INTERREG IVC analysis report

Energy efficiency
Credits

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“The contents of this work reflect the views of the author(s) and do not necessarily represent the position of the INTERREG IVC programme. The authors are entirely responsible for the facts and accuracy of the data presented.”
Foreword: Capitalising on achievements

Over the last seven years, with the goal of improving regional policies, more than 2,000 public institutions across Europe have been learning from each other through cooperative policy learning in 204 interregional projects supported by the INTERREG IVC territorial cooperation programme.

The programme can now point to hundreds of examples of how a region or city has built on the experiences of their counterparts elsewhere to enhance their own policy and delivery strategies.

A few examples:

- inspired by the approaches taken by the Welsh ECO Centre and an Educational Centre in the Dutch city of Sittard-Geleen, the Hungarian city of Vecsés developed educational activities on renewable energy and sustainability for its school children;
- after consulting the Spanish city of Paterna, the Latvian Daugavpils City Council was able to successfully modernise its soviet-era industrial parks, giving a major boost to business development;
- after consulting the Cypriot authorities, the Greek Region of Crete invested in water recycling and re-use schemes, applying the Cypriot models.

The policy learning enabled by the INTERREG IVC Programme is not just a paper exercise: it has helped, through 204 projects, almost 6,000 staff involved in regional policy to acquire new skills and capabilities, and it has led directly to the improvement of more than 400 policies. The programme was therefore determined to go a step further and share its tremendous wealth of policy experience and know-how even more widely.

The programme therefore asked 12 teams of experts covering 12 different fields of policy to analyse the achievements of its projects and to report back on ‘what works’. This report, which focuses on Energy efficiency, is the fruit of their work. It showcases a selection of tried-and-tested energy efficiency policies and practices that have been shared through the INTERREG IVC programme, and which will be of interest to all EU regions. Policymakers and practitioners interested in this topic – whether working on regional, national or European scales – will also find policy recommendations tailored to them.

Cooperative policy learning makes sense. It makes sense because, in an era of tight budgetary constraints, local and regional authorities are seeking best value for money, and robust evidence can enhance the chances of policy success by eliminating the risks and costs of trial and error.

To take forward the programme’s key strategic task of sharing policy know-how, the new programme for 2014-2020, INTERREG EUROPE, is developing ‘Policy Learning Platforms’ which will stimulate a process of continuous policy learning among all interested regional policy stakeholders around Europe.
Executive Summary

Energy efficiency is improved when a smaller amount of energy is used to achieve the same output. This output can be the provision of heat, light, cooling, transport or a product or service. Energy efficiency is becoming an increasingly important policy objective for a wide variety of reasons. These reasons centre on a realisation that it arguably remains the most cost-effective way of reducing the use of fossil fuels. Firstly, it can reduce the amount of greenhouse gases and thus mitigate climate change. Secondly, improved energy efficiency also reduces energy bills for consumers and businesses and also reduces the amount of energy we need to import. Thirdly, investing in energy efficiency can also create jobs and improve our quality of life, e.g. through housing that is easier and cheaper to heat.

The INTERREG IVC programme offers a unique pan-European arena for exchanging experiences and learning from each other on how to improve energy efficiency policies. The 21 projects included in this capitalisation analysis have utilised the potential of exchange and learning to a maximum. Overall, the projects have identified and processed over 300 good practices.

Our analysis has identified which barriers these good practices address. The barriers include:

Financial barriers to energy efficiency: Business and consumers lack access to the capital required to invest in energy efficiency. This has been made more difficult by the current economic crisis. Some investors and individuals are unwilling to invest unless they see a rapid return on investment, and energy efficiency investments have to compete with many alternative uses of capital. The return on investment would be improved if energy prices were increased to better reflect the costs that energy use imposes on society as a whole.

Institutional and administrative barriers to energy efficiency: Given the benefits of energy efficiency, it could be argued that politicians and decision-makers do not pursue it with the vigour it deserves. This is made worse by the number of stakeholders ‘on the ground’ who often need to be convinced before investing and the frequent split between those that have to finance these investments and those that actually benefit from them.

Information and awareness barriers to energy efficiency: There is widespread ignorance, even ‘technology scepticism’ among users/potential users concerning the benefits and costs of investing in energy efficiency and/or adopting energy-efficient behaviours. This is caused by an information deficit, which also affects finance providers, public authority policy officers, and businesses.

Our analysis of the twenty one INTERREG IVC Energy Efficiency projects can teach us a number of useful lessons about energy efficiency policy design and implementation. Our analysis results in lessons for policymakers at the regional, national and European levels and lessons on implementation which are most useful for local and regional authorities and all those concerned with the practical improvement of energy efficiency.

Energy efficiency policy needs to be designed to reflect market realities and the motivations and barriers which are most important at the local level. There is very useful experience from the INTERREG IVC projects on what these motivations and barriers are.

The national, local and regional implementation of energy efficiency policy can learn a lot from the experiences captured in the INTERREG IVC projects. These lessons can be grouped under two headings: who to engage (and how to engage them) and how to inspire action.

Lessons for Policymakers at local and regional level

Actual implementation

a) Technology is usually not the problem – applying it in practice is the real issue. All energy efficiency policies need to be designed with their final implementation clearly in mind.

b) Technically focused projects need expert involvement and in-depth guidance. For example peer review visits where technically knowledgeable officers from partners participate, as used in the
PLUS project. Or a guide for teachers in, and managers of, low energy school buildings as promoted in the EnerCitEE project.

c) Regional / local energy plans help focus and enable the implementation of European energy efficiency policies. These plans need baselines, roadmaps, indicators and a realist approach in order to be effective, as is shown in RENERGY and RE-GREEN.

Cross-cutting character of energy efficiency

a) Energy efficiency is a truly cross-cutting and cross-sectoral issue – so policies need to consider multiple barriers, drivers, stakeholders and sectoral players if they are going to have a positive effect on the uptake of energy efficiency. For instance, the GreenITNet project includes a clear example of an application which combines ICT, transport and energy efficiency, which is a very good match with the European Commission’s Smart Cities and Communities (SCC) initiative.

b) Policy and practice in many areas affects energy efficiency. For example in the PLUS project health and safety guidance based on existing technologies was a constraint on introducing new more energy efficient technology in street lighting.

c) Links between energy efficiency & regeneration and social inclusion are real and bring social as well as energy benefits. This is demonstrated in the SERPENTE and IMEA projects, with their inclusion of energy efficiency in social housing and the use of local citizens as role models to encourage their peers to consider and adopt energy efficiency lifestyles and choices.

Community involvement

a) Community involvement is an effective way of bringing change. For example, the IMEA project has promoted local role models, involved local groups, which help address the information deficit and user motivation barriers.

b) Involving a diverse range of sectoral players promotes credibility and uptake – but it requires work on creating a ‘common language’. Examples of such an approach include (a) citizen involvement, as promoted in the ‘Energy labs’ model of the RENERGY project and (b) local authority involvement in the PLUS project. An inclusive approach helps to create a common language across the supply chain, and ensures that everyone is clear on what the objectives are and why and how their interests are complementary.

c) Awareness raising and behaviour change needs to be locally and target group-specific and practical. Employing a diversity of delivery methods helps achieve this. For example, the LoCaRe project uses schools as a way of cascading information on energy efficiency through a local community.

d) Energy Services Companies (ESCOs) are an important mechanism in enabling larger scale investment in energy efficiency, particularly in the public sector – some of the projects could consider post-project applications for assistance from sources such as ELENA, Convergence or national schemes. The importance of ESCOs is recognised in projects such as STEP, RENERGY, IMEA and RE-GREEN and in policy mechanisms including the ELENA programme and others.

Political awareness and engagement

a) Awareness among politicians and officers in regional and local public authorities often needs improving – the projects have reported that they are often willing and interested if the arguments are presented appropriately and practical tools are developed. The RE-GREEN and IMAGINE projects recognise and address the needs of regional and local authority policy officers in relation to designing and implementing energy efficiency-related policies.

b) Engaging local politicians helps speed up progress, but if support is not wider it puts progress at risk after an election. Relying solely on political support to carry a project is unwise, as the political support can be lost if the politicians change following an election.
Transferability

a) When seeking to transfer good practices from others, assessing the level of transferability is key. They must, for example, take into account time differences in policy planning and action timeframes (as in the IMAGINE project) as well as technical issues (as in the PLUS project).

b) Some sectors and applications are more transferable than others – energy use in public buildings appears to offer some good transferability. This issue is at the heart of the SERPENTE project.

c) Process-related approaches are often easier to transfer than technological solutions. Most projects are concerned with non-technological issues, such as awareness and finance, e.g. turn plans into action (IMEA); involve the community (EnercitEE and LoCaRe); develop local authority toolkits for designing and testing policies (IMAGINE and RE-GREEN).

d) Transferability is affected by the nature of the recipient (their progress and if they have a regional energy policy). The CO2Free project reported that the more advanced regions in terms of energy efficiency tended to be less receptive to receiving new ideas.

