



# Thematic Report 1: Energy Efficiency - Renewable Energy - Waste Management

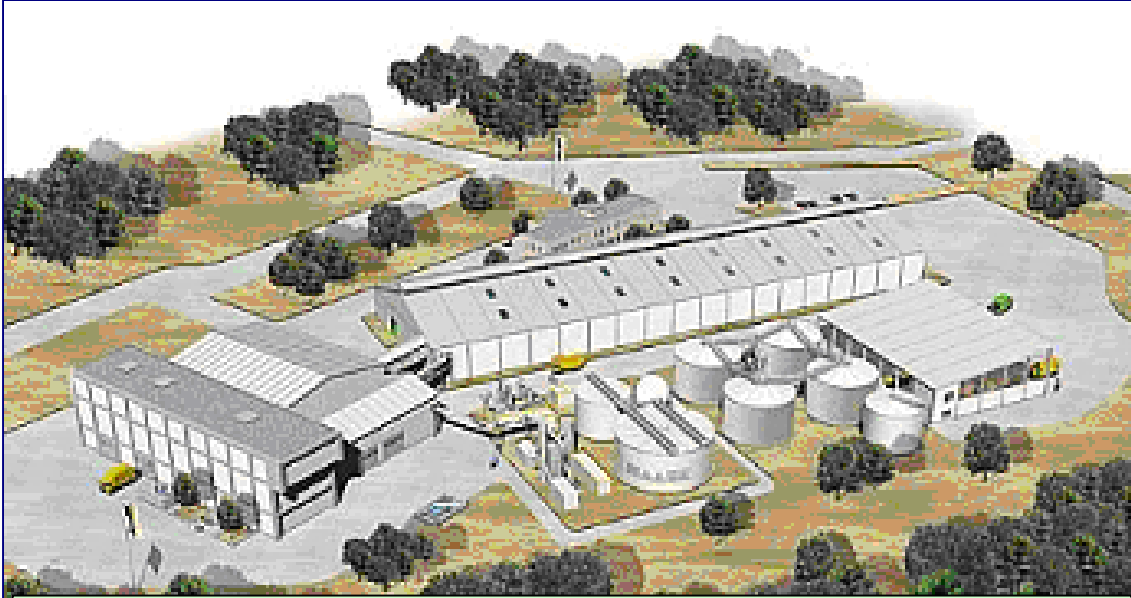
May 2009



URBACT II



## How to achieve the sustainable re-use of the built heritage and heritage sites, through maximising energy efficiency, the better management of waste production, energy consumption and greater use of renewable energies



### Introduction

The question posed by the first of the REPAIR FOUR Pillars is difficult and one with many angles to consider before a solution can be found.

Former military or heritage sites provide the potential as the catalyst for urban regeneration, many consisting of historic buildings date back over centuries and provide the source of rich cultural heritage. The challenge before us is to transform these abandoned sites into thriving areas of economic activity, employment and social cohesion using the most effective sustainable development techniques.

The meeting took place in Paola, Malta a small town of about 9,000 people located town close to the capital Valetta.

The Paola Corradino, a former military prison, is the focus of a redevelopment project presenting the local people with a wonderful opportunity to utilise this redundant building and at the same time to create a new vibrant town centre using sustainable methods of development, including energy efficient materials, renewable energy sources and high level waste management.

Site visits were very helpful to identify the issues facing site managers and users of the new energy sources.



**Vincent Jasper**  
EU Network Coordinator

## Energy efficiency, Renewable Energy and waste management

During the working group discussions, partners considered the overarching local, national and EU policies pertaining to the subject and clooke closely at a number of Case Studies from their individual experience and selected those which supported the expected policy recommendations.

We started by trying to find a definition of the subject and agreed to settle on the following: **Sustainable energy** is the provision of energy that meets the needs of the present without compromising the ability of future generations to meet their needs.

### A summary of European energy policy

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](http://ec.europa.eu/energy/index_en.htm)

The need to tackle climate change is an established EU priority and essential context for all energy work. The EU Sustainable Development Strategy (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](http://ec.europa.eu/sustainable/welcome/index_en.htm)

The **European Climate Change Programme (ECCP)** has been in place since 2000. <http://ec.europa.eu/environment/climat/eccp.htm> Measures include mainly the EU Emissions Trading Scheme (EU ETS), Directives such as on the energy performance of buildings (see below), and initiatives for renewable energy. Since 2005 the ECCP has been tackling emissions from aviation and passenger road transport, technology for carbon capture and storage, and – most recently – adaptation to climate change impacts. [http://ec.europa.eu/environment/climat/adaptation/index\\_en.htm](http://ec.europa.eu/environment/climat/adaptation/index_en.htm)

