URBACT II Working Group UrSEnE

Urban Strategies for Energy Efficiency : Steps to Sustainability

BASELINE STUDY

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1 Introducing the project

1.1 The starting point

UrSEnE is an URBACT Working Group focusing on the development of strategies and action plans for energy efficiency in European cities.

In URBACT most projects are Thematic Networks, the main purpose of which is the exchange of experience between cities in order to promote sustainable urban development. Working Groups are intended to have a different focus.

> *…working groups, with a shorter duration and different kinds of partners compared to the thematic networks, will address issues with a different approach and will be expected to produce different outputs.*
>
> *Working groups will spend less time on the 'exchange and learning process' to focus on the production of high-quality outputs which can be used by external audiences (especially in the view of enhancing the impact of the Programme on policy-making) and in the capitalization process of the URBACT II Programme (especially in the view of complementing the Thematic Poles' activities).* [1]

As a Working Group UrSEnE has a modest budget of € 50,000.00 for its Development Phase (including ERDF € 37,800.00 and match funding of € 12,200.00 from the partners). There is a maximum budget for the Implementation Phase of €250,000.

The project is led by the Technical University of Civil Engineering, Bucharest, Romania. The initial partnership involved the 2nd municipal district of the city of Bucharest, the University of Jönköping, Sweden, and the municipality of Cesena in Italy. Since the application was approved in November 2009 the 2nd municipal district of Bucharest has withdrawn and been replaced by Cluj-Napoca, regional capital of Transylvania, Romania. In addition, the partnership has been expanded to include SER.IN.AR Forli-Cesena/Antares Research Unit, an outpost of the University of Bologna located in Cesena. The University of Wales in UK has also joined the partnership. Individuals there are actively involved in promoting strategies for a shift towards low carbon sub-regions of Wales in which action by urban local authorities places a crucial part. Contact details for all the partners and for the Managing Authorities for Structural Funds in the regions where they are located, are set out in Annex 1.

The original main objective for the UrSEnE project, set out in the Declaration of Interest, was 'to set up a general framework for developing urban strategy for energy efficiency and, based on this, developing local action plans for the municipalities participating in the project.' The partners stated their intention to research and report a number of good practice case studies on energy planning and different aspects of implementation (such as land use planning, building regulation, transport and the

[1] URBACT Programme Manual May 2009

generation of energy from renewable sources) and then produce a general framework, or 'guideline' suitable for use in the partner cities within the project, and more generally in urban local authorities across Europe.

The summarised description of the project on the application form (section 1.2) was as follows :

> *UrSEnE will imply the transfer of lessons learned from experiences developed in other countries, will apply them to municipalities involved in the project and will pursue also the creation of a good practices study. UrSEnE will work on the creation of local plans for energy efficiency and, on the other hand will produce a guideline for elaborating energy local action plans in order to spread knowledge and good practices to other cities.*

As this paper will demonstrate, however, a great deal of work has already taken place on this topic. Case studies and guidance are already available, especially as regards the formulation and implementation of Sustainable Energy Action Plans, which is the term now most generally used. It is important not to 're-invent the wheel'.

It is the task of the partners to assess this material and to focus their final proposal for the Implementation Phase of the project in such a way as to both demonstrate the added value of the URBACT programme on this topic and enable the partner cities in the project to make progress 'on the ground' in the formulation and implementation of their local strategies, working collaboratively with their university partners and other stakeholders.

In discussion with the URBACT JTS, a proposal in the Declaration of Interest to produce a study called 'Innovative energy efficiency measures – good practices', along with a database of examples and contacts, was judged inappropriate for the Development Phase of the project. However, the academic partners have identified some specific case studies already known to be of interest to the city partners, and these are included as illustrations of current European (and broader international) practice at relevant points in this Baseline Study report. Further work to identify examples of good practice in a targeted way and to report them in depth is anticipated for the Implementation Phase of the project.

1.2 The Baseline Study

The Baseline Study is a requirement of the Development Phase for all URBACT projects. It sets the scene for the project, enabling the partners to start work with a 'sound underpinning of knowledge' on relevant EU policy and current practice on this issue in other European cities. It provides information about each of the partner organisations and their current approach to the issue which is going to be examined during the project. It is also the aim of the Baseline Study to enable the partners 'to develop a shared understanding of the issues, needs and research agenda for the

implementation phase of the project on which the activities of the project can be planned in detail'.[2]

In line with the *Guidelines on Baseline Studies*, this report is presented in three parts.

Analytical content and comments are for the most part collected in the *synthesis* section rather than being presented chapter by chapter.

Part 1 presents the 'state of the art' at European level on sustainable energy action plans. This is a slightly revised version of the 'stand-alone' draft paper circulated to the project partners in January 2010. Note that this was completed before recent announcements of changes to Directorates General within the European Commission, and also before the publication of the new *EU 2020* strategy for sustainable growth and jobs on 3rd March 2010.

Chapter 2 briefly establishes why urban local authorities need to develop local energy strategies and outlines some of the key issues they face in formulating and delivering them.

Chapter 3 outlines the EU policy context. The 'long title' of UrSEnE is *Urban Strategies for Energy Efficiency : Steps to Sustainability*. The partners have been careful to set the specific work on energy within a broader sustainability context. Accordingly, the first part of this chapter looks briefly at the development of EU policy on urban sustainability. Energy considerations have always been part of this broader agenda. Moreover, integrated planning approaches at municipal level are recommended and supported by a range of EU-level instruments associated with this strand of work.

A short section on the EU Sustainable Development Strategy (EU SDS) draws attention to recent policy developments in two areas with implications for local authorities pursuing sustainable energy goals - sustainable consumption and production and green procurement. The EU SDS also sets the context for a more detailed look at energy policy. The emergence of climate change as a key issue, and European responses to the recent economic crisis, in particular the EU Recovery Plan, are highlighted.

The remainder of the chapter examines policy for energy efficiency and other aspects of sustainable energy at EU level, focusing especially on policy and measures relevant for the production of local energy strategies in urban areas.

In **Chapter 4** brief information is given on the EU programmes other than URBACT which provide funding for urban local authorities to explore good practice and pursue work on the preparation and implementation of local energy strategies. These programmes have supported much of the past and recent activity on sustainable energy planning in cities across Europe, and they continue to do so. In particular, several initiatives have already resulted in the publication of guidance for municipalities based on reviews of good practice, so it is important that the UrSEnE

[2] URBACT secretariat (2009) The URBACT II Programme 2007-2013: Guidelines on Baseline Studies. p.2

partnership is aware of them. Finally, since UrSEnE is a partnership of universities and municipalities, there is a short section on funding for 'action research 'on urban energy from the EU Framework Programmes for Research and Technological Development.

Chapter 5 explores current practice on the preparation and delivery of sustainable energy action plans in cities across Europe. Several trans-European local government networks have been focusing on this issue for some years. Examples of good practice on the preparation of integrated energy strategies and action plans come largely from the members of these networks. However, rapid technical advances in the field are taking place all over Europe and further good examples can be found.

Part 2 of this report introduces the project partners, two cities and four universities. Information about the partners has been collected using templates, one for cities and one for the universities (reproduced as Annexes 2 and 3). The university partners located within (or close to) each of the two local authorities in the project worked with the city representatives to collect and report the information needed for this baseline study.

Chapter 6 takes a detailed look at the two city partners, one from a Convergence region and relatively new to energy planning work, the other from a Competitiveness region and already committed to the development of a more ambitious and integrated approach.

In addition to providing a basic description of each municipality and its characteristics, this chapter reviews key aspects of the national and regional policy context and domestic programmes supporting local authorities in their work on sustainable energy. Existing policies and plans in the two cities are outlined and the state of play on sustainable energy planning explained. The chapter also reports on the extent to which these urban local authorities are already engaged in European networking and funding programmes and explores their expectations for participation in the project and the experience that they feel they can contribute to the partnership.

Information about the municipality of Cesena has been enriched by means of a 'city visit' by the Lead Expert that coincided with the local launch of work on the Sustainable Energy Action Plan for the city. The information available for Cluj-Napoca is less detailed than for Cesena. This reflects the fact that the city joined the project at a late stage (March 2010), replacing the 2nd district of Bucharest. This meant that a city visit was not possible and there was limited time to process and check the information supplied.

Chapter 7 contains information about the four university partners, including their subject specialities, their main areas of teaching and research related to the content of UrSEnE, their previous experience in EU-funded cooperation projects and their existing links with practitioners from cities working on energy planning and in related fields. The academic partners have also noted their initial perceptions on what cities need in order to make progress on action plans for sustainable energy, identified possible good practice examples from their own localities, and set out their own

expectations for working in the UrSEnE partnership. Annex 4 sets out some summary tables comparing the university partners[3].

Part 3 is the required 'synthesis paper', bringing together the issues arising from the review of the European state of the art and analysis of the situation in the partner organisations. It sets out issues to be taken into account in designing the work programme for the implementation phase and identifies themes for action.

Chapter 8 analyses the position of the project in relation to the EU 'state of the art' (Part 1) and sets out some recommendations for the partners to use in planning their approach for the Implementation Phase. **Chapter 9** brings together issues and ideas from the partner profiles (Part 2), updated to include details of the URBACT Local Support Groups and initial proposals for the Local Action Plans. **Chapter 10** takes some first steps towards the Final Application and design of the work programme for the Implementation Phase.

[3] The participation of the University of Wales was not confirmed until March 2010. Their information will be added to Annex 4 at a later date.

PART 1 The 'state of the art' at European level – the context for UrSEnE

2 Sustainable energy action plans – some key issues

The UrSEnE Application Form outlines some of the key issues surrounding the development of energy efficiency strategies – or broader sustainable energy action plans – in urban municipalities.

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 no doubting the 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[4].

Much needs to happen at the local level. Local authorities have an important role in orchestrating, organising and delivering the necessary actions.

Major challenges lie in the wide range of complementary actions required and the range of stakeholders responsible for these actions. Effective and inclusive strategic planning across the whole area – and whole range of services - managed by a municipality is necessary if measurable progress is to be made. It is now widely recommended that every urban local authority should work in partnership with its local community, businesses and technical specialists on the formulation of a local energy strategy. Such strategies generally need to cover at least:

- Energy use in municipal, residential, industrial and commercial buildings, including the design and operation of energy efficiency retrofit programmes
- Public lighting
- Municipal vehicles
- Public transport
- Private, commercial and freight transport
- Waste management
- Waste water management
- Energy generation and distribution (especially local and distributed electricity generation using, for example, wind power, hydro-electric power, solar power, combined heat and power and district heating)
- Land use planning and urban design
- Programmes to support telecommuting
- Building standards for new development and renovation
- Public procurement standards
- Behaviour change on the part of citizens and enterprises

[4] European Environment Agency (2009) *Ensuring Quality of Life in Europe's cities and towns : Tackling the environmental challenges driven by European and global change* EEA Report No. 5/2009

- Financial and technical staff resources to prepare and deliver strategies and practical outcomes.

It needs to be recognised that although all of these issues will need to be tackled in a local area, the local authority is unlikely to have direct responsibility – or legal competence – for all of them. Their scope for direct action depends very much on the framework of national and regional legislation, governance arrangements and the extent to which other public or private bodies have the lead in implementation. For example, in many countries the management of municipal waste and waste water is part or fully privatised.

Given the current emphasis on setting of baselines, benchmarking, and measuring and monitoring progress on energy action, local authorities need access to considerable technical, accounting and evaluation expertise in order to formulate operational strategies. They are expected to establish emissions baselines and carry out carbon-foot-printing. They need to be able to assess the energy impacts of alternative courses of action and to have an understanding of which proposed actions are likely to achieve a move towards 'low carbon' at least financial cost.

UrSEnE Good Practice Case Study 1 - Ecoregion CO^2 measurement Tool

A local policy aimed at climate protection requires administrations to measure and monitor the flow of CO2 emissions with friendly tools that provide data pertaining to specific areas of the territory.

In Germany, cities, municipalities and administrative districts can calculate their CO^2 emissions using the internet-based software ECORegion^{smart} developed by the Swiss company Ecospeed, the Climate Alliance and B.&S.U. Beratungs- und Service-Gesellschaft Umwelt mbH (for the European Energy Award® -local authorities).

The ECORegion software is a measurement tool that makes use of both default data (drawn from the national default model) and local data collected from municipalities. Consumption and emission data are organized according to three sectors (economy, residential, public sector) and allow historical series and forecasting models.
In order to reduce CO^2 emissions the opportunity to "weigh" the emissions is central to the strategy of evaluating the carbon footprint of a given community or locality and guaranteeing a constant monitoring of impact of adopted policy responses. Essential advantages of the software are standardised methodology and thus comparability, good handling, significance, and data evaluation within the municipality.

The software has recently been adapted for Italian municipalities by a leading group of cities, including the municipality of Bolzano, under the coordination of the Climate Alliance.
Source:
http://www.klimabuendnis.org/co2-monitoring.html?&L=1buendnis%2F5510109.htm
http://www.climatealliance.it/allegati_content/QE%20n.5%202009_Eco%20territori.pdf

In all of these tasks they require appropriate evidence and technical expertise. Often they turn to local energy agencies for support. However, there is also a role for universities and research institutes in building the capacity of officers and elected politicians in urban municipalities as they make progress on the development of integrated energy plans.

In this complex area of work some guidance for local authorities is certainly required. Much good practice from across Europe is in fact available and there is already a proliferation of guidelines and support frameworks. Practitioners need to find a way through this material so as to quickly identify useful sources.

Up to now, more emphasis has been placed on the difficulties and expense involved in devising coordinated programmes of action than on the considerable economic and employment benefits and improvements in the quality of life that investment in energy-efficient infrastructure and renewable energies, and a general shift towards a low-carbon local economy, can bring.

Collaboration between universities and local authorities can also contribute to the development of local economic development strategies stressing eco-innovation and green jobs.

European and national level policy makers have already recognised the need for practitioners and academic 'experts' to work together in devising practical demonstrations of technical measures for energy efficiency and renewable energies and measuring their impacts. The EU's CONCERTO and CIVITAS programmes are financed through the research programmes. Some national governments are establishing national programmes, also financed through research budgets, which require the close collaboration of local communities and academic partners. An example is the UK government's Low Carbon Communities Challenge. http://www.decc.gov.uk/en/content/cms/what_we_do/consumers/lc_communities/lc_communities.aspx

One of the main aims of UrSEnE is to build more effective collaboration between municipalities and universities in a local area in order to devise and implement effective local energy plans.

UrSEnE Good Practice Case Study 2 – Sustainable Energy Plan (SEP) for Boulder County, Colorado, USA

Goal of the Energy Strategy	To identify emission reduction opportunities and strategies and guide the collaborative efforts into the future. The plan focuses on the dominant sources of emissions identified in a countywide greenhouse gas inventory conducted in 2005. These sources include residential buildings, commercial buildings, transportation, and industrial operations.
Problems	The residential sector provides the second-largest contribution to Boulder County's GHG emissions. The commercial sector provides the largest contribution to Boulder County's GHG emissions. Vehicle transportation is the third-largest sector contributing to Boulder County's GHG emissions.
Actions	-to reduce emissions from the commercial sector include maximizing the use of available rebates and incentives to install and implement energy-saving measures and working closely with smaller businesses that lack in-house energy management resources. - to reduce emissions in the industrial sector include the capture of "waste" heat and materials to produce energy, the use of energy-efficient technologies, and policies to encourage and incentivize emission reduction measures. - to reduce greenhouse gas emissions in the transportation sector include reducing the number of vehicle miles traveled by increasing the use of alternative transportation, anti-idling measures, reducing heat gain on roofs, improving the energy efficiency of traffic signals, and demonstrating leadership in building energy performance. These strategies together can significantly reduce energy use in government operations.
Fiscal incentives	A clean car incentive charges users of less fuel-efficient vehicles a fee and applies the funds from this fee as an incentive for the purchase of more fuel-efficient vehicles. The benefits of this approach are that it is a relatively efficient way of promoting the purchase of more fuel-efficient vehicles. Users of less fuel-efficient vehicles directly pay for the externalities that they incur upon society. This sends a potentially strong market signal to auto manufacturers.
Other points	The SEP is intended be a "living document." Participating communities will continue to seek new and innovative strategies to achieve the overall goal of the plan. In addition, participating communities have adopted resolutions directing staff to develop programmes, projects, and policies that reflect the strategies in the Sustainable Energy Plan. The staff need to work in a collaborative manner with other public and private entities to implement these strategies and to seek appropriate funding, within budget constraints, to effectively, efficiently and quickly address GHG emissions in the county in order to achieve the reduction goals.

3 Review of relevant EU policy

3.1 Policy for urban sustainability

Although urban policy is not formally an EU competence there has been a focus on urban matters within the EU institutions since at least 1990 when, at the request of the European Parliament, the European Commission published its **Green Paper on the Urban Environment**. The Council of Ministers subsequently called for the establishment of an Expert Group on the Urban Environment, active between 1991 and 2005, which produced an influential report on *European Sustainable Cities* and, with the European Commission and several city networks, launched the **European Sustainable Cities and Towns Campaign** which local authorities joined by signing the **Aalborg Charter** http://sustainable-cities.eu/Aalborg-Charter-79-2-3-.html (in 2004 superseded by the **Aalborg Commitments**). Local authorities active in this Campaign produced integrated strategies for local sustainability/Local Agenda 21 in which energy issues featured strongly.
http://ec.europa.eu/environment/urban/policy_initiatives.htm

Policy messages from this work were included in the European Commission's 1998 Communication **Sustainable Urban Development in the EU: A Framework for Action** which established a strategic and integrated approach to urban issues covering all relevant policy areas, including energy. The Framework was significant in stressing the need for European cities to reduce their ecological footprints and to identify multi-purpose (and not only 'integrated') policy solutions. It underpinned a whole range of funding opportunities for local work on urban sustainability, including the URBAN II programme and later URBACT.

The Framework was followed in 2006 by the **Thematic Strategy on the Urban Environment**, part of the **6th Environmental Action Programme**. This essentially promotes better implementation of existing environmental policies and legislation at the local level through exchange of experience and good practices between local authorities. It recommends *inter alia* that local authorities prepare integrated plans for environmental management and for sustainable urban transport.

In 2007 the European Commission published guidance for the preparation of environmental management plans. 'Increasing energy efficiency and use of renewable energy' is one of the key issues to be addressed in developing these plans. Preliminary guidance on the preparation of sustainable urban transport plans was also published, together with a large compendium of good practice examples. This work was informed by projects carried out in 'test' cities with the involvement of university partners. http://ec.europa.eu/environment/urban/home_en.htm And see the Managing Urban Europe 25 project http://www.mue25.net/

Related to the development of integrated environmental management plans is the EU's **Eco-Management and Audit Scheme (EMAS).**
http://ec.europa.eu/environment/emas/index_en.htm Companies have been able to participate in this scheme since 1995 and other organisations, notably local authorities, since 2001. The scheme has recently been revised. Core performance

indicators will be used to report on energy efficiency, as well as material efficiency, water, waste emissions and biodiversity. A system of reference documents will be developed for different sectors so as to promote best practice in environmental management. To promote take-up of the scheme, the Commission is also seeking to enable financial support, fiscal measures, registration subsidies or tax breaks for registered organisations, longer permit validity and less frequent inspections by environmental enforcement agencies of EMAS-registered companies

The work on sustainable urban transport plans in the context of the Thematic Strategy has recently been incorporated into the Commission's **Action Plan on Urban Mobility** published in September 2009, which cities also need to consider, since clean transport measures are of crucial importance in efforts to improve energy efficiency and reduce emissions in urban areas. Action 1 in this Plan includes the statement that the Commission will …' introduce an urban mobility dimension in the Covenant of Mayors in order to promote an integrated approach linking energy and climate change with transport. It will encourage the incorporation of transport and mobility issues in the Sustainable Energy Action Plans to be prepared by the cities participating in the Covenant.' http://ec.europa.eu/transport/urban/urban_mobility/action_plan_en.htm (see section 3.3.4 below).

In 2007 DG Regional Policy published a **Guide to the Urban Dimension in Community Policies for the period 2007-2013**, prepared by the European Commission's inter-service group on urban development, which demonstrates the very wide range of EU policies and programmes with implications for urban areas. http://ec.europa.eu/regional_policy/sources/docgener/guides/urban/index_en.htm

In parallel with work going on within the EU institutions, the national ministers for urban policy and spatial planning have since the mid 1990s taken several steps towards the establishment of a common approach on 'sustainable urban development' in European cities.

The most recent of these is the **Leipzig Charter on Sustainable European Cities** adopted by the ministers in May 2007. The charter stresses the need for an integrated approach to urban development and provides the necessary political agreement for continued cooperation between national governments and the EU institutions on urban matters. It is particularly important for securing the continued availability of EU funds for urban development.

Among other things, the Leipzig Charter promotes energy efficiency, especially in buildings, and generally supports a transition to low carbon. It calls for the creation of 'a European platform to pool and develop best practice, statistics, benchmarking studies, evaluations, peer reviews and other urban research to support actors involved in urban development at all levels and in all sectors'. A Common Reference Framework for cities to use in developing their own strategies is in preparation, with the URBACT Working Group LCFACIL in place to explore the practical implications. Links with energy planning may shortly emerge.

There is a 'dossier' on the Leipzig Charter on the EUKN website. http://www.eukn.org/eukn/researchservices/dossiers/index.html

Finally in this section it is worth mentioning the **European Green Capital Award** launched by the European Commission (DG Environment) in May 2008. Similar in concept to the European Capital of Culture, one European city will be selected annually as the European Green Capital of the year, starting in 2010. The award is given to a city that:

- has a consistent record of achieving high environmental standards;
- is committed to ongoing and ambitious goals for further environmental improvement and sustainable development; and
- can act as a role model to inspire other cities and promote best practices to all other European cities.

Progress towards action on climate change is one of the 10 measures on which a local authority must demonstrate progress in order to be considered. Others include, for example, sustainable land use. Applicants must provide detailed information about their energy use and measures to promote efficiency.
http://ec.europa.eu/environment/europeangreencapital/index_en.htm

The Green Capital for 2010 is Stockholm, to be succeeded by Hamburg in 2011. Both of these cities, and the others short listed for the award, provide examples of good practice in energy management.

3.2 The EU Sustainable Development Strategy (EU SDS)

The first years of work on urban sustainability at EU level took place before an EU level strategy on sustainable development was in place.

The **EU SDS** adopted in 2006 – which supersedes the 2001 Gothenburg Agenda - confirms *Climate change and clean energy* as one of the 7 key challenges the EU must tackle if it is to achieve 'economic prosperity based on an innovative, competitive and eco-efficient economy, protecting and improving the quality of the environment' and 'promoting equity and social cohesion in solidarity with the rest of the world'. http://ec.europa.eu/sustainable/welcome/index_en.htm

Recent work within the broad framework of the EU SDS includes progress on sustainable consumption and production and green procurement, both important for securing sustainable energy approaches at local level.

In July 2008 the European Commission published an **Action Plan for Sustainable Consumption, Production and Industry** containing, for example, proposals to extend eco-design requirements and energy labelling for more products, to further support eco-innovation and work with retailers and consumers (for example, on energy efficiency in shops and homes), and to promote green public procurement practices. http://ec.europa.eu/environment/eussd/escp_en.htm Alongside this the Commission published a **Communication on public procurement for a better environment** calling for 50% of procurements nationally to be 'green' by 2010. An essentially voluntary regime is foreseen, but associated proposals on energy labelling will eventually establish mandatory minimum procurement standards for the energy class (A to G) of products which public authorities can purchase.
http://ec.europa.eu/environment/gpp/index_en.htm The Commission Staff Working

Document accompanying the proposals considers a range of energy-related issues (such as the purchase of 'green' electricity, energy performance contracting, and use of the system of Renewable Energy Certificates) and provides signposting to more detailed guidance sources. There is also a web-based green public procurement tool kit intended mainly for local authority purchasing officers.
http://ec.europa.eu/environment/gpp/toolkit_en.htm

The **2009 Review of the EU SDS** identifies policy areas in which more needs to be done. It identifies 'contributing to a rapid shift to a low-carbon and low-input economy, based on energy and resource-efficient technologies and sustainable transport and shifts towards sustainable consumption behaviour' as among the most important priorities for the immediate future.
http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2009:0400:FIN:EN:PDF

3.3 EU energy policy

European **energy policy** is summarised as follows :

> Europe's citizens and companies need a secure supply of energy at affordable prices in order to maintain our standards of living. At the same time, the negative effects of energy use, particularly fossil fuels, on the environment must be reduced. That is why EU policy focuses on creating a competitive internal energy market offering quality service at low prices, on developing renewable energy sources, on reducing dependence on imported fuels, and on doing more with a lower consumption of energy.
> http://ec.europa.eu/energy/index_en.htm

3.3.1 A focus on climate protection

Dealing with climate change is an established EU priority and essential context for all energy work. The European Commission has been working with cities on climate protection since the mid 1990s, for example through the European Sustainable Cities project and the Citizens' Network (urban transport).

The **European Climate Change Programme (ECCP)** was launched by the European Commission in 2000 to identify the priority actions needed to enable the EU to reach the emissions targets set by the 1997 Kyoto Protocol.
http://ec.europa.eu/environment/climat/eccp.htm

Measures established in the first phase - **ECCP I (2000-2005) -** include mainly the EU Emissions Trading Scheme (EU ETS) launched in January 2005, Directives such as on the energy performance of buildings (see below) and eco-design of energy-using products http://ec.europa.eu/energy/efficiency/ecodesign/eco_design_en.htm , and some initiatives for renewable energy, such as the EU Biomass Action Plan adopted in December 2005 http://europa.eu/scadplus/leg/en/lvb/l27014.htm, which have extended the measures set out in the first action plan for renewables which dates from 1997.

