

Considerations regarding financing sources for energy actions in Romania

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Abstract: This paper represents a part of the authors' ideas for the development phase of a project developed under the auspices of URBACT II, "Urban Strategies for Energy Efficiency". It is a first approach of identifying financing sources for energy efficiency actions in the public sector (especially in public administration and academic sector) in Romania in the attempt of solving multiple dysfunctions via existing EU sources.

Key words: energy, efficiency, EU funds, energy programs, energy projects.

1. Introduction

Urban areas are estimated to account for around 70 % of final EU energy consumption. Energy use in residential and commercial buildings alone is estimated to be responsible for about 40% of the energy consumed.

There is an urgent need for action in urban areas to address this, especially if the

ambitious 20/20/20 targets for emissions reduction set out in the EU's climate and energy package are to be achieved.

There are many things needed to happen at the local level and local authorities have a crucial role in designing, organising and delivering the energy actions. In the same time it is widely recognised the need for academic specialists to work together in

devising practical demonstrations of technical measures for energy efficiency and renewable energies and measuring their impacts.

2. Literature review

The European Commission's proposals in **An Energy Policy for Europe** published in 2007 are the basis for current actions, being adopted as the European Council's **Integrated Climate Change and Energy Policy** in March 2007.

In January 2008 the Commission published the climate and energy package designed to reduce EU CO₂ emissions by 20% (compared with 1990 levels) by 2020 (**20 20 by 2020 - Europe's climate change opportunity COM** (2008) 30).

Current policy for climate change and energy is contained within the agreed *climate and energy package adopted in December 2008*. This aims 'to set Europe on the right track - towards a sustainable future with a low-carbon, energy-efficient economy - by cutting greenhouse gases by 20% (30% if international agreement is reached), reducing energy consumption by 20% through increased energy efficiency and meeting 20% of our energy needs from renewable sources.'

The new *Directive on the Promotion of the Use of Energy from Renewable Sources* is now in place. It establishes mandatory national targets to be achieved by the Member States on the use of renewable energy in the electricity, heating and cooling, and transport sectors. The targets are designed to ensure that by 2020 renewable energy makes up at least 20% of the EU's total energy consumption and at least 10% of total fuel consumption in all forms of transport. Member States are required to implement this Directive by

December 2010. The Commission issued a template for National Renewable Energy Action Plans (NREAPs) in June 2009, and all Member States must present their Plans by 30 June 2010.

The EU already has a well-established strategy for energy efficiency, including a Directive adopted in 2006 which has required all Member States to publish National Energy Efficiency Action Plans. These should be essential context for energy efficiency planning at local level. The EU *Action Plan for Energy Efficiency*, originally adopted in 2006, is being revised to meet the ambitious 20-20-20 targets. A summary of existing provisions and the proposed changes is in the Commission's background document published in mid 2009. Although the 2006 Action Plan refers to the importance of action in urban areas, especially on transport, local authorities seem to have been little involved in the debates about revisions to this plan.

The European institutions are currently working on the follow-up to the UN Climate Change Conference held in Copenhagen in December 2009. The Commissioner-designate for energy policy has identified energy efficiency and the promotion of renewables as priorities for his term of office.

An important part of the context for local authority action in the field of energy is policy for the environment at EU level which especially includes a substantial body of EU law.

EU environmental Directives have implications for all the areas of action which cities need to consider in developing their sustainable energy action plans. As examples:

- Directives on air quality require many urban local authorities to produce integrated strategies to demonstrate

how they will achieve compliance, and these necessarily include measures to reduce emissions from transport.

- The Waste Framework Directive is relevant for work on waste-to-heat plants.
- The Directive on Strategic Environmental Assessment (SEA) is relevant for land use planning.

This EU regulatory framework establishes to a certain extent common standards and requirements for all EU municipalities, though national governments and has considerable flexibility to decide the domestic arrangements for implementing EU rules.

