is given to the creation of ESCOs.

## Other Government support for ESCOs

Communications and promotional information programmes by public bodies have been mentioned as valuable inputs in the promotion of ESCOs. Some good examples highlighted were: creation of competence centres, information days, guidelines and awareness campaigns.

About half of MS governments have promotional measures for ESCO services, whilst the other half have only limited or no promotional activities.

There are also significant differences between countries in the field of developing policies for the ESCO market. Some MS have no policies in place for ESCOs, some have only a few specific programmes whilst some MS have ordinances, agreements and support schemes. Many governments are unsure how, and to what degree, to intervene in that market due to both limited experience with ESCOs and the complexity of the ESCO service.

## Evaluating ESCO performance

Energy savings should be measured and verified in order to evaluate the effectiveness of ESCOs performance. In the majority of MS, measurement and verification procedures are an integral part of the ESCOs agreement. However in some countries institutions (mainly agencies) are responsible for data verification.

It is also the case in some countries that if an ESCO fails to implement the energy efficiency measures agreed they have to pay the beneficiary for the margin lost, or make alternative (non-financial) provisions to cover the deficiency according to the rules set out in the contract.

## ESCO register

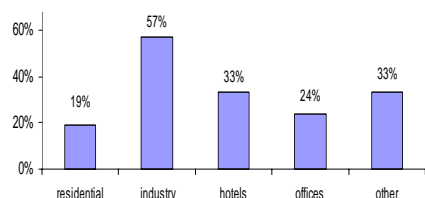
The majority of MS respondents consider ESCO registers to be useful in stimulating the ESCO market. The feedback collected indicates the ESCO registers contribute to:

- Client access to information
- Quality assurance for clients
- Strengthened competition
- Monitoring and regulation of ESCOs

Currently, only one MS (Italy) has an official register of ESCOs and three MS plan to adopt such registers. In some MS, ESCOs have to report their activities to the government (e.g. by presenting the signed contracts with final users, or via reports). However, in most MS such reporting is not required.

## ESCO best practices

Member States were asked to share information on good examples and best practices of ESCOs in their countries. Case studies were shared relating to building management, public lighting improvement projects, boiler house modernization and management and some others. Examples include:



**Figure 2:** According to MS, in which private sectors is the ESCO market well developed?

### Hungary: “Zagreb building estate” program, Budapest

- 10 storey building estates built between 1972-1976
- 768 apartments (37-74 m<sup>2</sup>) and 1,962 residents
- Total use of heat: 40,751 GJ/year, or 53.1 GJ/m<sup>2</sup>/apartment
- Approximately 610 Euro/year apartment expenses
- ESCO guaranteed the following investments and preparations: energy audit, 40% energy saving potential, isolations (windows, walls), heat system regulation, aerator system regeneration

### Croatia: public lighting in the city of Novigrad

- Novigrad implemented a 280,000 EUR project
- HEP ESCO ensured project management and financing for EE with loans from the World Bank and domestic commercial banks, investment for the reconstruction was ensured by the town of Novigrad
- An obsolete and inefficient public lighting system was refurbished with modern equipment and part of the system that was previously out of service was made operational
- Modernisation included: replacement of old light bulbs and lamps with modern ones using less power and with improved characteristics; installation of dimming controls to reduce consumption in late night hours when traffic intensity is low; lighting fixtures of a shady type selected to reduce light pollution
- Project reduces Novigrad’s energy cost by about 10,000 EUR / year
- Similar projects were subsequently applied in other Croatian cities
- For more details visit:  
<http://www.hep.hr/esco/en/references/default.aspx>

### Slovenia - project 1: street lighting

- New (public) street lighting in a village near Bled, Slovenia

- Upgrade of street lighting system with completely new lighting equipment and regulation (also remote control from service centre)
- Project financed through third party financing (with energy performance contracting).
- Main reason for upgrade: new regulation which forces street lighting managers to refurbish existing (in many cases obsolete) technology in line with new lighting standards
- Electricity consumption before refurbishment: 77,019 kWh/year
- Electricity consumption after refurbishment: 45,090 kWh/year

### Slovenia - project 2: indoor lighting

- Refurbishment of lighting system in Acroni, d.o.o., Slovenian steel manufacturing company
- Goal: to save energy and improve lighting conditions in working areas
- Complete renovation of existing lighting: new metal halide luminaires equipped with low-loss magnetic ballast introduced (replacing HP Mercury luminaires with high-loss magnetic ballasts) in 4 workshops (120.000 m<sup>2</sup>)
- Lighting quality improved significantly (upgrade from 30-100 lux to 300-500 lux).
- Project funded via third party financing provided by a Slovenian ESCO company; project pay-back time less than 5 years
- Electricity consumption before refurbishment 16.977 kWh/year
- Electricity consumption after refurbishment: 7.756 kWh/year (54% energy savings)
- Investment cost: 2,420,000 EUR

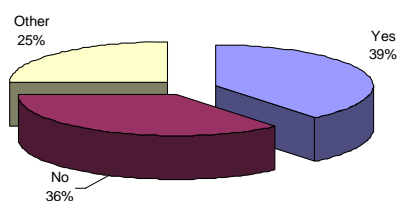
### Slovenia - project 3: upgrade of indoor pool infrastructure

- Project performed in Kranj, Slovenia (public sector)
- Complete renovation of air-conditioning system, water treatment system and installation of a completely new boiler room
- Total energy savings proven to be 56%; return on investment period less than 5 years
- Project financed through third party financing (with energy performance contracting)
- Main motivation factors for renovation: extremely high running costs and attractive technical/financial solution offered by energy efficiency services (EES) provider (no risk from end customer point of view)
- Savings: electricity [kWh] 245,146; heat [kWh] 2,045,978; water [m<sup>3</sup>] 21,717

## Conclusions

In most countries the ESCO market is well developed within public administration buildings and private industry. In almost half of the countries, this market is also well developed in public hospitals and schools.

Member States should pay more attention to the development of the ESCO service not only in the public sector, but also in those parts of the private sector



**Figure 3:** Do MS think that ESCOs are necessary?

where ESCOs are not yet developed and could lead to valuable decreases in energy consumption.

Legal barriers were identified as one of the main barriers to smooth development of ESCOs in many countries – especially regarding the need for improvement of public procurement procedures. MS should therefore pay more attention to the improvement of legal frameworks for ESCO development.

The Concerted Action for the Energy Services Directive (CA ESD) was launched by Intelligent Energy Europe (IEE) in May 2008 to provide a structured framework for the exchange of information between the 27 Member States and Croatia during their implementation of the Energy Services Directive (ESD).

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