Current policy for climate change and energy is set out in the **climate and energy package** adopted in December 2008. This is based on the European Commission's Communication **2020 by 2020 - Europe's climate change opportunity** [http://ec.europa.eu/commission\\_barroso/president/pdf/COM2008\\_030\\_en.pdf](http://ec.europa.eu/commission_barroso/president/pdf/COM2008_030_en.pdf)

This policy 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](http://ec.europa.eu/climateaction/index_en.htm)



The legislative package includes a revision of the 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 national 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](http://ec.europa.eu/energy/renewables/index_en.htm)

The EU already has a well-established strategy for energy efficiency, including a Directive adopted in 2006 (Directive 2006/32/EC on energy end-use efficiency and energy services) 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](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.

## **Low carbon economy, environmental technology and eco-innovation**

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-](http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2009:0400:FIN:EN:PDF)

[lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2009:0400:FIN:EN:PDF](http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2009:0400:FIN:EN:PDF)

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.



Initiatives relevant for the agenda of REPAIR include, for example:

- The **Environmental Technologies Action Plan (ETAP)**, established in 2004, which promotes eco-innovation and the take-up of environmental technologies, especially in buildings. [http://ec.europa.eu/environment/etap/index\\_en.htm](http://ec.europa.eu/environment/etap/index_en.htm)
- 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.  
[http://ec.europa.eu/energy/res/setplan/communication\\_2007\\_en.htm](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](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.

### **Specific legislation for energy in buildings**

When considering resources for eventual implementation of energy measures in Local Action Plans in REPAIR 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](http://ec.europa.eu/energy/demand/legislation/buildings_en.htm)

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 1000m<sup>2</sup>);
- 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](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](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 Covenant of Mayors on Energy**

The **Covenant of Mayors**, launched by the European Commission in January 2008, is very relevant for cities. Local authorities signing the Covenant make a formal commitment to go beyond the EU objectives on the reduction of CO2 emissions, i.e. they will commit to reduce their CO2 emissions by more than 20% by 2020. To achieve this they will establish Sustainable Energy Action Plans (SEAPs) within one year of signing the Covenant. <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.

Guidance for local authorities on the preparation of Sustainable Energy Action Plans can be downloaded from the Covenant of Mayors website. There is also a web-based tool for cities to use in completing their energy plans. [http://www.eumayors.eu/library/documents\\_en.htm](http://www.eumayors.eu/library/documents_en.htm)

Regional organisations can become 'Supporting Structures' 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. In REPAIR there may be scope to make connections between the Managing Authorities associated to the project and any relevant Regional Supporting Structures.



## Green public procurement

The Commission's guidance on the preparation of Sustainable Energy Action Plans asks local authorities to look at their existing strategies and practice across a range of activity, including procurement.

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](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](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](http://ec.europa.eu/environment/gpp/toolkit_en.htm)

## Sources of EU funding measures to promote energy efficiency

There are a number of sources of EU funding measures to promote energy efficiency and use of renewable energy technology in heritage regeneration schemes – relevant for REPAIR Local Action Plans.

### ELENA – European Local Energy Assistance

A facility developed by the European Commission and European Investment Bank (EIB). Local and regional authorities can apply for technical assistance funds for feasibility studies, technical work, financial programming and tendering, in order to develop local investment programmes for energy efficiency, renewables, local energy infrastructure and urban transport. The funds can be used to pay for extra staff. The budget for the first year of ELENA is 15 million Euros. <http://www.eub.org/elena>

### Intelligent Energy Europe

Intelligent Energy Europe (IEE) is the main EU funding programme for the support of local and regional energy agencies and energy-related actions of local authorities. It is one of three operational programmes within the Competitiveness and Innovation Framework Programme (CIP) 2007-2013. [http://ec.europa.eu/cip/index\\_en.htm](http://ec.europa.eu/cip/index_en.htm)



Intelligent Energy Europe is mainly for 'soft' actions complementary to the funds available for technical developments in the other CIP strands. Examples of topics suitable for IEE projects are the removal of market barriers, changing behaviour and creating markets for energy efficiency and renewables.

[http://ec.europa.eu/energy/intelligent/index\\_en.html](http://ec.europa.eu/energy/intelligent/index_en.html)

The European Commission has a searchable database of IEE projects, which could provide good practice examples for the REPAIR partners.