In **ECCP II** - from October 2005 – the focus is mainly on strengthening the EU ETS, tackling emissions from aviation and passenger road transport, developing technology for carbon capture and storage, and – most recently – identifying ways of adapting to the impacts of climate change.
http://ec.europa.eu/environment/climat/adaptation/index_en.htm

The Commission's proposals in **An Energy Policy for Europe** published in 2007 are the basis for current actions. This was adopted as the European Council's **Integrated Climate Change and Energy Policy** in March 2007.
http://ec.europa.eu/energy/energy_policy/doc/01_energy_policy_for_europe_en.pdf

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).
http://ec.europa.eu/commission_barroso/president/pdf/COM2008_030_en.pdf

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.'
http://ec.europa.eu/climateaction/index_en.htm :

The legislative package includes:

- Revision of the EU Emissions Trading Scheme (EU ETS);
- equipping power plants with CO2 capture and underground storage technology;
- effort-sharing targets for emissions reductions;
- national targets for increasing the share of renewables in the EU's energy mix;
- reducing CO2 emissions from cars; and
- reducing greenhouse gas emissions from fuels.

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.
http://ec.europa.eu/energy/renewables/index_en.htm

The EU already has a well-established strategy for energy efficiency, including a Directive adoped 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. http://ec.europa.eu/energy/efficiency/action_plan/action_plan_en.htm

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.

3.3.2 Low carbon economy, environmental technology and eco-innovation

When it comes to identifying the benefits of energy efficiency and the shift to renewables for the local economies of cities, it is useful to note that promotion of a low carbon economy has been an established policy line at EU level for at least 5 years. Initiatives to promote 'low carbon Europe' especially bring together the two main EU policy agendas – the Lisbon strategy (now focusing on growth and jobs) and the EU SDS.

Particularly relevant for the agenda of UrSEnE are:

- The **Environmental Technologies Action Plan (ETAP),** established in 2004, which promotes eco-innovation and the take-up of environmental technologies, especially in buildings. Major themes of ETAP are the promotion of research and development, financing, and ways to improve market conditions for these technologies. http://ec.europa.eu/environment/etap/index_en.htm The **Showcase of EU and national activities** on the ETAP website contains many examples, for example on clusters of eco businesses. http://ec.europa.eu/environment/etap/showcase_en.htm

- the **Renewable Energy Road Map** of 10 Jan 2007, http://ec.europa.eu/energy/energy_policy/doc/03_renewable_energy_roadmap_en.pdf

- the **European Strategic Energy Technology (SET) Plan - Towards a low carbon future** published on 22 November 2007 (COM (2007) 0723), the main goal of which is 'to accelerate the development and implementation' of low carbon technologies, which in turn 'will play a vital role in reaching our energy and climate change targets'. http://ec.europa.eu/energy/res/setplan/communication_2007_en.htm

- The **EU's Economic Recovery Plan**, the response to the current economic crisis, published in November 2008. One of the four strategic aims of the Plan is to 'speed up the shift towards a low carbon economy'. Large sections of this Plan refer to energy and the environment more generally. In 2009 the Commission provided special assistance to fund energy projects as a means to aid economic recovery (mainly carbon capture & storage and off-shore wind).

http://ec.europa.eu/energy/grants/2009_07_15_en.htm Recent changes to Structural Funds Regulations to allow ERDF spending for housing retrofit are also part of this Plan.

The most recent proposals complement some changes already made to the EU rules for state aid and VAT. For example, national governments are already allowed to apply a reduced VAT rate to a specific list of labour-intensive services, including the renovation of private dwellings, though this is not widely applied.

- The new 10 year plan **EU 2020,** in preparation during the period available for this baseline study, and finally adopted in March 2010. This replaces the Lisbon agenda, mainstreaming strategy for greener growth and jobs http://www.euractiv.com/en/priorities/brussels-unveils-2020-economic-roadmap-europe-news-302202

3.3.3 Legislation

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. http://ec.europa.eu/environment/air/legis.htm

- The Waste Framework Directive is relevant for work on waste-to-heat plants. http://ec.europa.eu/environment/waste/framework/revision.htm

- The Directive on Strategic Environmental Assessment (SEA) is relevant for land use planning. (For example, in the UK the requirements of this Directive are incorporated in statutory planning guidance.) http://ec.europa.eu/environment/eia/home.htm

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

When considering resources for eventual implementation of energy measures in Local Action Plans in UrSEnE it will be useful to bear in mind that at EU level funding programmes follow policy; where there is legislation there is usually guidance and often funding to boost compliance.

The single 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
http://ec.europa.eu/energy/demand/legislation/buildings_en.htm

The main objective of the EPBD 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.' The main provisions of the current EPBD are:

- Establishing a methodology for calculating the energy performance of a building, taking account of local climatic conditions, *inter alia*;
- Minimum standards for energy quality to be determined by Member States and applied to all new buildings and to major refurbishments of existing large buildings (above 1000m2);
- Development of certification for buildings to make energy consumption levels visible to owners, tenants and users, and to raise awareness, whenever a building is constructed, sold or newly rented out;
- Inspection of boilers and air-conditioning systems above minimum sizes to reduce their energy consumption and greenhouse gas emissions.

There is a specific requirement in the Directive for energy information to be displayed on public buildings.

There has been recent agreement to 're-cast' 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.
http://ec.europa.eu/energy/efficiency/buildings/buildings_en.htm

Note that the EPBD allows Member States to exempt listed buildings from the provisions of the Directive. The re-cast has not changed this position.

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**.
http://ec.europa.eu/energy/actions_energy_en.htm

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.
http://www.managenergy.net/ Guidance on this website includes an 'information kit' on different aspects of sustainable energy, with short leaflets on, for example, energy efficient transport, energy use in buildings and even EU funding for sustainable energy.

The Commission has recently consolidated its advice for energy actions in several new web portals accessible from http://ec.europa.eu/energy/actions_energy_en.htm

3.3.4 The Covenant of Mayors on Energy

Of special relevance for UrSEnE is the **Covenant of Mayors**, 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, ie 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.
http://www.eumayors.eu

The Commission has set up a Covenant office, funded through the Intelligent Energy Europe programme (see below), and supports the signatories' take-up of the best sustainable energy practices through a 'benchmarks for excellence' mechanism.

The Commission has funded the preparation of **guidance for local authorities on the preparation of Sustainable Energy Action Plans**. The guidance has been prepared recently by the European Commission's Joint Research Centre, working in collaboration with a group of cities across Europe. The guidance is based on a very extensive trawl of good practice on all aspects of energy planning from across Europe and further afield. An introduction to the Guidelines, together with Parts I and II of the guidance itself, can be downloaded from the Covenant of Mayors website.
http://www.eumayors.eu/library/documents_en.htm

There is also a web-based tool for cities to use in completing their energy plans.

Provision has been made for the participation of 'Supporting Structures' such as regions, counties and provinces in the Covenant process. Supporting Structures are 'public administrations that are in a position to provide strategic guidance and technical support to municipalities with the political will to sign up to the Covenant of Mayors, but lacking the skills and /or resources to fulfil its requirements, namely the preparation and approval of a Sustainable Energy Action Plan. Typical tasks of a Supporting Structure might include:

- promoting accession to the Covenant of Mayors among municipalities in their area and providing support and coordination to those municipalities signing up;
- providing technical and strategic assistance to those municipalities willing to join the Covenant but lacking the necessary resources to prepare a sustainable energy action plan;
- providing financial support or opportunities to the municipalities for expenditure related to SEAP preparation;
- supporting implementation of SEAPs and organisation of local energy days to raise awareness; and
- reporting regularly to the Commission on the results obtained and participating in the strategic implementation of the Covenant.

In UrSEnE there may be scope to make connections between the Managing Authorities associated to the project and Regional Supporting Structures for the Covenant of Mayors where these have been put in place.

Come2COM is an Intelligent Energy Europe project expected to start in April 2010, subject to negotiation on details. It is a consortium of mainly energy agencies and consultants led by B&SU, Berlin. It will support the Covenant of Mayors by preparing 'new' cities to join the initiative and persuading more regional bodies to become 'supporting structures. The specific aims include establishing informal CoM contact points and assisting 5-10 cities in each participating country to draft their SEAPs, compiling best practice brochures on SEAPs in the languages of the participating countries and a common brochure in English for European dissemination, and conferences and other promotional events. The participating countries include the UrSEnE countries Italy, Sweden and UK.

4 Support for sustainable energy planning and actions in European cities – the EU funding programmes

This chapter identifies the main EU funding programmes relevant for the preparation of local energy plans and implementation of energy actions in cities. Projects within these programmes may be sources of good practice cases. The programmes themselves constitute eventual funding opportunities to be considered in the Local Action Plans to be developed in UrSEnE.

4.1 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). Local and regional authorities can apply to the EIB for funding for technical assistance to enable them to undertake feasibility studies, technical work (including through the appointment of additional technical staff), financial programming and tendering, in order to develop local investment programmes for energy efficiency, renewables, local energy infrastructure and urban transport. A budget of EUR 15 million Euro is available for the first year of ELENA. http://www.eub.org/elena

Funds are being channelled to ELENA from Intelligent Energy Europe.

4.2 The Intelligent Energy Europe and Eco-Innovation programmes

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.

The CIP's main function is to encourage the competitiveness of European enterprises, especially SMEs. The programme is designed to support innovation activities, improve access to finance and deliver business support services in the regions, encourage a better take-up and use of information and communications technologies (ICT) and promote the increased use of renewable energies and energy efficiency. http://ec.europa.eu/cip/index_en.htm The other two CIP strands are the Entrepreneurship and Innovation Programme (EIP) and The ICT Policy Support Programme.

Besides Intelligent Energy, the part of the CIP of most interest to cities is the special budget for **Eco-Innovation** within the Entrepreneurship and Innovation programme. This should be considered by local authorities – and universities - wishing to see the development of local enterprises specialising in innovative technology, for example in the field of renewables. It is the budget most relevant for the implementation of the ETAP, described above. http://ec.europa.eu/environment/eco-innovation/index_en.htm

Intelligent Energy Europe addresses mainly 'soft' actions complementary to the funds available for technical developments in the other CIP strands. Examples of

issues addressed by IEE are the removal of market barriers, changing behaviour, creating markets for energy efficiency and renewables, and improving public understanding of EU energy policies.
http://ec.europa.eu/energy/intelligent/index_en.html

The European Commission maintains a searchable database of IEE projects on which it is possible to locate projects on particular topics which provide exemplars for the UrSEnE partner cities and other urban areas.
http://ec.europa.eu/energy/intelligent/projects/

The IEE project **PRO-EE - Public Procurement boosts Energy Efficiency** brings together a consortium of city networks, energy agencies and municipalities who are working on model procedures for the procurement of energy efficient products and services and piloting these in 6 cities.
http://www.pro-ee.eu/

Several Intelligent Energy Europe projects have supported the development of methodologies and planning tools for the creation of local Sustainable Energy Communities (SECs), defined as 'local communities in which politicians, planners, developers, market actors and citizens actively co-operate to demonstrate and develop high degrees of decentralized energy supply, favouring renewable energies as sources, together with a conscientious application of energy efficiency measures in all end-use sectors'.

- **SECTOOLS**, completed in 2008, developed guidelines and tools for the development of Sustainable Energy Communities http://www.sec-tools.net/

- Seven cities in the **MUSEC** project have used the project to support the development of their local Sustainable Energy Community strategies.
http://www.musecenergy.eu/web/homepage.html

SECs usually cover local neighbourhoods rather than the whole municipality area, so they could be part of a broader action plan.

More generally,

- In **PATH2RES,** due to finish in March 2010, city and university partners have been developing 'a step-by-step assessment tool which can evaluate and define pathways to renewable and efficient energy systems based on real data from local/regional energy systems'
http://www.path2res.eu/en/empresa/proyecto.asp?accADesplegar=1&zonaexperto=0

- **3-NITY** developed a planning methodology, based on a simulation model designed by Chalmer's University in Sweden during the 1990s, to enable users to identify cost effective ways to develop the energy system in a community or region (REAM model). The methodology was tested in several municipalities. The partners also produced a user-friendly guide to *Municipal energy and*

climate planning. http://www.ieeprojects.net/downloads/3-NITY/FR%20Appendix%206%20-%20Publishable%20Report.pdf

Further Intelligent Energy Europe projects which are producing case studies and/or guidelines on sustainable energy planning in European cities are mentioned in Chapter 5, below.

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).** http://ec.europa.eu/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.

EACI also manages the **Sustainable Energy Europe Campaign**. The Campaign's annual award scheme highlights local examples of best practice in sustainable energy. Växjö is a previous winner.
http://www.sustenergy.org/tpl/page.cfm?pageName=home

4.3 CONCERTO and CIVITAS

The other key programmes overseen by DG TREN and very relevant for UrSEnE are CONCERTO and CIVITAS. These programmes fund concrete demonstrations – including investments in infrastructure - in cities but the funding source is the EU research budget. The projects are monitored and outcomes assessed, a task which often falls to university partners involved in the project consoritia.

CONCERTO supports energy-efficient demonstration projects in local communities. http://concertoplus.eu/cms/index.php?option=com_content&view=frontpage It can be used, for example, for retrofitting housing areas or industrial estates. Details of past projects can be found in http://ec.europa.eu/energy/res/fp6_projects/doc/concerto/brochure/concerto_brochure.pdf Växjö is an example of a CONCERTO city.

HOLISTIC, running from 2007 to 2012, is a CONCERTO project with 3 partner cities and some observers. The aim is to demonstrate the application of different energy technologies and techniques in an intelligent and integrated way within a community. Each of the partner cities is undertaking concentrated demonstration activities within a defined zone. Virtually all renewable technologies and a range of technologies for the rational use of energy will be demonstrated within the project, as well as technologies and techniques for managing supply and demand. The key to success is 'acting on every aspect of the community and selecting the most appropriate technology solution in each case'.

http://concertoplus.eu/cms/index.php?option=com_content&view=article&id=122&Itemid=135&lang=en

cRRescendo – due for completion in January 2010 – has been exploring **Combined Rational and Renewable Energy Strategies in Cities, for Existing and New Dwellings to ensure Optimal quality of life**. The main aim is to demonstrate how best to meet citizens' wishes to living in comfortable, energy efficient homes in a healthy and clean environment, focusing on ways to combine increased use of renewable energy sources (RES) with measures for energy efficiency (EE). Each community participating in the cRRescendo project is implementing an integrated strategy with these goals. The demonstration has been taking place in the metropolitian areas of Almere, Milton Keynes, Viladecans and Ajaccio. Research actions include, for example, technical assessments of energy flows in the local projects (such as electricity, cooling and heating demands in buildings), sociological assessments of occupant behaviour and attitudes to energy saving, and studies of the economic value of energy services. http://www.crrescendo.net:80/

For transport, there has been substantial funding for demonstration actions on sustainable mobilty through the **CIVITAS** programme for clean urban transport. http://www.civitas.eu/main.phtml?lan=en

Cities previously involved in this programme 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.

Bucharest is a CIVITAS city. http://www.civitas.eu/city_sheet.phtml?id=34&lan=en

CIVITAS has an award scheme, a source of good practice examples. http://www.civitas.eu/cms_hall.phtml?id=806&lan=en

4.4 The LIFE+ programme

It is also worth considering **LIFE+** the Financial Instrument for the Environment for 2007-2013. There is a major focus on climate change in the programme.

LIFE+ Environment policy and governance is probably the most relevant strand of this programme 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 100 urban environment projects funded since 1995. A selection of those funded since 1999 is available on the LIFE website http://ec.europa.eu/environment/life/themes/urban/index.htm .

Previous LIFE projects on energy, can be located on http://ec.europa.eu/environment/life/themes/energy/thematic.htm

Classifying them by topic is not straightforward, since many are multi-purpose, seeking to solve more than one problem at a time. (Projects on multi-purpose measures were explicitly promoted in earlier LIFE calls as a result of the Commission's strong line on this in the 1998 Framework.) Several are on climate protection. There is a cluster of projects in the area of governance (mainly tackling citizen participation) and another on management tools such as indicators, ecological footprinting, environmental accounting and EMAS. Others cover various aspects of sustainable construction and urban design, land use planning and urban transport.

LIFE project LIFE04 ENV/IT/000453 funded the **Realization of Rome's Action Plan to achieve the Kyoto's Protocol objective of Green House Gas Reduction**

http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=home.createPage&s_ref=LIFE04%20ENV/IT/000453&area=2&yr=2004&n_proj_id=2721&mode=print&menu=false

The 2002 LIFE project **Carbon Assessment and Reduction in Regeneration Areas (CARRA),** carried out by the London Borough of Islington, addressed climate change at the local level via an area-based approach. The project developed a carbon budget of CO2 emissions for the EC1 New Deal Area, a regeneration area characterised by multiple deprivation. A further aim of the project was to engage citizens in climate change issues. The actions were monitored by academics from London Metropolitan University.

http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=home.createPage&s_ref=LIFE02%20ENV/UK/000147&area=2&yr=2002&n_proj_id=2078&mode=print&menu=false

4.5 Structural Funds

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 and urban projects relating to the agenda of UrSEnE.

The European Commission has a searchable thematic database of successful Structural Funds projects. Energy projects are listed. http://ec.europa.eu/regional_policy/projects/stories/search.cfm?LAN=EN&pay=ALL&region=ALL&the=68&type=STO&per=2

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. It also provides detailed country-specific information about the operational programmes in the target countries and guidelines about the financing of energy investments. http://www.promoscene-database.eu/

An earlier Intelligent Energy project, **ENERGY 4 COHESION**, prepared guidelines for the implementation of energy efficiency and renewable energy actions in different locations using the Structural and Cohesion Funds programmes for 2007-13, but the focus was on rural rather than urban areas.http://www.e4c.org/6.0.html

Programmes 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 programmes 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.

Apart from URBACT, the most relevant for cooperative work on urban energy are the cross-border, trans-national and interregional INTERREG programmes.

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. http://www.interreg4c.net/index.html

Priority 2 Environment & Risk covers, for example, energy and sustainable transport and natural and technological risks, including climate change. Examples of cooperation activities cited in the operation programme 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'.

Examples of relevant INTERREG IVC projects on energy are:

- The mini-programme **POWER** which is funding sub-regional exchange of experience projects in the fields of energy efficiency, renewable energies, eco-innovation and environmental technologies, sustainable transport and behaviour change. Emilia-Romagna region is a partner. http://www.powerprogramme.eu/

- **CAPRICE** (CAPital Regions Integrating Collective transport for increased energy Efficiency) The City of Bucharest is a partner.http://www.caprice-project.info/spip.php?rubrique2

- **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.http://www.more4nrg.eu/

- **EnerCitEE,** recently approved, which will develop recommendations 'to help cities and citizens become more energy efficient'. The Energy Agency of South East Sweden, Växjö, is a partner.

4.6 The research connection

Since UrSEnE is a partnership which brings together universities and cities it is worth noting the extensive work on urban sustainability which has taken place within the EU Framework Programmes (FP) for Research and Technological Development.

The **FP4 Key Action 'City of Tomorrow and Cultural Heritage'** focused on four themes: city planning and management, cultural heritage, built environment and urban transport. Most of the projects involved collaboration between academics and urban practitioners. Several projects focused on the development of a methodology which was then tested and applied in the cities. Examples are the PASTILLE project on sustainability indicators, PETUS - on ways to incorporate sustainability into the provision of urban infrastructure, and PROPOLIS on defining long term strategies for urban sustainability.

Urban work continued in FP6, though in the absence of a specific urban budget line. Details of some 47 projects relating to sustainable urban development can be found on http://cordis.europa.eu/fetch?CALLER=FP6_PROJ&USR_SORT=EN_QVD+CHAR+DESC&QZ_WEBSRCH=urban+sustainable&QM_EP_PGA_A=FP6-SUSTDEV&DOC=41&QUERY=011d966b1776:652c:5b8980ee

Although there is no dedicated urban budget in the current programme, FP7, there is scope for project bids on urban topics, especially under the Environment and Climate theme within the Cooperation programme. Information is available on http://cordis.europa.eu/fp7/environment/home_en.html Technical research on energy has a dedicated Energy theme.

The main source of information on approved projects in FP7 is the European Commission's CORDIS website http://cordis.europa.eu/fp7/projects_en.html

It is not easy to search this site for urban sustainability projects or to pick out those with an energy planning focus.

An example of an on-going FP7 project which might be relevant for UrSeNE partners is **BRIDGE** on sustainable urban planning. The university partners are developing a decision-making model based on urban metabolism and will test it in 5 case study cities. http://www.bridge-fp7.eu/

Complementary to the main calls for proposals there are on-going networking activities funded by the research budget. Examples which UrSEnE academic partners should be aware of are the following:

- **The COST programme (**European Cooperation in the field of Scientific and Technical Research) http://www.cost.esf.org/ which fosters 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. Each of its four main themes can support aspects of work related to the agenda of UrSEnE. A list of all the running actions in this domain is available on http://www.cost.esf.org/domains_actions/tud/Actions

- the **Social Platform on Cities and Social Cohesion (SOCIAL POLIS)**. This brought together stakeholders from the research community, civil society and government, mainly to identify a research agenda on the social dimension of urban development and cohesion policy so as to inform focused calls for proposals in FP7. http://www.socialpolis.eu/

- The FP6 ERA-NET project **URBAN-Net**, a collaboration of national research funding bodies commissioning research which tackles cross-cutting urban sustainability issues and the use of integrated approaches. Their *Thematic Research Framework for Research on Urban Sustainability* includes substantial coverage of urban energy issues. http://www.urban-net.org/

An example of a COST Action which may be a sources of good practice for UrSEnE is **COST Action 23 - Strategies for a Low Carbon Urban Built Environment** which investigated how carbon reductions can be achieved through appropriate design and management of the urban built environment. The main areas of interest are minimising energy use and associated emissions from buildings**.** http://www.lcube.eu.com/

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

5 Sustainable energy action plans – establishing the 'state of the art' in cities

This chapter looks at current practice on the preparation and delivery of sustainable energy action plans in cities across Europe. Section 5.1 outlines the activities of several trans-European local government networks which have been focusing on this issue for some years. Examples of good practice on the preparation of integrated energy strategies and action plans come largely from the members of these networks, often supported through the EU funding programmes described in Chapter 4, above. Some further examples of good practice in energy planning from individual cities are in 5.2.

5.1 The city networks

The main European local authority networks for urban sustainability are Eurocities, the Council of European Municipalities and Regions (CEMR) and ICLEI. There are also specialised networks focusing on particular urban issues. For urban energy work the main organisations are Energie-Cités and the Climate Alliance. In general the local government networks have become more vocal recently on the whole issue of climate change, with their role in climate protection becoming increasingly well-recognised.

Members of these networks also get involved in urban research projects and other collaborative work with academic partners. As the following paragraphs show, they are actively involved in compiling good practice case studies, developing approaches and producing guidance for energy planning in cities.

5.1.1 Eurocities

Eurocities is the network of major European cities. About 130 large cities from over 30 European countries are members. http://www.eurocities.org

Member cities join thematic working groups and Forums which are valuable for the exchange of good practice and expertise and they often secure EU funding from different programmes for projects which support local delivery. There is a Working Group on Climate Change, Air Quality and Energy Efficiency chaired by Birmingham.

In 2009, leading politicians from Eurocities member cities agreed a common **Declaration on Climate Change.** Each local authority signing this declaration undertakes to implement a climate plan for its local area.

Eurocities is closely involved in the Leipzig Charter activities and a partner in the Covenant of Mayors office.

Eurocities is a partner in the Intelligent Energy Europe project **PEPESEC-Partnership Energy Planning as a tool for realising European Sustainable Energy Communities** which runs to June 2010. The main aim of the project is to support the development of sustainable energy communities by improving energy planning methodologies and developing innovative techniques to facilitate the involvement of politicians, citizens, market actors and other key stakeholders. Following an analysis of new approaches to energy planning at city region level, the partners have set up an on-line database of case studies, the Energy Planning Knowledge Base. Study visits to partner cities aim to enhance the local knowledge base and to improve the involvement of key stakeholders in energy planning. http://www.pepesec.eu/

5.1.2 ICLEI

The 'International Council for Local Environmental Initiatives', founded in 1990, is now ICLEI – Local Governments for Sustainability. It is an international association of local governments and national and regional local government organizations that have made a commitment to sustainable development. There are about 875 members worldwide, including 164 in Europe. There is a European secretariat. http://www.iclei-europe.org/

ICLEI has been working on climate issues for longer than most, having started its **Cities for Climate Protection Campaign** in 1993. http://www.iclei-europe.org/index.php?id=ccpeurope

Cesena is an ICLEI member.

ICLEI is the coordinator of the Intelligent Energy Europe project **SUSTAINABLE NOW**, full title **European Sustainable Energy Communities – effective Integrated Local Energy Action today**. The large partnership, which includes a number of urban local authorities, focuses on **the development of local capacity for integrated energy management and implementation of Local Energy Action Plans.** http://ieea.erba.hu/ieea/page/Page.jsp?op=project_detail&prid=1783

5.1.3 CEMR

CEMR is the largest organisation of local and regional government in Europe. The members are national associations of towns, municipalities and regions from 37 countries, together representing around 100,000 local and regional authorities. Like Eurocities, CEMR has a range of members' working groups including a Network on Energy Issues. http://www.ccre.org/ CEMR works with the European Commission to promote sustainable energy policies and energy efficiency,

for example through the Sustainable Energy Europe campaign. Like Eurocities it is involved with the Covenant of Mayors office.

5.1.4 Energie-Cités

Energie-Cités is the association of European local authorities which explicitly promotes local energy policies and seeks to build capacity at local level in this area of work. More than 1000 municipalities in 20 countries are members. Currently this network is very active in the Covenant of Mayors initiative. Its members are in several projects within the CONCERTO and Intelligent Energy Europe programmes. The Energie-Cités website provides on-line access to a database of over 500 actions by individual cities in different energy-related fields.

MODEL - Management of Domains Related to Energy in Local Authorities - is an Intelligent Energy Europe project coordinated by Energie-Cités. Its objective is 'to improve the practical capabilities of local authorities and/or energy agencies from 43 pilot cities from 10 New Member States and Croatia to better deal with intelligent energy issues'. As a way to encourage local decision-makers and stakeholders to take their own initiatives it especially promotes the appointment of municipal energy managers in cities, supports the implementation of multi-annual municipal action plans and energy information systems to improve energy performance in municipal properties, and provides information about finance for infrastructure investments. The MODEL project is one of the major outcomes of the BISE process launched in 2004 to help local authorities from 17 countries (new EU Member States, Western Balkans, Ukraine) to reduce the energy gap with their fellow municipalities of the EU-15. Orase Energy Romania is a partner.

