



Project EIE-06-189 ClearSupport

**Clearinghouse Facilitation:
Paving Way for Better Energy Building Performance
in Europe**

EU-wide Energy Saving Potential of RUE

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1 Introduction

This report is a result of the work conducted as a part of work package 4 (WP4) of the project “Clearinghouse Facilitation - Paving the Way for Better Energy Building Performance in EU Less Developed Regions. The project acronym is ClearSupport and the project is based on the EC’s intentions for establishing a clearinghouse for promotion of small and medium scale sustainability energy projects as stated in the EU Green Paper on Energy Efficiency. The technology focus is on RUE in building measures.

WP4 is dedicated to bring in front rational use of energy (RUE) in buildings. The main focus is on building retrofitting, and to a minor extent also designing for RUE in new buildings. A wide range of measures exists for RUE building retrofitting and must be made operational for the operation of project service facilities (PSF) and thus shall facilitate ClearingHouse penetration in general.

Latvia, Lithuania, Poland, Czech Republic and Crete have a PSF in place. Slovenia is participating as observer. The role of each PSF is to provide practical assistance to project owners on project identification, documentation and financing. Project owners include housing associations, municipalities and building project developers having the possibility to implement increased rational use of energy in larger building stocks.

The overall goal for WP4 is to develop standardised solutions of key type of RUE in building measures. The objectives of the work are:

- To collect and prepare structured information on technical issues within building retrofitting for the use in the PSFs
- To ensure an adequate RUE level for new buildings
- Evaluate the impact of RUE building retrofitting
- To generate a RUE package for PSF operation

- Extraction of the replication value of the performed activities of relevance for other EU less developed regions.

This leads to the following four deliverables D4.1 - D4.4:

No:	Deliverable title
D.4.1	Report on cost and energy savings for RUE initiatives in buildings
D.4.2	Report on regional/local impact of RUE initiatives in buildings
D.4.3	Report on EU wide energy saving potential due to RUE initiatives
D.4.4	RUE Technology guide / catalogue for Project Service Facilities

This report is the deliverable D4.3 mentioned above.

The aim of this Report is to identify the existing potential of energy saving potential of RUE in the EU and is relevant for decision makers at EU, national, regional and local level who is interesting in using RUE initiatives to achieve energy savings. We have included constrains and positive measures identified in the respective 5 PSF countries. This is done to demonstrate the highly differentiated framework each country are dealing with in order to utilise the EU wide potential of energy saving by RUE initiatives in buildings.

2 Potential EU energy saving of RUE

2.1 General EU support and constrains for RUE in building

In the EU Buildings account for the largest share of total EU energy consumption (42%) and produce up to a total of 35% of all greenhouse gas emissions¹. It has been identified that the largest

Cost-savings potential lies in RUE the residential (households) and commercial buildings sector – 27% and 30% respectively.²

Furthermore, the energy savings' potential of old and new buildings differentiates and minimum standards for new buildings are often stricter than those for old buildings, yet their impact remains relatively limited: the renewal rate of existing building stock is estimated at 2% per year, so relatively few new buildings will be constructed until 2020. Due to the low renewal rate it is important to focus on old and existing buildings to tap the potential of energy saving and it is also here the target should be to make a significant difference in the energy saving potential.

Another difficulty arises from the fact that buildings are occupied in different ways, with a large proportion used by tenants, which undermines the impact of energy-efficiency incentive mechanisms.

Finding ways to make RUE has great potential to enhance industrial competitiveness, to create millions of jobs, reduce energy poverty and increase comfort levels.


Meeting the EU's target to reduce emissions by 20% by 2020 will depend on energy savings as it is obvious that the lower EU's energy demand is by 2020, the better are the changes to reach the 20% reduction in 2020.

RUE can be lowered by both increasing technological efficiency, for example of buildings and appliances, and by structural and behavioural changes. A recent study undertaken for the European Commission estimates the technical potential in the EU27 to be 336 Mtoe or 29% reduction in final energy use compared to a business as usual baseline³

¹ European Commission: 'Coordinated action to accelerate the development of innovative markets of high value for Europe – the Lead Markets Initiative', 7 January 2008.

² European Commission: 'Action Plan for Energy Efficiency: Realising the Potential', COM(2006)545, 19 October 2006,

³ "Study on the Energy Savings Potentials in EU Member States, Candidate Countries and EEA Countries – Final Report", Fraunhofer ISI, 2009.