<http://ec.europa.eu/energy/intelligent/projects/>

**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 support the development of planning tools for local **Sustainable Energy Communities (SEC)** - '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'. SECs usually cover local neighbourhoods rather than the whole municipality area.

- **SECHURBA** is about Sustainable Energy Communities in Historic Urban Areas. The context is the exclusion of historic buildings from the EPBD. The project focuses on ways to install energy efficiency measures & renewables in listed buildings, 'looking at cultural heritage as an opportunity to pave the way for carbon reductions rather than being considered a barrier'. Actions include energy audits of listed buildings and lots of engagement with the local community.

[http://ieea.erba.hu/ieea/page/Page.jsp?op=project\\_detail&prid=1791](http://ieea.erba.hu/ieea/page/Page.jsp?op=project_detail&prid=1791)

### **Eco-Innovation programme**

Besides Intelligent Energy, the part of the CIP most interesting for local authorities is the special budget for **Eco-Innovation** within the Entrepreneurship and Innovation programme. It mainly intended for enterprises, but local authorities wanting to support local eco-businesses ought to know about it and can promote its take up by businesses in their localities as part of local economic development strategies.

[http://ec.europa.eu/environment/eco-innovation/index\\_en.htm](http://ec.europa.eu/environment/eco-innovation/index_en.htm)

Intelligent Energy Europe and the Eco-Innovation Programme are managed on behalf of the European Commission DG TREN by the Executive Agency for Competitiveness and Innovation (EACI). <http://ec.europa.eu/eaci/> EACI also manages the

Sustainable Energy Europe Campaign. The Campaign's annual award scheme highlights local examples of best practice in sustainable energy on their website at:

<http://www.sustenergy.org/tpl/page.cfm?pageName=home>



## CONCERTO

CONCERTO supports energy-efficient demonstration projects in local communities.

[http://concertoplus.eu/cms/index.php?option=com\\_content&view=frontpage](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](http://ec.europa.eu/energy/res/fp6_projects/doc/concerto/brochure/concerto_brochure.pdf)

## HOLISTIC,

HOLISTIC has been running from 2007 to 2012 is demonstrating the application of different energy technologies and techniques in an integrated way within a local community. Each of the partner cities is carrying out concentrated demonstration activities within a defined zone. Most renewable technologies and techniques for the rational use of energy will be demonstrated in this project, as well as ways of managing supply and demand. The key to success is seen as '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](http://concertoplus.eu/cms/index.php?option=com_content&view=article&id=122&Itemid=135&lang=en)

## LIFE+ 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, implementation of market-based instruments, and measures for adaptation to climate change impacts. All applications need to show proposed actions going beyond the best European practice.

Previous LIFE projects on energy, can be located on the website at

<http://ec.europa.eu/environment/life/themes/energy/thematic.htm>

- The 2002 LIFE project **Carbon Assessment and Reduction in Regeneration Areas (CARRA)**, carried out by the London Borough of Islington, and addressed climate change at the local level using an area-based approach. The project developed a carbon budget for the EC1 New Deal Area, a regeneration area with multiple deprivation. Citizen engagement in climate change issues was also part of the project.

[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](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)

## Energy in Regional Policy

Security of supply, affordable energy for competitive economies, and environmental sustainability are the three pillars of the integrated approach to climate and energy policy, which the EU pursues. It has the objective of saving 20% of energy consumption compared to projections for 2020 and of reaching a 20% share of renewable by 2020. Cohesion Policy 2007-2013 addresses the intensive use of traditional energy sources, energy efficiency and renewable energies in order to



make regions a more attractive place while promoting renewable energies as motors for innovation and growth.

In the regions falling under the "Convergence" objective, the European Regional Development Fund and the Cohesion Fund can support trans-European energy networks with the objective of improving the security of supply, completing the internal market, integrating environmental considerations, improvement of energy efficiency and development of renewable energies. For both Convergence and the Regional Competitiveness and Employment objectives an important ERDF priority is to stimulate energy efficiency and renewable energy production and the development of efficient energy management systems.

Renewable energy activities have a large potential to foster the economic development in the EU regions, creating new jobs and giving new economic and social development impetus. This appears to be reflected in the fact that Cohesion policy allocations to renewable energies for the period 2007-13 are five times higher under the Convergence objective and seven times higher under the Regional Competitiveness and Employment objective compared to the period 2000-2006.

In the framework programmes for 2007-2013, EU allocations of €4.8 billion have been made for projects in renewable energies (wind, solar, biomass, hydroelectric and geothermal), €4.2 billion for energy efficiency, co-generation and energy management and €1.7 billion for investment in traditional energy sources of which € 674 million is allocated for investment in Trans European energy networks in electricity and gas.