Small scale pilots are useful

a) Small-scale pilots are effective – but they must be resourced, and the project partners must be ‘willing to fail’. This approach helps overcome information and institutional barriers. The projects also pointed out that even a small trial is often not possible without some political commitment (e.g. IMAGINE, IMEA).

Role of INTERREG and other programmes

a) Innovation can be relative, and INTERREG IVC has an important role to play in promoting transfer. It is a key strength of the INTERREG IVC programme that it is designed to engage and support all levels of take-up from cutting-edge energy efficiency technologies (e.g. in PLUS) to the replication of well-known building energy efficiency techniques.

b) INTERREG IVC helps disseminate the results of other energy efficiency programmes. Next to INTERREG, there are a number of programmes to help finance and promote energy efficiency, some of which focus on:

- Supporting investments in energy efficiency, particularly in housing: Structural and Cohesion funds, as well as specific economic crisis-related funds.
- Supporting research, development and demonstration of energy efficiency technologies and policies: The Framework Programme and its successor the Horizon 2020 programme.
- Addressing non-technical barriers to energy efficiency: The Intelligent Energy Europe Programme and parts of the LIFE+ programme, which focus on issues such as awareness, policy design and the availability of finance.

Procurement

a) Green public procurement is an effective way for the public sector to lead by example and to help create a demand and market for energy-efficient products and services. This approach is promoted in a number of the projects, including RE-GREEN, SERPENTE, IMEA, IMAGINE. The European Commission is also promoting green public procurement.
Glossary

Cogeneration, or Combined Heat and Power (CHP): This approach combines the generation of electricity with the generation of heat for space heating and/or process needs. This approach results in efficiency and cost savings compared to the separate remote generation of electricity in large power stations and the generation of heat in local heat only boilers.

Contract Energy Management: These services are typically provided by ESCOs (see below). One of the most interesting aspects is where the company provides the capital to fund the installation of new technologies (to save energy) and the client repays this capital over time as well as benefitting from the reduction in annual energy costs that the new technology brings. Sometimes the revenue savings that are made via the energy efficiency investments are shared between the ESCO and the client, this is called shared savings.

District heating: The provision of heat (typically hot water) to multiple properties from a central boiler house. This should be more efficient than if this heat is provided by multiple individual boilers.

European Union Emissions Trading Scheme (EU-ETS). A scheme designed to reduce emissions. A cap is set on the total amount of greenhouse gases that participating installations can emit. ‘Allowances’ for emissions are then auctioned off or allocated for free, and can subsequently be traded. Installations must monitor and report their CO₂ emissions, ensuring they hand in enough allowances to the authorities to cover their emissions. If emission exceeds what is permitted by its allowances, an installation must purchase allowances from others. Conversely, if an installation has performed well at reducing its emissions, it can sell its leftover credits. The system is intended to find the most cost-effective ways of reducing emissions without significant government intervention.

Energy efficiency: Energy efficiency measures the amount of energy used to produce a specific output. The output can be a warm, cool and / or lit building, or a completed unit of production, or a person or thing moved from one place to another or any other process or activity which requires energy.

ESCO: Energy Services Company, a company which will provide energy services for a client. This can include the design, build, installation, operation and finance of energy services.

Fossil energy: This refers to energy sources such as coal, gas and oil. The combustion of these energy sources releases carbon dioxide.

Global warming: A gradual increase in the overall temperature of the Earth's atmosphere generally attributed to the greenhouse effect caused by increased levels of carbon dioxide, CFCs, and other pollutants. The largest source of manmade carbon dioxide is the use of fossil fuels.

Green public procurement: Refers to the way which some public sector organisations apply environmental and energy criteria in the selection process when purchasing goods and services. This enables the organisation to lead by example, reduce their environmental and energy impacts (and operating costs) and also helps build a market demand for products and services with a lower impact.

kWh, MWh, GWh: kilo, Mega and Giga watt-hours. A watt hour is the most common unit for measuring electricity consumption.

Light Emitting Diode (LED) lamps: Lights that offer the same level of lighting, longer lives and lower energy consumption than most traditional lamps.
**Primary energy**: Energy sources in a non-modified state. Typically this refers to fuels rather than electricity, as electricity requires primary energy to be burnt at a power station to generate electricity.

**Renewable energy sources (RES)**: Renewable energy is energy that comes from resources which are continually replenished such as sunlight, wind, rain, tides, waves and geothermal heat.

**Smart grid**: This term covers a wide range of approaches but fundamentally it describes technologies and approaches that allow for a better match between electricity supply and demand. This should enable a reduction in peak demand with a subsequent reduction in the need to retain as much electricity-generating capacity.
1. Introduction and Methodology

1.1 Introduction to the topic

This report presents the analysis and key findings of a capitalisation study that examined 21 energy efficiency projects supported by the INTERREG IVC Programme. ‘Capitalisation’ means collecting, analysing and highlighting the valuable, innovative, interesting and useful aspects of the work of these interregional cooperation projects so that other regions and stakeholders may benefit from their accumulated knowledge and experience in the design of their own policies.

The 21 projects that are the focus of this study all address one of the most important issues facing the world: climate change. There are two main aspects to the policy response to climate change: mitigating future climate change by reducing greenhouse gas emissions; and adapting to projected changes in the climate and their impact on society. The projects that are the focus of this study all have policies and actions to improve energy efficiency at their core. There is a separate capitalisation report which covers projects focussed on climate change adaptation. There are also capitalisation reports focussing on renewable energy and transport, both of which are important in climate change mitigation.

The profile of energy efficiency policy has increased over recent years for a number of reasons. These include its ability to reduce greenhouse gas emissions, which is of increasing importance as the impacts of climate change become more apparent. The economic benefits of energy efficiency also make it more attractive in today’s economically challenging times. Reducing energy use also helps lower dependence on imports, and it also makes renewable energy targets based on achieving a certain percentage of total demand easier to achieve. Some Member States feel that certain energy technologies have unacceptable drawbacks. Germany, for example, is pursuing an energy policy focused on energy efficiency and renewable energy as they believe it offers a superior solution to nuclear power. As will be discussed in chapter two, the relatively poor performance of the EU in moving towards its goal of a 20% improvement in energy efficiency by 2020 is also causing policymaker’s interest to be focused on the issue of efficiency.

1.2 The benefits of Energy Efficiency

Energy efficiency is becoming an increasingly important policy objective for a wide variety of reasons. These centre on a realisation that it arguably remains the most cost-effective way of reducing the use of fossil fuels. This is increasingly desirable for the following environmental, economic and political reasons:

**Environmental**

*Reducing GHGs* - Cutting the use of fossil fuels reduces the main source of greenhouse gases (GHGs) which are the primary cause of global warming. The levels of atmospheric carbon dioxide have recently passed 400ppm, compared to a pre-industrial (1800) level of 280ppm\(^1\). Reducing their use also decreases emissions of other harmful chemicals such as NOx, SOx and particulates. An increased focus on energy savings is crucial for achieving long-term GHG reduction goals. The Stern Report for the UK Treasury\(^2\) reviewed the available evidence on climate change and concluded that it “presents very serious global risks, and it demands an urgent global response”.

**Economic**

*Reducing energy imports* - Reducing the use of energy decreases the (mainly) non-EU bound expenditure on imports of oil, gas and coal. Europe currently imports 54% of its energy requirements, though this figure is much higher in many Member States\(^3\).

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1 See: [http://www.esrl.noaa.gov/gmd/ccgg/trends/weekly.html](http://www.esrl.noaa.gov/gmd/ccgg/trends/weekly.html)
2 See summary at: [http://news.bbc.co.uk/1/shared/bsp/hi/pdfs/30_10_06_exec_sum.pdf](http://news.bbc.co.uk/1/shared/bsp/hi/pdfs/30_10_06_exec_sum.pdf)
Reducing the consumer's energy bill - At the level of the individual business (or householder), improving energy efficiency is a sound investment as it reduces expenditure for the same output (production for businesses and building services, heat, cooling, lighting and power for householders). For non-industrial customers, the average EU27 cost per unit of electricity increased by 18% between 2007 and 2011, the increase for gas was 26%.