Bucharest is a member of Energie-Cités

5.1.5 The Climate Alliance (Klima-Bündnis)

The Climate Alliance of European Cities with the Indigenous Rainforest Peoples claims to be Europe's largest city network for climate protection. It has more than 1500 members, but they are concentrated in only a few EU Member States and Switzerland. http://www.klimabuendnis.org/

In the **Climate Compass** project, funded by DG Environment through the Cooperation Framework to Promote Sustainable Urban Development (a modest programme which previously supported work on the Thematic Strategy and networking activities around the Sustainable Cities Campaign) , Climate Alliance members developed a methodology for local authorities to use in developing climate protection strategies in a short time. http://www.climate-compass.net/_modules.html

AMICA http://www.amica-climate.net/ was an INTERREG IIIC project developed by members of the Climate Alliance and interesting for the combination of mitigation and adaptation measures. The partners designed a 'Mitigation Scan' methodology for analysing the climate protection policies of local authorities, and published a Compendium of Measures which includes strategies for the development of a consistent and comprehensive climate policy, allowing for different levels of ambition for municipalities at different stages in their climate work. Their matrix tool is based on the one developed in the Climate Compass project and similar to the planning tool now being promoted for use in the Covenant of Mayors initiative. http://www.amica-climate.net/mitigation.html

5.1.6 The European Sustainable Cities and Towns Campaign

All of the networks mentioned above have been associated with the European Sustainable Cities and Towns Campaign at various times.

The Campaign now has lower profile at EU level than previously, but it has a large original membership (over 2500 local authorities) and continues with sponsorship and political support mainly from the Italian Association for Local Agenda 21 and some key member cities – Barcelona City Council and the Diputació of Barcelona, Hannover and Malmö.

The Campaign now functions as a partnership between eight local government networks and the Campaign funders. In addition to ICLEI and CEMR, the associated networks are the **Association of Cities and Regions for Recycling and Sustainable Resource Management**, the **Climate Alliance, Energie-Cités, MedCities,** the **Union of Baltic Cities** and **WHO Healthy Cities**. The networks 'supply the means for reaching out to local governments across Europe and provide the know-how and the tools for the creation of sustainability policies, sustainability plans and the implementation of the Aalborg Commitments'. http://sustainable-cities.eu/

The 6th European Sustainable Cities and Towns conference will take place in Dunkerque in May 2010.

5.1.7 FEDERENE

Finally in this section it is worth mention FEDARENE – European Regions for Energy Efficiency and Renewable Energy Sources. Its members are a mix of mainly energy agencies and regional governments 'which implement, co-ordinate and facilitate energy and environment policies'. Further good practice examples and guidance for energy planning are available on the website. http://www.fedarene.org/

5.2 Further evidence of progress in individual cities

The most comprehensive picture of city action in sustainable energy planning across Europe at the present time comes from the Covenant of Mayors initiative. More than 1000 municipalities have signed the Covenant and are, presumably, at various stages in the preparation and implementation of their Sustainable Energy Action Plans.

Although there is a great deal of guidance material it is in fact not easy to get hold of completed plans as applied to real places.

In developing and testing the recommended methodology and guidance for this initiative several municipalities were followed in some detail.

In **Barcelona** province, as at September 2009, nearly half of the Sustainable Energy Action Plans initiated in 44 municipalities within the province were nearing completion. Preliminary results are available in a report which can be downloaded from the Covenant of Mayors website.
http://www.eumayors.eu/library/documents_en.htm

Further sources of good practice case studies on urban energy from individual cities are the Managenergy website http://www.managenergy.net/gp.html , the European Urban Knowledge Network http://www.eukn.org/eukn/ and reports commissioned by the European Environment Agency.[5]

UrSEnE Good Practice Case Study 3 - Action Today for a Sustainable Tomorrow: The Energy Strategy for Cornwall, UK

A full case study and the strategy itself, prepared by the Cornwall Sustainable Energy Partnership (CSEP) and launched in 2004, can be downloaded from
http://www.managenergy.net/products/R1032.htm

The strategy commits the partnership to doubling Cornwall's renewable electricity generating capacity to achieve a sub-regional target of at least 93 -108 MW by 2010 (a figure derived from the South West region's target of 11-15% by 2010). It also commits the partners to rolling out CSEP's domestic energy efficiency programmes across the whole of Cornwall by 2010.

[5] See for example the case studies on climate action reported in European Environment Agency (2009) *Ensuring Quality of Life in Europe's cities and towns : Tackling the environmental challenges driven by European and global change* EEA Report No. 5/2009

As a result of CSEP's work, sustainable energy has become a standard element of policy and practice in many partner organisations. Partners are now better informed about the social, environmental and economic impacts of energy supply and demand. They have learned from one other and have received training organised by CSEP. By working in partnership they have also been able to access major grants that would not otherwise have been forthcoming.

In 2004, Cornwall's 7 county and district/borough councils jointly won the SW Green Energy Award for Most Proactive Local Authority in recognition of their outstanding partnership working on the Energy Strategy for Cornwall.

Progress in practical implementation of Cornwall's strategy can be checked on www.csep.co.uk

UrSEnE Good Practice Case Study 4 - Fossil Fuel Free Kristianstad, Sweden.

In 2008 this city reported progress on a wide range of practical actions and measurable results. www.kristianstad.se/klimat

The reduction of fossil fuels is to be achieved primarily by the use of bio-fuels, both biomass as fuel for heating and production of electricity and biogas as fuel for local buses and other vehicles. Other activities are efforts in the field of energy efficiency and changes in behaviour patterns. Community planning is an important instrument to promote a Fossil Fuel Free municipality. The target audience is all sectors of the society, for example companies, households, children etc. The yearly CO_2-emissons have been reduced by 123 000 tonnes. One conclusion that can be drawn is that it is easier to reduce the emissions from the heating sector than from transport. We recommend other municipalities to work with both energy efficiency and renewable energy sources.

Energy outcomes achieved :

- *New heating system fuelled by pellets in 43 public buildings*
- *New heating system fuelled by straw in one public building*
- *More biogas production from waste water treatment plant*
- *Local heating system with bio-fuel in Åhus and Fjälkinge*
- *Energy saving using window efficiency*

In progress:

- *Conversion of small houses to district heating*
- *Conversion of small houses to bio-pellets*
- *New boiler at the CHP-plant*
- *Small-scale district heating in Tollarp*
- *Conversion of more public buildings*

Transport outcomes achieved:

- *Bicycle lanes aiming to reduce car traffic*
- *Cycle paths cleared of snow before, or same time as, roads*
- *Cycle campaign among municipal employees*
- *Bicycle pool for employees at the city hall*
- *Introduction of biogas as vehicle fuel*
- *Car-pool with biogas vehicles for employees at the city hall*
- *Bicycle projects for municipal inhabitants*
- *An Internet forum for car pooling*
- *Mobility management activities in European mobility week*

In progress:

- *Biogas Kristianstad: increase the number of biogas vehicles*
- *Bicycle lanes to reduce car traffic continue to be built*

http://www.managenergy.net/products/R1911.htm

UrSEnE Good Practice Case Study 5 – Energy Strategy for Malmö , Sweden

Goal of the Energy Strategy	• function as an activity support for the department's planning and work • contribute to central, regional and local work in energy change-over in Sweden. • comply with legal requirements • form the input material for energy matters in other controlling documents in the city, such as the General Plan and the Environmental Plan for Energy Matters in the environment.
Problems	- Energy use leads to *negative environmental impact* due to discharge of pollution, including mainly carbon dioxide, sulphur and nitrogen. The levels in some parts of Malmö exceed the applicable environmental quality standards. - *unpredictability of deliveries and delivery interruptions*. This can be due to an oil crisis, electricity power cut etc. - *high cost level* in the energy field, partly due to a lack of competition.
Challenges	The most important challenges for reducing these problems: • Reduction of environmental impact • Create secure energy deliveries and energy systems • Reduce costs

PART 2 The UrSEnE partnership – state of play

6 The city partners

6.1 Cluj-Napoca (RO)

6.1.1 Introduction

The municipality of Cluj-Napoca is at an interesting stage in the development of energy policy and actions. Some practical progress has been made with the support of a national retrofit programme for high rise buildings and there is an existing local strategy which is in need of updating and improvement. The council already has some contacts with local residents, enterprises, energy suppliers and public transport providers. Substantial EU funding resources exist and there seem to be good informal connections within Romania and at European level, considerable technical and other staff resources within the municipal administration, and useful contacts with local universities. The city is now keen to capitalise on work already undertaken and, with the help of a new European partnership established in UrSEnE, to develop a more ambitious energy strategy for the city and to better exploit funding opportunities to deliver innovative actions, especially in the field of renewable energies.

6.1.2 Introducing the city – geography, population and the local economy

The city of Cluj-Napoca, in North-Western Romania, is the capital of Cluj County, the most important city in the region of Transylvania and the fourth largest city in Romania. The city occupies an area of about 179 square kilometres.

Geographically, the city is located close to mountains, grasslands and forests, including some important nature conservation areas. The Someşul Mic River flows through the city. There is an historic city centre, and the surrounding countryside contains numerous castles, important for cultural tourism. The city has extensive parks and other green spaces managed by the city council's Green Spaces Department and considered important assets for air quality and climate protection.

The total population of Cluj-Napoca city is approximately 500,000. At the 2002 census there were some 310,000 inhabitants with registered residence in Cluj-Napoca, plus over 100,000 students and about 50,000 non-resident employees. In January 2009 some 306,400 people are recorded as living within the city limits, 379,700 in the metropolitan area and more than 400,000 in the peri-urban area. Establishment of the new Metropolitan Cluj Area in December 2008 has encouraged commuting to Cluj-Napoca city, mainly from the surrounding administrative areas.

Following a period of decline during the 1990s, Cluj-Napoca has become one of the most important academic, cultural, industrial and business centres in Romania. It hosts the largest university in Romania and is now well known as the country's second largest university town. In all there are 9 universities with more than 85,000 students in Cluj.

Industrial activity and the general economic environment are now well developed due to an institutional structure which encourages inward investment, the availability of a highly-qualified work-force, and a good communications system. Cluj-Napoca's economy is mainly centered on services, and these have experienced rapid growth in the last 10 years. An important source of growth has been the rapid expansion of the property and construction sector in the city, linked to the potential associated with the Cluj Metropolitan Area .

6.1.3 Challenges for sustainability and energy planning

Through the Autonomous Heating Company (RAT) the city has an existing local strategy for energy efficiency which identifies several challenges and actions necessary to make further progress. The main focus is energy efficiency in buildings.

The challenges include:

- poor thermal insulation in apartment blocks;
- poor thermal insulation in newly constructed buildings;
- high costs of individual metering of water, gas and electricity consumption which not all inhabitants can afford;
- expressions of interest on the part of owners' associations in the introduction of decentralized energy systems based on micro-hydro power plants and in ways to use rain water for domestic purposes.

To reduce energy consumption and promote efficiency the use of advanced technologies to decrease overall energy consumption, thermal rehabilitation of buildings and the introduction of centralized cooling systems are all required.

Additionally, in line with National Energy Policy to increase the share of renewable energy to 20% of its energy sources, the city of Cluj-Napoca has the potential to increase the use of renewable energy, particularly solar. At the moment, as in the rest of Romania, the supplied electricity is obtained using 'classical' sources (thermo-electric and hydro-electric). The percentage of energy produced using unconventional sources is insignificant. The main opportunities to incorporate solar energy generation are associated with infrastructure rehabilitation projects (such as those to renovate social centres).

Other challenges are to create the best conditions for developing non-polluting industries and services (especially high-technology enterprises, eco-businesses and eco-tourism), to promote recycling and to implement energy efficiency measures in the local urban transport system.

To establish more coordinated actions at local level it is considered necessary to develop a broader and more up to date energy strategy.

6.1.4 Structure and responsibilities of the city council

The legislative body of the city is the Local Council which has 27 elected members (with party breakdown currently PD-L- 16, UDMR- 5, PSD-3, PNL-3). Elections are held every 4 years.

The city's executive body is led by the elected mayor, currently Mr Sorin Apostu. The mayor is head of the local public services. There are also two deputy mayors. The executive body of the mayor has about 980 employees located in some 17 directorates including, for example, the Economic Directorate, Technical Directorate, Control Directorate, and Directorates for Communication and Public Relations, Local Public Administration, Administration of Public Domain, and Revenue Budget.

For sustainable energy planning the Technical Directorate and Urbanism (town planning) Directorate are the key departments. The Technical Directorate is responsible for urban and construction certificates for private, public and utility works; development and implementation of the Waste Management Plan; and the specification of contracts for the design of the public water and sewerage system and social buildings. The Urbanism Directorate administers urban design certificates (including advertising), construction and demolition certificates, detailed Urban Plans and documentation for specific decisions taken by the Urbanism Committee.

The local budget represents the financial image of the local policy because it transposes the local council's decisions. To include all kinds of revenues and expenditures in local budgets, the State Budget Act has a special appendix with authorized revenue and expenditure categories for each financial year. The local budget for Cluj-Napoca municipality for 2010 adopted by the Decision of the Local Council is 204,773,047 Euros. At the moment the council has no powers to raise additional money locally to fund energy efficiency measures,

The powers of the local council over certain areas of responsibility are shared by specialized committees. The general rule is that the main public services provided by the local administration extend to citywide utilities such as the water system, the transport system and the main streets, contacts between citizens and the local authority, schools and cleaning services. The main City Hall is responsible for citywide utilities such as the water system, the transport system and the main boulevards, while sectoral town halls manage the contact between individuals and local government, secondary streets, parks, schools and cleaning services.

6.1.5 National & regional policy context for local sustainable energy action plans

The **National Sustainable Development Strategy of Romania 2013-2020-2030** was approved in 2008. Chapter 4.1 describes the spatial planning process, including objectives for the improvement of housing conditions, including multi-storey buildings in urban areas, in line with the principles of sustainable development, for the period to 2030.

Targets to be pursued between 2007-2013 include, amongst other things:

- a 40% reduction in the number of households using solid fuel stoves by replacing existing installations and introducing modern heating systems;
- resolving car parking problems and developing functional pedestrian paths and bicycle routes.

The **National Strategy on Climate Change of Romania 2005 – 2007** was prepared by the Romanian Ministry of Environment and Water Management. Chapter 4 addresses the development of greenhouse gas emissions estimation in Romania and progress in meeting the emission reduction target under the Kyoto Protocol. The target adopted by Romania is an 8% reduction compared to the base year 1989.

Regional and local authorities, particularly municipalities, play an important role in the implementation of local policies and measures to reduce the carbon intensity of the economy as well as in adaptation to the negative impacts of climate change. Their main contributions are in urban planning, including construction, land use, water supply, energy and transport systems and infrastructure as well as emergency services. In the future, local authorities will need to elaborate and implement targeted climate change actions at municipal level. Also, the municipalities have a crucial role in preparing the Joint Implementation project proposals within the framework of this Strategy.

The first **National Energy Efficiency Action Plan (NEEAP)** was developed in 2007 according to the provisions of the Directive 2006/32/EC. Romania has committed itself to diminishing final energy consumption by 2800 thousand TOE (tonne of oil equivalent) by 2016, which corresponds to an annual average rate of 1.5% between 2008 and 2016.

Considering current high energy intensity rates in Romania, the Romanian NEEAP sets a savings target exceeding the ESD target of 9%. The adopted goal for energy savings by 2016 is 32564 GWh/year (2800 kTOE/year), corresponding to a target of 13.5%. The intermediate target for the year 2010 is 940000 TOE, which is equivalent to 4.5% of the average for the years 2001-2005. According to the PRIMES baseline scenario, Romania can expect a very significant increase in total energy consumption, amounting to about 30% by 2015. This rise is especially caused by expected increases in the transport sector (54%) and the tertiary sector (47.94%). If the 9% savings target of the Energy Services Directive is achieved, the savings will only slightly slow down the enormous expected rise in final energy consumption.
http://ec.europa.eu/energy/demand/legislation/doc/neeap/romania_en.pdf

Local authorities were consulted during the preparation of the NEEAP. The document explicitly mentions the need for action in urban areas, the role of local authorities and measures to support local action.

As regards the **National Renewable Energy Action Plan,** due to be submitted to the European Commission by 30 June 2010, Romania is only just beginning to establish a policy for solar heating and cooling – not merely on the side of the government, but also on the side of the industry and its suppliers. The first governmental decision to approve a national strategy for renewable energy use in the country (No. 1535/2003)

only covered the electricity market. Responsibility for devising the plan rests with the Ministry for Economics, Trade and Business and the Romanian Energy Regulatory Authority (ANRE), but the newly created renewable energy association SunE seeks to have a say in drafting the country's NREAP.

Local authorities have been consulted during the preparation of the NREAP through the Association of Romanian Municipalities (AMR). The Plan is expected to have an urban dimension and to mention the role of local authorities and measures to support local implementation. Cluj-Napoca is able to have some informal involvement in national policy making through these processes.

The **national ministries** with the main responsibility for sustainable development and climate protection are currently the ministries for Sustainable Development and Climate Protection and for Environment and Forests. For Energy the Ministry of Economics, Trade and Business has overall responsibility.

There is no **national agency** providing financial or technical support to local authorities for their work on sustainable development, climate protection or energy. As yet there is no national guidance about energy in land use planning. However, there are some national sources of advice for citizens and businesses on energy saving and use of renewable energy. These mainly take the form of e-newsletters, magazines, bulletins and web sites.

There are some **national support measures** to finance local energy actions.

The main initiative is the **National Building Thermoenergetic Rehabilitation Programme** to improve energy efficiency in buildings. It especially provides for renovation (retrofit) of high rise buildings (mainly apartment blocks built between 1950 and1990). Forty per cent of the total cost is met by central government, 40% by the local authority and 20% by the residents.

This national programme offers important support for energy efficiency projects in the city of Cluj-Napoca. Here the municipality has decided to finance the 20% share normally contributed by residents in order to facilitate the rehabilitation of a large number of high rise buildings. The main activities include thermal insulation of external walls, replacement of windows (for the whole building) and external doors, roof insulation, thermal insulation of basement ceilings and facade rehabilitation.

UrSEne Good Practice Case study 6 – The Reflexenergie (Energy Reflex) Campaign – Greater Dunkerque

In 2004 Greater Dunkerque carried out aerial thermal infrared imaging of the buildings within the conurbation. The operation highlighted the heat wasted through roofs and many local residents came to see the results. During this operation Greater Dunkerque gave information on energy savings to 150 persons in three months.

The "Réflexénergie" ("Energy Reflex") Campaign was set up in order to go further and help to control energy consumption. This initiative is intended for all those, both private householders and business people, thinking of carrying out insulation work or energy saving measures. In this context, Greater Dunkerque contributes to the organisation of two annual "Energy Reflex" Forums in collaboration with its partners and with funding from BELIEF.

The objectives of the Forum are to achieve:
- a sustainable improvement in environmental quality,
- the preservation of non-renewable energy resources,
- social equity for the management of spending linked to energy consumption, and
- the upgrading of the building stock by promoting improvement programmes.

Targets include implementing 600 insulation projects to improve energy efficiency and the installation of 100 solar panels over a 3 year period.

Source:
http://www.energie-cites.eu/db/dunkerque_573_en.pdf
http://www.energie-cites.eu/db/dunkerque_575_en.pdf

The first subsidy scheme for renewable heating technology in Romania is the **Green House programme** 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. The municipality of Cluj-Napoca submitted several bids for funding to the Green House programme, with project proposals focusing on the development of alternative thermal technology measures.

At present, local authorities in Romania do not have to meet national performance targets for their work on sustainability, environment, climate or energy or monitor their performance in these fields using national indicators, as happens in some other EU Member States. There is no information on whether or not Cluj Napoca council has established its own indicators to monitor performance.

Further information is required about energy-related strategies and activities for the Cluj Metropolitan Area, Cluj County and the region of Transylvania.

6.1.6 The local policy context

The Municipality of Cluj-Napoca has a **Local Development Strategy** adopted in 2007 which sets out policy on local sustainability and the environment.

The department responsible is the Office for Strategy and Local Development, in which there is at least one dedicated sustainability officer. The lead on environmental strategy is taken by the Green Spaces Department. There is an integrated strategy for management of the urban environment, but the city council has not up to now pursued EMAS registration for any of its services. There are also policies for sustainable construction, green procurement, social sustainability/quality of life and sustainable mobility, but as yet no specific policies to promote a low carbon local economy, green jobs or eco-innovation.

Initial information from the council suggests that there is currently no specific strategy for climate protection. Nor has the council calculated the carbon footprint or ecological footprint of the city.

The land use plan for the whole area managed by the local authority is the PUG – the General Urban Plan. Initial information provided by the city suggests that this does not contain special policies for energy. However, there are requirements for energy in the built environment. For compliance with the EPBD, energy performance certificates for residential units are due to be introduced in March 2010. As in other EU countries, the evaluation of the total specific energy consumption (kWh/sqm) from heating consumption, hot water, lighting etc. and the rating of buildings from class A to G will be required.

6.1.7 Energy & transport infrastructure & initiatives

In the city of Cluj-Napoca, **electricity** for buildings is supplied through the centralised National Energy System via zonal distributors. Electricity is obtained from traditional sources, the percentage of renewable sources being quite low.

The main source of **heating** for buildings is the thermofication (district heating) system operated by local distributor RAT. Around 50,000 apartments are served by distributed district heating from 109 neighbourhood plants.

A strategy to promote CHP has been in place since 1998. There is a new 5MW CHP plant. The cogeneration strategy will continue to be implemented. The main fuel is natural gas but the city council is seeking to introduce some cogeneration from renewable sources. Feasibility studies for solar panels have been undertaken.

Currently the city council does not own or operate any power stations and there are no local plants using renewable energy sources such as biofuel or solar power.

UrSEnE Good practice Case study 7 - Solar district heating

Solar district heating (SDH) plants involve large-scale solar thermal technology supplying renewable, zero-emission heat from large collector fields via district heating networks to residential and industrial areas. Long-term research programmes in Sweden, Denmark, Germany and Austria led to SDH demonstration plants, operating today at feasible heat cost. Twenty years of operational experience, plant technology and know-how are available from these programmes. In total, there are about 20 million m^2 of glazed solar collectors in Europe, corresponding to about 14 GWth (thermal power). The majority of the collectors are installed in small systems with up to a few kWth. European large-scale solar heating plants with more than 500 m2 (~350 kWth) of solar collectors account for only about 135 MWth altogether, so only a minor part of the European collector market comprises large-scale applications (about 1% of the installations). However, the relevant heat loads vary from a few kWth up to several GWth and about 9% of the heating loads in Europe are covered by block and district heating systems. There is a need to develop large-scale applications in order to utilize the full potential of solar heat to cover existing heat loads. The further development of district heating systems is likely to play a major role in the future European energy market, for example in Germany and Poland. To acknowledge the importance of large-scale solar heating (and cooling) systems, the European Solar Thermal Technology Platform – ESTTP – has set up a working group for Solar District Heating (and Cooling). The vision for large-scale systems is being further developed in co-operation with representatives for Euroheat & Power with the intention to broaden the number of potential actors involved in developing, demonstrating and promoting solar heat in district heating (and cooling) applications. A number of technologies are already applied in demonstration projects mainly in the northern parts of Europe, e.g. Sweden, Denmark, Germany and Austria. At present, there are 30 plants with more than 1 400 m2 (1 MWth) solar collectors and the largest plant so far in Europe is designed to have 18 000 m2 (13 MWth) solar collectors.
Source:
http://publications.lib.chalmers.se/cpl/record/index.xsql?pubid=88441
http://www.solar-district-heating.eu/

Public transport is managed by the Autonomous Transportation Company, RATUC. Several projects are proposed for implementation of innovative energy efficiency measures in transport.

6.1.8 Current position on the local energy strategy or action plan

At present Cluj city council does not have a sustainable energy action plan comparable with those adopted in other European cities. However, the Autonomous Heating Company, under the Local Council of Cluj-Napoca, has an energy efficiency strategy which now needs adjustments and innovative up-dates through exchange of experience and know-how in projects like UrSEnE.

Lead responsibility for development of a more substantial strategy rests with the mayor and local council, with the Technical Directorate taking the lead. There are several energy officers in this department. Approximately 5 staff already have responsibility for dealing with the thermo-energetic rehabilitation of buildings. However, there is as yet no information on whether the municipality has a particular budget for energy planning. From the information supplied for this report it seems that the municipality has not yet set a specific target for CO2 reduction and it is not yet measuring energy consumption, CO2 emissions or the use of energy from renewable sources in any areas of municipal responsibility (such as public lighting, municipal buildings or waste management).

There are already contacts between municipal employees and, for example, energy suppliers, enterprises, educational organisations and citizens on local energy matters, though it is not clear whether a formal working group exists. There are periodic meetings with citizens and stakeholders active in the area. Most contacts with residents take place in the context of retrofit activities supported by the National Thermoenergetic Programme. There is some informal working with enterprises to encourage energy efficiency and improved environmental performance. No formal public/private partnership structures for implementing energy schemes are reported and there is no local or regional energy agency operating in the area.

6.1.9 Accessing support and technical expertise to develop a sustainable energy action plan in Cluj-Napoca

There is no information on whether Cluj city council has identified a need for extra research, information or guidance to inform the development of a more ambitious energy strategy.

The municipality's own employees have the professional qualifications and skills necessary to implement the National Thermoenergetic Programme locally. There is scope for staff to receive additional professional training to help them deal with new challenges in fields such as energy efficiency and sustainable mobility. To meet needs for further expertise the municipality usually seeks outside experts, mainly through collaboration with the academic sector. There is an informal network for cooperation between the city council and local universities on energy work, but this needs to be strengthened.

6.1.10 European networking and project experience

Cluj is able to call upon the resources of a Brussels office and it has at least one European officer responsible for international work and at least one responsible for identifying EU funding opportunities. Key sources of information are EU networks and lobby platforms. The city claims membership of at least one city network.
So far the city council has not signed the EU Covenant of Mayors on Energy but it is actively considering this. There is as yet no regional 'supporting structure' for the Covenant of Mayors in Transylvania.

Staff and politicians from the city council go to European conferences about energy or related topics. However, no EU-funded cooperation projects on energy or sustainable transport topics are reported.