In March 2007 EU Heads of State endorsed an EU-wide target to reduce energy use by 20% by 2020; a goal reiterated in a Communication issued by the European Commission in November 2008. This is often referred to as the EU's energy efficiency target, although in fact it refers to energy savings.

In contrast to the EU's 2020 targets for emissions reductions and renewable energy use, the energy saving target is currently non-binding. This is a symptom of a larger problem, which is that despite representing the low-hanging fruit of climate and energy policy, energy saving tends to receive much more lip service than real action. There is no certainty existing legislation will add up to the 20% target: important gaps exist in legislative coverage implementation support and the financial matter remain major problems.

The energy we use for heating and cooling in buildings accounts for about one quarter of all energy consumed in Europe⁴- as much as all EU transport. Many buildings are poorly insulated and use inefficient heating and cooling products and systems, unnecessarily wasting energy, contributing to climate change and air pollution, and costing households billions of euros in high energy bills.

Saving energy is not yet a huge priority for the EU. Legislation to tackle the energy efficiency of buildings and products could be better and more ambitious as well as more coordination and coherence is to desire.

Using best performing technologies already on the market could reduce this energy use by 80%.⁵

The EU has three relevant laws in place to address energy use for heating and cooling: the EPBD requires Member States to put in place processes to improve the overall energy performance of buildings; the Ecodesign Directive establishes minimum energy efficiency requirements for products; and the Energy Labelling Directive helps purchasers choose the best performing products.


2.2 Some General constrains against tapping the potential

However, these Directives do not sufficiently use EU strengths such as setting targets and deadlines and monitoring their achievement. Furthermore, the three Directives do not add up to a clear and consistent division of responsibility for achieving energy savings across the range of relevant actors (designers and architects, product manufacturers, builders, retailers, installers, owners and tenants).

Firstly, there is no measurable objective to guide the implementation of the three Directives in a way that directly allocates responsibility for achieving energy saving and emissions reductions.

⁴ Calculations based on European Commission preparatory studies Lot 1(boilers and combiboilers), Lot 2 (water heaters) and Lot 10 (room air conditioning appliances) – see <http://env-ngo.eup-network.de/productgroups/preparatory-studies/> and EU statistics

⁵ Fraunhofer-Institute for Systems and Innovation Research et al. Study on the Energy Savings Potentials in EU Member States, Candidate Countries and EEA Countries Final Report for the European Commission. 2009



Secondly, there is not yet a coordinated approach for dealing with systems: a well performing product in a badly designed and controlled system or low performing building, and vice versa, will not achieve optimal savings.

Thirdly, national building codes might have to set higher building component standards to achieve optimal results at national level, but these could conflict with EU minimum requirements for those products.

Such gaps and inconsistencies are undermining the potential energy savings achievable with RUE in buildings.

2.3 How to tap the energy saving potential

A well-coordinated and coherent combination of measures in all relevant legislation will ensure that the saving potentials are optimised and rapidly delivered. The existing EPBD has not driven sufficient improvements in the energy efficiency of the EU's building stock, due to the Directive's weaknesses and Member States' sluggish implementation efforts.

In addition, national implementation efforts must be stepped up in the context of our proposed 20% energy saving target. The PSF's has turned out a useful tool or supporting structure to help initiating the actual implementation in an EU context.

Further to the legislative constrains just mentioned a mayor barrier identified in the ClearSupport project was the accessibility of Financial schemes for RUE in buildings. This issue is presented in other reports published as part of the ClearSupport project.

3 Legislative support and constrains identified in the 5 PSF countries for tapping the Potential EU energy saving of RUE

All the five PSF's in operation in the ClearSupport project has achieved project development which would not have developed/ implemented without the support of the PSF's.

3.1 Crete-Greece

There is a need for a holistic approach to the support in projects related with energy saving in buildings in order to tap the full potential of RUE in Buildings.

There is a lack of supporting mechanisms to those types of projects and there are many project owners who need those services in Crete. Hence there is a need of broad information about the necessity of energy saving in buildings and the availability of RUE and effective technologies to obtain that.

The performed activities from the PSF in Crete has despite that accelerate the implementation of small scale projects of RUE and energy saving in buildings. As the services of the PSF are disseminating in the local society, more project owners are asking support of them. Therefore the prospects for continuing the PSF services in Crete are positive and hopefully next year a local consulting company will be created to offer these services.