Contributing to the green new deal - The economic downturn has also led some governments (and the European Commission) to look for opportunities to utilise public funds to support schemes which offer work opportunities to as many individuals as possible, while bringing as many wider social and economic benefits as possible. Large-scale investment in energy efficiency is seen as a very good fit with these criteria, particularly in the refurbishment of social housing.

The EU's Policy targets
Energy efficiency policies show poor performance relative to renewable policies – As a whole, the EU currently appears to be on target to meet its 2020 target of a 20% share renewable energy in total final energy consumption. However, the European Commission’s 2011 Energy Efficiency Plan indicates that at the current rate of progress the EU is likely to meet only half of the indicative 20% energy savings target in 2020 without additional policies. Moreover, analysis has shown that the Effort Sharing Decision (the binding GHG target for the non-ETS sectors, covering energy efficiency in the building environment and transport) provides limited and imbalanced incentives for energy efficiency improvement among Member States. The relative lack of progress is a concern and policy-makers are urgently reviewing what actions can be taken to address this.

1.3 Barriers to improving Energy Efficiency

Barriers to energy efficiency improvement exist in all markets for goods and services; market barriers occur as a result of three general conditions:

- When there is a low priority for reducing energy costs versus other (operating) costs;
- When the energy-efficient markets are incomplete;
- When the capital markets inhibit (limit access to finance) the purchase of equipment, or funding of actions to improve, energy efficiency.

These three conditions match the overall classification of market barriers that is given in the majority of the related literature. The four main defined categories of market barriers are:

- Financial barriers;
- Institutional and administrative barriers;
- Information and awareness barriers; and,
- Separation of expenditure and benefit (also known as split incentives).

The figure overleaf visualises these four different categories of market barriers, including the main barriers observed under each category.

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6 See the recent paper in Energy Policy “imbalance in Europe's Effort Sharing Decision: scope for strengthening incentives for energy savings in the non-ETS sectors”
The following section describes some of the key issues within each of the barriers.

**Financial barriers**

**Access to finance** - This barrier refers to a lack of funds and/or inability to secure finance on acceptable terms. The significance of this barrier varies depending on both the country and sector. In particular, small-sized energy efficiency projects (very common in the building sector) generally have difficulties in accessing funds (unless several projects are bundled, which also presents some difficulties). Their perceived high risks (often due to a lack of real understanding of how these projects are to be implemented) discourages investors and commercial banks, who tend to see them as too much effort for too little profit. Furthermore, the EU financing mechanisms that target large energy efficiency projects, with high thresholds (the European Local ENergy Assistance (ELENA) programme (see section 2.4) for example has a threshold of €50 million), might not be adequate for some countries.

**Effect of the crisis:**

Given the need to reduce public deficits, countries are tending not to prioritise energy efficiency investments (in any sector), thus limiting the funds available for this purpose. Access to public funds, even for projects that have been approved, is delayed in countries with austerity plans, given the major budgetary constraints. Additionally, the credit crunch has an effect regarding access to finance, particularly in Southern Europe, affecting the lending markets such that consumers and financial institutions are less willing to take risks.

**Payback expectations** - Most of the energy efficiency investments are financially rational, however energy efficiency investments can have relatively long payback periods (more than 10 years), which makes them unattractive. This barrier is very visible in the industrial sector, where there is often a short-term perspective from the market participants. Also in the building sector, especially in Western and Northern Europe, the investments with the shortest returns have often already been done. There are also significant differences between home owners with different levels of income and between those in owner occupied and rented dwellings.

**Competing purchase decisions** - The fact that only a low percentage of the budget is dedicated to energy expenditure (in residential and tertiary buildings) makes energy efficiency improvements a minor concern. Businesses will prioritise their core investments instead of energy efficiency. Furthermore, the invisibility of implemented energy efficiency measures can also play a role in the decision-making process for investments, making energy efficiency investments less attractive.

**Price signals** - Energy-pricing structures often do not reflect the full (environmental) costs, making energy efficiency investments less attractive. Energy subsidies and the uncertainty in energy prices are also concerns when evaluating energy efficiency investment options.
Institutional and administrative barriers

Regulatory and planning issues - A variety of regulatory and planning obstacles can be identified. These include the lack of comprehensive energy efficiency strategies backed up by strong regulatory frameworks that promote energy efficiency. The fact that in 2010, 17 (out of 27) Member States have had infringement procedures started against them regarding the transposition of the Energy Performance of Buildings Directive (EPBD), should be highlighted. Other regulatory barriers concern public procurement. In the transport sector, state planning and modal shift (i.e. from private to public transport) towards the most efficient transport systems are key. In the industrial sector, ambitious regulation is important in order to force companies to implement additional energy efficiency improvements. However, this should be followed up by appropriate monitoring schemes, which have not always been in place.

Administrative procedures - Administrative procedures can be complex and lacking in transparency. For example, a need for permits and certificates in order to implement certain energy efficiency improvements can create a barrier. Administrative procedures can also be a barrier when trying to obtain financial incentives (e.g. subsidies or fiscal incentives), public or EU funding. Complex and slow administrative procedures to access these incentives/funding can prevent investors from implementing energy efficiency measures, especially if the projects are small and the benefits are not large enough for the effort.

Multi-stakeholder issues - Various barriers exist as a result of the involvement of multiple stakeholders and owners of the energy efficiency improvement measures. This is very common in the building sector, where it can be difficult to agree on the energy efficiency investments in multi-stakeholder properties due to difficulties in, or lack of, coordination among stakeholders who have to either approve a decision or make a financial contribution. Furthermore, the different views of the stakeholders and the inherent complexity may prevent the bundling together of small projects which would make a more attractive business case. However, this can also occur at an institutional level, where there are different organisations and institutions involved in energy efficiency but where there is a lack of cooperation amongst them.

Awareness, advice and skills barriers

Lack of awareness of potential - The awareness of the energy efficiency potential determines the success of the investments and is a pre-requisite for realising the financial benefits that can derive from implementing energy efficiency measures.

Another persistent barrier to the uptake of energy efficiency is awareness and attitudes. This applies to the willingness to accept new technologies and new ways of working and living. The education and persuasion required applies to both the public in general and local politicians. Local politicians are particularly important for the public sector as they often have the final say on the implementation / realisation of policies, and without their buy-in, many schemes can fail.

There are a number of technologies at a relatively early stage which should be of key importance to improving energy efficiency. One of the most important of these is smart metering / smart grid. This technology and approach could be significantly helped via regional policy levers, for example spatial planning attitudes to electricity infrastructure changes, or the use of public housing stock to trial technical and other approaches.

Insufficient and inaccurate information - A barrier that can be present at different levels is imperfect (insufficient and/or incorrect) information, which can cause agents to make suboptimal investments in energy efficiency. Insufficient capacity and technical expertise of those responsible for energy efficiency is also a relevant barrier related to information. This also involves the lack of skills (including language skills) to take full advantage of the existing (EU) financing instruments. Another issue is the general lack of awareness among financial intermediaries and commercial banks regarding the available mechanisms for energy efficiency project structuring and financing. In addition, investors lack understanding of the different financing mechanisms available and application procedures for undertaking the energy efficiency improvement investments.

Bounded rationality - This is directly linked to the information barrier. Since most of the time there is incomplete information, decisions are made on a partly rational basis. For example, household energy refurbishments are often only carried out when things no longer work properly. This is due to high initial investment costs and the fact that consumers do not consider the investment’s life cycle.

Separation of expenditure and benefits
Also known as ‘split incentives’ - These are particularly important in the building sector (known as the landlord-tenant problem) where the landlord typically wants to minimise capital costs, and the tenant wants to maximise the realised energy efficiency in order to benefit from a reduction in energy costs. Split incentives are more relevant in countries where the household market consists of mainly rentals (e.g. the Netherlands). However, split incentives also occur when building designers and builders do not have an incentive to favour energy efficiency measures that are more costly due to the fact that the final occupants of the buildings (either tenants or owners) will be responsible for the energy costs.

1.4 Structure of the study

The results of the capitalisation work are summarised in this report, which covers the following issues:

- **Chapter 1: Introduction and Methodology** — introduces the topic of energy efficiency and describes the methodology for study development.