## Structural Funds

Because climate change is a priority in the Structural Funds programmes for 2007 – 2013, significant resources are available for energy infrastructure and energy-efficient renovation of urban sites.

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](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 renewables. 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 and the Czech Republic, to better promote and manage the energy-related priorities of their Operational Programmes, so as to improve the take-up of the 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>

There are also some opportunities in the **INTERREG** programmes. There are several energy projects in INTERREG IVC (Priority 2 – environment & risk). <http://www.interreg4c.net/index.html>

- The mini-programme **POWER** is relevant for Medway. This 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 in 5 European regions including the South East of England <http://www.powerprogramme.eu/>

The cross border and transnational programmes (INTERREG IVA and IVB) provide greater opportunities for some local implementation.

## EU Waste Management policy relevant for the REPAIR Policy Framework

As European society has grown wealthier it has created more and more rubbish. Each year in the European Union alone we throw away 1.3 billion tonnes of waste - some 40 million tonnes of it hazardous. This amounts to about 3.5 tonnes of solid waste for every man, woman and child, according to European Environment Agency statistics. Add to this total a further 700 million tonnes of agricultural waste, and it is clear that treating and disposing of all this material - without harming the environment - becomes a major headache.

A good place to start your research on waste management initiatives is through <http://ec.europa.eu/environment/waste/index.htm>

The legislation regarding waste is complex and ever changing. To help waste producers and processors to navigate through the regulations and keep up to date, the Environment Agency has created [NetRegs](#), a website aiming to help small and medium-sized enterprises (SMEs) in the UK to understand the complex environmental regulations that can affect them. The site provides guidance on how to comply with environmental law, including waste legislation, as well as advice on good environmental practice.

Plenty of details about the state of waste management in England are here: [http://aggregain.wrap.org.uk/waste\\_management\\_regulations/background/index.html](http://aggregain.wrap.org.uk/waste_management_regulations/background/index.html)

The UK Government department of Community and Local Government are currently consulting on the Planning Policy Statement: Planning for a Low Carbon Future in a Changing Climate. This is intended to support Local Authorities by providing a "green guidance" to help implement renewable energy initiatives to reduce carbon.





<http://www.communities.gov.uk/documents/planningandbuilding/pdf/1499780.pdf>

DCLG are currently consulting on the Planning Policy Statement: Planning for a Low Carbon Future in a Changing Climate. This is intended to support Local Authorities by providing a "green guidance" to help implementing renewable energy initiatives to help reduce carbon.

<http://www.communities.gov.uk/documents/planningandbuilding/pdf/1499780.pdf>

Due to the diverse nature of activities on the University of Sussex campus, a wide variety of wastes are produced and collected, ranging from general wastes and recyclable materials, through to special and hazardous wastes. The University has a duty to ensure that all of these wastes are disposed of responsibly, using approved, registered waste contractors.

This policy sets down the framework for all waste management at the University.

Detailed, up-to-date information on the correct disposal routes for all waste types can be found on the University Health, Safety and Environment website:

[http://www.sussex.ac.uk/hso/documents/microsoft\\_word\\_-\\_waste\\_management\\_policy\\_may\\_07.pdf](http://www.sussex.ac.uk/hso/documents/microsoft_word_-_waste_management_policy_may_07.pdf)

Bristol Environmental Technologies Sector (BETS) is a trade association and sector partnership between businesses, academia, investors, local authorities, regional and national agencies promoting the growth of the environmental technologies and



services sector in the Bristol city-region. It is an excellent example of local authority-university collaboration to promote a green technology sector. Do you have similar examples in your area?

<http://www.bristol-ets.co.uk/>

Over forty years, John Pontins company, JT Group, developed a national profile for its stance on green issues in construction. Recently set up a social enterprise property company, Under the Sky, operating in the West Country of England. An example of individual led sustainable development.

[http://www.bordeaux-quay.co.uk/about/about\\_john\\_pontin.php](http://www.bordeaux-quay.co.uk/about/about_john_pontin.php)

## List of city networks active on urban energy

### Eurocities

Eurocities has a Working Group on Climate Change, Air Quality and Energy Efficiency chaired by Birmingham. In 2009, leading politicians from member cities agreed a common **Declaration on Climate Change**. Each local authority signing this undertakes to implement a climate plan for its local area <http://www.eurocities.org>. Eurocities is a partner in the IEE project **PEPESEC**, on energy planning methodologies for sustainable energy communities. The partners have set up an on-line database of case studies, the Energy Planning Knowledge Base, and organised study visits to partner cities, partly to improve the involvement of key stakeholders in energy planning. Thessaloniki is involved in this project. <http://www.pepesecc.eu/>