The most relevant item of EU legislation for the achievement of energy-efficient buildings in urban areas is probably the *Directive on the Energy Performance of Buildings (EPBD)* 2002/91/EC whose main objective is 'to promote improvement of the energy performance of buildings within the Community, taking into account outdoor climatic and other local conditions, as well as indoor climate requirements and cost-effectiveness.' Recent agreement establish to 'recast' this Directive so as to clarify, strengthen and extend its scope (more buildings will now need certificates) and to reduce the large differences between Member States as regards practices in the building sector.

Because transposition of the EPBD poses significant challenges for Member States, the European Commission has taken some initiatives to support implementation. For example, information is available via a new web portal called *Build Up*.

The web-based *ManagEnergy* network is a more general resource for those working on energy efficiency and renewable energies at the local and regional level. Guidance on

this website includes an 'information kit' on different aspects of sustainable energy: energy efficient transport, energy use in buildings and even EU funding for sustainable energy.

4. Paper Content

EU funding programs for sustainable energy planning and actions in Romania

This chapter aims to identify the main EU funding programs relevant for the preparation of local energy plans and implementation of energy actions in cities. Projects within these programs may be sources of good practice cases. The programs themselves constitute eventual funding opportunities to be considered for future energy projects in Romania.

CoM *Covenant of Mayors* is an initiative of the European Commission launched in January 2008. Local authorities signing the Covenant make a formal commitment to go beyond the EU objectives on the reduction of CO₂ emissions, i.e. they will commit to reduce their CO₂ emissions by more than 20% by 2020. To achieve this they will establish Sustainable Energy Action Plans (SEAPs) within one year of signing the Covenant. There are 16 signatory local authorities in Romania from 1652 European covenant cities.

ELENA – European Local Energy Assistance

Specific support for the Covenant of Mayors and local energy action in urban areas more generally is provided by the new **ELENA – European Local Energy Assistance** facility which the European Commission has developed with the European Investment

Bank (EIB). ELENA support covers a share of the cost for technical support that is necessary to prepare, implement and finance the investment programme, such as feasibility and market studies, structuring of programmes, business plans, energy audits, preparation for tendering procedures - in short, everything necessary to make cities' and regions' sustainable energy projects ready for EIB funding. Local and regional authorities can apply to the EIB. Funds are being channelled to ELENA from Intelligent Energy Europe.

Intelligent Energy Europe (IEE) is the main EU funding programme for the support of local and regional energy agencies and energy-related actions of local authorities. It is one of three operational programmes within the **Competitiveness and Innovation Framework Programme (CIP)** for the period 2007-2013. There are 38 ongoing projects with Romanian partners financed under the auspices of IEE related with energy efficiency transport, alternative fuels, buildings, energy education etc.

Besides Intelligent Energy, the part of the CIP of most interest is **Eco-Innovation** within the Entrepreneurship and Innovation program. This should be considered by local authorities - and universities - wishing to see the development of local enterprises specializing in innovative technology, for example in the field of renewables. In the last call, in 2009, only 2 Romanian partners were considered.

Intelligent Energy Europe and the Eco-Innovation Programme are managed on behalf of the European Commission Directorate General for Transport and Energy (TREN) by the **Executive Agency for Competitiveness and Innovation (EACI)**. This agency is

also responsible for the Enterprise Europe Network a network of contact points providing information on EU legislation and funding opportunities mainly to businesses (especially SMEs), but also to universities and research centres. The network - set up in 2008 - amalgamates the previous Innovation Relay Centres and European Information Centres.

CONCERTO and CIVITAS

The other key programs overseen by DG TREN and very relevant are CONCERTO and CIVITAS. These programs fund concrete demonstrations - including investments in infrastructure - in cities. The projects are monitored and outcomes assessed, which often is a main task of university partners involved in the project consortia. **CONCERTO** supports energy-efficient demonstration projects in local communities.

For transport, there has been substantial funding for demonstration actions on sustainable mobility through the **CIVITAS** program for clean urban transport. Bucharest, Ploiesti, Iasi and Suceava are CIVITAS cities. Cities previously involved in this program continue to cooperate through the **CIVITAS Forum Network**, which non-CIVITAS cities wishing to learn from the experiences of some of the most innovative localities can also join. Over 160 cities are currently members. Through workshops and training events, cities have the opportunities to exchange know-how, ideas and experience so as to facilitate change in the field of transport.