- **Chapter 2: Policy Context** — presents the key energy efficiency drivers and barriers and the policies and programmes designed to address these. The role and contribution of the INTERREG IVC programme with regard to energy efficiency is also discussed.

- **Chapter 3: Analysis** — focuses on the individual projects and the extent to which they address similar challenges. Solutions to common problems, as well as descriptions of good practices featuring innovative or transferable aspects, are also highlighted. The analysis illustrates how the results of the INTERREG IVC energy efficiency projects are of interest to other regions and how they contribute to improving policies in the field.

- **Chapter 4: Key policy messages** — highlights findings relevant to other EU regions, as well as policy recommendations for regional, national and European policymakers and practitioners.

1.5 Methodology

Figure 1.2 provides a brief overview of the approach we have used to bring together evidence from existing sources with that from the projects and the consultations. Our approach has involved summarising the reasons why energy efficiency is pursued as a policy objective and the policies, programmes and projects that have been put in place to achieve this. We have also reviewed each of the 21 energy efficiency related INTERREG IVC projects in order to understand what their goals and actions were.

In order to highlight where the INTERREG IVC projects have identified innovative ways of achieving the overall energy efficiency policy objectives, we then compared these objectives and tools with the project’s goals and actions.

We have also identified common approaches to the same issues between the projects, and suggested where projects could potentially learn from each other. We have also extracted lessons for policymakers from the practical experience that the projects have amassed.
Figure 1.2 Approach used for the capitalisation of the INTERREG IVC projects

Source: Ecorys
2. Policy Context

This chapter describes, in a regional development perspective, the broad ‘influences’ in play for energy efficiency. It describes the wide range of policies in favour of energy efficiency, and concludes with a discussion of the potential contribution of the INTERREG IVC programme:

2.1 Policies, legislation and programmes relevant to Energy Efficiency

2.1.1 Energy Efficiency policies and legislation

A review of EU energy policy-making over the last ten years illustrates that it is an issue that has steadily climbed up the policy agenda. However this increasing political profile is not being matched by an increase in the realisation of projects (and energy savings).

The EU considers energy efficiency as one of the most cost-effective ways to enhance the energy supply security and to reduce emissions of greenhouse gases (GHG) and other pollutants. Additionally, improvements in energy efficiency can reduce the need for investment in energy infrastructure, cut the economy-wide expenditure on fuel, increase competitiveness and improve consumer welfare. Energy efficiency is specifically mentioned in the Lisbon Treaty as one of the four primary objectives of EU energy policy. The European Union has created a comprehensive framework of legislation to improve energy efficiency.

The 1995 EU Whitepaper “An Energy Policy for the European Union” (COM (95) 682 final) mentioned energy efficiency as a matter of sustainable development and competitiveness. The 2005 Green Paper on Energy Efficiency broadened the energy efficiency debate, and for the first time, the European Commission indicated that Europe ‘could save at least 20% of its present energy consumption in a cost-effective manner’. The Green Paper was followed by the Energy Efficiency Action Plan of October 2006, which included an (indicative) 20% energy savings target for 2020 with energy efficiency in the building sector identified as a top priority and the transport sector considered of special importance.

The Climate and Energy Package of 2008 confirmed the goal of 20% energy savings by 2020 as one of the pillars of achieving the overall 20% GHG target by 2020. The legal adoption of the 20% energy savings target is, however, not explicit. In early 2010, the Commission proposed ‘EUROPE 2020: A strategy for smart, sustainable and inclusive growth’, which was agreed upon at the European Council of March 2010. Moving towards a 20% improvement in energy efficiency is one of the headline targets of this overarching strategy. In March 2011, the Energy Efficiency Plan, an update on the 2006 Energy Efficiency Action Plan was launched by the European Commission. This Plan repeats the 20% target but also indicates that without additional policies, Europe will only achieve half of the savings target.

In January 2014, the European Commission launched its 2030 framework for climate and energy policies (COM(2014) 15). The key points of the framework regarding energy efficiency are as follows:

- A target to reduce EU domestic greenhouse gas emissions by 40% below the 1990 level by 2030.
- An objective of increasing the share of renewable energy to at least 27% of the EU’s energy consumption by 2030. This is binding at the EU level, but there is flexibility on what share of this figure is achieved between Member States.
- Progress towards the 2020 target of improving energy efficiency by 20%, although the role of energy efficiency in the 2030 framework will be further considered in a review of the Energy Efficiency Directive, due to be concluded later in 2014.
- Reform of the Emissions Trading System.
- Member State plans, under a common framework, for competitive, secure and sustainable energy.

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The Energy Efficiency Directive (EED – 2012/27/EU) established a common framework of measures for the promotion of energy efficiency in order to bridge the energy savings gap, to help achieve the 2020 20% energy savings target and to pave the way for further energy efficiency improvements beyond 2020. It established an energy savings obligation for suppliers, set energy performance standards for central government buildings and defined a long-term building retrofit roadmap. In addition, it promotes the establishment of indicative national energy efficiency targets for 2020.

As Europe is not on track to meet its 2020 energy savings target, there has been considerable debate as to whether to set binding as opposed to indicative energy savings targets. This was considered in the final draft text of the new Energy Efficiency Directive, which left the option of binding targets explicitly open for the period beyond 2014; however, this statement was adjusted in the adopted Directive: If still not on track mid-2014, the European Commission will propose “further measures”. Article 3 of the EED states that each Member State shall set an indicative national energy efficiency target, based on either primary or final energy consumption, primary or final energy savings, or energy intensity. Article 7 states that each Member State shall set up an energy efficiency obligation scheme which will ensure that energy distributors and/or retail energy sales companies achieve a cumulative end-use energy savings target by 31 December 2020. That target shall be at least equivalent to achieving new savings each year of 1.5% of the annual energy sales to final customers by volume.

National Energy Efficiency Action Plans (NEEAPs) provide a framework for the development of national energy efficiency strategies. Member States need to report the energy efficiency improvement measures placed in view of their indicative targets, as well as the expected and/ or achieved energy savings in the National Energy Efficiency Action Plans. The NEEAPs shall be complemented with updated estimates of expected overall primary energy consumption in 2020, as well as estimated levels of primary energy consumption.

The Effort Sharing Decision (406/2009/EC) establishes annual binding GHG emission targets for Member States for the period 2013-2020. These targets concern the emissions from sectors not included in the EU Emissions Trading System (ETS), such as transport, buildings, agriculture and waste. Each Member State will contribute to this effort according to its relative wealth and, overall, it will deliver a 10% reduction in emissions from the covered sectors in 2020 compared with 2005 levels. Together with the reduction of the ETS, it needs to accomplish the overall emission reduction goal of the EU Climate and Energy package (20% below 1990 levels by 2020). Whereas the EED does not set binding targets for energy savings, the effort sharing decision implicitly does by setting binding GHG target for the non-ETS sectors. As the built environment (i.e. buildings) is a non-ETS sector, and a CO₂ target has direct consequences for energy use, it may become the main policy driver for improving energy efficiency in buildings.

The main legislative documents that aim to realise the energy saving potential of the European Union’s buildings is the 2002 Energy Performance in Buildings Directive (EPBD) and its 2010 recast (Directive 2010/31/EU). The first European Directive on the Energy Performance of Buildings (EPBD) was adopted on 4 January 2003. Member States had a three-year period to build up relevant systems and measures to transpose the Directive. The recast was shaped in line with the EU objective to reduce the energy consumption of the Union by 20% by 2020. The recast places more responsibilities on local authorities, acknowledging the leading role the public sector should play in energy performance, given that publicly owned or used buildings account for 12% (in area) of the total building stock in the EU15. The EPBD recast obliges Member States to establish and apply minimum energy performance requirements for new and existing buildings, ensure the certification of building energy performance and mandate the regular inspection of boilers and air conditioning systems in buildings. The Directive also requires Member States to ensure that by 2021 all new buildings are so-called ‘nearly zero-energy’ buildings.

Other relevant policy initiatives include the Directive on Eco-design Requirements of the Energy Related Products (2009/125/EC). The Eco-Design Directive aims to reduce the environmental impact of energy-using and energy-related products, including their energy consumption, throughout their entire life cycle. This is achieved by setting specific eco-design requirements. The inclusion in this directive of ‘energy-related’ products is particularly important for the building sector, as it includes building components like windows, doors and insulation. Energy-using building components like boilers and air conditioners were already covered in the Eco-design Directive (2005/32/EC).