6.1.11 European funding for implementation of local energy actions

The city is able to access considerable Structural Funds resources to support the development of energy, sustainable transport or other infrastructure to help make the city more energy efficient.

There are three main sources.

(i) Operational Programme 'Increase of Economic Competitiveness 2007- 2013'

Priority 4: Increasing Energy Efficiency and security of supply, in the context of combating climate change.

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 valorization of biomass, micro hydro, solar, wind, geothermal, bio fuels, etc.

Measure 4.3: The improvement of energy efficiency by 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.

(ii) Environment Operational Programme

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, NOx 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).

(iii) Regional Operational Programme

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.

Representatives of Cluj were able to influence the content of the Operational Programmes for 2007-13 through regional debates. Various direct contacts between the city council and the Managing Authority are reported.

Despite the availability of these funds, the city council reports that no EU funding has been received for energy projects in the city during the last 5 years.

Currently the city does not have a strategy (or some special organizational arrangement) for the way it identifies and accesses different funding sources to support energy-related projects. However, the municipality benefits from the strategy work undertaken by the Autonomous Heating Company. In this context, the city has developed several project proposals which are currently in the process of evaluation.

For the future the city council intends to explore various national and European funding sources relating specifically to energy.

6.2 Municipality of Cesena (IT)

6.2.1 Introduction

Following a recent change of political leadership, the city of Cesena is re-establishing and consolidating its work on local sustainability. Within the framework of the council's political programme for its term of office, and existing plans and programmes at national, regional and district level, the council is now seeking to develop an action plan on energy which complements existing local strategies in related areas such as sustainable mobility. European links are being used to support and inform this effort. In November 2009 the council signed the EU Covenant of Mayors on Energy. It is thus committed to producing a Sustainable Energy Action Plan (SEAP) within one year. This initiative will enable the municipality to establish a strategic framework for the range of actions which it is already undertaking and to take a more systematic approach to measurement, monitoring and resourcing in its energy work.

6.2.2 Introducing the city – geography, population and the local economy

Cesena is situated in Northern Italy within Emilia-Romagna Region, some 15km from the Adriatic coast. Together with Forlì it is the capital of the Forlì-Cesena district. The district has about 378,000 inhabitants in 30 municipalities. Cesena itself has a population of about 96,000 (2009).

Cesena's local economy has always been linked to agriculture and the food industry. These remain key industrial sectors, along with transport and logistics, 'made in Italy' (mainly footwear and furniture), mechanical engineering and IT, and 'wellness' and biomedical services.

Data from Forlì-Cesena Chamber of Commerce indicate that the total number of active enterprises in 2008 was 10.110, with 9.4 inhabitants per active company. The sectoral break down of active companies is as follows :

- Services 26,7%
- Trade & tourism 24,4 %
- Agriculture 23,1%
- Construction 13,2%
- Industry 10,7%

Average income per capita in the Forlì-Cesena district was about 29,829 euros per year in 2008[6]. The unemployment rate in the Forlì-Cesena district in 2008 (the most recent date for which data are available) was 5%. This is higher than the regional rate (3,2%) but lower than the national rate (6,7%)[7]

[6] Starnet –Union Camere: Italian Chamber of Commerce Network for studies and statistical services : http://www.starnet.unioncamere.it/Reddito-procapite-nelle-province-dellEmilia_7A3109B266C685

[7] *"Quaderni Istruzione e lavoro 2008"* - Forlì Cesena Chamber of Commerce http://www.fo.camcom.it/studiestatistica/ricerca.htm?prod=23&titolo_curr=Quaderni+istruzione+e+lavoro&new=yes.

Since the 1970's Cesena's local economy has experienced constant growth. Between 2003 and 2008 the total number of companies – excluding agricultural enterprises – grew by 6.9%. When agricultural enterprises are included in the figures the growth rate was a more modest 1.2%. More recently, however, firms based in Cesena have faced the challenges of competitiveness, innovation and internationalization, with the more traditional sectors – such as footwear and furniture, agri-food and the mechanical engineering industry – in particular experiencing a need for transformation to meet global market pressures.

Small firms (in terms of both workforce and turnover) dominate the local economy. The average number of employees per company is 3.4. Local SMEs represent the so-called 'mature sectors' and often demonstrate high productivity. They have a high propensity to invest in both product and process innovation. However they typically have difficulties in introducing organisational changes, reflected in relatively low use of ICT instruments in core activities.

One of the main challenges for the local economy in Cesena is the need to foster and capitalise upon innovation in sectors with medium to low technological content, especially to meet the challenge of global competition.

There is growing awareness of the need to promote green economic initiatives and to support improved environmental performance in existing companies, especially SMEs.

The Agency of the Forlì-Cesena Chamber of Commerce, CISE (Centre for Innovation and Development of Enterprises) has created a list of active enterprises operating in the sustainable energy sector in Forlì-Cesena district. The most recent data are from February 2009. http://www.ciseonweb.it/ambiente/club_imprese/energia.htm

6.2.3 Challenges for sustainability and energy planning

A new approach to pollution control and energy efficiency is needed to deal with industrial and population pressures. Although some environmental conditions are favorable – for example the city has a relatively large amount of green space - the municipality does not have a high ranking in the Legambiente Association's annual urban sustainability tables for Italian cities. There is ample scope to develop a more sustainable approach to energy consumption and efficiency.

In developing the plan two 'structural' problems need to be overcome. Firstly, urbanisation taxes constitute one of the main sources of income for the city, so it is not always easy to obtain political support for limiting urban growth. Secondly, the residential structure of the city – with many small and medium sized homes scattered across the city's territory – poses a problem for the provision of environmental and transport services for residents.

6.2.4 Structure and responsibilities of the city council

Cesena has 30 elected town councillors, 8 of whom make up the political board. The board consists of the vice-mayor and the councillors with responsibilities for, respectively, internal human resources, training and educational affairs, health, culture, public works, environmental sustainability and European projects, urban environment (covering, for example, street works, public parks, public buildings and spaces), and public security.

Local elections take place every 5 years. Since the last election in June 2009 the council has been controlled by the centre-left Democratic party.

The municipality has some 641 employees, including 14 executive directors, 1 General Director and 1 General Secretary responsible for 15 departments. In 2009, the last year for which complete figures are available, the council had a total annual income of about 80, 754,000 Euros. Currently the city has no powers to levy taxes or charges specifically to fund local energy measures.

The city council has responsibility for a broad range of services such as education, social services, cultural services and civil protection. The main municipal services relating directly to energy planning are environment and sustainability, urban planning, public works and infrastructure and public transport.

6.2.5 National & regional policy context for local sustainable energy action plans

The Italian **National Strategy for Sustainable Development** (NSDS) was developed by the Ministry of the Environment, Land and Sea (*Ministero dell'ambiente e della tutela del territorio e del Mare*) – the national ministry with the main responsibility for sustainable development, climate protection and energy - in accordance with the 6th Environmental Action Plan and the guidelines of the 2002 Barcelona European Council. It was approved by the Inter-ministerial Committee for Economic Planning (CIPE) in August 2002.

The Strategy sets objectives and associated actions for the following decade on four priorities: climate and atmosphere (centered on reduction of CO2 by 6.5% on 1990 levels between 2008 and 2012, in line with the Kyoto Protocol); nature and biodiversity; quality of environment (focusing mainly on urban environment and mobility of people and goods); and sustainable use and management of natural resources and waste (especially reduction of non renewable resources).
http://www.renergysociale.it/pdf/lp_004.pdf

A decision to revise the NSDS to bring it into line with the EU SDS was included in the Economic and Financial Analysis and Planning Document (DPEF) of the national Government in 2007. The revision process started in September 2007 but was halted before the general elections in April 2008.
http://www.sdnnetwork.eu/?k=country%20profiles&s=single%20country%20profile&country=Italy

Reform of the Italian Constitution in 2005 resulted in the transfer of most competences in the field of environment and sustainable development from the national to regional and local levels. The national level is responsible for the definition of environmental quality objectives and general criteria for sectoral environmental policies. Regions are responsible for strategic planning, and provinces and municipalities for the control and implementation of plans and programmes. Municipalities are seen as the direct target of EU policies for urban sustainability; programmes for urban sustainability have become more important over the last few years.

The **State-Regions Permanent Conference** established in 1983, which brings together representatives of national and sub-national political bodies, is tasked with ensuring the integration of different levels of government. The Conference has acquired additional importance following devolution and constitutional reform.

A **Technical Board on Sustainable Development**, with representatives from both national and sub-national levels, prepares the decisions to be adopted by the State-Regions Permanent Conference. The Technical Board also has the task of defining guidelines for SD strategies at the regional level. In addition, it represents the main link with the Inter-Ministerial Committee for Economic Planning (CIPE), ensuring the participation of regional representatives in the NSDS process. CIPE is the main body responsible for coordination and horizontal integration of national policies.

In drafting the revised NSDS a new approach was adopted to allow better sharing of the draft document among the main actors involved in implementation and to ensure a that the priorities are well-integrated. Central and regional administrations, local authorities, non-governmental environmental and consumers associations, industry and business organizations and trade unions representatives all reviewed the draft document and there was very wide consultation.

In the last few years some Italian regions have adopted **regional SD strategies**, aiming to build an overarching framework for their policies which is consistent with European and national level frameworks.

The implementation of **Local Agenda 21** (LA21) processes throughout the country has ensured that local planning is consistent with higher level SD strategies and that it makes an important contribution to their delivery. The most significant initiatives at national level have been two notices for co-financing SD programmes and implementing LA 21, making a total of € 25m available for local administrations. Resources have been allocated to, for example, interventions for sustainable production and consumption, promotion of environmental management and audit schemes for SMEs, and sustainable use of water resources. http://www.sd-network.eu/?k=country%20profiles&s=single%20country%20profile&country=Italy

As regards climate protection, the EU 20-20-20 strategy establishes that the Italian government will have to reduce CO2 emissions by 13% and increase the use of renewable energy resources by 17% by 2020.

The **national climate strategy** does not explicitly mention the need for action in urban areas, the role of local authorities, new legislation, or national resources (such

as funding schemes) to support local action. However, municipalities with more than 50,000 inhabitants are required by law (Article 5 of Law 10/91, point 5), to create a Local Energy Plan within the land use plan (*Piano regolatore*). It is worth noting that the objectives for local energy planning and land use are not set at national level. Instead these plans tend to comply more with standards set by regional governments.

Like all EU Member States, Italy has adopted a National Energy Efficiency Action Plan (NEEAP) to fulfill the requirements of Directive 2006/32/EC.
http://ec.europa.eu/energy/demand/legislation/doc/neeap/it_neeap_it.pdf
The plan submitted by Italy is designed to achieve energy savings of 9% by 2016. The plan identifies the current and future actions in different sectors, with expected energy savings of 35.7 TWh/y by 2010 and 126.3 TWh/y by 2016.

In relation to the requirement for every EU Member State to present its National Renewable Energy Action Plan by 30 June 2010, Italy already has a national strategy for renewables adopted in 2008
http://www.planbleu.org/publications/atelier_energie/IT_National_Study_Final.pdf

Figure.1 summarises selected measures adopted in Italy to support energy efficiency and the take-up of renewable energy up to 2006.

Figure 6.1 Energy measures to 2006

Sectors	Title of Measure	Since
All	Incentives for energy production using PV conversion from solar energy	2005
All	New decrees on energy efficiency	2004
All	Energy Efficiency Targets for Electricity and Natural Gas Supply Utilities	2001
All	Green Certificates for Energy Production from Renewable Sources	2000
Households	Energy Auditing of Buildings	2006
Households	Implementation of EU Directive 2002/91/CE on energy efficiency in buildings	2005
Transport	Implementation of EU Directive on use of biofuels	2005
Transport	Voluntary Agreement Ministry of Environment/FIAT/Unione Petrolifera for the promotion of Methane Goods Vehicles and Distributors	2003

Transport	Programmes for the Sustainable Mobility Enhancement	2001
Industry	Financing for energy efficiency and diffusion of renewables	2005
Tertiary	Installation of PV Roofs connected to the Power Grid [Programma Nazionale dei 10,000 Tetti Fotovoltaici]	2001
Tertiary	Installation of Solar Thermal Equipment in Central and Southern Italy Municipalities [Comune Solarizzato]	2001

Source: MURE data base www.mure2.com

The **Laws n. 296/06 and n. 244/07** establish the principles and the methods to improve energy efficiency in households. New buildings are required to have a renewables system providing at least 1 kW of electricity per dwelling (for industrial buildings larger than 100 m2 the limit is 5 kW). Water saving measures are also required. For existing buildings the law provides for **tax deductions** equal to 55% of the costs for energy saving measures in buildings (such as high efficiency boilers, high efficiency glass, the installation of solar panels and insulation); 20% for purchase of electrical appliances of at least A+ class (from 2010 the sale of electrical appliances of energy class lower than A is prohibited) and 36% for the substitution of high efficiency lighting appliances in commercial buildings. In 2007 there were 106,000 interventions with estimated primary energy savings of 880 GWh/y and CO2 avoided of 193,000 t/y. (Enea, project Odyssee-Mure, September 2009, downloadable at www.odyssee-indicators.org/publications/PDF/italy_nr.pdf)

To further reduce electricity use in the residential, non-residential and tertiary sectors Italy plans to replace incandescent light bulbs with compact fluorescent bulbs (CFL) through, *inter alia*, white certificate schemes, information programmes and financial incentives, resulting in savings of 4,800 GWh/year by 2016.

The **Industry 2015** programme to increase industrial competitiveness for 2007- 2009 includes an industrial innovation project on energy efficiency. This project aims to achieve energy savings in industrial production and final uses and increased utilization of renewable energy sources. The actions focus mainly on investments in the renewables sector, in new products with low environmental impact and capacity for energy saving, and in manufacturing processes to cut energy intensity. Current actions involve high efficiency co-generation, the mechanical compression of steam, the use of high efficiency electrical engines and inverters and high efficiency fluorescent lighting.

New incentives (**green certificates**) have since been developed to increase the electricity generation from renewables.

White Certificate Schemes developed in Italy and some other EU Member States (such as France) allow organizations making energy savings beyond a business-as-usual case to receive certificates. Within these schemes, energy companies themselves are obliged to make stronger commitments to energy efficient activities. Large electricity and gas distribution network companies (Italy) and energy supply companies (France) are legally obliged to demonstrate specific energy savings either through their own activities or through the purchase of White Certificates from Energy Service Companies (ESCOs).

As regards support measures for local energy actions, there are both national and local incentives for solar roofs and retrofitting.

For solar roofs the ***Conto energia*** (energy account) programme enables both households and firms to invest in photovoltaic equipment. All the energy produced via photovoltaics goes to the grid. Enel, the leading Italian energy producing company, pays around €0,40/Kw for the supply; the user imports necessary power at €0,176/Kw. The idea is to arrive at a zero invoice for electricity. Participants in this scheme enter into a 20 year agreement with Enel (or in some cases with the state).

For retrofitting the latest financial laws allow tax deductions in the order of 55% for households taking measures to improve energy efficiency, as noted above.

For **transport** there are measures to promote the use of biofuel and other renewable fuels.

At regional level, **Emilia Romagna's Regional Energy Plan** (L.R. 26/04) is particularly relevant. http://www.regione.emilia-romagna.it/wcm/energia/sezioni_home/Dossier/PER.htm

This is both a policy plan and a funding programme with resources of some 90m Euro. It includes an analysis of development factors at regional level that impact upon energy consumption and sets energy performance targets for buildings and different sectors of production. The two areas of intervention are household buildings and urban systems. Implementation is largely via the land use planning system. For public buildings the objective is to foster compliance with retrofitting standards set by national laws.

6.2.6 The local policy context

A strategy for local sustainability is included in Cesena city council's political programme for 2009-2014 (the ***Piano di mandato***). The title of this strategy is 'Sustainability as the lighthouse for every local policy'. It was adopted at a city council meeting in June 2009. This strategy re-establishes the objectives set out in the Local Action Plan designed during the Cesena Agenda 21 Forums in 2003 which unfortunately were not pursued by the last city council (2004-2009).

Within the council administration the Department for Environmental Services leads on the sustainability strategy. The team includes a Director and 7 policy officers (for, respectively, air, noise and electromagnetic pollution management; waste management; protection and promotion of natural parks; management of quarries,

environmental and sustainability education policies and institutional relations; asbestos pollution and mobility policies (jointly with the Department for Urban Planning and Mobility); civil protection; and policies for security and healthcare of municipal employees. An administrative assistant completes the team. Although environmental management is promoted, the city council currently does not have any EMAS-registered services.

There is no local strategy specifically for climate protection. However, the **Air Quality Management Plan for Forlì-Cesena District** approved in September 2007 goes some way towards providing such a strategy[8]. This Plan also functions as a strategy for sustainable mobility for Forlì-Cesena District. Cesena city council has signed up to it and participates in carrying out its actions.

The annual programme for 2010 identifies the following steps to improve air quality and to reduce the concentration of PM10:

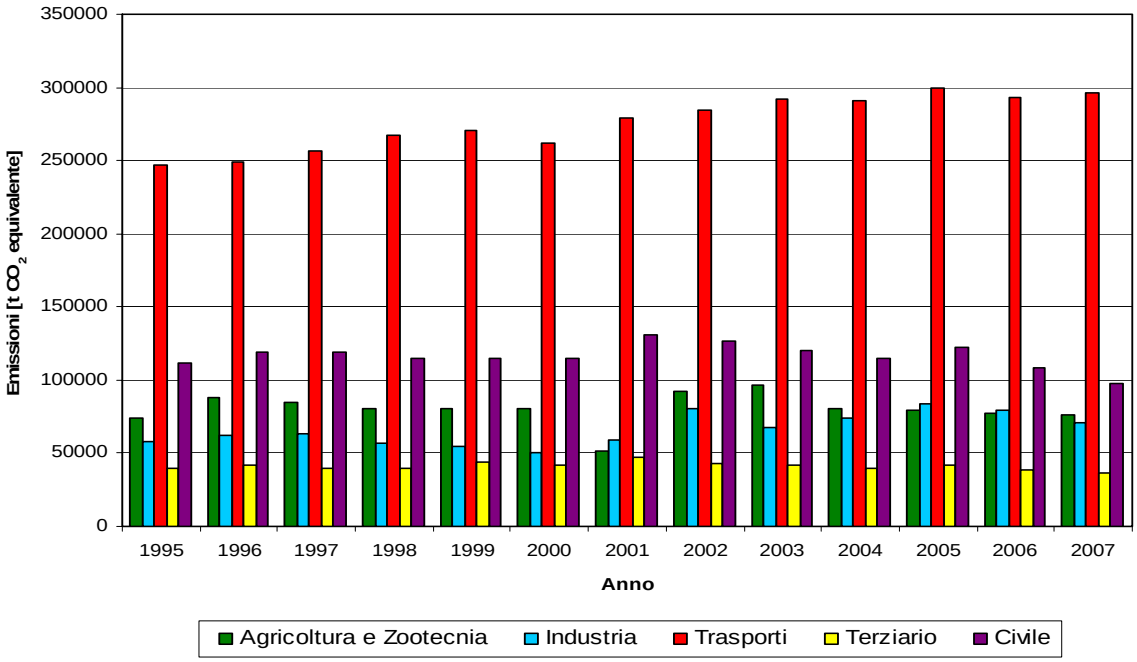
- forbidding EURO 1cars and diesel cars which are not in compliance with EURO2 standards for circulation during autumn and winter;
- extending this limit to motorcycles which do not respect EURO 1 standards;
- limiting the circulation of private cars every Thursday from 07.01.2010 to 31.03.2010 and on those days enhancing public transport with special services;
- increasing the total number of trains circulating in the Region: +6% train/km by the end of 2010;
- following objectives set down in the Regional Plan for transport, each city has to adopt an Urban Plan for traffic, to promote public transport (buses and a free bicycle service) and to facilitate the agreement between Emilia Romagna Region, Trenitalia (Italian Train Company) and local transport companies which establishes reduced prices for train and bus passes in the Emilia Romagna territory.

There is potential for this Air Quality Management Plan to be developed to provide a a strategy for climate protection.

Cesena city council already monitors CO2 emissions in its territory by sectors (See Figure 6.2).

[8] See the Air Quality Management Plan for Forlì-Cesena District: http://www.provincia.fc.it/pianoaria/ The latest version of the Plan: http://www.provincia.fc.it/pianoaria/index.asp?m1_cod=56&m2_cod=222&a=1&w_tipo=D

Figure 6.2 CO2 emissions in Cesena from 1995 to 2007



Source: Energy budget of the Municipality of Cesena 2007 - Agess - Local Energy Agency

While the city council has therefore made progress in calculating its carbon footprint, it has not yet calculated the ecological footprint for the area it administers.

The current local land use plan is the ***Piano regolatore comunale*** (PRG). The first version of this plan was the PRG 2000 designed in compliance with the regional urban law of the Emilia Romagna Region (L.20-2000). The city council updated the plan in 2008
http://www.comune.cesena.fc.it/cesena/infosettori/NewsViewSingle.asp?DescCat=VARIANTE+GENERALE+AL+PRG%2C+PRG'2000&Tipo=16&IDNews=758

The main local requirements for energy in the built environment, separate from the PRG, are set out in a **bio-construction regulation** for residential buildings adopted by the municipality in 2008.
http://www.comune.cesena.fc.it/cesena/infoRegolamenti/Source_scriptNoImg.asp?idImg=2545

This regulation is not binding for citizens. Rather, it established a system of incentives for citizens who build their houses in accordance with bio-construction criteria before the national law 192/2005 (implementing EU Directive 2002/91/CE) came into effect. This national law has established new rules and financial incentives.

It is the intention to re-visit the energy requirements in this regulation during the preparation of the Cesena Sustainable Energy Action Plan. One of the project deliverables may be a revised local regulation.

Cesena already has a **Plan for Sustainable Mobility** (*PRIM - Piano integrato della mobilità del Comune di Cesena*) which needs to be taken into account in developing the SEAP. The overall objectives are for an 80% increase in public transport use in the next 2 years and a 10% decrease in access to private cars over the next 5 years. http://www.atr.fc.it/main/index.php?id_pag=243

In addition to policies for sustainable construction and sustainable mobility the city council has policies for green public procurement, social sustainability and quality of life. However, it has not yet established strategies for a low carbon local economy or green jobs which might also be relevant in planning for energy efficiency and greater use of renewable energy technologies.

6.2.7 Energy & transport infrastructure and initiatives

As regards **energy**, the city of Cesena is not self-sufficient in term of electricity supply. Electricity generated within Cesena's territory accounts for only 2.7% of total electric energy consumption across the area administered by the city council.

However, of the electricity generated within Cesena 78.06% is from renewable sources, accounting for 2.71% of total electricity consumption (Figure 6.3).

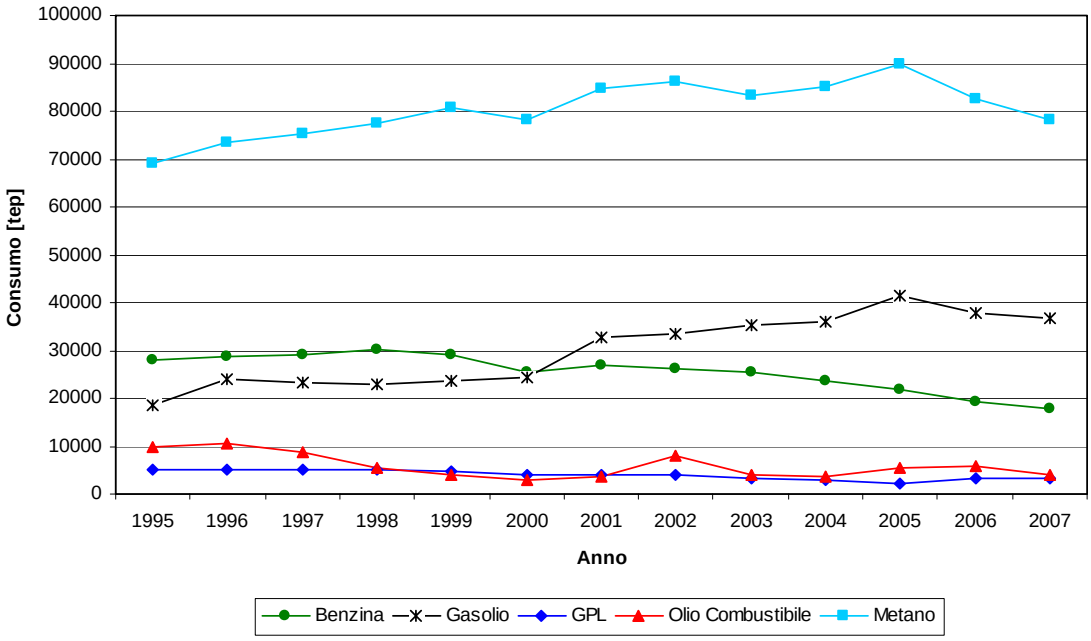
Figure 6.3 Electric energy budget of the Municipality of Cesena – 2007

Year 2007	[MWh]
Total consumption of electric energy	460617
Production of electric energy	
Hydro-electric	258,1
Aeolian	7,3
Photovoltaic	502,6
Biogas	9237
Total production of electric energy from renewable sources	10004
Not renewable sources	2811
Total production of electric energy	12815
Electric budget	- 447802
Incidence production/consumption	2,78%
Incidence renewable production/ consumption	2,17%
Incidence renewable production /total production	78,06%

(Source: Energy budget of the Municipality of Cesena 2007, by Agess - Local Energy Agency)

The main sources of heating are methane (Metano), petrol (Benzina), gas oil (Gasolio), oil fuel (Olio combustibile) and Gpl.

Figure 6.4 Consumption of combustibles by source (2007)



Source: Energy budget of the Municipality of Cesena 2007 (Agess - Local Energy Agency)

A district heating system and cogeneration distribution network have been in place since 1999. These serve the Ex Zuccherifio Area (270 houses, commercial activities, 5 sport plants and 2 schools) and the Novello and Europa residential districts (with 586 and 536 houses respectively). Offices and commercial activities are planned in both districts. The regional company for environmental services, Hera Spa, partly owned by the city council, is the owner and manager of the Cesena heating system and distribution network.