The legislative framework in Greece is changing to comply with the EU directive 91/2002 probably from the beginning of 2010, the energy inspection in buildings will be obligatory. This fact will create more opportunities and demand for supporting services.

The recommendations for other EU regions which consider similar approach to introduce RUE in buildings are that;

- a) the supporting mechanism will have a holistic approach,
- b) a broad dissemination of the offered services and good examples should be available, and
- c) Attention is paid to the financial aspects of finalising RUE projects in buildings.

3.2 Lithuania

Two new RUE in public building projects were initiated by PSF in period since 1st May - 1'st October 2008: retrofitting of Municipal Cultural Centre as well as Foster/Social Centre of Kalvarija Municipality.

Ten more RUE in residential building projects were initiated by PSF in the period 1st May - 1'st October 2008: all projects concern retrofitting of 1-2 floor apartment buildings erected in 1895-1932 and located in Kalvarija city.

The PSF has played an important role in accelerating the number of preparation of bankable projects in relation to current public financing schemes. Without the existence of the PSF these projects would most likely have been initiated at some time, due to the well developed project service market, but at a much later stage.

Below we have listed some important constrains for implementing RUE.

- State support was reduced from 50% down to 15% ,
- Today we have a period of switching to new apartment building project financing mechanism,
- The Revolving Fund not functions yet, so if project owners ask for commercial bank loan, the usual annual interest rate today is approx. 11%. It is planned to start RF by end of 2009. This would result the fixed annual interest rate of 3% of commercial bank credit.
- Retrofitting of individual single family houses is not supported by State so far, just very beginning of discussing the feasibility of support has started. It can be estimated that only 2,5 - 3% of total amount of block apartment buildings to be refurbished in Lithuania completed RUE retrofitting for the time being. Thus PSF consultancy services on building RUE retrofitting both technical and financing issues remains in great demand and a huge energy saving potential,
- Usually residential project owners are not very good specialists of building RUE retrofitting technologies and need proper consultations today and will need in future.

- Financing of retrofitting of Public buildings is provided from EU Structural funds today. But this financing will be sufficient only for some part of buildings. Consequently, later Municipalities will need others RUE retrofitting financing options.

Adopting of ESCO concept to retrofitting of public buildings in Lithuania could be the right one. PSF should focus its activities on this direction participating in developing such financing model and further provide Municipalities with consultancy and documentation service contracting ESCO companies for retrofitting of public buildings.

3.3 Latvia

Only some energy efficiency actions in building sector were realized till year 2007. The PSF operation proceeded in the same time that the main changes in Energy Efficiency in Building sector involves Legislative changes - Law on the Energy Performance of Buildings, Framework changes - State Agency of Constructing, Energy and Housing, which influence building renovation process in Latvia.

The Law on the Energy Performance of Buildings came into force in 2 April 2008 in Latvia in accordance with the EU Directive 2002/91/EK. Fully eligible this Law became from the 1 of January 2009.

The objective of this Law is to promote a rational utilisation of the energy resources and to improve the energy performance of buildings.

The Law shall determine the competence of the State and local government institutions in the field of energy performance of buildings, as well as the legal and organisational grounds for the energy certification of buildings.

The Energy Performance of Buildings Law defines that:

1. The Ministry of Economic Affairs provides general supervision and co-ordination of the field of energy performance of buildings in the State.
2. The Ministry of Economics shall formulate the policy for the energy performance of buildings.


3. State Agency of Constructing, Energy and Housing (BEMVA) shall ensure the implementation of the policy for the energy performance of buildings, as well as shall implement the measures in order to promote the inspection of boilers and air-conditioning equipment and the improvement of efficiency;
4. The State or local government shall provide assistance in the carrying out of the measures of energy efficiency of residential houses in the cases and according to the procedures specified in the Law on Assistance in Solving Apartment Matters.

The main requirements of the Law are:

- Environmental and economic considerations, as well as binding regulations of the local government and other regulatory enactments, shall be taken into account in designing buildings (Section 7).
- Cabinet of Ministers determines the minimum requirements of the energy performance for buildings to be reconstructed (Section 8).
- General Requirements for Energy Certification of Buildings (Chapter 4). The energy certificate of a building or a temporary energy certificate shall be necessary when selling, renting or leasing the relevant building (01.01.2009).
- Energy Auditors Certification rules of procedure.
- Inspection of Boilers, Centralised Heat Supply Systems and Air-conditioning Systems.