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The Energy Labelling Framework (2010/30/EU) is related to the eco-design directive and was adopted on 19 May 2010, with the aim to assist customers when choosing products with energy labels which indicate the energy the product will use. Energy labels also provide incentives for the industry to develop and invest in energy-efficient product design.

2.1.2 Programmes to promote and finance Energy Efficiency

The focus of much of the recent energy efficiency policy development for the European Commission and for others such as the European Investment Bank has been the ways in which energy efficiency investments can be financed. This reflects the recognition of the persistent issue of the capital cost barrier of many investments but also the more recent effects of the economic downturn, which have placed a greater strain on the availability of public finance. This is leading to a renewed interest and desire to promote the concept and use of Energy Services Companies (ESCOs), which are able to structure the finances of projects such that the initial capital cost is much reduced (or even removed) in return for a share of the energy savings. There is continuing potential for green public procurement to improve energy efficiency. This reflects the large and long-term investments that public authorities make in everything from street lights to vehicles to office equipment where there are energy-efficient choices on offer. There are also a growing number of innovative finance mechanisms and technical assistance programmes designed to help overcome financial (and capacity) barriers to energy efficiency. A number of examples of these are provided at the end of this section.

The EU has a number of financial instruments and programmes of relevance to energy efficiency. These include:

- Structural and Cohesion funds;
- Seventh Framework Programme for Research and Technological Development (FP7);
- Intelligent Energy Europe Programme (IEE);
- European Energy Programme for Recovery (EEPR).
- Others – European Energy Efficiency Fund, LIFE+

Structural & Cohesion funds

EU regional policy is financed by three main funds that can be used towards a wide range of policy objectives. The funds aim to reduce regional disparities in terms of income, wealth and opportunities. Europe's poorer regions receive most of the support, but all European regions are eligible for funding under the policy's various funds and programmes:

- European Regional Development Fund (ERDF);
- European Social Fund (ESF);
- Cohesion Fund.

The ERDF and ESF are referred to as Structural Funds. These funds can be used for a broad range of measures that help to achieve its targets. For example, Structural Funds can be used:

- To provide subsidies towards projects or investment programs;
- To fund research aimed at delivering useful lessons to make progress with, for example, the organisational approach, the design of effective implementing strategies, effective project structures (e.g. organisational or financial) and technologies;
- To fund the setting up and delivery of programmes and instruments aimed at raising awareness on subjects such as energy savings; or aimed at promoting investments.

Whereas the Structural Funds are mainly distributed through subsidies (funding), the EU is shifting its policy towards the deployment of its instruments via other methods such as loans, investments and guarantees. This is most clearly illustrated by the introduction of Joint European Support for Sustainable Investment in City Areas (JESSICA) and Joint European Resources for Micro to Medium Enterprises (JEREMIE), which are aimed at providing loans, equity and guarantees to investment projects, programmes and companies. It is expected that this trend will continue in the next programming period.

The 2007-2013 Cohesion policy was characterised by closer cooperation between the EC, the EIB and other financial institutions. A number of technical assistance (TA) and financial instruments in support of the efficient management and implementation of the Structural Funds were launched in light of this cooperation:
The policy was that 4% of the ERDF should be allocated to energy efficiency\textsuperscript{16}. In the 2007-2013 funding period, the Regional Policy programmes, including Cohesion Fund and Structural Funds, allocated over €4.2 billion to the promotion of energy efficiency in a vast range of activities, including industry, commerce, transport and public buildings, cogeneration and local energy production, innovation for sustainable energy, and training for monitoring and evaluation of energy performance. Over the same period (2007-13), €18.5 billion of the ERDF and Cohesion Fund was invested in low-carbon themes, such as renewable energy, energy efficiency, clean urban transport and cycle paths.

Expenditure in the 2007-2013 ERDF round was defined and directed largely by a setting of priorities at regional / Member State level. This led to considerable variation between Member States. The amount spent on energy efficiency via the ERDF increased each year, indicating its rise up the policy agenda.

In the recently started programming period (2014-2020), the high-level objective is to reduce disparities and achieve EU 2020 goals. The European Commission also wants more impact from funds and a more concentrated use of funding.

The new Cohesion Policy means regions and Member States must target EU investments on four key areas for economic growth and job creation: Research and Innovation; Information and Communication Technologies (ICT); Enhancing the competitiveness of small and medium-sized enterprises (SMEs); and Supporting the shift towards a low-carbon economy. Energy efficiency, along with supporting a growth in the use of renewable energy, is key to a low-carbon economy.

During the recently started funding period (2014-2020), Cohesion Policy will increase the percentage of ERDF funding allocated to measures supporting the shift to a low-carbon economy. The percentage of funding allocated to low-carbon varies between the regions of Europe depending upon their classification\textsuperscript{17} for Cohesion Policy purposes. The allocation is 20% in more developed regions; 15% in transition regions; and 12% in less-developed regions.

This will ensure a minimum investment of at least €23 billion for 2014-2020 from the ERDF, while further investments through the Cohesion Fund will further support the shift towards a low-carbon economy. Investments from the ERDF and the Cohesion Fund will include the following areas:

- Funding projects to enhance energy efficiency and smart energy management in public infrastructure, including public buildings, as well as in the housing sector and in industrial production with a view to boosting competitiveness, especially in SMEs.
- Reducing emissions from transport by supporting the development of new technologies and promoting sustainable multi-modal urban mobility, including public transport, cycling and walking.
- Investing in smart grids for electricity distribution to enable improved energy efficiency.
- Integrating increased amounts of renewable energy.
- Encouraging an integrated approach to policy-making and implementation by developing integrated low-carbon strategies, in particular for urban areas, which may encompass street lighting, sustainable multi-modal urban mobility and smart electrical grids.
- Promoting research and innovation in low-carbon technologies.

The ESF will also support measures to reinforce the education and training systems necessary for adapting the skills and qualifications of the labour force to work in sectors related to energy and the environment.

It is hoped that Cohesion policy funding will act as a trigger to leverage private funding, in particular by encouraging the use of financial instruments, so as to bridge the investment gap between energy efficiency potential and energy efficiency investments, which is key to achieving 2020 targets.

At the EU level, a revised regulatory framework for the ESF has been proposed by the Commission with the aim of encouraging an integrated approach, increasing coherence between policy commitments and investments on the ground.

\textsuperscript{16} Regulation (EC) N 397/2009 on the European Regional Development Fund as regards the eligibility of energy efficiency and renewable energy investments in housing

\textsuperscript{17} Less developed regions, whose GDP per capita is less than 75% of the average GDP of the EU-27. Transition regions, whose GDP per capita is between 75% and 90% of the average GDP of the EU-27. More developed regions, whose GDP per capita is above 90% of the average GDP of the EU-27.
The objective is to have a targeted results-oriented approach, focusing on fewer priorities, translating 2020 targets into concrete investments in Member States and regions. Cohesion policy will place even further emphasis on supporting investments linked to EU energy targets.

Based on the Thematic Objectives and the proposed regulatory framework, the European Commission issued position papers to each Member State outlining the main challenges and funding priorities in Member States for the period 2014-2020. These position papers contain outline descriptions of the types of energy efficiency (and other) project that could be supported. Each Member State is currently in the process of preparing their Operational Programmes (OPs), which give further details of their specific priorities and objectives. Once finalised and agreed upon, these OPs will decide how each Member State will allocate its funds.

The Seventh Framework Programme for Research and Technological Development (FP7) was the EU’s main instrument for funding research in Europe that ran from 2007, with the last call for proposals taking place in 2013. Its budget, allocated to the energy sector, was around €2.3 billion, which is 7% of its cooperation budget. Key aspects of the FP7 on energy research involved smart energy networks, energy efficiency & savings, and knowledge for energy policy-making.

The Framework Programme (FP6 and FP7) also funded the CONCERTO initiative. CONCERTO aims to demonstrate that the optimisation of the building sector of whole communities is more efficient and cheaper than the optimisation of each building individually. The initiative started in 2005 and, over three tranches, has co-funded 58 communities in 22 projects in 23 countries. The total amount of EU funding for the CONCERTO initiative is €175.5 million. CONCERTO demonstrates examples of a wide range of technologies. These include innovative energy efficiency measures with a substantial contribution from decentralised RES, smart grids, renewables-based cogeneration, district heating/cooling systems and energy management systems. The intention is to optimise the technologies and measures to take account of the local site, climate, cultural and political aspects.