### 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 164 members in Europe and a European secretariat. <http://www.iclei-europe.org/>. ICLEI is the coordinator of the IEE projects **SUSTAINABLE NOW**, 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](http://ieea.erba.hu/ieea/page/Page.jsp?op=project_detail&prid=1783)

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>

### Energie-Cités

Energie-Cités 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. The Energie-Cités website has a database of over 500 actions by individual cities in different energy-related fields. Energie-Cités is coordinating the IEE project **MODEL**. The 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'. It 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. Kaunas Regional Energy Agency and agencies in the Czech Republic and Romania are partners. [http://www.energymodel.eu/spip.php?page=index\\_en](http://www.energymodel.eu/spip.php?page=index_en)

### **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. Climate Alliance members have developed a methodology for local authorities to use in developing climate protection strategies in a short time – the Climate Compass, now further developed as a 'Mitigation Scan'. <http://www.climate-compass.net/modules.html>.  
<http://www.klimabuendnis.org/>



### **European Sustainable Cities & Towns Campaign**

Local authorities join the European Sustainable Cities and Towns Campaign by signing the Aalborg Charter, or, since 2004, the Aalborg Commitments. The Campaign now has lower profile at EU level than previously, but it has a large original membership (over 2500 local authorities). DG Environment supported the Campaign until 2004. It now has funding 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 the Campaign funders and eight local government networks - the Association of Cities and Regions for Recycling and Sustainable Resource Management, the Council of European Municipalities and Regions (CEMR), Climate Alliance, Energie-Cités, ICLEI, 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'.

The 6<sup>th</sup> European Sustainable Cities and Towns conference will take place in Dunkerque, France in May 2010. <http://sustainable-cities.eu/>

## Observations for REPAIR Project

EU Directives require Member States to have national plans for energy efficiency & renewables. These are essential context for local action.

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 (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.

Work on energy within cities is increasingly taking place in the context of broader strategies for climate protection and adaptation to the impacts of climate change.

Energy considerations within REPAIR regeneration schemes need to be considered in relation to citywide policies for sustainability, climate and sustainable energy.

There are several useful funding programmes to support local actions for energy, but not many projects dealing specifically with the historic environment. There may be opportunities here for REPAIR partners.

REPAIR partners should report on any existing INTERREG IVA & B projects on energy topics and check whether these funds could support implementation of their LAPs.

As regards the new funding programme ELENA, English Heritage have pointed out that there has been no discussion between the European Commission and the EIB and the heritage sector as to how it might apply to areas with many historic buildings. The heritage sector seems unaware of its existence at the moment.

In drafting policy recommendations about energy considerations in the regeneration of military heritage sites, REPAIR partners could consider making links to:

- **Europa Nostra**, which has a European Policy Working Group and will shortly open a Brussels office so that it can follow EU policy development more closely and lobby for greater attention to cultural heritage at EU level.  
<http://www.europanostra.org/>
- The **European Heritage Legal Forum**, which has been set up to make sure that national competent authorities dealing with heritage are kept informed of proposed EU legislation which might pose a potential threat to cultural heritage. The participants come from national cultural heritage ministries dealing with cultural heritage, national boards dealing with monuments and antiquities etc  
[http://www.riksantikvaren.no/Norsk/Prosjekter/European\\_Heritage\\_Legal\\_Forum/Organisation/](http://www.riksantikvaren.no/Norsk/Prosjekter/European_Heritage_Legal_Forum/Organisation/)

## **Lead Expert proposed a selection of case studies for discussion**

1. Malta: MRA subsidies for solar energy use and Heritage Enterprise mini-model in Zejtun
2. NDW: From military fortress to joint habitat for humans and bats
3. Charente-Maritime/Oleron: ECOPOLE - Voluntary pooling of resources for waste management
4. Avrig: Renewable energy as driver of regeneration
5. Rostock, Avrig and Opava: nature as component for sustainable development
6. Medway: Hydro-electric generation using the tidal river
7. Other supporting cases - use of geothermal energy: Corderie Royale and Convent in Florence

## **Partner selection**

The REPAIR partners, in a plenary session, considered whether they could select one or two cases that they could use for learning in their own situations. These are shown below:

### **Malta**

Rostock Heath – for regeneration of 6000ha of forest – the soft approach, environmental philosophy, and job creation

### **Karlskrona**

Rostock Heath and NDW - for identifying difficulties in application of knowledge and experience; both projects are relevant for Karlskrona

### **Rostock**

NDW, Fort Vechten – for integrating original old ventilation system into new inner climate solutions.