Within the city's boundaries is a power station producing bio-gas from compost. The main sources are wet and vegetable food and agri-industry waste and biomass (including locally-sourced wood). http://www.romagnacompost.it:80/impiantorc.htm

There are also some photovoltaic installations and a small hydro-electric plant along the Savio River (the *Centrale Branzaglia*), but currently no wind turbines.

The council is already involved in a private/public partnership body responsible for energy supply (Hera Spa, which owns the cogeneration plant in the Ippodromo Area). There are plans to set up a further society for renewable energies owned by the city council to achieve the sustainable energy policy objectives set out in the council's programme for 2009-14.

An essential step in developing the SEAP will be to establish a baseline for energy consumption, CO2 emissions and use of renewables.

The city council is already measuring final energy consumption, CO2 emissions and the use of energy from renewable sources in municipal buildings, the municipal fleet, waste management services and public lighting. However, it is not yet monitoring residential buildings, industrial sites or commercial and private transport.

As yet the city council has not set up any financial support or grant schemes for local energy actions beyond those described under national measures, above. However, the council has taken direct action on sustainable energy in several of its areas of responsibility, most notably :

- Since January 2009, all public buildings owned by the city council have been supplied with energy from renewable sources through a convention with the Regional Agency for public provisions (Intercenter) and the Edison company. Total energy consumption amounts to 3millon/megawatt/hour. This convention allows a total cut of CO2/year of 1.450 ton.
- The city council has launched a call for tender for provision of a computerised energy monitoring system for 70 public buildings. The objective is a saving of around 80.000 kW/h per year.
- 60 schools with buildings owned by the city council are constantly monitored for heating and energy consumption. Their heating plants have been supplied with gas methane (instead of gas oil) since 2005.
- The city council is designing a feasibility study for the construction of 50 photovoltaic plants to install on school roofs with a total power of 1,250 MWp and energy production corresponding to 80% of the energy needs of these buildings.
- The Torre del Moro primary school constructed in 2009 was built entirely in line with the local bio-construction regulation. It also has a 18KW/h photovoltaic plant which produces 21.000 kWh/year.
- Another photovoltaic plant (7 kW/p) is under construction for the canteen of a nursery school owned by the city council.

The **public transport** system in Cesena consists of 16 urban bus routes, 6 sub-urban routes and 54 extra-urban services. There are 2,661 car-parking spaces in designated car parks and on streets. Most of these (2,441) are located in the town centre; 255 are near the city hospital. In the city centre there is no free parking. Special bus passes are available for students, elderly people and workers.

The city council owns shares in the district consortium for transport: Forlì-Cesena District ATR[9].

For transport some new actions are foreseen in the Plan for Sustainable Mobility. These include the establishment of :

[9]See more information about Cesena Mobility Plan and ATRS consortium for transports: http://www.comune.cesena.fc.it/cesena/infovarie/NewsViewSingle.asp?IDNews=1275 & http://www.atr.fc.it/main/index.php?id_pag=243

- 14 bus lanes;
- payment-only car parking in the town centre;
- two free car parks outside the town centre (1200 places) connected by bus routes (park & ride);
- a free bicycle service.

Restriction of bus transport in the city centre to electric vehicles only and completion of a 20km bicycle lane around the city are also planned.

6.2.8 Current position on the local energy strategy or action plan

The main political objectives and actions for sustainability and energy planning are set down in the *Piano di mandato*, the political programme of Cesena council for the period 2009-2014 (Figure 6.5)

Figure 6.5 Cesena objectives for sustainability and energy planning 2009-2014

Objective 20-20-20 : -20% gas carbon emissions, +20% use of renewable energy & 20% energy saving (EU Directive 20 20 20)

- Establishing a society for renewable energies owned by the city council
- Preparing and adopting an Energy Action Plan for the development of renewable energy sources
- Zero impact public administration : the Municipality runs environmental best practices

An advanced system of waste management

- Through the 'R Project - Reduction, Recycle, Reuse' the council is developing actions to reduce waste production, expand the collection of separated recyclable waste and promote re-use. Main targets - citizens and trade enterprises.

Raising environmental awareness: spreading a culture for sustainable development

- Establishing a city educational centre to raise citizens' awareness on sustainable development;
- Preserving the landscape and increasing the area of low-maintenance public parks.

Sustainable mobility: fewer cars, more alternative transport

- Measures to support public transport
- Completing the city's cycle-pedestrian network
- Raising awareness about sustainable mobility

The council has not yet adopted a specific local strategy or action plan for sustainable energy. However, since becoming a signatory to the Covenant of Mayors in November 2009 the city council has made a commitment to achieve a larger reduction in CO2 emissions than the EU target of 20%, though no specific target figure has yet been established. To achieve this and meet obligations under the Covenant, the city is starting work on a Sustainable Energy Action Plan (SEAP).

Political leadership for the development of the Cesena SEAP is provided by the councillor for environmental and sustainability policies and European projects.

Within the council administration an **inter-sectoral task force** has been set up to take the work forward. . The city council has allocated a special budget for this in the 2010 budget plan. Coordinators of this task force are the Environmental Services Director and the head of the idro-thermal plants service.

This task force will provide the means for liaison between the municipality and Agess (the agency for energy and sustainable development which operates at the level of Forlì-Cesena district http://www.agenziaagess.com), the district authorities for environment (ATO, Forlì-Cesena District Authority), the Regional Agency for Environment (ARPA), the University of Bologna – Cesena School of Engineering, the Emilia Romagna Region and technical consultants from the company Rinnova whose property is shared between University of Bologna, two city banks (Cassa di Risparmio di Forlì e di Cesena) and Forlì-Cesena Chamber of Commerce .

The city council has not yet established a broader stakeholder working group (for example involving enterprises, educational organisations and citizens) to contribute to the development of the SEAP.

However, the work programme for the Cesena SEAP includes plans to involve representatives from local business associations, banks and foundations in parallel working groups on different topics so as to share objectives and outcomes.

The municipality already works with citizens and schools to promote energy saving, for example organising lessons in primary schools with the support of local associations. On 12 February 2010 there was a public event which included, for example, lighting the main square for 3 hours using only a photovoltaic streetlamp and a guided visit to the Municipal Natural Sciences Museum by candlelight. This initiative (*M'illumino di meno*) is promoted by a national radio station (Radio 2) which every year sponsors the best events for energy saving in Italy.
http://milluminodimeno.blog.rai.it/

On 26 and 27 February 2010 the city council held its first public Energy Day since signing the Covenant of Mayors. The work programme to develop the Sustainable Energy Action Plan was launched on 26th February.

The creation of three stakeholder working groups was announced at the launch. They will focus on :

- energy efficiency in public and private buildings;
- energy efficiency in firms;
- renewables.

Local residents and stakeholders are invited to sign up for membership of these groups via the municipality's website. The working groups are expected to meet regularly.

6.2.9 Accessing support and technical expertise to develop the Cesena SEAP and associated energy actions

To develop the SEAP the council has checked for available guidance and intends to use the material available on the Covenant of Mayors website.
http://www.eumayors.eu/library/documents_en.htm

On a more practical level, regional 'supporting structures' for the Covenant of Mayors are being set up in Italy to provide advice and guidance. The organization Coordinamento Agende 21 Locali Italiane network is one such structure. However, it provides support services only to its associated cities.

Locally, Cesena council is already sharing best practices on energy planning with the city of Bolzano. The mayors of the two cities have signed a protocol to formalise their collaboration. The Bolzano 'supporting structure' is Climate Alliance Italy. Climate Alliance Italy participated in Cesena Energy Day on February 26th 2010 and will support the work on the Cesena SEAP.

As regards technical expertise in the field of energy the city council has its own employees with the necessary professional qualifications and skills. They are located in the Departments for Public Works (2 policy officers), Urban Planning and City Mobility (2 policy officers) and Environmental Services (1 Director and 1 policy officer).

To help them deal with new challenges in fields such as energy efficiency and sustainable mobility , municipal employees have access to additional training financed by the city's administrative budget. For example, they are able to study for university courses and masters degrees, such as a masters in city management organized by the Business Collage, University of Bologna- Forli campus. External expertise is used when necessary.

To develop the Cesena SEAP the city council has acknowledged a need not only for further technical expertise but also for collaboration and consultation. It has set up the The SEAP task force to bring the necessary specialists and key players together.

Coordinators of this task force are the Environmental services director and the Head of the Idro-thermal plants Service. Among other things, the second of these officials was responsible for drawing up the municipality's bio-construction regulation for residential buildings.

In designing and drafting the SEAP the city council plans to use consultants from the Rinnova Company and Antares research centre who will work closely with the municipal task force. Project management and coordination will remain the responsibility of the city council officers.

In short, there are already working links between the city council and local universities and research organizations. To take forward its work on climate protection and energy, the city council has identified mechanisms and a timetable for contacts between the city council and the University of Bologna and its research centres. These planned activities now need to be implemented and strengthened.

6.2.10 European networking & project experience

Appointment of a councillor whose portfolio includes both environmental and sustainability policy and European projects demonstrates that Cesena recognizes the links between EU policy and programmes and the delivery of successful local outcomes in these fields.

Although Cesena city council does not have its own office in Brussels, it has strong ties to the Brussels office of Emilia Romagna Region (*Servizio di collegamento con l'Unione Europea*) which provides numerous strategic services to help the city develop and strengthen its European networking.
http://www.spazioeuropa.it/ufficiobruxelles

The municipality has had a European Office within its own administration since 2007. This office is linked with the Europedirect district office (set up by the Bologna University – Forli campus) and is staffed by an office manager and a communications officer.

The main tasks of the Cesena European office are:

- monitoring funding opportunities at European, national and regional level for the support of city activities;
- developing project proposals with different municipal departments;
- supporting municipal departments in the management of projects for which funding is received;
- liaison with the Emilia Romagna Region Brussels office, regional representatives in the European Parliament and directly with European institutions;
- developing European networking for the city of Cesena; and
- through a specific desk (open 2 days a week) informing citizens (especially young people) and enterprises (especially start-ups) about European mobility and study programmes and services (such as Erasmus, Leonardo, EVS and Eures), funding opportunities and territorial services for economic development.

The city is not currently a member of any formal city networks focusing on energy. However, the city formerly belonged to the Climate Alliance Italy network and has re-established contact for work on the SEAP. The council is planning to become an associated member of the Eurocities network and could thus participate in the activities of working groups and forums specializing in climate protection and energy.

In the meantime, staff and elected members from the city council go to European conferences and events related to energy. The new councillor for European projects and the European office manager participated in the Open Days in Brussels in

October 2009, especially in the sessions on energy organized within the framework of the Covenant.

In her capacity as political lead on sustainability and environmental policies, the same councillor organized two public events for citizens and schools in autumn 2009, one during European Mobility Week http://ww.mobilityweek.eu/cities/participants_en and one during the European Week for Waste Reduction http://www.ewwr.eu.eu and http://www.ecodallecitta.it/menorifiuti/

As regards European funding, the European Office manager has a good general knowledge of European programmes. She is already informed about European funding sources for energy projects, since she routinely monitors data bases, participates in info days and collects information from other institutional partners (such as Emilia Romagna Region, University of Bologna and Forlì-Cesena Chamber of Commerce).

The city council has not been a partner in an EU-funded cooperation projects on energy or sustainable transport. However, Cesena is currently a partner in the INTERREG IVC project ERMIS (Effective Reproducible Model of Innovation), which focuses on policies for innovation in SMEs. Cesena will prioritise services for energy efficiency in SMEs in this project.

The city council is also a partner in the project Schools of the Future – Towards Zero Emission with High Performance Indoor Environment submitted for FP7funding (EeB.ENERGY:2010.8.1-2 'Demonstration of Energy Efficiency through Retrofitting of Buildings'.) Other partners are from Denmark, Germany and Norway as well as Italy. The project is under evaluation, with results are due at the end of March 2010.

The city council has as yet not worked directly with university partners in any of these projects.

6.2.11 European funding for implementation of local energy actions

Italy has allocated more Structural Funds resources for sustainable energy for 2007-2013 than any other EU Member State. There is a European Regional Development Fund (ERDF) allocation of €1.85 billion, with €1.45 billion of this going to the Convergence regions of Campania, Puglia Calabria, Sicily and Basilicata. http://europa.eu/rapid/pressReleasesAction.do?reference=IP/08/84&format=HTML&aged=0&language=EN&guiLanguage=en

The **Emilia-Romagna ERDF Regional Operational Programme 2007-2013** is a significant source funds for local sustainable energy measures in Cesena.

Although representatives of Cesena are not directly involved in the management of this programme, they were able to exert some indirect influence on its content through the representatives of the Forlì-Cesena District Authority who are members of the Regional Monitoring Committee responsible for programme management and control. The General Director of the city and the directors of the various departments have direct contact with the Managing Authority officers for the development of funded projects.

The main source currently is a strategic project on the development of Eco-business Parks approved under the Third Axis – Activity III.1.1of this programme - Interventions for energy and environmental sustainability. http://fesr.regione.emilia-romagna.it .

Planned actions in Cesena include construction of a photovoltaic power plant (1MW) and a new mains sewer in the Pievesestina area of the city. Provision of these new plants in the Pievesestina area will provide SMEs located there with more efficient environmental services and energy from sustainable sources.

Additionally, a project has recently been approved under the First Axis of the same ERDF programme which will provide the city with funding to set up a local High Tech Pole in partnership with the Municipality of Forlì, the University of Bologna – Forlì and Cesena Campus, the Forlì-Cesena District Authority, the Forlì-Cesena Chamber of Commerce, local banks and foundations and some large Italian companies such as Finmeccanica.

The city council has also submitted two projects for the development of sustainable energy and energy efficiency under the **Emilia Romagna Regional Energy Plan** mentioned above. http://www.regione.emilia-romagna.it/wcm/energia/sezioni_home. One involves setting up a photovoltaic power plant of 107 TOE. The second is for the renovation of heating systems in primary schools.

These are relatively new projects, and the city does not report any previous EU funding for energy-related actions. However, staff in the municipality's European office are now exploring possibilities in the Intelligent Energy Europe Programme, LIFE + and ELENA – European Local Energy Assistance instrument.

Currently the city does not have a formal strategy for identifying and accessing complementary funding sources to support energy-related projects. However, as described above the European office manager is active in targeting relevant EU funds.

7 The university partners

7.1 University of Bologna (IT)

7.1.1 Introduction to the university

The University of Bologna, *Alma Mater Studiorum*, was founded in 1088 and is considered to be the oldest university in Western Europe. Nowadays, it still remains one of the most important institutions of higher education across Europe with around 100,000 enrolled students, 23 faculties, 69 departments, 3000 academics and 3000 administrative staff. Some of the activities have been decentralised to four campus areas in the Romagna region (Cesena, Forlì, Ravenna and Rimini).

The University of Bologna is very active in EU research programmes, with 103 projects in FP6 (including 14 coordinated by the university) and 106 so far in FP7. Research activities are promoted and coordinated by the different university departments.

7.1.2 The UrSEnE partner - SER.IN.AR Forlì-Cesena and the Antares Research Centre, University of Bologna

The University of Bologna will be represented within the URSENE partnership by SER.IN.AR Forlì-Cesena. This is a public company and a service company of the University of Bologna. Serinar has supported the university since 1988 in the administrative decentralization and expansion of its campus units in the cities of Forlì, Cesena and Cesenatico in Emilia Romagna region.

Antares is technically a project unit of Serinar and the 'operative arm' for work in UrSEnE. Effectively it is not-for-profit think tank within the Forli-Cesena campus of Bologna university.

Serinar has the following members:

Municipality of Cesena
Municipality of Forlì
Provincial Government of Forlì-Cesena
Fondazione Cassa di Risparmio di Cesena
Fondazione Cassa dei Risparmi di Forli
Chamber of Commerce of Forli- Cesena
Municipality of Bertinoro
Municipality of Predappio

Teaching programmes

Serinar has successfully managed the implementation of several masters and training courses, using EU funds, on behalf of University of Bologna faculties and research units.

In particular, Serinar has developed an expertise in the management of advanced master's degree courses using multimedia information systems, e-learning and distance learning applications. A special course on web application experts was awarded the Microsoft prize in 2004.

The following courses held in Cesena may be of interest for the UrSEnE project:

Operations research
Electrical energy systems
Energetically Independent RF System
Electronic Technologies for Information and Energy
Decisional Methods and Models
Optimization Algorithms

Expertise and research activities

The Antares Research Centre, founded in 1997, is one of the incubator research units supervised by Serinar. It is linked with the University of Bologna, Forlì Campus (with a memorandum of understanding on student tutoring on the part of Antares researchers) and has a staff of professional researchers.

Antares specializes in territorial development policy, economics and socio-economic analysis for local economic and sustainable development. Industrial policy is a further area of interest. Applied research in the field of local economic development is the main activity. Several major studies on regional development dynamics have been carried out over the last 9 years. The centre also produces thematic regional maps or atlases.

Recent research has focused on the green economy. Antares organized a 'green session' of the 39th annual conference of the International Urban Fellows Association in 2009. http://www.visible-cities.net/

Experience in working with local authorities on plans for sustainability & energy

Staff of Antares are involved in professional training for local authority staff and in consultancy work for cities.

Antares has provided the technical support for two consecutive governance processes in the Province of Forlì (managed by the Provincial government), acting as a research think tank for local scenarios in the global economy, thereby accumulating a huge amount of scientific and applied knowledge on the economic dynamics of the region. Antares has also been a strategic partner for a local governance masterplan at Provincial level. It is now serving as a consultancy unit for the Local Energy Action Plan of the Municipality of Cesena.

Experience in EU-funded projects

Serinar/Antares is experienced in the design and delivery of masters programmes co-financed by the European Social Fund (ESF), though not on energy-related subjects

up to now. (Courses have been on multi-media applications and technology and international business.) The organisation also manages an undergraduate degree course for web accessibility part-funded by the ESF.

ESF funding has also been received for research on the local labour market.

7.1.3 Other resources

Work in UrSEnE will be supported by members of staff from the Faculty of Engineering, University of Bologna. The Faculty, with 125 years of experience, international connections and distinguished professors, offers students 15 undergraduate and 5 postgraduate degree courses, including a postgraduate European course. Agreements with companies, businesses and professional studios ensure that graduates are well-prepared for the world of work. Many students undertake periods of study or dissertation research abroad.

The degree programmes are:

Automation Engineering
Building Engineering
Chemical Engineering
Civil Engineering
Computer Engineering
Electrical Engineering.

The Faculty also runs some professional training courses, such as 'Fundamental operating principles and efficient use of small scale wind energy conversion system', designed for installers of small wind turbines.

The key staff to be involved in UrSEnE are from the Department of Electrical Engineering DIE (*Dipartimento di Ingegneria Elettrica*). The department carries out advanced research in fields ranging from electric power systems, electric machines and drives, electric power generation systems, electric circuits and electromagnetic compatibility, to renewable energies and automotive technologies. There are about 10 full professors, 14 associate professors, 7 researchers, about 12 technical and administrative staff, 26 PhD students and 5 Labs. http://www.die.unibo.it

Several of the courses offered in Electrical Engineering cover energy efficiency and renewable energy technologies and demand staff competences in these areas. They include, for example, Energy systems and co-generation, Power electronics for photovoltaics and Distributed generation systems.

People involved in the UrSENE project from the Department of Electrical Engineering are part of the research group LEMAD - Laboratory of power electronics, electrical machines and drives. This group is made up of 7 professors and researchers. In relation to energy efficiency, LEMAD is involved in significant research on, for example, interfacing renewable energy generation systems and storage system with the grid, maximum power point tracking of renewable energy sources, high efficiency electric drives and non invasive diagnostic techniques for electric drives. The group is also working on the development of a low cost wind

energy forecasting service, tailor-made for small wind energy conversion systems and guaranteeing high accuracy. This service is specifically oriented to community, farmers and small landowners.

LEMAD staff are experienced in EU-funded research. For example, with partners in France, Poland and Spain they took part in the Marie-Curie project PREMAID - PREdictive MAIntenance and Diagnostics of powertrains - on electric drives. (MARIE CURIE TOK-IAP, No.MTKI-CT-029986)

Further expertise is available within the Department of Electronics, Computer Sciences and Systems (DEIS), with offices in Bologna, Pontecchio Marconi and Cesena. http://www.eng.deis.unibo.it/DEISEN/Research/ResearchAreas

7.1.4 The UrSEnE coordinator

Lorenzo Ciapetti is the UrSEnE coordinator. He is Head of the Antares Research Unit. Among other things he is an International Urban Fellow of Johns Hopkins University.

A specialist in local development policy analysis, Lorenzo teaches a course on local economic development on the Bologna University Forli-Cesena campus. He is experienced in working with local authorities, especially on mechanisms for community participation and governance, including on the formulation of local strategies for energy efficiency. At provincial level he has evaluated Territorial Employment Pacts and an SME project co-financed by Structural Funds. He is experienced in international collaboration. For example he organized the 39th International Urban Fellows' Association forum on green development held in Bologna in June 2009.

Lorenzo is already working with the Cesena municipality on their Sustainable Energy Action Plan. On a personal basis he is involved in a local community association concerned with sustainable development.

7.1.5 Perceived challenges for cities in developing and implementing local energy strategies

The development and delivery of schemes are perceived as key challenges for cities working on local strategies for sustainable energy.

7.1.6 Perceived opportunities for exchange and learning at city level

The Municipality of Cesena has recently embarked on actions for energy saving and renewables. It has produced an energy account showing that 70% of the total CO2 emissions in the area it administers are due to transportation and household emissions. It now has to translate this accounting exercise into actions to meet EU and national CO2 emission standards. To do this it has to tackle the issue of incentives directed towards households and firms.

Actions in Cesena which could be examples of good practice for other European cities include:

- use of photovoltaics on public buildings, especially schools;
- contractual arrangements with private firms for remote control of energy use in public buildings;
- approaches to participation and governance.

7.2 Technical University of Civil Engineering Bucharest – TUCEB (RO) Lead Partner

7.2.1 Introduction to the university

The Technical University of Civil Engineering Bucharest (TUCEB) is a public institution and the only Romanian university devoted entirely to education in civil engineering and related fields, covering, for example, industrial and agricultural building, hydrotechnics, railways, roads and bridges, building services, technological equipment and geodesy. In 2009 TUCEB had a staff of 157 professors and consulting professors, 122 associate professors, 107 lecturers and 198 assistant professors and junior assistants, many of them with a distinguished record in teaching and research. Although located in the region Bucuresti-Ilfov, with the main campus in the Tei (Lime-tree) district of Bucharest, the university's area of influence (as measured by, for example, its intake of students) extends over the whole territory of Romania. www.utcb.ro

TUCEB is accredited for all higher education programmes - Bachelor, Master, and Doctorate – in line with its major aim of promoting excellence in training and research. The university's mission is to train specialists at the highest level, contributing to scientific and technological progress, the maintenance of high professional standards and the efficient involvement of these specialists at all levels of the real economy, improving the quality of life.

The six TUCEB faculties offer long term academic training (4 years) leading to the degree of engineer in 8 fields and 18 specialisations. Currently there are around 4000 students.

As regards the issues to be dealt with in UrSEnE, TUCEB is training specialists in energy auditing of buildings, waste management, energy-efficient transportation and environmental engineering. TUCEB staff also undertake research on these themes.

Courses related to energy efficiency and urban and regional policies are offered in the Faculty of Civil, Industrial and Agricultural Engineering. They include undergraduate studies in Urban Engineering and Regional Development and an MSc in Urban and Regional Development.

The Faculty of Building Services offers Postgraduate Studies in 'Energy Audit of Buildings' and MSc programmes in 'Energy efficiency of equipment in buildings' and 'Energy, comfort and sustainable development'.

The Department of Engineering in Foreign Languages is a distinct unit of the University which offers engineering courses (4 year) with tuition in English and French in the field of Civil Engineering and only in French in the field of Building Services.

7.2.2 The UrSEnE partner – Department of Urban Engineering and Regional Development, TUCEB

UrSEnE is led by staff of the Department of Urban Engineering and Regional Development. This department trains specialists able to work at all government levels and in partnership with the private sector in construction and urban and rural management.

Teaching programmes

The department has around 400 students. Courses related to energy efficiency and urban planning include, within the undergraduate programme Urban Engineering and Regional Development, Theory and practice of urban and regional planning, Regional development and Energy and environment.

The programme for the MSc in Urban and Regional Development includes courses on Regional development policies and Urban development policies.

Expertise and research activities

Research activity in the university is very well developed, including on energy efficiency http://www.utcb.ro/diverse/brosuraeng2008.pdf (see section 7.2.3, below).

However, the Department of Urban Engineering and Regional Development is more focused on teaching programmes and on work with cities on urban planning than on technical research.

Experience in working with local authorities on plans for sustainability & energy

Academics from the Department of Urban Engineering and Regional Development are experienced in working directly with city partners to develop different kinds of urban plans, often with an energy dimension. Examples are urban strategies for cities such as Buzau and Tandarei, and preparation of Integrated Urban Development Plans (IUDPs), including an energy efficiency action plan, for Brasov and Constanta.

Several TUCEB professors also serve on a Technical-Scientific Committee of the 2nd District municipality of Bucharest created in 2009. Their work in this Committee is related to, for example, rehabilitation of historic buildings, thermo-energetic renovation of buildings and traffic management.

UrSEnE Good Practice Case Study 8 – Strategy for Brasov, Romania

Vision	Changing Brasov City into a dwelling place with modern, efficient and profitable energy services of low environmental impact with a focus on sustainable development.
Problems	Public building sector consumes 90% of the heat generated from centralised district heating and about 55% of the natural gas supplied to the city.
Challenges	The most significant reduction can be obtained through reorganisation and modernisation of the heat supply source in the city, together with the thermal rehabilitation of buildings and with measures that will reduce disconnections.
Priorities	Assessing the results and the resources required in order to implement the Action Plan 1. Municipality – initiator of local development regulations and projects 2. Municipality – energy generator and distributor 3. Municipality – energy consumer 4. Municipality – motivating factor
The estimated results are:	1. An estimated reduction of up to 10% through implementation of new local regulations (an amount calculated against the annual average energy consumption of local public services and residential consumers in the last 5 years). 2. Estimated reduction of GHG emissions by about 20%, expressed in kg/year/km2. 3. The potential reduction of energy consumption through implementation of the priority measures in the Action Plan related to the Energy Policy of Brasov City is estimated to be 20% (an amount calculated against the annual average energy consumption of local public services and of residential consumers in the last 5 years). 4. Improved information and awareness & consultation campaigns are estimated to result in an increased number of activities related to energy efficiency. This direct outcome is achieved through a consistent dialogue with the city inhabitants. The potential indirect outcomes will arise from the support of the local population for development of the Energy Policy for the city and in an easier adaptation to the requirements for implementation.
Lessons learned & repeatability	The barriers encountered: - lack of understanding of the importance of urgent action and synergy as the basis for sustainable development - lack of data in any format, or access to available data Following submission for analysis by the City Council the Energy Strategy must be implemented. The short-term costs are high, but action must be taken in order to support sustainable development by promoting rational use of energy and environmental protection in the city of Brasov.