CONCERTO is described as “the intermediate step from the individual building via the community to the whole city approach”, as planned in the SCC initiative. The SCC is described as being aimed at “accelerating the deployment of innovative technologies, organisational and economic solutions to significantly increase resource and energy efficiency, improve the sustainability of urban transport and drastically reduce greenhouse gas emissions in urban areas”.

SCC is intended to fund demonstration and propagation activities covering cost-effective technological and innovative non-technological solutions on the verge of commercialisation. There is a clear intention to focus on areas where energy production, distribution and use are intimately linked with mobility & transport and information & communication technologies and where they offer new interdisciplinary opportunities to improve services while reducing energy & resource consumption and GHGs and other polluting emissions. The first phase of funding was via a call in the 2013 FP7 programme. Subsequent funding will be via the Horizon 2020 programme (the successor to FP7 plus other programmes – see next page for more details). The intention is that other sources of both EU (e.g. Structural and Cohesion Funds) and Member States funds will be used to supplement SCC, particularly to support wider demonstration and rollout.

The Intelligent Energy Europe programme (IEE) was launched in 2003. IEE is part of the Competitiveness and innovation Programme (CIP) and is operated by the Executive Agency for Competitiveness and Innovation (EACI). IEE supports a number of activities:

- **Funding projects.** The majority of the programme’s budget goes to funding projects across the EU that support and promote energy efficiency and renewable energy. Funds can be used to cover up to 75% of the project’s costs. The programme has four strands: Energy efficiency and the rational use of energy (SAVE); New and renewable resources (ALTENER); Energy in transport (STEER); and Integrated initiatives (covering cross-sectoral and technology issues).
• **Procurement of products and services.** Procurement is used to obtain any studies and services the European Commission or the EACI need to achieve the objectives underlying the IEE Programme. The EACI subcontracts services to private companies and organisations via calls for tender;

• **ELENA (European Local ENergy Assistance) Financing facility for cities and regions.** ELENA is a technical assistance facility that makes funds available to cities and regions across the EU that are investing in sustainable energy. ELENA covers a share of the cost for technical support that is necessary to prepare, implement and finance the investment programme, such as feasibility and market studies, structuring of programmes, business plans, energy audits, preparation for tendering procedures. ELENA is run by the EIB and the KfW Group.

Money is available through each of these different financing streams, although the majority of the budget is given over to funding projects. €730 million was available from 2007-2013 to fund projects and put in place a range of European portals, facilities and initiatives, including, for example, the **Covenant of Mayors** (CoM). The CoM involves local and regional authorities, voluntarily committing to increasing energy efficiency and using renewable energy sources on their territories. Each signatory has to produce a Strategic Energy Action Plan (SEAP) describing how these targets will be met. IEE also supports additional technical assistance and training schemes such as the **ManagEnergy portal** and the **BuildUp Skills initiative** and information and awareness raising components, such as U4Energy, the Sustainable Energy Week and European Campaign.

The **European Energy Programme for Recovery (EEPR)**, established by Regulation (EC) No 663/2009, is one of the major initiatives taken by the EU to address the global economic and financial crisis that started in 2008. On 1st July 2011, the European Commission launched a new European Energy Efficiency Fund (EEEF), as part of the EEPR. The EEEF will allocate around €146 million from the EEPR (3.7% of the total EEPR budget) to a new financial facility dedicated to energy efficiency and renewable energy projects. The EEEF will invest in energy saving, energy efficiency and renewable energy projects, particularly in urban areas, achieving at least 20% energy saving or GHG/CO₂ emission reduction. At its launch, the initial fund volume was €265 million: in addition to the EU contribution (€125 million), the European Investment Bank (EIB) invested €75 million, Cassa Depositi e Prestiti SpA (CDP, Italy) €60 million and the designated investment manager (Deutsche Bank) €5 million.

Across the EU, several financing schemes and government programmes have been initiated to address energy efficiency investment barriers in housing. An EU-wide evaluation of 25 of these financing schemes underlined the importance of tailoring these financing schemes to the socio-economic conditions of the target group. Depending on the type of housing or the income class of its occupants, some barriers become more prominent than others.

The European Commission’s **LIFE+ programme** is their financial instrument for the environment. It is the latest round of a programme which has existed since the early 1990s. The programme has a number of themes, broadly split between Nature, Biodiversity and Environment. One of the ten sub-themes of Environment is Climate Change – Energy. Some of the projects funded under this theme relate to energy efficiency technologies and behaviours.

The successor to FP7, which will also continue parts of the IEE and other energy-relevant parts of the CIP, is **Horizon 2020**. Horizon 2020 is divided into seven sections: Excellent science, Industrial leadership, Tackling societal challenges, Spreading excellence and widening participation, Science with and for society, European institute of energy and technology and Euratom.

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23 http://www.covenantofmayors.eu/index_en.html
24 http://www.managenergy.net/
25 http://www.buildupskills.eu/
26 Ecorys, 2012, Local investments options in Energy Efficiency in the built environment
27 http://ec.europa.eu/environment/life/about/index.htm
28 http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=home.getProjects&themeID=8&projectList
One of the seven societal challenges is to ensure secure, clean and efficient energy. There are seven specific objectives and research areas that fall under this heading:

- Reducing energy consumption and carbon footprint
- Low-cost, low-carbon electricity supply
- Alternative fuels and mobile energy sources
- A single, smart European electricity grid
- New knowledge and technologies
- Robust decision-making and public engagement
- Market uptake of energy and ICT innovation.

A budget of €5 931 million has been allocated to these non-nuclear energy research topics for the period 2014-2020. There are other parts of Horizon 2020 of relevance to energy efficiency, but these are the most relevant.

The DG Energy draft work programme29 for Horizon 2020 has been released and contains numerous aspects of relevance to energy efficiency. Energy Efficiency is listed as one of its three focus areas, with the other two being Competitive Low-Carbon Energy and Smart Cities and Communities.

2.2 The added value of Interregional Cooperation on Energy Efficiency

Given the number of other programmes that are partly or wholly focused on energy efficiency, it is important to consider what the added value of the INTERREG IVC supported projects is and could be in the future.

An important element of added value from the INTERREG IVC projects is their focus on improving the effectiveness of regional policies. INTERREG IVC projects focus on making European level legislation and policies more relevant and easier to put in place at the local and regional level. This is achieved through the exchange and transfer of experience among EU regions. An aspect specific to INTERREG IVC is the cooperation between local and regional levels. Both civil servants and local politicians are involved, and the INTERREG IVC programme actively enables a real improvement in energy efficiency policy and approach at the local and regional level. Examples include the transfer and testing of the latest public lighting technology in the PLUS project, the development of partner-specific energy policies in EU2020 Going Local, IMAGINE, RE-.GREEN and others and advice on how to realise green public procurement in EnercitEE, SERPENTE and others. These examples illustrate how regions have developed effective approaches that are adapted to their own local circumstances. See section 3 for more details on these examples.

INTERREG IVC projects enable the interregional dissemination of good practice between local authorities and gives the local authorities (civil servants and politicians) a budget to travel and better understand what can be done in this field (for example, energy efficiency in buildings). The projects bring local politicians together in an international field. This helps overcome the administrative barriers to implementing energy efficiency that are often associated with local (and sometimes national) politics by increasing the know-how and interest among these politicians. The cooperation between cities, regions and experts often continues beyond the duration of the INTERREG IVC projects.

Another added value of the INTERREG IVC projects compared to the projects and programmes described above is the variation in levels of innovation that are helped to be transferred between partners (and others). Transferability was recognised as a key factor by all of the projects reviewed. A number of the projects (such as CO₂-Free and IMEA) pointed out the importance of recognising that the partners within their project are at varying stages of progress in terms of energy efficiency, so it is important to reflect this and let each region have its own plan for implementation. This point is also relevant when considering what is new or innovative for a particular region, as what may have been common practice for a number of years in certain cities might be unknown, new and innovative elsewhere. This is arguably a key strength of the INTERREG IVC programme in comparison to other EC programmes, as it is designed to engage and support all levels of take-up, from the cutting edge to the replication of what is common practice to some. For example, the use of common rental bicycles from a large pool sited at key locations has been used in some European cities for many years (e.g.

Brussels), so this would not be considered innovative on an EU scale, but in many other Eastern European cities, this approach would be entirely new and innovative. This is in contrast to many other EC energy efficiency support programmes (e.g. IEE, FP) where the focus is much more on innovation and first (or among the first) demonstration at the EC level as a whole.