### **Opava**

NDW – for cultural heritage philosophy of thinking ahead is relevant for Opava.

### **Florence**

Wasteserv in Malta - for linking energy with social improvement, employment and other issues. Message to link the REPAIR pillars, continue fighting against barriers of heritage protection.

### **Avrig**

Opava – for exposing difficulties with population in selecting location for biogas plant, and also green public busses.

### **Kaunas**

NDW and Opava bus and tree naming cases are both relevant to Kaunas.

### **Charente-Maritime**

NDW and their issue of bats and Opava for green transport, both relevant from CM. Also note “not in my backyard” case in Opava.

### **Medway**

Rostock reforestation – Medway plans a Great Lines heritage Park at what is now a no-go area, it is relevant to Chattenden as well; Opava tree naming.





## Popularity of cases among the partners

Many partners stressed the need of awareness building and education.

NDW bats	Rostock Heath	Opava tree naming	Opava bus	Opava biogas	NDW Vechten vent.	Wasteserv	Medway Fort Amherst
4	3	2	2	2	1	1	1

The results are very revealing as to partners' attitude to cases. None of the cases selected by partners has a direct relevance to the pillar theme. Yet NDW case that demonstrates that two types of inner climate needed from human activities and bat hibernation is a technically conceivable solution, and Rostock Heath, especially its integrated, multi-target approach, providing clean air, jobs and recreation area, are the most complex cases. It is however surprising that the Ecopole initiative has not attracted partners' attention, as it the most relevant case to the pillar.

**It is very relevant to include Wasteserv Malta European projects, as they show the approach where many other issues beyond waste management have been integrated**

These examples can be presented in different degree of detail in the report. Applying criterion of relevance to the pillar, NDW Fort Vechten and reuse of old ventilation canals could be developed into a more detailed case study demonstrating importance of original inner climate management to rehabilitation. Furthermore, cases that need to be presented at the programme level may also be included, as described below.

### Proposed themes and supporting cases

The REPAIR partners may wish to look at the cases from the point of view of relevant theme. Some possible themes and supporting cases are listed below:

- Cohabitation of different functions and climates
  - NDW: From military fortress to joint habitat for humans and bats
- Integration of concerns beyond waste and energy
  - Wasteserv Malta projects with EU subsidy
- Reuse of original climate management principles and features:
  - NDW Fort Vechten: reuse of old ventilation canals
- RE subsidy schemes and implementation
  - Malta: MRA subsidies for solar energy use
  - Heritage Enterprise mini-model in Zejtun
  - Selection of unobtrusive RE solutions for cultural heritage buildings: Geothermal energy in Corderie Royale and Convent in Florence
- "Not in my backyard":
  - Charente-Maritime/Oleron: ECOPOLE and "regional" waste management council: Voluntary pooling of resources for waste management benefits military heritage; defies "not in my backyard" approach
  - Opava biogas plant: impossible to place due to residents' protests
- Renewable energy as driver of regeneration of military sites
  - Avrig energy plan
- Forestation as component for mitigation of climate change:
  - Rostock Heath
  - Nature Park in Avrig's site
  - "Name a tree" in Opava

## Case studies for programme level

The URBACT Programme asked each project to produce two Type 1 (analytic - [Hhttp://collab-agera.urbact.eu/documents/recorddownload/id/168H](http://collab-agera.urbact.eu/documents/recorddownload/id/168H)) case studies and one Type 2 (process) case study in 2010.

It has been discussed in Karlskrona that Telecom City in Karlskrona and the Forts of New Dutch waterline will be used as cases for 2010, probably looking at Telecom city as an analytical case study of triple helix and enterprise and job creation (possibly including references to potential of learning for Medway and Opava) and Forts of Utrecht and Fort Vechten to illustrate different regeneration processes and approaches, including concerns as revealed in Pillar 1 WG.

This selection would leave REPAIR with yet another analytical case to select. I can suggest two possibilities from WG 1, assuming that both of them need to be investigated further: Wasteserv Malta's integrated outreach to issues beyond waste management, provided that the outreach has had any positive effect, and Ecopole and the role and benefits of it for the Oleron island – on condition that it can be proven Oleron Citadel and/or other military heritage sites has any direct relation to this mechanism.

Should none of the two cases prove their merits from the view of the REPAIR project, we could look at Medway's regeneration process (Chatham Maritime, Chatham Historic Dockyard, Great Lines forts) that clearly merits a case study for URBACT.