LIFE+ Environment policy and governance is one of the most relevant strand of this program for energy work in cities. Priority areas of action under the principal

objective 'climate change' are the reduction of greenhouse gas emissions in line with current EU commitments, implementation of market-based instruments for cost-efficient emissions reduction, and measures for adaptation to the adverse impacts of climate change. This is a demanding funding stream to work with in that it supports only innovative and demonstration projects with EU relevance. All applications need to show proposed actions going beyond the best European practice. DG Environment's LIFE Unit maintains a list of over 43 Romanian urban environment projects funded since 1995.

PROMOSCENE

The project **PROMOSCENE**, funded by Intelligent Energy Europe, is about promoting the use of Structural and Cohesion Funds for investments in energy efficiency and renewable energy. It is focusing on ways to finance more sustainable energy projects in New Member States using Structural and Cohesion Funds. It supports Managing Authorities in 5 target countries, including Romania, to better promote and manage the energy-related priorities of their Operational Programmes, so as to improve the take-up of these funds.

The **PROMOSCENE** database includes examples of more than 70 energy projects funded through Structural Funds, 12 are from Romania. It also provides detailed country-specific information about the operational programmes in the target countries and guidelines about the financing of energy investments.

Programs within the **Territorial Cooperation** objective of Structural Funds

also represent a significant resource for cities working on the development and implementation of sustainable energy action plans.

The ERDF programs for networking and exchange of experience (INTERREG, URBACT, ESPON and INTERACT) have been mainstreamed and, like the rest of the Structural Funds, are expected to deliver strategic projects in line with the Lisbon and Gothenburg (sustainable development) agendas.

The inter-regional cooperation programme **INTERREG IVC** is probably the most relevant for the development of innovative energy strategies. The overall objective of the programme is to improve the effectiveness of regional development policies and policy instruments.

For instance, priority 2 Environment & Risk covers energy and sustainable transport and natural and technological risks, including climate change. Examples of cooperation activities cited in the operation program include 'moving to a low carbon economy, including information to industrial customers, service providers and citizens on issues such as 'how to reduce energy consumption' and 'exchange and transfer of knowledge concerning long-term targeted energy efficiency campaigns, including efficiency in buildings, notably public buildings'.

There are 21 Romanian partners involved in INTERREG IVC projects, out of which 2 are involved in energy efficiency actions:

- **CAPRICE** (CAPital Regions Integrating Collective transport for increased energy Efficiency) The City of Bucharest is a partner.
- **MORE4NRG**, working on strengthening the delivery of regional strategies

for renewable energy sources and energy efficiency by exchanging best practices on sustainable energy policies and jointly developing an integrated monitoring tool for measuring policy outcomes. Maramures County Council and Prahova County Council are partners in this project.

URBACT program is a European exchange and learning programme promoting sustainable urban development. Five URBACT projects have recently engaged to examine the low carbon environment area attempting to extend the knowledge base, build strategies and concrete interventions as part of the drive towards the energy neutral city. The focus of the projects reflects the interesting cross-fertilisation in this domain - between comprehensive overarching operations or pilot projects and localised, area-based initiatives which have progressively been combined into coordinated and cohesive city programmes. Urban Strategies for Energy Efficiency led by Technical University of Civil Engineering is one of them.

Research resources for the energy actions

There is noted the extensive work on urban sustainability which has taken place within the EU Framework Programmes (FP) for Research and Technological Development. Technical research on energy has a dedicated Energy theme in FP7 program.

Within FP7 there are specialised **European Technology Platforms** on several types of renewable energy, such as wind and biofuels.

Complementary to the main calls for proposals there are on-going networking activities funded by the research budget. Examples include:

The **COST program** (European Cooperation in the field of Scientific and Technical Research) is fostering international collaboration and scientific excellence in nine key domains. The Transport and Urban Development domain covers transport and civil engineering as well as urban issues within the general framework of sustainable development. COST is a financial resource for academic research.