As energy efficiency policy increasingly moves its focus from setting high-level targets to enabling implementation, the INTERREG IVC projects, with their focus on overcoming practical and local barriers, have many lessons and suggestions of significant practical use to both policymakers and those responsible for local implementation. To demonstrate this further, we have prepared a section that links barriers with policy responses and gives examples of INTERREG IVC project outputs and good practices that address these barriers and illustrate in a practical way how policy responses could be implemented.
3. Analysis: Consolidating the INTERREG IVC energy efficiency projects

This chapter begins with an overview of the 21 energy efficiency projects which have been selected for analysis. This is intended to show what each of the projects aim to achieve and what they are about. The chapter then moves on to discuss the common features and innovative aspects of the projects. Issues where the projects could potentially learn from each other are also discussed. The chapter ends with a description of a number of interesting and innovative good practices in energy efficiency that have been identified from the projects. These good practices have been grouped alongside current EU level policies. This approach is intended to illustrate how the policies in question can be achieved.

3.1 Overview of the INTERREG IVC Energy Efficiency Projects

Among the 204 INTERREG IVC projects, 12 core projects with a clear energy efficiency focus have been selected for analysis with a further nine projects, whose focus includes energy efficiency among other issues, are also included. These projects include 231 partners and in total will have received some €36 million in funding. Twelve of the projects are finished and the remaining nine will finish in 2014.

It is important to point out that there are many other INTERREG IVC projects in the other themes of this capitalisation exercise where energy efficiency is of very high importance, particularly climate change, renewable energy, eco-innovation and transport. The fact that energy efficiency crosses over with these other themes illustrates its importance and its cross-cutting and cross-sectoral nature. These cross-overs are genuine and need to be recognised and respected, for example:

- **Climate change** - there are opportunities to improve the energy efficiency of buildings at the same time as they are refurbished (or initially constructed) to better deal with the implications of climate change. The system of emissions trading is arguably a combination of energy efficiency and climate change policy goals. Climate change mitigation and adaptation policy response can be combined.
- **Renewable energy** - the zero or low-carbon approach to energy use is only possible through a combination of energy efficiency and the use of renewable energy sources. This reflects the need to minimise the use of energy before seeking to provide it from a renewable source.
- **Innovation** - there is a clear overlap with many eco-innovation projects (as resource efficiency usually implies energy efficiency amongst other things), but also with the energy benefits that often come from other technical advances.
- **Transport** - there are major energy savings to be made from the modal shifts (e.g. shifting from private cars to public trains and buses) encouraged via sustainable transport projects.

The table below lists and summarises the 21 projects selected for analysis. Annex 1 contains a more detailed profile for the 12 ‘core’ projects.