I would like to stress that writing up the cases will require effort from the partner concerned, and thus selection must be done with expressed acceptance and commitment of that partner.

## What have we learned from the cases presented

The comments were structured along the lines determined by the Steering Committee.

1. Tailor–making energy solutions for built heritage
  - a. Energy efficiency of a building should not be seen as a single goal of managing the built environment. A building, or a complex thereof, needs to strike an appropriate balance of i.a.:
    - i. Inner climate and insulation (solar radiation, including natural light) appropriate for its use,
    - ii. The interdependence of selected use and extent of capital costs needed to support different alternatives of new use,
    - iii. Reasonable longevity of its structural parts and installations, and costs of maintenance of these parts,
    - iv. Recurrent resources needed to ensure the above, such as energy needed to maintain the desired indoor temperature, artificial lighting to supplement the natural light, water for various purposes etc.
  - b. The desired point of this balance depends on many considerations. We all have experienced buildings where inner climate is inadequate as

result of prioritizing energy saving (insufficient air exchange, too high or too low humidity, and too high temperature for human comfort). Although less noticeable, certain inadequacies of the inner climate (especially humidity or lack thereof) can significantly shorten the lifetime of some structural elements and installations due to faster corrosion. To cut a long story short, energy saving should not be prioritized at a cost of human health and unwarranted reduction of lifetime of buildings.

- c. In rehabilitation of historic buildings additional considerations are added to the definition of desired balance:
  - i. Change of use may change the desired parameters of the inner climate and insulation, along with definite standards introduced after the building had been designed;
  - ii. New installations required for achieving these new standards raise issues of aesthetic and conservation nature, such as retaining authenticity and integrity of historical material and space;
  - iii. New health-related standards required for new uses may raise conflicts with parameters optimal for longevity of historic materials and protected species (such as bats in the fortresses);
  - iv. While earlier paradigms have been based on behavioural methods (such as opening windows and manual provision of heating), driven by human perception (e.g. lighting the fire when feeling cold), contemporary paradigms of HVAC (heating, ventilation, air conditioning) are heavily reliant on mechanical technologies (e.g. forced ventilation, centrally heated and cooled air) and technical sensor-based automatic controls.
  - v. In many cases, insufficient effort is being given to understand the traditional methods of providing appropriate inner climate in a historic building, especially specifics of a particular building and its original use; attempting to resort to contemporary technology as a panacea. This is done without due regard to integrated concept of heritage, which includes original – to a degree – human use patterns and principles along with tangible architectural material.
  - vi. Therefore, uses for historic buildings must be selected by taking this balance into consideration.
- d. From the perspective of a building, energy supply, including renewable energy, is a separate issue from efficient energy use, as efficient energy use enables to rationalise energy use independently from its source. However, from environmental, economic, even behavioural points of view, integration of localised RE installations, such as solar water heaters and photovoltaic cells and/or local wind turbines may be made a part of the same paradigm and included into the concept of desired balance.
- e. Any subsidy scheme must therefore target not a particular technology, such as PV, geothermal, or improved insulation value of building envelope, but rather a well motivated balance of the above concerns and be conditional to selection of appropriate use, and installations

- and procedures of ensuring parameters needed to support that use in a sustainable manner.
2. Communication and education principles must explain the above to those who make decisions about the use of historic buildings. The target of such education is twofold:
    - a. Making choices, and consequences of different options: understanding issues of the balance of considerations and selecting appropriate uses for historic buildings that enable achieving the desired balance;
    - b. Maintenance: understanding original principles of providing desired inner climate and insulation and enabling behavioural patterns that employ these principles in combination with possibilities provided by modern technologies.
  3. Conclusions are dependent on awareness of possibilities and understanding what is at stake in choosing different options. Some of the cases presented in Paola (different inner climates for humans and bats; use of geothermal energy for historic buildings) demonstrate that solutions are possible to find. One example of guiding is found at [http://www.cleanair-coolplanet.org/for\\_communities/HDCGuide.pdf](http://www.cleanair-coolplanet.org/for_communities/HDCGuide.pdf)
  4. Agreed. Yet we can use the existing cases to build evidence.
    - a. Waste management, except wastewater, is rarely a specific issue for a military site, except collection and on-site separation, which is usually not different from many other public sites. Even in waste management we have a case of the Oleron Island.
  5. I do not think that failure to come up with recommendations at Paola meeting is a result of complexity of the issue. We can still develop plausible recommendations by e-mail exchange and finalise them in Opava.