The first practical step of this Law is the “State Support Programme of Apartment Dwelling House Renovation Promotion for 2007-2010”.

The Programme ensures the implementation of the task defined in the declaration on the planned activity of the Cabinet of Ministers – to carry out the state support programme of apartment house renovation and energy efficiency improvement by simultaneously increasing the interest and responsibility of joint proprietors, as well as implementation of the task stipulated in Energy Development Guidelines for 2007 – 2016 – to





realize the state support programme for the performance of energy audit and building renovation.

Project Service Facility was organised in Latvia just in time when the practical steps and activities on energy efficiency in buildings should be started.

General Focus of work of PSF Latvia operation - highlights of the PSF intervention, projects initiation, analysis of realised projects, projects monitoring, new projects initiation; interaction with target groups - especially building owners and banks, etc.

The main results of the PSF in Latvia were:

- initiation and realisation of 24 new energy efficiency projects in building renovation;
 - first results of renovation projects analyses;
 - active cooperation with the main institutions which are responsible for building renovation projects in Latvia including banks;
 - Participation in new financing schemes development and realisation for EE in Building Sector.
 - organised meetings with participants from different Municipal Administration;
 - training seminars were organized with the focus on building insulation technologies, RES for buildings, financing schemes, etc.
 - active propaganda and popularisation of the energy efficiency necessity in building sector.
 - marketing activities realised - establishing of the webpage; dissemination activities - leaflets for building owners, different publications in local mass medias and in international conference proceedings, TV presentation.
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Economical crises broke strongly all activities in building sector and also affected PSF work. Unfortunately many projects on building renovation could not be realised accordingly to economical situation in Latvia.

3.4 Czech Republic

During the period of the project 35 projects was put in the pipeline, the majority of them being schools. One interesting project is about the renovation of 18 schools in one tender, where the intention is to involve an Energy Service Company (ESCO) in the implementation process.

The PSF has provided consultancy service for customers asking for technical consultations and further participating in Apartment Building Modernization programme.


Investigation of adjustments in existing local regulations related to residential and public building refurbishment; input to preparing recommendations on legislative/structural framework for RUE in buildings projects in that way that clearing house could effectively facilitate the financing of RUE in building projects allow successful handling flow of small-scale projects.


In the Czech Republic the legal framework is not always just clear. Moreover it used to be changed in details according to political influence of the party which is in government. And the details could be sometime quite significant in real preparation of concrete energy efficient projects.

Unfortunately there exists very weak support of state institutions responsible for energy savings. It is influence of poor quality of energy policy of the state in the field of energy savings. The state would be example for other stakeholders in implementation of energy efficient projects, but it is not reality

3.5 Poland

RUE in building design focussed on thermo modernization technologies and modernizations of heating installations. Some oral advice was given, where simple solutions could have been suggested or energy audits and analysis were carried out in more complicated cases. In Parallel to this some trainings were given to building administrators, mostly to housing





administrators. They focused not only on technologies but also on regulations issues and financial aspects.

Until the end of March 2009, quite many regulations were changed in Poland: Building Law, Recommendations for building construction setting, law regulating certification system. All these were studied by PSF carefully. The “open letter” to Prime Minister was signed by BAPE pointing all mistakes in the procedures. The letter was published in daily newspaper “Gazeta Wyborcza” on January 20th, 2009. The copy enclosed. Beside of this regulatory framework for Regional Programmes, Swiss-Polish Programme and Operational Programme were studied.

Since then there was a first call for those applying for subsidies for thermomodernisation measures from the national Operational Programme-Infrastructure and Environment. PSF Pomerania has prepared an application concerning complex thermomodernisation of schools in Lębork, and construction of biomass CHP in Lębork- funds coming from the Swiss-Polish Programme. Both applications have been awarded with subsidy.

Currently, applications for subsidies from the Pomeranian Regional Operational Programme may be submitted. PSF assists consultations on indicators allowing projects’ estimation, as well as prepares several undertakings claiming for subsidies.

One of the findings of the project and the PSF in Poland was that there are too little focus on RUE measures in promotion of financing schemes. Thus clients are not sufficiently aware of project opportunities but a huge potential exist