Structural funds for energy efficiency actions in Romania

The EU has identified climate change as a key priority to be addressed by the **Structural Funds** programmes for 2007 – 2013. Significant resources are available for energy infrastructure:

Sectoral Operational Program Increase of Economic Competitiveness 2007- 2013 through Priority 4: Increasing Energy Efficiency and security of supply, in the context of combating climate change is one of the important financing energy actions resources in Romania.

The objective is to reduce primary energy intensity by 40% compared to 33% share of electricity produced from renewable energy sources in the gross electricity national consumption by 2010 and to reduce emissions in the energy sector. Indicative operations include:

- supporting investment in installations and equipment for industrial operators, in order to improve energy efficiency leading to energy savings

- supporting investment in expanding and upgrading electricity, natural gas and oil transportation grids and electricity and natural gas distribution grids in order to reduce losses and secure the continuity and safety of transport and distribution services
- investments in flue gas de-sulphurization installations, burners with reduced NOx and filters on upgraded groups of large combustion plants.

As far as renewable sources (RES) for producing green energy are concerned, the indicative operations include investments in upgrading and building new power and heating production capacities by valorisation of biomass, micro hydro, solar, wind, geothermal, bio fuels, etc.

Measure 4.3: The improvement of energy efficiency at the end user (Co-financing from ERDF: 95% + local budget 2-5%)

The actions supported are:

- efficient and sustainable energy (improving energy efficiency and environmental sustainability of the energy system); and
- valorization of renewable energy resources for producing green energy.

Sectoral Operational Programme Environment for 2007-2013 through Axis 3: Reducing pollution and diminishing climate change effects through restructuring and rehabilitation of urban heating systems to reach energy efficiency goals in the most polluted settlements.

Priority 2: Development of integrated waste management systems (Co-financing from ERDF: 95% +local budget 2-5%)

Actions supported include:

- acquisition of waste transport vehicles;
- recovery of gas from landfills;
- local authorities.

Priority 3: Restructuring and renovating urban heating systems towards energy efficiency

Actions supported include:

- introduction of BAT (Best Available Techniques) for SO₂, NO_x and dust reduction;
- rehabilitation of boilers and turbines;
- introduction of improved metering; and
- rehabilitation of heat distribution networks (including redesign of networks where this is justified on energy and cost efficiency grounds).

Regional Operational Programme for 2007-2013 through:

Priority 1: Support to sustainable development of urban growth poles

Measure: Rehabilitation of the urban infrastructure and improvement of urban services

Co-financing from ERDF: 95% +local budget 2-5%

Actions supported include:

- development and construction of special lanes for public buses;
- development and construction of dedicated cycle lanes ;
- acquiring ecological means of transport;
- redesigning or constructing new bus stops;
- development of public lighting;

- improvement of water, electricity, sewerage, natural gas and heat distribution networks;
- development of integrated waste management systems; and
- local authorities.

Priority 2: Improvement of regional and local transport infrastructure

Co-financing from ERDF: 95% +local budget 2-5%

Actions supported include:

- rehabilitation and modernisation of the county road network;
- rehabilitation and modernisation of the urban street network;
- construction/ rehabilitation/ modernisation of ring roads (with county road status) in order to eliminate bottlenecks.

A subsidy scheme for renewable heating technology in Romania is the **Green House program** launched in 2008. This is a 'programme to change or fill the classical heating systems in buildings with new heating systems including one of the following technologies: solar thermal, photovoltaics, geothermal, wind energy or other renewable energy sources'. Its broad objective is to improve the quality of air, water and soil.

5. Conclusions and implications

The paper is revealing some of the possible financing sources of energy actions in Romania. There are question about cities' access to technical expertise in energy matters in situations where the municipal staff members do not have all the necessary competences, or have difficulty in keeping up to date in a rapidly-changing field. Is it possible for universities to fill some of the gaps, capitalizing on their technical expertise and training/educational skills.

Academic partners may also have useful roles to play in, for example, identifying appropriate measurement systems for setting CO2 baselines and existing tools for undertaking carbon impact assessments of proposed actions, developing communications between cities and local citizens and firms, and ensuring that the 'social' dimensions of energy planning (such as comfort and behavior change) are considered.

Next step of this research would be exploring collaboration pathways for an efficient partnership city-university in energy projects in Romania.

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