### Emerging recommendations

What we have learned in the Paola meeting is that efficient energy and renewable energy solutions in historic buildings, including military heritage:

1. Are – in certain cases - possible without damage to cultural heritage;
2. May be desirable in achieving appropriate balance between cultural, technical, health and economic considerations in rehabilitation of historic buildings.

**The goal** is then to **reconcile concerns of heritage conservation, social, cultural economic use, health, and sustainable energy**, with an emphasis on efficient energy and renewable energy solutions in historic buildings, including military heritage.

The considerations of making it happen can be distinguished into broad levels:

1. Creating stakeholder awareness of the above and enabling environment to guide towards and assist selection and implementation of desirable solutions;
2. Appropriately planning action on a site level to allow choosing the desirable options.

These two levels are intrinsically related inasmuch they inform and enable each other. In a nutshell, the policy implementation frameworks need to drive the regeneration of military sites toward balanced sustainable solutions, where possible and desirable, integrating efficient energy and renewable energy solutions into this balance.

## Policy implementation design: Reciprocity of creating an awareness-based demand and enabling environment

Demand for sustainable energy solutions in historic buildings and building awareness between two key groups of stakeholders can create sites:

- Site owners, developers and managers;
- Energy, health, territorial and social regeneration, building and heritage authorities;

Proving that sustainable energy solutions, as part of balance of inner climate and insulation, longevity of the building structure, cultural heritage conservation concerns and affordable recurrent expenditure of resources to ensure achieving the best integrated option are in some cases possible and can be desirable in historic buildings.

To make achieving the balance on a desired scale, the enabling environment: legislation, subsidy and access-to-funding frameworks, technical capacity and economic risk management must be:

- Integrated vertically among different levels of governance, especially coordinating efforts and legal and statutory and financial mechanisms by national, regional and local governments, and include citizens and private business; and horizontally across disciplinary boundaries, especially among heritage conservation, efficient and renewable energy, and health sectors;
- Flexible for swift response to take-up in the field, so that demand for sustainable energy solutions is created and driven towards desired integrated balance and scale;
- Backed-up by political will of enabling the integrated balance on decision-making level.

## Reconciling heritage conservation and sustainable energy concerns on a site level

To move towards the declared goal of introducing the sustainable energy solutions in historic buildings, the following process of supporting the decision-making is suggested:

Analyse and understand original principles and techniques of inner climate management for initial use of the historic building, including the role of surrounding landscape and consequences of the principles to inner climate, insulation, water consumption and waste water disposal, longevity of structures, human health and recurrent resources used to support the desired climate;

Formulate desired options for new uses, based on current cultural, economic and social context:

1. Define a full range of parameters for each option of new use, including:

- Conservation of natural and cultural heritage;



- Function-related adjustments of space and movement (new openings, partitions, stairs and lifts etc.)
  - Health-related (inner climate, insulation);
2. Technical depreciation of authentic materials resulting from new use, installations, and inner climate;
    - Recurrent use of resources (energy, water, human time and materials required for maintenance and replacement over time) needed to optimize the above – in monetary and environmental impact terms
  3. Determine combination of user behaviour models and technical installations optimal for providing desired parameters of inner climate for each option of new use, utilizing original (historic) principles and techniques of inner climate management;
  4. Analyse impact to authenticity of heritage concerns, sustainability/environmental and cost-benefit for each option of new use.
  5. Decide on the new use providing a model for integrated balance by combining and weighing integrated concerns.

It is obvious that the “balance” for each particular case will not be a median weighted point of all concerns. In some cases heritage conservation will require inner climate solutions which will be neither most beneficial economically nor environmentally; in other cases this may be exacerbated by selecting the use which is the only feasible one in a given cultural, social and economic context. However, the above approach will give two benefits for each case:

1. It will maximize healthy and sustainable inner climate measures based on original principles and sustainable combination of contemporary technology and behaviour of new users in a historic environment;
2. It will allow informed choice of the options, knowing the long term cost of the decision, and enable the decision makers to include all concerns in making a decision.

### **Partners' conclusions**

1. It is necessary to make energy efficiency and saving measures and funding schemes for historic buildings (listed) more tailor made to the specific and particular situation of the built heritage of previous military sites, linked to urban environment
2. Use communication and education as tools to create awareness and demand from the people.
3. Conclusions are dependant on how people use these and therefore need to have education and information.
4. This is clear that we have seen few examples of ENERGY in use at military sites
5. Overall the difficulties shown in trying to progress the recommendations demonstrate how difficult it is to link heritage sites and EE / RES and waste management.
6. Some partners need time to reflect on how they apply what they have learnt to their own situation.