Experience in EU-funded projects

Examples of successful international projects carried out in recent years (although not all related to energy efficiency) are:

- MobEduNet / Minerva - International Project for Mobile Systems Programming Education (225466-CP-1-2005-1-FI-MINERVA-M), with university partners in Hungary, Finland, Latvia and the Czech Republic.

- Educate! (RO 2004/016-772 05.02.02.01) - Integrated Management of Water Resources, Coordinator NTUA Grecia, with partners from Romania, Serbia and Slovenia. This project received 150,000 Euro from the 2004 Grecia -PHARE programme.

- CodeWitz / Minerva - For Better Programming Skills (109986-CP-1-2003-1-FI-MINERVA-MPP), funded by EU SOCRATES.

7.2.3 Other resources

'Energy efficiency, safety, steadiness and reliability of building services thermal, refrigeration, sanitary, electric, illumination and air conditioning equipment' is one of the key research themes of TUCEB.

The university is active in national research programmes financed by the Ministry of Education through the Romanian National Authority for Scientific Research. http://grant.utcb.ro/

The Faculty of Civil, Industrial and Agricultural Engineering and Faculty of Building Services have participated in national energy efficiency projects. The best known are:

- Research to establish best practices for the promotion of energy efficiency and renewable energy sources in local communities and SMEs (SEREFEN) financed by the National Research Plan. The main objectives were increased energy efficiency in industry and buildings and greater use of renewable resources.

- Work on comfort and energy efficiency in buildings through renewable energy resources, also financed by the National Research Plan.

- Establishing an annex for EPBD-related CEN-standards for buildings with high energy efficiency and good indoor environment.

7.2.4 The UrSEnE coordinator

Oana Luca, Associate Professor and Head of the Department of Urban Engineering and Regional Development, is the coordinator of UrSEnE. She is a qualified civil engineer.

Although not previously directly involved in energy policy work at regional, national or EU level, or in EU funded cooperation projects on energy topics, Oana has considerable experience in working with local authorities as a consultant/technical advisor on the development of integrated urban development plans, including energy action plans. She has been responsible for facilitation/animation of technical meetings for public consultation with members of the local council, SMEs, professionals and other interested stakeholders. She also has experience in drafting sections of these plans relating to vision, strategic objectives, policies and programmes.

As regards funding programmes, Oana is mainly an evaluator, having assessed infrastructure projects in the World Bank framework since 1999, and in the PHARE and Regional Operational Programmes of Structural Funds since 2005.

For the last 5 years Oana has contributed to MSc courses on 'Programming and implementation of development projects' and 'Assessment of development projects' at the University of Architecture and Urban Planning "Ion Mincu" Bucharest.

Her current teaching on the MSc course 'Urban and Regional Development: Regional Development Policies' includes exploration of Structural Funds in Romania. Information on the Operational Programme 'Growth of Economic Competitiveness', which finances energy efficiency projects, is included in section 6.2, above.

7.2.5 Perceived challenges for cities in developing and implementing local energy strategies

One of the main challenges which cities face in developing and implementing local strategies for energy efficiency in Romania is a simple lack of information.

In Romania, many individual energy efficiency projects are going ahead in the absence of local strategies or action plans.

7.2.6 Perceived opportunities for exchange and learning at city level

In Romanian cities there is a need to know more about the use of photovoltaics in public buildings, especially kindergartens and schools.

There is good practice on the thermo-energetic rehabilitation of high-rise buildings in both Cluj and Bucharest that should prove interesting to the other UrSEnE partners.

7.3 Jönköping University (SE)

7.3.1 Introduction to the university

With about 9000 students, Jönköping University is the 13th largest university in Sweden. It is one of the most successful regional universities, founded in 1994. It is organized as a foundation, and one of just three independent institutions of higher education in Sweden offering post-graduate programmes. The educational system adheres to the Bologna Process, with 3-year undergraduate programmes and 2-year masters programmes.

Jönköping University has about 9000 students. Research and education are carried out at four independent schools:

Jönköping International Business School
School of Education and Communication
School of Engineering
School of Health Sciences

Jönköping University has a strong international profile with more than 60 partner universities around the world. Some programmes and courses are being taught in English even at undergraduate level.

The research at the university is directed towards entrepreneurship and business renewal, with a special focus on SMEs. Students and staff are encouraged to start their own businesses, and there is a Science Park acting as an incubator next to the campus.

Most of the teaching and research on the topics of interest for UrSEnE takes place within the School of Engineering. This School offers undergraduate courses in urban planning, in sustainable development and in energy efficiency.

7.3.2 The UrSEnE partner - Department of Civil Engineering, Jönköping University

The specifc department involved in UrSEnE is the Department of Civil Engineering. http://www.jth.hj.se

Teaching programmes

With 450 students in the bachelor programmes, this department is by far the largest in the School of Engineering, accounting for almost half of all undergraduates registered in the School.

The department runs two different undergraduate programmes – ‘Civil Engineering’, and ‘Civil Engineering with specialization Building Projects with Architectural Technology’.

In the autumn of 2009, 50 students were admitted to the first year of the Civil Engineering degree, while the course with Building Projects specialization had an intake of 125. This makes this department the second largest educational provider in Sweden for Civil Engineering at undergraduate level, just behind KTH in Stockholm and bit larger than CTH in Gothenburg. However, no masters programme is offered for the moment.

In a recent reorganization, the Department of Lighting Design is now affiliated with the Department of Civil Engineering. They offer a two-year undergraduate program in lighting design.

Within the Civil Engineering Programmes the following courses are taught :

Building Physics and Materials
The Building Process
Building Technology
Urban Planning
Organization, Management and Change
Construction Technology
Sustainable Development
Building Design
Detailed Design
Installation Technology
Architecture and Technology

The Lighting Design Programme includes:

Interior light design
Exterior light design
Daylight design
Energy-efficient lighting
Communication and design methodology

Every year about 65 final projects are produced within the department, many of them focusing on aspects of sustainability and/or urban planning.

Expertise and research activities

The department currently has 12 full-time employees, including three architects, a designer, and seven engineers. There is no professor in the department, but there are two with Phds (one architect and one engineer). Current research within the department is on Building Information Modelling (BIM) and ICT-support in the early design stages in the building process, with a special focus on the client's needs.

Experience in working with local authorities on plans for sustainability & energy

Staff of the Department of Civil Engineering have substantial experience of working with local authorities on the development of local plans for sustainability. One staff member is a part-time consultant for a number of municipalities in the west part of Sweden (county of Västra Götaland) on sustainability and urban planning.

One staff member regularly provides professional training for local authority staff and professionals from the building sector.

UrSEnE contact Kaj Granath often lectures to local authorities in southern Sweden (Jönköping, Gothenburg and Malmö).

Experience in EU-funded projects

The Department of Civil Engineering has not taken part in any national, EU-funded or international projects on energy or sustainable transport topics during the last 5 years. However, with Chalmers University of Technology in Gothenburg it is currently a partner in a project submitted to the EU-funded ERA-Net Eracobuild – Value driven procurement in building and real estate http://www.eracobuild.eu/index.php?id=73 Other partners are from 5 other countries (Finland, Norway, Denmark, France and Cyprus). The project is expected to begin by 1st April 2010.

7.3.3 Other resources

Jönköping International Business School offers a bachelor program in International Economics and Policy. They teach a number of undergraduate courses in strategic urban planning focusing on sustainability, urban management and risk management. Kaj Granath regularly lectures on urban planning on of these courses.

The School of Education and Communication is planning a new undergraduate course on Urban Space, to which Kaj will contribute.

7.3.4 The UrSEnE coordinator

Kaj Granath is the UrSEnE contact in the Department of Civil Engineering. He is a specialist in urban planning, housing and architectural design. Currently an Assistant Professor in the department, his previous experience includes 5 years as a practicing architect (1995-2000), with 1 year in Luxemburg and 4 years in Sweden, though not with a special focus on energy.

Kaj currently has limited hands-on experience of energy policy and urban strategy work. However, he has a good overview of urban design issues in Swedish municipalities, having recently been an expert referee for a research publication on design guidelines (Tidäng & Westholm (2008): *Kvalitetsdokument för gestaltning och miljö: höj ribban i planeringen*). He often lectures to local authorities in southern Sweden, as noted above. He is also an active member of the local branch of the Swedish Society for Urban Planning which is closely involved in local planning issues.

In addition to links with the city of Jönköping (a signatory to the Covenant of Mayors), Kaj has close links with practitioners in Växjö, one the most advanced Swedish cities for energy work. He often organizes study visits there for Jönköping students and will be well-placed to organize an UrSEnE visit there if appropriate.

7.3.5 Perceived challenges for cities in developing and implementing local energy strategies

The major energy efficiency challenge which Sweden now faces is the renovation of the large housing stock from the 1960s and 1970s. These are mostly large-scale estates in the city suburbs which were always problematic from technical, aesthetic and social points of view.

There have been a few interesting examples of turn-around projects in these suburban housing estates in Sweden. For example, the Gårdsten project in Gothenburg won a UN Habitat award in 2005 for their successful transformation of a decaying suburb into a more sustainable living area, focusing on ecological, economic and social factors.

Passive housing is in vogue in Sweden at the moment. However, it is likely that there will be problems in the passive houses within ten years. Perhaps more interesting is the Plus Energy Concept, where the building actually produces more energy than it consumes. Such an advance requires both technological innovation and the development of new business models to make small-scale energy production economically interesting.

Beyond buildings, the transport sector is likely to be the next big issue. Sweden is a large and sparsely populated country. Rail investments have been neglected for almost a century, and it is hard to find good Swedish public transport systems outside Stockholm.

7.3.6 Perceived opportunities for exchange and learning at city level

For Swedish cities advanced in energy planning, such as Växjö, the next step is probably in the transport sector. There is a need to learn more about how to develop innovative and economic solutions for public transport in a small city and about transport planning focusing on bicycles.

Iniatives in Växjö which could be examples of good practice for other European cities include especially:

The successful reduction of CO2 emissions
Reduced usage of fossil fuels
Innovations in timber construction technologies
The political climate of collaboration and dedication to the importance of this work
The importance of a “sustainable trademark”

UrSEnE Good Practice Case study 9 - "Climate Idols": you can make a difference - Växjö, Sweden

The city of Växjö has since 1993 calculated the emission of CO2 from the use of fossil fuel in heating, industry use, electricity and transport. By 2008 it had managed to cut the average per capita emissions by 35%, to about 3.0 ton CO2. To cut emissions still further the city needs more involvements of the citizens. The long-term ambition is to reach a 70% reduction by 2025, compared to a 1993 baseline.

The **Climate Idols** are part of an international project called ANSWER, which is in turn part of Växjö municipality's work under the heading 'The Greenest city in Europe'.

The Climate Idol project is a way to inspire inhabitants in Växjö by creating good examples. Several local celebrities from the local newspaper, music and theatre, restaurants and other organizations were chosen as 'Idols', among them the county governor, a football trainer and an opera-singer. The ambition is to reach out to several target groups.

The Idols will be given five challenges during spring 2010 covering transport, energy, food and consumption. They will be coached by experts and provided with climate smart products and services by local businesses. With the project Växjö municipality wants to show the green habits of the future through the Climate Idols' challenges. If they succeed in reaching the goal of each challenge, they will receive a "Green Card" from the mayor. Local media such as newspapers, TV news, radio news and online papers have reported on the Climate Idols and their challenges.

The first challenge was to reduce electricity usage at home by at least 15 %. The result was an average change of 33 %. Some of the Climate Idols reduced their electric energy use by more than 60 % compared to the same period last year. To help the Climate Idols to respond to this particular challenge the ANSWER project provided them with watt meters from the city library and offered a visit from an energy expert who helped them to identify energy waste. Local businesses demonstrated climate smart products such as LED bulbs, solar cell chargers and solar cell torches and lamps. Växjö Energy presented their online tool "The Energy Check" where customers are able to see their energy consumption day by day.

The other challenges will include eco-driving lessons, climate smart consumption, finding alternatives to car-driving, and climate smart food.

In a second stage, the Climate Idols project will be expanded and open to citizens in Växjö, who buy cutting their CO2 emissions and show this through a web based CO2-calculator will be eligible for a "Green Card".

Web-link (in Swedish):
http://www.vaxjo.se/VaxjoTemplates/Public/Pages/Page.aspx?id=46177

UrSEnE Good Practice Case study 10 - "Välle Broar": a Triple-helix in wood - Växjö, Sweden

Started in 2006, "Välle Broar" is the largest urban planning project in Sweden focusing on modern wooden construction. Over a 10-15 year period, they aim to produce a varied and multifunctional urban environment all in wood, covering a 15 ha area between the city of Växjö and the university, establishing Växjö as a national knowledge hub for modern wood technology.

Sweden has the second largest export of forestry products in the world, second only to Canada. The forestry sector accounts for about 5 % of the GDP. On a national level, production is concentrated to the northern part of Sweden, but in the south part of Sweden, the county of Kronoberg is the forest region. One of the major forestry companies, Södra, have their head office in Växjö.

Formed as a collaborative project between the municipality, the forestry industries and the local university, the Linneaus University, the goals of the project are to develop new wood technology within the building sector, to use wood in construction in a sustainable and energy-efficient way, and, from a consumer point-of-view, to produce aesthetically attractive environments by using the qualities of wood.

At the Linnaeus University there is a Department of Forest and Wood Technology, with research focused on new construction possibilities with wood.

In the recently completed Portvakten Söder project, 64 new rental housing units were produced in 8-story high wooden houses built with passive housing technology.

Web-link (in Swedish):
http://www.vallebroar.se/

Initiatives in Jönköping include:

- the project **CO3 – Competence, Cooperation, Communication**, launched by the municipality in cooperation with the 12 smaller municipalities in the surrounding county. This aims to raise the levels of competence on sustainability and energy efficiency actions in the building sector within Jönköping county and to establish the university as a regional knowledge hub; to promote cooperation among the 12 municipalities (with a total population of about 350,000 in the county, including about 125,000 in Jönköping itself), working also with also key stakeholders and the County Administrative Board; and to establish better communications between municipalities and building sector professionals.

- The environment and climate strategy already established.

7.4 University of Wales (UK)

7.4.1 Introduction to the university

The University of Wales is both a university in its own right and part of an alliance of accredited higher educational institutions within Wales and with many other 'institutions with validated provision' located in other countries. The university validates courses worldwide, working with several types of organisation for which it provides services including the award of its degrees, diplomas and certificates. www.wales.ac.uk

In 2008 more than 20,000 students were registered on University of Wales courses in Institutions with Validated Provision located in 30 countries. The courses cover a wide variety of academic disciplines.

The University of Wales is part of the University of Wales Alliance and the degree awarding body for most of the students within this. The 'accredited institutions' in the Alliance include:

- Glyndŵr University
- Swansea Metropolitan University
- University of Wales Trinity St David
- University of Wales Institute, Cardiff (UWIC)
- University of Wales, Newport.

One of the roles of the University of Wales in this Alliance is to identify opportunities for collaboration across a range of selected academic and support areas including research, innovation and enterprise, so as to build capacity within the member institutions and benefit the economy, business and culture within Wales. Participation in UrSEnE is an example of such collaboration.

The University of Wales has offices across Wales with one of them located in Technium, Swansea. Technium ('Technology in the Millenium') is a network of technology-led business incubation centres, created in 2000 with co-financing from the ERDF (Objective 1) and managed by the Welsh Assembly Government (WAG), the regional government of Wales. The network is now bidding into the Convergence Programme for West Wales and the Valleys 2007-2013.
http://www.technium.co.uk/server.php?show=nav.8396

The main function of Technium is to provide a supportive environment in which companies can grow quickly while benefiting from technical and academic expertise. One of the targeted sectors for support is renewable energy. There are now 9 Technium Centres across Wales, 6 of them in the south west part of Wales in which Swansea is located. The University of Wales played a critical role in the development of this innovative concept. www.technium.co.uk

7.4.2` The UrSEnE partner – University of Wales

Teaching programmes

The University of Wales does not have any teaching faculties of its own. The teaching programmes are the responsibility of the Accredited Institutions. Some examples of energy related courses are:

Swansea Metropolitan University (SMU):

The School of Built and Natural Environment includes the following degree courses:

- BSc(Hons) Building Conservation Management
- BSc(Hons) Civil Engineering and Environmental Management
- BSc(Hons) Construction Management
- BSc(Hons) Project and Construction Management

http://www.smu.ac.uk/

Glyndŵr University:

- BEng (Hons) Renewable Energy and Sustainable Technologies
- FdEng Renewable Energy Systems

http://www.glyndwr.ac.uk/

UWIC:

- HND Architectural Design Technology
- HND Building Technology & Management
- BSc (Hons) Building Maintenance & Management

http://www3.uwic.ac.uk/English/Pages/home2.aspx

The Universities in the Alliance all form part of the **Education for Sustainable Development and Global Citizenship programme.** This programme includes targets to increase teaching and research on sustainable development issues such as energy management, as well as integration with local authorities in the regions.
http://www.esd-wales.org.uk/

In 2008 the Uiversity of Wales established the **Global Academy**, a programme to bring together higher education providers, private companies located in Wales and talented graduates from anywhere in the world. Projects carried out by the Global Academy are designed to boost the Welsh economy by enhancing the innovative capacity of business, especially their ability to develop new market led processes, products, technologies and services. Activities of the Global Academy include running the **Prince of Wales Innovation Scholarships**. This is a programme to place 100 graduates in Welsh SMEs between 2009 and 2014. While working for 3 years on projects with local companies the scholars study for a PhD qualification from the University of Wales. The Global Academy and Innovation Scholarships receive ERDF co-financing from the West Wales and the Valleys Convergence Programme.
http://www.wales.ac.uk/en/GlobalAcademy/POWIS.aspx

Expertise and research activities

Key members of University of Wales staff with research expertise on energy efficiency, renewable energy technologies and local action plans for sustainable energy include:

Professor Marc Clement - Chair of the Expert Panel on Resources Management (2004-2007). This Panel provided advice to the Welsh Assembly Government on how to encourage businesses in Wales to become more resource (energy, materials, and water) efficient. This advice informed the Green Jobs Strategy for Wales. http://www.swan.ac.uk/media/Media,14179,en.pdf

Dr Gavin Bunting – Senior Policy Adviser, Energy and Climate Change, seconded full time from the University of Wales to the Sustainable Development Commission. Previously Gavin was Energy Adviser to the Welsh Assembly Government where his work included research and advice on energy policy, stakeholder involvement and strategic energy projects.

Louisa Huxtable - UrSEnE project coordinator (see section 4, below).

Jonny Williams – currently seconded to the Building Research Establishment (BRE - a leading consultancy company specialising in low energy housing and sustainability). He works closely with the Welsh Assembly Government on the Heads of the Valleys Low Carbon Zone project, which is co-financed from the West Wales and the Valleys Convergence programme, providing technical guidance on renewable energy and retrofit energy efficiency measures for existing homes. The brief also includes business development for companies developing low carbon technologies for the built environment.

Gareth Davies – has worked with the Wales Spatial Plan regional group which integrates the policies of five local authorities on the subjects of the knowledge economy, ICT and sustainability. Gareth works with all Universities in the UW Alliance as well as the local authorities associated with them.

Experience in working with local authorities on plans for sustainability & energy

Louisa Huxtable has been involved with the local Sustainable Development and Energy planning groups in Swansea City Council, as well as directly advising the Welsh Assembly Government on their policies for energy, micro-generation and green jobs.

Gavin Bunting has recently run workshops for regional stakeholders (including senior local authority staff and civil servants) throughout Wales, on the preparation of plans to reduce carbon emissions.

Experience in EU-funded projects

The University of Wales is the lead sponsor of an ERDF-funded project, the Innovation Placements Scheme, which places graduates with companies in

economically deprived regions of Wales to support the research, development and commercialisation activities of these companies.

This project is managed by Professor Dylan Jones-Evans, himself experienced in winning and administering European funding from ERDF, ESF and FP7, and Louisa Huxtable, who has successfully administered the Technium Sustainable Technologies project on behalf of partners from the public and private sectors. The University has a close working relationship with the Welsh European Funding Office (the Managing Authority).

The team at the University of Wales are also involved in setting up a collaborative International Research Centre on Clean Technologies with the Business School at the University of Turku in Finland and advisors from Rice University, Texas.

UWIC is active in INTERREG programmes. For example, this institution is currently lead partner in the INTERREG IVC project, about design and innovation in SMEs. http://seeproject.org/index Previous INTERREG projects have included work on environmental planning.

7.4.3 Other resources

Participants in UrSEnE will be able to call on expertise from all of the universities in the Alliance described above. Relevant organisations include, for example:

- **UWIC** – The **Eco-Design Centre** has expertise in sustainable design and related policies and legislation and supports small companies in their use of eco-design. The **Cardiff School of Art and Design** is involved in training for architects on low carbon buildings. The **Cardiff School of Management** at UWIC is involved in research on the technical and economic challenges of alternative energy sources including wind and tidal power and transition to a low carbon economy. This School also hosts a **Creative Leadership and Enterprise Centre** which undertakes research on local enterprise and SMEs. It is currently running a postgraduate course on Leadership for Collaboration.

- **Swansea Metropolitan University (SMU) -**The **School of Built and Natural Environment** at Swansea Metropolitan University combines the disciplines of built environment, civil engineering and architecture with environmental and natural sciences. Working with other educational institutions, charities and companies, staff and students from the School are active in promoting environmental issues to a wider audience in the county. One of the main course modules at SMU is called 'Living Sustainably', aimed at increasing awareness of sustainable development and global citizenship.

- **Glyndwr -** The **Engineering Research Centre** is a multidisciplinary centre undertaking research in collaboration with several European and UK universities. Work on signals, power systems and control may be relevant for UrSEnE. Examples of current research activities include the use of Global Information Services and data technologies to optimise the performance of

hybrid and electric vehicles. Part of the faculty of Engineering, the **Renewable Energy and Sustainable Technologies** course offers a multi-disciplinary approach to low carbon technologies.

Through the ULSG it will also be possible to make links with the other universities in Wales, such as Swansea University and Cardiff University, which are part of the Convergence-funded **Low Carbon Research Institute for Wales**.
http://www.lcri.org.uk/

Gavin Bunting, employed by the University of Wales, is currently seconded to the **Sustainable Development Commission** (SDC) where he leads the Energy and Climate Change portfolio in Wales.

The Sustainable Development Commission is the UK government's independent adviser on sustainable development, reporting to the Prime Minister, the First Ministers of Scotland and Wales and the First Minister and Deputy First Minister of Northern Ireland. http://www.sd-commission.org.uk

In Wales, the Sustainable Development Commission works to:

- draw together expert opinion to provide independent advice to ministers, policy-makers and other stakeholders
- help the Welsh Assembly Government to improve its departments' performance, understanding and internal capacity to deliver sustainable development; and
- provide an independent assessment of the Welsh Assembly Government's performance and progress on sustainable development.

For the SDC, Gavin Bunting is the manager of a project for the Welsh Assembly Government to produce a framework for transforming all sub-regions of Wales into **Low Carbon Regions**. http://www.sd-commission.org.uk/news.php/289/wales/break-down-barriers-for-a-low-carbon-wales
The overall objectives and recommended approach have many parallels with the approach to the preparation of sustainable energy action plans recommended for city signatories of the EU Covenant of Mayors on Energy.

UrSEnE Good practice case study 11 - Low Carbon Wales, UK

The project Low Carbon Wales, carried out in 2008-9, delivered recommendations to the Welsh Assembly Government (WAG) on priority actions to reduce emissions. The project involved engagement with key stakeholders across Wales from both the private and public sector and significant desk based research.

The report sets out the process through which the regional (Wales-level) policy framework can be used to facilitate action for low carbon strategy development and actions to reduce emissions at a sub-regional level. (The sub regions are identified in the Wales Spatial Plan. They have no fixed administrative boundaries and each includes several local authorities working together.)
http://www.adjudicationpanelwales.org.uk/location/strategy/spatial/?lang=en&ts=2

The report sets out two phases of action at sub-regional level.

The Preparatory Phase includes the establishment of a network of stakeholders and a dedicated Low Carbon Working Group to coordinate and drive emissions reductions whilst ensuring that the existing delivery mechanisms, policies and projects of each area are compatible with a low carbon future. The work also includes producing a low carbon vision for the sub region where low carbon lifestyles are possible through the infrastructure and services provided, and aligning the sub regions' existing Area Delivery Frameworks with a low carbon future.

The Delivery Phase requires the network of stakeholders to take ownership of the development and delivery of low carbon initiatives within their sub region. This includes:

- Maintaining a strategic overview of low carbon activity within the sub region to guide and coordinate projects, identify gaps, opportunities, synergies and potential for collaborative working
- Advocating the need to embed the target of becoming a Low Carbon Region into all relevant strategies
- Sharing and scaling up best practice
- Identifying and developing new carbon reduction activities within each region
- Engaging with Wales-wide initiatives to ensure that local and sub-regional issues are addressed
- Partnership(s) with other places in the UK and EU with similar characteristics that enable learning to be shared and fast and effective knowledge transfer
- Developing a target setting, monitoring and review process.

Importantly, each of the Low Carbon Working Groups will take the lead in the development, coordination and delivery of a low carbon strategy. The report Low Carbon Wales: Regional priorities for action and further guidance material can be downloaded from: http://www.sd-commission.org.uk/publications.php?id=1018

The SDC at UK level has produced a number of reports relevant to the UrSEnE project, for example:

- Wind Power in the UK – http://www.sd-commission.org.uk/publications.php?id=234
- Turning the Tide, Tidal Power in the UK http://www.sd-commission.org.uk/publications.php?id=607
- The Role of Nuclear Power in a Low Carbon Economy http://www.sd-commission.org.uk/publications.php?id=344
- SDC Supplier Obligation Project - Household Energy from 2011 http://www.sd-commission.org.uk/publications.php?id=789
- Renewable Heat in Scotland http://www.sd-commission.org.uk/publications.php?id=1015
- Building Houses or Creating Communities? http://www.sd-commission.org.uk/publications.php?id=558

- Carbon Emissions from Schools: Where they arise and how to reduce them http://www.sd-commission.org.uk/publications.php?id=765
- Strategic priorities for sustainable schools http://www.sd-commission.org.uk/publications.php?id=879
- Stock Take: Delivering improvements in existing housing http://www.sd-commission.org.uk/publications.php?id=400
- Smarter Moves: How Information Communications Technology can promote Sustainable Mobility http://www.sd-commission.org.uk/publications.php?id=1050

7.4.4 The UrSEnE coordinator

The UrSEnE coordinator for the University of Wales is Louisa Huxtable. Her academic qualifications are an MSc in Environmental Biology and a PhD in Business and Environment Policy making. Louisa's role in the University is as Assistant Director in Charge of Operations in the Department of Research and Innovation. Louisa runs the operational aspects of the Global Academy and was previously manager at Technium Sustainable Technologies. She has expertise in environmental management, resource efficiency, low carbon business development and the use of experts in public policy making.

Her current work includes:

- As part of the Prince of Wales Innovation Scholarships Programme, advising businesses and scholars on energy management. Many of the companies involved in this scheme will be in the field of new carbon technologies. Louisa's role is to assist these companies to commercialise their technologies.
- Advisor to the Welsh Assembly Government on the Green Jobs Strategy for Wales. Louisa has arranged and managed stakeholder workshops for implementation of the Green Jobs Strategy.
- Expert advisor on the Wales Spatial Plan regional strategy for ICT. This work has involved advising local authority policy makers on community usage of shared IT resources.

Previously Louisa was Energy Adviser to the Welsh Assembly Government where her work included research and advice on energy policy, stakeholder involvement and strategic energy projects.

Louisa has a broad knowledge of EU energy policy and good practice. UrSEnE will be her first direct experience of working in an EU-funded cooperation project. Up to now her experience with Structural Funds is as a manager of projects in receipt of ERDF Objective One and Convergence funding.

7.4.5 Perceived challenges for cities in developing and implementing local energy strategies

- Understanding how to tackle a complex and cross cutting agenda such as climate change / energy efficiency/sustainable energy. This often requires the creation of multi disciplinarily, cross-departmental working relationships and associated organisational change.

- Securing effective stakeholder engagement. In sustainable energy planning it is necessary to involve a very wide range of stakeholders and this presents significant management challenges.

- Funding. Investment in energy efficiency and renewable energy often requires an upfront capital investment, with pay back over a number of years. This can go against some procurement policies (and individual householder behaviour), where upfront cost is an overriding factor and lifecycle costs can be more difficult to justify. Therefore new innovative models for investment and funding need to be developed.

- Suitable policy framework. Underpinning all of the above there needs to be a policy framework that is flexible enough to enable innovative solutions to be implemented, but at the same time is equitable, fair and provides a robust framework for implementation, with SMART objectives.

7.4.6 Perceived opportunities for exchange and learning at city level

Local authorities in Wales are involved in sub-regional work on low carbon but are not necessarily developing their own sustainable energy action plans.

Local authorities in Wales need to learn about:

- The implementation of sustainable district heating schemes

- How to mainstream the development of low carbon buildings, overcoming barriers to implementation.

- Funding of sustainable energy schemes

- How to maximise the economic benefit from implementing energy efficiency / sustainable energy initiatives.

Examples of good practice from Wales of interest to other UrSEnE partners may include:

- The strong policy lead given by the regional government of Wales (which has ambitious CO2 reduction targets in the context of the UK government's legally binding goal for 80% CO2 emissions reduction - from 1990 baseline - by 2050) and the approach to planning developed during the Low Carbon Wales project.

- A zoned approach to refurbishing social housing to high energy efficiency standards.

- The effective and innovative engagement of the construction sector in working towards a low carbon built environment.

- The involvement of stakeholders in creating climate change/ energy efficiency /sustainable energy strategies.

8 Focusing the project – the European context

This chapter contains observations resulting from the review of EU policy and funding programmes and scoping of existing practice in city networks and individual cities set out in Part 1 of this report.

Some specific recommendations for the UrSEnE partnership are derived from this analysis.

8.1 The project topic – strategic considerations

Clearly the range of EU policy relevant for sustainable energy planning is well-established and substantial and this will go on being a priority area of work for the EU institutions. This is a very supportive context for UrSEnE.

The Covenant of Mayors has a high profile at the moment, but the European Commission has been working with cities on climate protection and energy since the mid 1990s, for example through the European Sustainable Cities project and the Citizens' Network (on urban transport). EU funding programmes have been supporting policy development, exchange of experience and local implementation for several years, so there is a large resource of existing good practice on which to draw. City networks like Eurocities, ICLEI, Energie-Cites and the Climate Alliance have long experience in this area of work.

The EU 'state of the art' review has implications for the topic on which the project will focus

In URBACT, all the programme documents stress the need to design projects that help to deliver the 'Lisbon-Gothenburg' strategy. (Now more correctly the EU Sustainable Development Strategy and the recently-agreed replacement for Lisbon, *EU 2020*[10])

Additionally, the 2009 *Call for Proposals* in URBACT II stated that all proposals must refer to:

- the financial/economic crisis and 'the impact of climate change'; and
- … 'integrated and sustainable urban policies based on cross sector and multi-level governance'.

The second of these requirements implies an emphasis on integrated policies for urban sustainability featuring cross-sectoral approaches (including attention to the contribution made by different kinds of stakeholders in a local area) and consideration

[10] http://www.euractiv.com/en/priorities/europe-2020-green-growth-and-jobs-linksdossier-280116

of the different role of government at regional and national - as well as local and EU – levels.

Policies characterized both horizontal and vertical integration and which help to promote effective collaboration and joint working are something to aim for.

Promotion of a **low-carbon economy** is an excellent example of a joined-up strategy for implementation of the Lisbon-Gothenburg agendas and it is a central feature of the EU Recovery Plan for dealing with the economic crisis, the next phase of work on the EU SDS[11] and the most recent EU 2020 strategy.

Moreover, this is a policy area in which it is clear that urban local authorities cannot effectively respond to all challenges and opportunities alone.

Recommendation 1 UrSEnE should have an explicit economic dimension

In designing the next stage of the project there should at least be reference to the economic costs and benefits of pursuing energy efficiency strategies.

Better would be consideration of the contribution of city-level energy efficiency strategies to the shift towards a low-carbon economy. The Project Assessment Fiche from the evaluation of the project proposal mentions that local energy strategies 'can contribute [to] the creation of green jobs and support economic recovery'.

Work within the context of the EU SDS strongly promotes **green public procurement** (including local purchasing) as a mechanism to promote local sustainability. This is also a theme within the Covenant of Mayors guidance on energy action planning.

Recommendation 2 UrSEnE partners should examine the role of green procurement strategies in cities for preparation and implementation of sustainable energy action plans

There is scope for cities to foster change in the local economy by, for example, enabling consortia of SMEs active in energy-related fields (or at least demonstrating good environmental and social responsibility performance) to form consortia to bid for municipal contracts.

[11] 'Towards an economy compatible with sustainable development principles' is the theme for the 2010 annual conference of the European Sustainable Development Network which brings together the European Commission and Member State civil servants responsible for the delivery of the European and national sustainable development strategies.

At EU level, energy policies are set within the context of **strategy for climate protection**, which is itself one of the main themes of the EU Sustainable Development Strategy.

The establishment of common European targets for CO2 emissions reduction and renewables (20,20,20) is bringing a new urgency and visibility to the work on local energy strategies and placing new demands for evidence-gathering and measurement on municipalities.

Many cities working on sustainable energy action plans already have local strategies for sustainability. The 'leading' local authorities tend to be those with a long history of involvement in European networks and projects on sustainability/urban environment topics.

Most cities working on sustainable energy action plans are now doing this within the context of broader strategies for climate change, often including measures for both mitigation of climate change and adaptation to its impacts. (Many of the largest European cities – like Vienna and Berlin – have had climate protection strategies since the early 1990s.)

Recommendation 3 The city activities in URSENE should be set in the context of local strategies for climate protection

There should be some examination of CO2 target setting and the establishment of 'carbon baselines', but there is a great deal of research activity on this at the moment which partners should be careful not to re-invent.

Partners should consider adding an 'adaptation' dimension to the work on energy and climate.

The recent review of the EU SDS stressed the need for further action to reduce greenhouse gas emissions from **transport**. The European Commission published an *Action Plan on Urban Mobility* in September 2009 in which a stronger emphasis on transport in the Covenant of Mayors on energy is foreseen. There are expected to be new funding opportunities for cities, for example new calls in the CIVITAS programme.

Recommendation 4 UrSEnE partners need to consider the role of transport and other actions for sustainable urban mobility in the preparation and delivery of action plans for sustainable energy.

The European Commission's guidance for the Covenant of Mayors already asks signatory cities to report on their strategies and actions for sustainable mobility. In the UrSEnE partnership this especially applies to Cesena.

Despite the current high profile of the Covenant of Mayors and the efforts of the city networks, **urban policy** does not have a very secure basis at EU level (it is not a formal EU competence); the role of urban local authorities in delivering energy-efficient outcomes is not always acknowledged.

The **national policy context** for urban sustainability and energy is also important for effective local action. Member States have to produce National Energy Efficiency Action Plans and now also National Renewable Energy Action Plans in line with EU Directives. From the evidence gathered for this study it seems that local authorities and universities are not always well briefed on what national governments are preparing. National strategies do not necessarily have a specific local or urban dimension, and they do not always include measures to support city action.

Recommendation 5 Address the national level during the work in UrSEnE

During the Implementation Phase, university partners could gather further comparative information on the national frameworks for energy planning, involve national organisations in ULSGs and/or include them as targets in the project reports.

8.2 Capitalisation

As a Working Group in URBACT, UrSEnE will be expected to '*focus on the production of high-quality outputs which can be used by external audiences (especially in the view of enhancing the impact of the Programme on policy-making) and in the capitalization process of the URBACT II Programme (especially in the view of complementing the Thematic Poles' activities).'*

Eventual outputs of all projects are expected to include 'identification of good practices' and 'a set of strong case studies based on peer review'.

The UrSEnE project will be part of the 'Low Carbon Urban Environments' Thematic Pole (or 'area of expertise').

To meet the stated goals of enhancing the impact of the URBACT Programme on policy making and 'maximising capitalisation', the URSENE project should connect to mainstream EU level initiatives, use the main city networks and take account of opportunities and complementary work going on in other EU funding programmes.

Recommendation 6 Make a strong connection to key current EU level initiatives that encourage local authorities to produce strategies/local action plans for energy efficiency.

The main one currently is the Covenant of Mayors on Energy, but do not neglect earlier initiatives such as those linked to the Thematic Strategy on the Urban Environment and associated policy instruments like EMAS.

Remember that the requirements of some EU environmental Directives (such as those for Air Quality) are also relevant, since in some circumstances they call for cities to produce integrated urban strategies to ensure compliance.

There is an issue about the **terminology** used in the project. It needs to be standardised.

The URSENE proposal refers to 'the creation of local plans for energy efficiency' and 'energy local action plans'.

The terminology for the Covenant of Mayors is 'sustainable energy action plans'. They do not just cover energy efficiency. Typically they are expected to cover:

- Built environment, including new buildings and major refurbishment;
- Municipal infrastructure (district heating, public lighting, smart grids, etc);
- Land use and urban planning;
- Decentralised renewable energy sources;
- Public and private transport policies and urban mobility;
- Citizen and, in general, civil society participation;
- Intelligent energy behaviour by citizens, consumers and businesses.

Recommendation 7 UrSEnE should use the same terminology as that used in the Covenant of Mayors and refer to 'sustainable energy action plans'.

This is especially important for Cesena municipality which has signed the Covenant and so is committed to producing such a plan within one year.

For assessing current practice in cities and locating examples of good practice the EU funding programmes are important sources. In CONCERTO, CIVITAS and the LIFE programme, in particular, the projects are designed as demonstrations of the most innovative practice, likely to be recommended for take-up across the whole of Europe.

UrSEnE city partners are well-connected to the mass of work going on across Europe through their membership of city networks and participation in other EU-funded

cooperation projects on energy topics. For credibility, work planning and eventual communication and dissemination of project results it will be essential to build on these links.

Recommendation 8 Establish, or capitalise upon, links with the main European city networks in the field of energy.

There should especially be contact with Energie-Cités and ICLEI which are well regarded for their technical expertise and understanding of political and practical realities in focus on cities.

Cities for Climate Protection is also useful, though, with its focus on the alliance with rainforest peoples and limited geographical reach in EU countries, it tends to be seen as an NGO and not mainstream.

There is an expectation in the URBACT guidance that operational links will be established with other URBACT projects working on energy topics through participation in the Low Carbon Urban Environments Thematic Pole.

URBACT Applicants are also expected to take stock of 'available results and knowledge' from projects funded by the other Territorial Cooperation programmes of Structural Funds (mainly INTERRREG and ESPON). However, for energy work there are other, more specific, funding streams.

Recommendation 9 UrSEnE should position itself in relation to work on urban energy supported by other EU programmes.

To be credible and relevant for the broader energy policy community – not only for those concerned with URBACT, or with Regional Policy more generally – the project needs to complement research and other cooperative action by universities financed from different EU budgets, such as FP6, FP7 and COST, and initiatives funded by specific EU programmes which finance energy action by cities, mainly Intelligent Energy Europe, CONCERTO, the environmental programme LIFE+ and CIVITAS for sustainable transport. As regards technological solutions in renewal energy, the Eco-Innovation programme may also be relevant.

For the university partners, it is important to be well-informed about existing research initiatives on urban sustainability and their outputs, especially when it comes to writing papers as part of the Working Group's capitalisation activities and to planning any future bids for EU funding in the context of Local Action Plans.

Along with other URBACT projects on energy, UrSEnE is in a position to raise awareness about the role of urban local authorities in delivering European and national objectives for energy, and more generally for climate protection.

Recommendation 10 Plan for some activities relating to the European level

Include in the eventual dissemination strategy some contacts with the EU institutions (eg European Commission DG TREN, European Parliament Housing & Urban Affairs Intergroup).

Participate in key EU events on sustainable energy policy. Eg Sustainable Energy Week 2010 http://www.eusew.eu and the 6th European Sustainable Cities & Towns Conference http://www.dunkerque2010.org/en/home/index.html

Academic partners should consider reporting on UrSEnE at events like the annual AESOP congress. http://www.aesop-planning.com/

8.3 Existing case studies and guidance

Several EU programmes have been supporting urban energy work for some years and there are many examples of projects comparable with the original conception for UrSEnE. Many case studies of good practice are available. Guidance for the preparation of integrated energy plans has already been prepared and more is in production through cooperation projects similar to UrSEnE, especially those funded by Intelligent Energy Europe.

From the rapid review undertaken for this Baseline Study it is not possible to assess whether one set of existing case studies or guidance is better than another, and without further investigation we cannot be sure what efforts have already been made to compare the various guidance documents and tools or to assess their potential for application outside their original consortia.

One of the challenges for UrSEnE will be to assess the value of the available material for the partner cities and to explore **whether more locally-tailored guidance is needed** and **whether more appropriate forms of support from local academics can be devised.**

Recommendation 11 Avoid re-invention of existing case study work

Avoid proposing development of a complex searchable database that needs updating and maintenance. There are already some EU-funded databases on urban energy. See especially http://www.managenergy.net/casestudies.html and http://www.managenergy.net/gp.html

Some targeted case studies on specific issues (eg good practice on the use of Structural Funds to support urban energy work) would be more appropriate.

The situation has changed recently with the launch of the Covenant of Mayors initiative and the establishment of a relatively standardised approach and development of what is currently regarded as 'definitive' guidance through a thorough review of practice and past work on energy planning by the European Commission's Joint Research Centre. This work should already have identified the 'factors for success' in local energy planning (which the URBACT guidelines suggest need to be considered) and used them to inform the guidance.

However, while the CoM guidance has had some piloting in test cities, it is not certain whether all urban municipalities will find it easy and helpful to work with. With at least one UrSEnE partner city in the Covenant of Mayors there will be an opportunity to observe its use in practice. The JRC has a contract to continue with its technical support of the Covenant process and to monitor the results, so there will no doubt be opportunities to refine their guidance.

While there has not been scope in this baseline study for a detailed look at the guidance prepared for cities joining the Covenant of Mayors, an initial impression is that it does not place much emphasis upon the economic or social dimensions of energy strategies.

As regards financial resources for actions identified as priorities in sustainable energy action plans, there is need for cities to be aware of the available EU programmes – especially Structural Funds - and how these might complement domestic funding. First impressions of the Covenant of Mayors guidance – where the emphasis is on setting a baseline and preparing a wide-ranging plan - is that this topic is not given much consideration; nor are mechanisms such as public private partnerships much discussed.

These issues will be worth investigating further in the Implementation Phase.

Recommendation 12 Do not propose drafting new general guidelines on energy planning for all European cities

Instead, plan to assess the usefulness of the existing COM guidance for the city partners in UrSEnE and identify and address gaps.

8.4 Working together – effective collaboration between city and university partners

Universities have had some involvement in the development of policy for urban sustainability within the EU institutions. For example, there were university partners in the projects linked to the Thematic Strategy on the Urban Environment.

The extent to which direct collaboration between universities and local authorities (through EU-funded projects or otherwise) produces results of practical benefit for cities is not easy to assess. There may be some lessons from EU funded urban

research. There is an 'informal opinion' amongst urban practitioners that there have been too many projects on indicators and modelling and not enough qualitative studies on governance and the achievement of organisational change. In some FP5 and 6 projects urban policy makers criticised their academic partners for being out of touch with practice and designing complicated computer-based tools which were not suitable for daily use. It is important that shortcomings like these are avoided in UrSEnE.

Recommendation 13 Look for evidence on successful university/local authority collaboration in sustainability/energy work.

Different organisational arrangements exist both within the UrSEnE partnership and outside the project.

There are also many examples of collaboration between universities and the cities in which they are located on other topics, especially around the 'Lisbon' agenda.

There is a 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. Local energy agencies and private consultants may be providing this, for example. Is it possible for universities to fill some of the gaps, capitalising 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 behaviour change) are considered.

With specific reference to the requirements in URBACT to develop Local Action Plans, there is also a need to establish some 'university/city' working arrangements for the project. These are considered in the next chapter.

Recommendation 14 Develop a model for the involvement of universities/research organisations in the preparation and implementation of LAPs.

There is some useful guidance on pp4-5 of the Guide to LAPs which is relevant for the design of UrSEnE. This sets out several different models for the involvement of universities/research centres in the preparation of LAPs – but they could also be models for the whole project. It would be helpful to confirm a preferred model for UrSEnE.

9 The partnership - Towards effective local frameworks for sustainable energy action plans

This chapter focuses on the UrSEnE partners and on proposed local work to be undertaken during the project in the context of the transnational activities. It draws mainly upon the information in the partner profiles (Chapters 6 and 7) and discussions during the visit of the Lead Expert to Cesena in February 2010.

First, through the templates circulated in January 2010 the partners were asked to note their expectations for participation in the project, to highlight particular issues on which they perceive a need for further information or good practice ideas, and to suggest local initiatives that might serve as examples for the other partners. The university partners were asked to give their opinion as to what cities most need in order to progress their work on sustainable energy action plans and to suggest good practices, initially from their own countries. Needs and expectations are noted in Section 9.1 and initial good practice ideas from the partner cities in 9.2. Section 9.3 outlines the contribution to be made by each university partner. Summary tables comparing the attributes of the university partners are in Annex 4.

Following the Lead Expert's initial reporting of the template data during February, the partners proceeded to set up their URBACT Local Support Groups and to identify priority topics to work on in the preparation of Local Action Plans. There is a brief outline of each partner's ULSG arrangements in section 9.4. Section 9.5 outlines the first steps in planning for the LAPs.

9.1 The partners' needs and expectations

9.1.1 The view from the cities

Cluj-Napoca and Cesena are both medium-sized cities located within sub-regions (respectively a county and a province) and surrounded by considerable rural areas in which there are many smaller settlements. Each has to work with other governmental administrations and a range of stakeholders. The cities have very different economic and social profiles but some common physical characteristics (such as riverside locations and possession of historic city centres with special energy planning needs).

Cluj-Napoca and Cesena share a common interest in energy planning and infrastructure but are at different stages in this work. Their national policy settings are generally in line with those in the rest of the EU, but more investigative work needs to be done to uncover the range of national and regional policy and support measures available to Cluj. At local level the cities have different 'sustainability histories'. For example, Cesena has a substantial strategy for local sustainability founded on previous work on Local Agenda 21. The municipality is investing in sustainable mobility measures and building up its communication with citizens and enterprises. In some respects Cesena is further advanced in its use and promotion of renewable energy sources, but Cluj has massive experience in district heating and housing retrofit, in which communication with householders features strongly. As regards energy planning, both cities are seeking to develop new local strategies. Cesena is doing this within the context of the EU Covenant of Mayors and seeking to maximise its European connections and resources. Cluj also has good EU connections, and,

moreover, potential access to much greater Structural Funds resources than does Cesena.

By participating in UrSEnE, **Cluj-Napoca** hopes to bring experience from other European cities into the elaboration of an updated strategy for energy efficiency, building on the existing strategy for district heating prepared by the Autonomous Heating Company, under the coordination of Cluj-Napoca city council.

There is a particular interest in acquiring information about photovoltaics, solar and wind energy and sources of finance for these types of projects, especially for public buildings.

Cesena initially identified the following as areas in which it would be useful to learn from experience in other European cities :

- effective methodologies and ICT tools to establish the Sustainable Energy Action Plan;
- more efficient methodologies and ICT tools to collect data on energy consumption and production from different sources;
- methodologies and schemes for better governance of policies for sustainability;
- management schemes/organizational models for public-private companies in the field of energy;
- new educational methods on sustainable use of energy for schools and citizens; and
- networking at European level for further projects on sustainable energy and energy saving.

Further areas in which Cesena might capitalise upon practice from elsewhere in Europe are set out in Figure 9.1.

Figure 9.1 Lead Expert's observations following the city visit to Cesena – the potential for further work

In addition to the topics identified by Cesena municipality and the Serinar Antares Research Unit there may be scope to work on the following (based on practice from elsewhere in Europe):

- Development of at least one **Eco-business park**, possibly linked to the Romagna Compost plant, and using supply-chain clustering. At the moment this plant is producing heat which is not connected to a district heating network.

- Work on the **employment-generating aspects** of a shift towards renewable energy supplies. (And associated requirements for training and skills development.)

- The potential **for income-generation** for the local community resulting from renewable energy installations. Mechanisms for setting up and implementing community interest companies (social enterprises) could be explored.

- **Transport/sustainable mobility issues**. Transport of compostable waste to the biogas power plant will become problematic if collection is expanded to cover a much wider area than at present. There seems to be no strategy for freight transport/logistics.

- Work on **a strategy for local food supply** to, for example, schools and hospitals, in this mainly agricultural area. This would complement the work on sustainable construction and photovoltaics in schools.

- The need for a **methodology for identifying the most efficient actions to reduce CO2** emissions appropriate to the characteristics of the local area.

- The **role of regulation** (EU, national, regional, local) as a driver for energy efficiency.

9.1.2 What the universities expect

The UrSEnE partnership is expected to provide a significant opportunity for the local partnership between **SER.IN.AR Forlì-Cesena/Antares Research Centre, University of Bologna** and the Municipality of Cesena to improve the local energy action plan in terms of best practices. The academic partners from Bologna University are also interested in the possibilities of developing an international MSc course around sustainable energy.

Based on the project experience the **TUCEB** participants in UrSEnE project will consider extending the partnership with the universities in an FP7 project and establishing a postgraduate course related specifically to energy efficiency.

Participation in UrSEnE will enable the **Department of Civil Engineering, Jönköping University** to extend its knowledge of EU energy policy and good practice, to gain further experience in EU-funded cooperation projects and Structural Funds programming, and - not least – to develop closer working links with practitioners in their own city.

The **University of Wales** anticipates some effective sharing of learning and good practice that can be disseminated to stakeholders across Wales, including the regional government and local authorities. This is also an opportunity to establish further long-term partnerships with organisations in other EU regions. Participation in UrSEnE will help to build the knowledge base of University staff. Additionally, the university's collaboration with outside organizations on energy issues is currently more often with private enterprises than with cities. This project offers a chance for the university to build up the connections with local authorities, and in turn the cities may be able to capitalise upon the university's partnerships with private companies in this sector.

9.2 Good practices offered by the city partners

Energy initiatives in **Cluj-Napoca** which could be examples of good practice for other European cities focus mainly on the thermo-energetic rehabilitation of high rise buildings.

Initiatives taken by **Cesena** city council which might be of interest include:

- The municipality's work to design a local plan that achieves compliance with both Italian legislation and the obligations for membership of the Covenant of Mayors. Cesena will develop a Sustainable Energy Action Plan using the Covenant recommendations and schemes. The plan will meet Italian legislative requirements (Law n. 10 of 1991) for all municipalities to establish a sustainable development plan and provide a governance framework to implement an energy efficiency strategy which will enable the municipality to meet recent requirements of EU legislation on energy efficiency, renewables and pollution abatement. An integrated plan meeting these different but interrelated objectives is foreseen.

- The municipality's co-generation and district heating network, in place since 1999.

- Recent substantial projects on energy efficiency in buildings, including the bio-construction regulation for residential buildings adopted in 2008 and the construction of Torre del Moro primary school entirely in line with these bio-construction rules in 2009.

Within the city's boundaries two further examples of good practice could be presented. These are :

- The Hera Company power station which produces bio-gas by compost, obtained with wet and vegetable waste from food and agri-industry and from biomass. http://www.romagnacompost.it:80/impiantorc.htm

- The Pesea park - an experimental park for research and education on renewable and alternative energies with photovoltaic, solar plants and other prototypes. http://www.pirrinipaola.it/pesea/

Figure 9.2 Lead Expert's observations following the city visit to Cesena – additional good practices which could be shared with other partners

- Work with the local community to overcome objections to the construction of plants generating power and heat from renewable sources

- The political leadership and governance arrangements in the city council (linking energy work directly to European projects). There is a clear determination to learn from practice elsewhere. The protocol signed with Bolzano for mutual support on energy planning work could be a useful model for others.

- Joint management of the systems of water, waste and energy supply by one company (Hera).

9.3 What the university partners will contribute

Each of the universities brings specific skills and knowledge to the group.

Each will, in addition, assist in identifying the particular needs and strengths of the two city partners in more detail, and in turn the most appropriate lessons to be learned from international experience.

The **SER.IN.AR Forlì-Cesena/Antares Research Centre** will provide the interface with the Faculty of Engineering in the University of Bologna and bring consultancy experience into the project. There is scope to capitalize upon the unit's expertise in local economic development in exploring the economic and employment dimensions of sustainable energy action plans.

An impressive range of technical expertise is available in the Department of Electrical Engineering/LEMAD. There is scope to transfer knowledge and experiences from the LEMAD team into the UrSEnE partnership. Some staff members will serve on the ULSG.

Despite their impressive technical and research expertise there is not much evidence that colleagues in LEMAD and elsewhere in the Faculty of Engineering are

knowledgeable about energy policy or experienced in working directly with local authorities. However, the Antares research unit has skills in this area and can facilitate the involvement of more technical staff.

Some of the activities in Bologna will be of interest to the other university partners in developing their LAPs. Examples are the work on wind energy, and training courses for installers of small turbines.

TUCEB, which has participated in the development of local urban strategies covering, for example, environmental protection, waste management, building retrofitting and energy efficiency in transport, wishes to use its expertise in the UrSEnE project, informed by good practice from elsewhere in Europe, to review and augment existing guidelines for elaborating urban strategies for energy efficiency, for example adding social and economic components.

The UrSEnE coordinator has substantial personal experience of working with urban local authorities on energy planning.

Significant contributions of the **Department of Civil Engineering, Jönköping University** will be to provide specialist knowledge of architecture and building design and to inject good practices from Swedish cities into the partnership. Particular cases from Jönköping and Växjö are included in Chapter 7, above. It is also proposed to organize study visits to these two cities during the Implementation Phase.

The **University of Wales** can bring valuable hands-on experience of working with eco-businesses and building partnerships with private developers and energy companies to the UrSEnE partnership.

The work in UrSEnE can be directly linked to the on-going initiative for Low Carbon Wales, which is also concerned with strategic work on energy. The initiative in Wales is interesting because it recognizes that different places have different needs and potential for identifying energy efficient actions. This experience could be useful in making sure that guidance for the preparation of local energy plans is tailored to local conditions. The sub-regional approach is also relevant for identifying large or strategic actions which may not be possible in an individual local authority, or which may need to be shared by several municipalities, or which are difficult to locate. (Examples might be large scale recycling or energy generation plants serving several municipalities.)

Wales can provide many examples on the use of Convergence funding to support sustainable energy work. Some potential good practices on funding and other topics have been noted in Chapter 7.

9.4 The URBACT Local Support Groups (ULSG)

9.4.1 Cluj-Napoca ULSG

Through the UrSEnE project the ULSG to be established in Cluj-Napoca will bring together the main actors on energy efficiency policy.

The group will be mainly be composed of academics from the Technical University of Cluj and energy efficiency specialists from Cluj municipality, as follows:

Vlad Muresan & Radu Balan – participants in the "Digital Environment Home Energy Management System" - DEHEMS project financed by FP7 (www.dehems.com) for energy efficiency in buildings

Rodica Dorina Cadar – Roads, Bridges Railroads specialisation – energy efficiency in transportation

Dorian Gorgan – Computer Graphic and Interactive Systems Lab - participant in several international projects (EnviroGRIDS, SEE-GRID-SCI, GiSHEO, mEducator, COST IC0805)

Rusu Tiberiu – the vice Rector of the University – Environmental Engineering

Bogdan Ovidiu Varga& Nicolae Burnete – Mechanics Faculty, with previous experience in coordinating research projects financed by the Romanian Government ((www.ecotrans.utcluj.ro, www.energoecofarm.utcluj.ro), and also from Structural Funds

Cluj City Hall: Representative of Thermal Rehabilitation Department

Cluj City Hall: Representative of Urban Transportation Regia

Cluj City Hall: Representative of District Heating Regia

Cluj city Hall: Representative of Urban Ecology office

Representatives of the settlements in the Cluj Growth Pole

Media representatives in Cluj

9.4.2 Cesena/Serinar-Antares ULSG

The Italian partners in UrSEnE are located in the same city and already working closely together. Here it makes sense to establish a joint ULSG and LAP.

It is envisaged that the Cesena ULSG will be a sub-group of the SEAP taskforce, but with some additional members, in particular Mrs Morena Diazzi from the ERDF Managing Authority, Emilia Romagna Region.

The membership is made up of representatives from the following organisations :

The ERDF Managing Authority: Emilia Romagna Region

Forlì-Cesena District Authority

Regional Agency for Environmental Protection (ARPA)

School of Architecture - University of Bologna

Electronic and ICT Department – University of Bologna (Cesena campus)

Confartigianato Cesena (Association of artisan enterprises in Cesena)

CNA Forlì-Cesena (Association of artisan enterprises and SMEs for the Forlì-Cesena district)

Assindustria Forlì-Cesena (Association of industries for the Forlì-Cesena district)

API Forlì-Cesena (Association of SMEs for the Forlì-Cesena district)

Association of architects in Cesena

Romagna compost Spa

Romagna Innovazione Srl

Representatives of all of these organisations except the Managing Authority participated in the first meeting in Cesena on 26th February 2010, as did the UrSEnE Lead Expert. Although Mrs Diazzi could not be there on that day, she has given her support to the project.

9.4.3 Department of Urban Engineering and Regional Development, TUCEB ULSG

The ULSG for TUCEB is composed of academic staff specializing in energy efficiency in buildings and transport and renewable energy (geothermal, solar and wind). Specialists in lighting and waste management may also be called upon.

Other members include representatives of:

the gas distribution company in Bucharest

the Energy Efficiency and Environmental Protection department. Bucharest.

Local and county councils

Bucharest-Ilfov Regional Development Agency

The Association of Romanian Municipalities

Managing Authority for the Operational Programme 'Increase of Economic Competitiveness' which finances projects for energy efficiency for the local authorities.

A dedicated yahoo group has been created for this ULSG. This will register all the discussions related to the project. http://groups.yahoo.com/group/ursene_utcb/

Efforts are being made to enlarge the group with more specialists and with representatives of local councils in order to achieve broader dissemination of the project results.

9.4.4 Department of Civil Engineering, Jönköping University ULSG

The university partner intends to work closely with the Municipality of Jönköping in this project. Jönköping has signed the Covenant of Mayors on Energy and will be due to launch its SEAP around September 2010. It is hoped to organise an UrSEnE meeting in Jönköping to coincide with this.

Members of the Jönköping ULSG include :

Ann-Carin Andersson - Senior lecturer, School of Engineering & President, Energy Resource Linné

Henrik Dinkel - Project Manager on Energy Efficiency, Jönköping County Administrative Board

Annelie Wiklund - Environmental Strategist, Jönköping Municipality

Likely additions include:

Magnus Apelqvist - Lecturer, School of Education and Communication. Magnus represented Jönköping University in the development of an Energy and Climate Strategy for Jönköping Municipality adopted in January 2009

MA representative - Henrik Blomqvist, Head of Regional Office, has expressed his interest in following the project

Local Ecocycle Council, a professional network with representatives from the building sector

9.4.5 University of Wales ULSG

The ULSG in Wales will be based on the South West Wales Spatial Plan Low Carbon Working Group, with the addition of some extra members such as the Managing Authority representative. The ULSG will be composed of academics from the University of Wales Alliance, stakeholders and policy makers from the local authorities and the Welsh Assembly Government. The members include:

Louisa Huxtable – University of Wales, Global Academy. Advisor to the Wales Spatial Plan group and Welsh Assembly Government on energy and ICT.

Bonnie Hall – Business in the Community – Energy and Environment Officer

Representative - UWIC - Cardiff School of Management

Gavin Bunting - Sustainable Development Commission, Policy advisor on Energy and Power Generation

Petar Igic – Low Carbon Research Institute specialist in Power Electronics and implications for renewable energy

Craig Mitchell from Welsh Local Govt Association (Policy officer - responsible for sustainability & climate change)

Mike Ford – Welsh European Funding Office (Managing Authority)

Representative - Carmarthenshire Local Service Board - Local community partnership hosted by Carmarthenshire Local Authority and having a keen interest in Energy Management

Representative – Ffres, the food supply chain network in south Wales.

Representative - Swansea Environmental Forum - an association of organisations and individuals working together to initiate, develop and co-ordinate environmental action in Swansea.

Representative - City and County of Swansea, Sustainability Team

Representative - Energy Saving Trust

9.5 Towards Local Action Plans (LAPs)

From the *Guide to Local Action Plans (2009)* it is evident that there is much flexibility in the format and content of LAPs, which very much depend upon the topic and 'circumstances'. However, there is an expectation that all Action Plans will somehow strengthen local policies (even if the LAPs themselves are not 'local') and influence spending from Convergence and Competitiveness funds. Note that project partners do not all have to produce the same kind of Action Plan.

Since this is a Working Group and not a Thematic Network, there are unlikely to be sufficient resources in the project to finance the whole process of developing an energy strategy in a city that does not have one.

For a city which already has a strategy, or is working on one using other resources, the URBACT LAP could be a set of small scale actions that link to the existing

strategy and identification of which might be financed through Structural Funds. Alternatively, the LAP could focus on one aspect of the strategy. The example given in the URBACT guidance is 'the role of the private sector in the local plan'. The focus might also be, for example, 'the role of research evidence or collaboration with universities/academics/the research community in the local plan'. For non-city partners it is possible to conceive of actions both for the organisations themselves and for neighbouring local authorities.

In UrSEnE the proposals for LAPs are grounded in the work undertaken to produce this Baseline Study, especially the 'policy mapping' which has identified some clear areas of interest for each partner.

The partners' proposals for LAPs are set out in the following sections.

9.5.1 Cluj-Napoca Local Action Plan

In **Cluj-Napoca** the main task of the city council and ULSG will be to produce an energy efficiency strategy referring in particular to renewable energy projects (in the field of photovoltaics, sun and wind energy) and including an update of the Cluj district heating strategy.

Through the project Cluj-Napoca municipality also hopes to take advantage of the specialised expertise available to develop an Urban Guide for Energy Efficiency for use in the city.

9.5.2 Cesena/Serinar-Antares Local Action Plan

In **Cesena** the initial plan for the LAP was that it would focus on the identification of further initiatives the city council could take on sustainable energy (informed by practice elsewhere) and possible EU and domestic resources to support them.

The first ideas, promoted by the EU 'state of the art' review, included the possibility of setting targets for developing specific projects, for example bids to the CONCERTO or CIVITAS programmes.

Completion of the project template and discussions with the Lead Expert prompted consideration of whether the LAP might also make reference to planning and regulatory actions to be taken in the context of the SEAP, such as developing a climate strategy starting from the Air Quality Management Plan or revising the local bio-construction regulation. The LAP could also include the establishment of another municipality-owned company for renewable energy supply.

Following the first meeting of the ULSG, coinciding with the city's launch of their work on the Sustainable Energy Action Plan, and further discussions between the representatives of the city and Antares, the following topics have been selected as the focus of work in the ULSG, leading to actions which will be set out in the LAP :

- ways to increase awareness of the need to reduce CO2 emissions and of the huge benefits arising from end-users' energy saving habits;

- the measurement and communication of energy consumption, as is already carried out some EU localities (Bolzano, Dunkerque etc);

- setting up incentives to spur energy efficiency. (This requires a coordinated approach among the local, regional, national and EU level authorities.)

- the recognition at local level of the most appropriate technological solutions that fit with economic, efficiency and political needs;

- creation of a set of incentives to involve households, firms and individuals in the implementation of energy efficiency policies.

9.5.3 TUCEB Local Action Plan

In Bucharest, TUCEB has identified two possible lines of work for the Local Action Plan, as follows:

- **Actions for the TUCEB buildings** (including a students' hostel). All of the university buildings are old and great energy consumers. Although these buildings are in the process of being consolidated, the energy efficiency problem remains to be resolved in all buildings apart from three student hostels in which retrofit work has already taken place.

- **Actions relating to teaching and research activities**. As regards teaching, there are opportunities to develop further course material on energy efficiency in various part of the Urban Engineering and Regional Development Department curriculum, and especially in courses on 'Buildings', 'Traffic Engineering' and 'Urban Lighting'.

  Preparation of research projects related to energy efficiency for programmes such as FP7 and COST is also foreseen.

  The university will also seek opportunities to work in partnership with the city of Cluj to develop energy-related projects financed though Structural Funds and other programmes.

9.5.4 Jönköping University Local Action Plan

The main activities to be developed by the Jönköping ULSG within the framework of the Local Action Plan are:

- Co-organisation of a yearly regional Conference on Sustainability, together with the County Administrative Board (CAB) and the municipalities within Jönköping County

- Co-production of a yearly information brochure on regional Best Practice on Sustainability and Energy Efficiency, together with CAB

- Working together with CAB and local municipalities to produce a Quality Programme with requirements on energy performance and sustainability for contractors buying public land

9.5.5 University of Wales Local Action Plan

The ULSG in Wales has identified the following objectives for work on the LAP :

- Bring experience and good practice from elsewhere in Europe to strengthen existing work on a low carbon strategy for the South West Wales sub-region and ensure that these lessons are disseminated to all sub-regions of Wales, complementing actions of the Welsh Assembly Government in the framework of all-Wales climate change strategy.

- Give further emphasis to sustainable mobility/transport-related initiatives to reduce CO2 emissions in the low carbon regions work already in progress in SW Wales

- Explore innovative solutions for district heating based on different renewable energy sources (eg biofuel & photovoltaics).

- Support local authorities in south west Wales in the preparation of local energy strategies and encourage them to join the Covenant of Mayors initiative.

- Identify further EU funding opportunities to support delivery of sustainable energy actions.

- influence preliminary planning for energy-related actions to be supported by a further Convergence Operational Programme for West Wales & the Valleys

- Build further cooperation between local authorities and universities in Wales to support the preparation of local energy strategies and action plans, ensuring that local activities are informed by good practice from elsewhere in Europe and take advantage of available EU funds

- Local outputs include possible workshops for Welsh local government officers and elected members on EU energy & climate policy, good practice & funding opportunities.

10 Planning the Implementation Phase : issues & outputs

10.1 Introduction - finding a balance

This chapter outlines the main issues and themes which the project partners need to consider in planning the next stage of work.

The partners need to bear in mind the original design for the project approved for the Development Phase. Notwithstanding the outcomes of the EU 'state of the art review' which shows that there is no need to 'reinvent the wheel', there are expectations for the identification, reporting and practical application of case studies and for some work on more general guidelines for energy planning, along with some progress 'on the ground' for the city partners, as discussed in Section 8.3, above.

UrSEnE needs to find a balance between the 'high quality'/capitalization products intended to influence policy and practice beyond URBACT which are supposed to be the special task of a Working Group, and the more local impacts promised in the application (and outlined in Chapter 9).

Some further recommendations derived from the baseline analysis are included in this chapter.

10.2 The roles of city and non-city partners

UrSEnE is a collaboration of city and university partners. It is important to define the activities to be carried out by each.

It is envisaged that the two cities will make progress on the preparation of local energy action plans during the course of the project, with appropriate inputs from the ULSGs in each location.

The city council representatives have expressed a need for technical and other inputs from their academic contacts. In the case of Cesena there is a close working arrangement with Serinar-Antares. In Cluj-Napoca the municipality is able to build on local academic links via the ULSG.

It important for the other university partners (TUCEB, Jönköping and the University of Wales) to be able to follow developments in the two partner cities, to identify their needs and to share with local academics the task of identifying appropriate EU level guidance and examples of good practice from other European cities.

The two cities may be seen as 'city –labs' which the university partners will support and report.

As a Working Group, UrSEnE is expected to go beyond support for the exchange of experience which the cities will achieve.

The partners will have to undertake some more analytical work and produce well-researched and reflective written outputs. This task will fall mainly to the university

partners, under the leadership of TUCEB. However, the cities can contribute, for example by ensuring the provision of solid information about their own good practices and co-authoring case studies from within the partnership which the university partners will need to produce, and by reviewing working papers and assessing their relevance for practitioners. All partners will need to share in the process of communicating the activities and products of the project and in making recommendations.

Recommendation 15 All partners should identify a limited number of good practices from within the partnership which would be worth developing during the project

In addition to the search for targeted case material from elsewhere in Europe the partners should expose their own practice to a wider audience. Some of the items identified will be the basis for study visits during the project activities.

Recommendation 16 University partners should identify 2 or 3 pieces of 'capitalisation work' to be accomplished during the project

10.3 Key themes

The EU 'state of the art' review, including the assessment of current practice for sustainable energy planning in European cities, together with the process of collecting and digesting information about the project partners, lead to the identification of some key themes which it would be worthwhile for the partners to focus on during the Implementation Phase.

The themes are set out in Figure 10.1[12]

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[12] *Note that the partner meeting held in Bucharest in March 2010 considered these themes. Governance, renewables, economic issues (with incentives etc) and expertise/education were initially selected as priorities. On further discussion it was considered useful to add a thematic priority on energy in buildings/construction and to treat governance and expertise/education issues as 'cross-cutting' matters, along with the Covenant of Mayors' guidelines on this thematic issue, national and regional frameworks, regulation, EU and domestic funding, possible local pilot schemes for neighbourhoods, and measurement and monitoring.*

Outputs might include a series of four thematic working papers, each structured using the cross-cutting themes as 'headings'. The cross cutting material might towards the end of the project be combined as 'think pieces' to be produced by the partnership.

These discussions have informed the preparation of the Work Programme and Final Application by the partners.

The partners need to decide:

- whether these are the 'right' topics for the project and whether they expected to see others on the list;

- since resources will not permit all potential topics to be addressed in detail , which topics most closely match both the requirements of the city partners and the competences and interests of the university partners;

and, bearing in mind the need to demonstrate the 'added value' of URBACT,

- which topics are worth further effort, so that the project partners can make a real contribution to the large body of research and practice which already exists in the sustainable energy field.

Further, the partners need to consider which of the themes are suitable for some intensive effort in the 'city labs', and which will become the subject of thematic working papers and (most probably workshops) in the partners' localities, and which might be more suitably treated from a more academic (or desk-based) perspective.

It is suggested that the most 'powerful' themes for the project are those which are of both 'local' and 'capitalisation' interest.

Figure 10.1 Key Themes

(1) Review existing **EU guidelines** on the preparation and implementation of Sustainable Energy Action Plans (& previous EC guidance on, for example, integrated environmental management plans). Assessment of the guidance provided by the European Commission to support the Covenant of Mayors should be a priority.

(2) Review **national & regional frameworks** & measures to support local energy planning & delivery eg NREAPs. Make links to national & regional strategies for sustainable development. Produce commentary and recommendations for national and regional policy makers.

(3) Examine the **role of regulation** (EU, national, regional, local) for sustainable energy planning in cities. (Examples are EU Directives on Air Quality & the EPBD, national land use planning law, building regulations, and sustainable/bio construction regulations at regional & local levels.)

(4) Focus on **governance** (local & multi-level). Explore questions of devolution, political leadership, task forces, partnership, inter-agency collaboration in a sub-region, protocols, citizen participation…. etc

(5) Focus on issues of **data, measurement and modelling** in energy planning. For example, review methodologies available to cities for calculating an energy balance or carbon footprint, methods for measurement, the use of indicators, means of identifying the best low carbon solutions for a locality etc

(6) Focus on **renewable technologies**, especially CHP & district heating from different renewable sources (eg PV, biogas…). Use the technical expertise of the universities but make links to the urban context.

(7) Consider the usefulness of establishing **low carbon zones or neighbourhoods** or Sustainable Energy Communities (SECs) in which local authorities apply a mix of measures in a defined local area. (It would be possible to identify some potential local pilot schemes for the city partners during the project.)

(8) Examine the links between **sustainable mobility/transport** (including freight) & energy planning .

(9) Focus on the **economic aspects of sustainable energy planning** , for example promotion of low carbon economy, eco-business, green jobs, employment creation from energy conservation work & renewables, environmental performance of SMEs, green public procurement, local procurement…..

(10) Examine **incentive schemes**, tax breaks, grants, feed-in tariffs, low carbon investment funds etc – at EU, national, regional & local levels

(11) Explore the **opportunities to use Structural Funds, other EU programmes and domestic budgets** to deliver greater energy efficiency and more use of renewable energy generation in urban areas. Focus of ways to promote the **complementary use** of the available funding resources in pursuit of a city's objectives.

(12) Examine **ways to build technical and professional expertise** for sustainable energy work in cities. Consider education, skills training, university teaching programmes, briefing workshops for municipality staff & politicians, peer review, staff exchanges etc

(13) Explore different **forms of university/city collaboration** on sustainable energy work in an urban context eg different organisational models, what role for the academics (consultant, trainer, drafter of policy documents….). Consider how the impacts of such collaboration may best be measured and assessed.

UrSEnE good practice case study 12 Integrated energy strategy with an economic, social and transport dimensions – Dublin, Ireland

Goal of the Energy Strategy	Maintain Dublin's competitive advantage and quality of life while at the same time reducing the city's carbon footprint.
Problems	The residential sector accounts for 35% of the primary energy consumption and 32% of CO2 emissions of Dublin City. The commercial sector is the biggest consumer of energy in Dublin City. Transport accounts for 23% of the primary energy consumption and 25% of CO2 emissions.
Challenges	The residential sector offers the greatest potential for energy (42%) and CO2 (51%) savings. Substantial energy savings are possible through cost effective actions such as low energy lighting and behavioural change within the services sector. Possibilities for sustainable energy are many and comprise reducing and optimising motorised travel, fiscal incentives and urban planning. Biofuels are a possibility for more renewable energy.
Non-Technical Solutions Energy Awareness Campaign	Some of the greatest savings in the commercial sector can be achieved using an effective energy awareness campaign. The ways in which a building and its equipment are used can have major implications for energy consumption. For example, equipment on 'stand-by' can consume nearly as much power as fully operational equipment over its lifetime. Other behavioural actions include internal temperature settings, switching off lighting when not in use and closing windows when the heating is in operation. It is vital for the city council to implement a coherent and well-designed awareness campaign, identifying indicators of success which can be communicated to both users and employees. An energy management plan should be formulated to ensure that this awareness campaign is successful and that other actions are satisfactorily implemented.
Fiscal incentives	Incentives encouraging car use, such as free workplace parking and travel allowances in favour of car usage, need to be replaced by incentives favouring sustainable modes of transport, such as congestion charges and free parking for electric vehicles. Incentives may also need to be developed at national and EU levels.
Behavioural Measures	Localized advice and information for households. Bottom-up programme for the services sector – especially for SMEs. Workplace travel plans and school travel plans. Eco-driving promotion for professional drivers

10.4 Suggested aims & activities for the project

Bearing in mind the evidence gathered for the baseline study and the requirements of the URBACT programme, a starting point for the final design of project should be:

- A focus on 'sustainable energy action plans' at city level.
- Making explicit connections to low carbon economy and probably also to the social dimensions of energy efficiency work.
- Exploring the use of Structural Funds to support the preparation and implementation of sustainable energy action plans.
- Exposing and enhancing the role of urban research/universities and research organizations in the development of sustainable energy action plans by cities.
- An ambition to influence urban policy frameworks at national and regional levels within the EU Member States.

A first re-draft of the general **aims** for the project might be as follows:

- to examine any further requirements for a general guidance framework to be used by cities in developing local sustainable energy action plans;
- to identify and report selected examples of good practice in the development of sustainable energy action plans and of energy efficiency measures in fields such as urban planning, building design and the use of renewable energy technologies, but in a targeted way, and closely linked to the needs of the city partners;
- to facilitate the local application of innovative lessons learned from elsewhere in the partner cities, which are at different stages in the preparation and delivery of sustainable energy action plans;
- to contribute to the dissemination of knowledge on effective planning for urban energy to other urban areas across Europe, complementing the extensive action on this topic supported by a range of EU-funded initiatives and programmes and, together with other on-going URBACT projects on different aspects of urban energy, demonstrating the special contribution that the URBACT programme can make; and
- to make appropriate policy recommendations for local, regional, national and European levels.

As a partnership of urban local authorities and universities, the project will especially focus on ways in which academics and practitioners can work together in particular localities as cities make progress with this demanding and urgent work.

Attention needs to be given to **planning a work programme around the initial set of themes** set out in Figure 10.1. However, **activities in the Implementation Phase** should include the following as a minimum:

- an evaluation of the guidance already available to urban local authorities for the preparation of sustainable energy action plans, especially as regards its appropriateness and ease of application in the partner cities. Modifications to existing guidelines, or supplementary guidance which draws upon the specialist knowledge of the academic partners, may be proposed. Preliminary assessment indicates a need for some tailoring of the available guidance to the characteristics of each locality, especially as regards the identification of measures likely to have the greatest potential for carbon reduction. A stronger emphasis on the economic and social dimensions of sustainable energy measures may also be required.

- Examination of the links between energy planning and EU Structural Funds, with a view to identifying and reporting detailed examples of good practice in the support for urban energy planning and schemes in a range of Operational Programmes; and

- with the active engagement of local stakeholders, practitioners and technical specialists involved in dedicated URBACT Local Support Groups, the preparation of Local Action Plans in the partner cities to bring the lessons from this URBACT project into the process of sustainable energy planning.

- Additionally, the university partners will identify follow-up actions which enable them to develop their research and teaching programmes in ways that help to build more effective collaboration with practitioners in local and regional authorities and thus to play a more substantial role in local energy planning and delivery

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