**Table 3.1 Overview of the INTERREG IVC projects selected for energy efficiency**

<table>
<thead>
<tr>
<th>Project</th>
<th>Description</th>
<th>Start – End</th>
<th>Partners and LP Country</th>
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<tbody>
<tr>
<td><strong>EnerCitEE</strong> -</td>
<td>The project aims to both provide information on energy efficiency to citizens and explain to these citizens how they can get involved. The project covers issues including sustainable transport, the implementation of European directives and climatic planning tools. Outputs include: Training for local authorities, study visits and training sessions. <a href="http://www.enercitee.eu">www.enercitee.eu</a></td>
<td>2010 - 2013</td>
<td>7 Germany</td>
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<td>European networks,</td>
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<td>energy-efficient</td>
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<td><strong>LoCaRe</strong> - Low-</td>
<td>The project has three main themes: New Climate, New Energy and New Leadership. These themes are the basis for conferences organised as part of the project. The project has five sub-themes which support other sub-projects: Renewables, Carbon Capture and Carbon Sinks, Procurement Practices, Low-carbon Territorial Planning and Empowerment. In addition to a number of conferences, the project includes, site visits and a workshop on 'Building Low-Carbon Regions'. The sub-projects started in 2011. <a href="http://www.locareproject.eu">www.locareproject.eu</a></td>
<td>2010 - 2013</td>
<td>6 Denmark</td>
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<tr>
<td>Carbon Economy</td>
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<td>Regions</td>
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<tr>
<td><strong>Project Name</strong></td>
<td><strong>Description</strong></td>
<td><strong>Duration</strong></td>
<td><strong>Participating Country</strong></td>
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<td><strong>PLUS - Public Lighting Strategies for Sustainable Urban Spaces</strong></td>
<td>The project aims to help cities develop their lighting policies and develop implementation plans for these policies. The project also aims to stimulate the development, testing and use of sustainable lighting by offering public spaces as testbeds. Each of the partner cities defines a number of good practices. Successes and shortcomings are identified and compared with other partners’ experiences. The project also produces a set of recommendations to improve public lighting strategies in general. <a href="http://www.luciasassociation.org/Home.html">http://www.luciasassociation.org/Home.html</a></td>
<td>2010 - 2012</td>
<td>Netherlands</td>
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<tr>
<td><strong>CO2Free Cooperating 2 Foster Renewables and Energy Efficiency</strong></td>
<td>The project aims to transfer good practice on energy issues found in regional Action Plans (APs) into the Operational Programmes (OPs) of the EU SF (Obj. 1 and 2 OPs). Good practice examples are collected with regard to Bioenergy, Green ICT, ICT Control Mechanisms, Wood-Burning systems, Non-food Use of Crops and Wind Turbine Training programmes, E-mobility, Renewable Energy Sources (Intelligent, ICT-based Control System), Sustainable Development of Enterprises and a Research Institute for Renewable Energies (RIRE). <a href="http://www.co2free-project.eu">www.co2free-project.eu</a></td>
<td>2010 - 2012</td>
<td>Ireland</td>
</tr>
<tr>
<td><strong>EU 2020 going local: From detached Lisbon and Gothenburg Strategies to a regionalised indigenous EU 2020</strong></td>
<td>The project is focused on the transfer of good practices, resulting in regional Action plans. A summary document produced by the project contains 42 Good Practice examples from the 10 partner regions. The thematic areas covered by the project are: Local/regional Climate Impact and Sustainable Management Control system, Renewable Energy and Waste to Energy, Energy Efficiency Measures, and Sustainable Public transport and Non-motorised transport. <a href="http://www.eu2020goinglocal.eu">www.eu2020goinglocal.eu</a></td>
<td>2010 - 2012</td>
<td>Sweden</td>
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<tr>
<td><strong>IMEA - Integrated Measures for an Energy Efficiency Approach</strong></td>
<td>The project aims to support local and regional authorities in improving the energy efficiency of the built environment. The issues focused on are: 1. Tackling Cognitive Barriers, 2. Tackling Economic Barriers, 3. Developing Change Strategies and Implementation Plans. The project aims to disseminate good practices to public authorities in the EU and to facilitate exchange via a learning platform. <a href="http://www.savingenergytogether.eu/savingenergytogether/">http://www.savingenergytogether.eu/savingenergytogether/</a></td>
<td>2012 - 2014</td>
<td>Netherlands</td>
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<tr>
<td><strong>SERPENTÉ - Surpassing Energy Targets through Efficient Public Buildings</strong></td>
<td>The project is focused on energy efficiency in publicly owned or managed buildings through improved public policies. The project addresses public policy-making from the top-down (policymakers) and the bottom-up (citizen involvement). The project objectives are: To promote the theoretical understanding and practical application of energy efficiency initiatives. To provide information for, and raise awareness among, policymakers and citizens. To promote responsible energy consumption among public building users. To foster the proactive involvement of local stakeholders in public policy. To enhance energy performance of publicly owned/managed buildings through the development of a manual which includes practical advice for policymakers and citizens. <a href="http://www.serpente-project.eu">www.serpente-project.eu</a></td>
<td>2012 - 2014</td>
<td>Italy</td>
</tr>
<tr>
<td><strong>STEP - Improving Communities' Sustainable Energy Policy Tools</strong></td>
<td>The project aims to foster local level policies which support energy efficiency and energy self-sufficiency and are derived from regional/national policies. The objectives are: to enable the exchange and transfer of policy practices and develop a comprehensive interregional policy guide; to support this transfer by identifying adequate financing possibilities; to develop specific implementation plans; to enable the networking and interregional capacity building of local authorities’ staff. The project has produced three thematic policy practice guides. <a href="http://www.steproject.eu">www.steproject.eu</a></td>
<td>2012 - 2014</td>
<td>Hungary</td>
</tr>
<tr>
<td><strong>Project</strong></td>
<td><strong>Description</strong></td>
<td><strong>Years</strong></td>
<td><strong>Country</strong></td>
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<tr>
<td><strong>IMAGINE - Low Energy Cities</strong></td>
<td>The project is focused on knowledge exchange, to enable cities to review and assess their own transition strategy and to develop Local Energy Roadmaps to 2050. This is achieved via the engagement of local stakeholders around local authorities (LAs). The outputs of this are then integrated in the LA’s policies and action plans. <a href="http://www.imaginelowenergycities.eu">www.imaginelowenergycities.eu</a></td>
<td>2012 - 2014</td>
<td>France</td>
</tr>
<tr>
<td><strong>RENERGY - Regional Strategies for Energy Conscious Communities</strong></td>
<td>The project aims to improve the effectiveness of local/regional sustainable energy policies/strategies by (1) demonstrating the relevance of taking local needs, into account, (2) emphasising the crucial role of energy businesses (3) emphasising the role of local/regional governance bodies. The project includes three case studies and the use of ‘Energy labs’, which are a new platform concept for dialogue and cooperation between experts, producers/suppliers and end-users. : <a href="http://www.renergyproject.eu">www.renergyproject.eu</a></td>
<td>2012 - 2014</td>
<td>Italy</td>
</tr>
<tr>
<td><strong>GreenITNet - Green IT Network Europe</strong></td>
<td>The project aims to assess actions and analyse policies on Green IT. This is achieved via partner cooperation and exchange of experience. The project aims to develop a systematic Green IT policy framework and to select and describe a number of good practices and effective policies. <a href="http://www.greenitnet.org">www.greenitnet.org</a></td>
<td>2012 - 2014</td>
<td>Latvia</td>
</tr>
<tr>
<td><strong>RE-GREEN - REgional policies towards GREEN buildings</strong></td>
<td>The project is focused on the building sector and aims to help regions to improve, develop and implement green building policies. These policies include energy efficiency, the use of renewable energy and green public procurement. The project aims to help the exchange of experience, to identify and transfer good practices and develop new policy tools. The project includes study visits complemented with interregional workshops. The project will develop implementation plans, which will be carried out by local/regional public authorities with the support of self-assessment reports and good practice guides, also developed as part of the project. <a href="http://www.re-green.eu/">www.re-green.eu/</a></td>
<td>2012 - 2014</td>
<td>Portugal</td>
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<tr>
<td><strong>The Following projects were analysed in less depth – because of an overlap with other themes and/ or energy efficiency only being part of their focus</strong></td>
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<tr>
<td><strong>F:ACTS! Forms for: Adapting to Climate change through Territorial Strategies</strong></td>
<td>The project deals with the prevention of hazards resulting from climate change in areas affected by extreme weather, and is focused on climate change adaptation. The project includes workshops during partner meetings, coaching visits between partners and five pilot projects. The project outputs include a handbook for policymakers, experts and project leaders. <a href="http://www.factsproject.eu">www.factsproject.eu</a></td>
<td>2010-2012</td>
<td>Netherlands</td>
</tr>
<tr>
<td><strong>RegioClima Regional cooperation towards adaptation to climate change</strong></td>
<td>The purpose of the project is to enhance cooperation among selected EU regions towards avoiding risk and reaping the benefits from a changing climate. The five main themes are: Identification of optimal resource allocation and use in climate change adaptation; Building regional alliances and coordination of regional action; Reduction of uncertainty and expansion of the knowledge base; Integration of adaptation into existing and forthcoming legislation &amp; policies; and; Development of climate change adaptation strategies. Outputs include seminars, workshops, adaptation guides and a good practice guide. <a href="http://www.regioclima.eu">www.regioclima.eu</a></td>
<td>2008-2011</td>
<td>Cyprus</td>
</tr>
<tr>
<td><strong>POWER</strong></td>
<td>The project included nine sub-projects exploring the best ways of enabling the development of low-carbon economies. The projects were grouped under five themes - Energy Efficiency, Eco-Innovation and Environmental Technologies, Renewable Energy, Sustainable Transport and Behaviour change). The outputs included policy recommendation under the themes as well as regional roadmaps – towards low-carbon economies. <a href="http://www.powerprogramme.eu">www.powerprogramme.eu</a></td>
<td>2008-2012</td>
<td>UK</td>
</tr>
<tr>
<td><strong>RSC Regions for Sustainable Change</strong></td>
<td>The project aims at promoting an EU-wide shift to climate-friendly economies and seeks to identify opportunities for, and the costs and effects of, moving to a low-carbon economy. Activities included seminars, regional baselines and the development of regional low-carbon indicators. The outputs included guidance on including climate change in Strategic Environmental Assessments and a handbook for building a low-carbon economy. <a href="http://www.rscproject.org">www.rscproject.org</a></td>
<td>2008-2011</td>
<td>14 Hungary</td>
</tr>
<tr>
<td><strong>ClimactRegions</strong>&lt;br&gt;Regions for Climate Protection: toward Governance from Knowledge to Action</td>
<td>The project aims to enable Regions to efficiently monitor and observe greenhouse gases; to develop regional policies for greenhouse gas mitigation using good governance processes; and to strengthen the dialogue between Regions and the EU on climate change policies and their implementation in the field. The activities included exchange of good practice and capacity development. The major output was the formation of ENERGee-Watch - the European NEtwork of Regional GHG Emissions and Energy Watch. This is a network that is a tool for existing GHG observatories as well as regional and local authorities to implement strategies to mitigate climate changes. <a href="http://www.climactregions.eu">www.climactregions.eu</a></td>
<td>2010-2013</td>
<td>12 France</td>
</tr>
<tr>
<td><strong>GRaBS Green and Blue Space Adaptation for Urban Areas and Eco Towns</strong></td>
<td>The GRaBS project is a network of pan-European organisations involved in integrating climate change adaptation into regional planning and development. The project activities include facilitating the exchange of knowledge and experience and the actual transfer of good practice on climate change adaptation strategies to local and regional authorities. Outputs include a vulnerability assessment tool designed to aid the strategic planning of climate change adaptation responses and numerous case studies. <a href="http://www.grabs-eu.org">www.grabs-eu.org</a></td>
<td>2008-2011</td>
<td>14 UK</td>
</tr>
<tr>
<td><strong>CLUE Climate Neutral Urban Districts in Europe</strong></td>
<td>The CLUE project aims to increase the local and regional capacity in policy development, to facilitate the implementation and assessment of new solutions and technologies for a low-carbon economy in urban areas. The project activities include expert workshops and local dissemination seminars. The outputs will include best practice guides, policy recommendations on the integration of climate aspects in the urban development process, guidelines for measuring, reporting, verifying and assessing climate neutral technology and implementation plans for all participating regions. <a href="http://www.clue-project.eu">www.clue-project.eu</a></td>
<td>2012-2014</td>
<td>12 Sweden</td>
</tr>
<tr>
<td><strong>dAIR Decarbonised Airport Regions</strong></td>
<td>The goal of dAIR is to improve the surface accessibility to airport zones and the CO₂ neutrality of airport operator activities. The project includes study visits, workshops, stakeholder forums and exchange of experience between members. The outputs will include regional implementation plans and a good practice brochure. <a href="http://www.dairproject.eu">www.dairproject.eu</a></td>
<td>2012-2014</td>
<td>16 Netherlands</td>
</tr>
<tr>
<td><strong>More4NRG</strong></td>
<td>The MORE4NRG project aimed to strengthen 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 the effect of regional sustainable energy strategies. Project activities included seminars, conferences and peer to peer reviews. The outputs included a toolkit for regional energy (RES and EE) strategies. <a href="http://www.more4nrg.eu">www.more4nrg.eu</a></td>
<td>2008-2011</td>
<td>12 Netherlands</td>
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</tbody>
</table>

Source: Ecorys/Triple E Consulting based on Application Forms, consultations and project websites
3.2 Common issues, solutions, challenges and difficulties

The project representatives were asked at two workshops to indicate which barriers and / or drivers they felt their projects contribute to overcoming or promoting. For those projects that were not able to attend the workshops, the project content and outputs have been reviewed in order to assess their focus.

From the tables presented below, the point that is most evident is the multiple barriers and drivers that each project feels they align with. This is a clear indication of the cross-cutting nature of energy efficiency and the way in which single projects need to be aware of all the relevant issues in order to encourage change.

Table 3.2 Categorisation of the projects under the barriers they tackle and the drivers they promote

<table>
<thead>
<tr>
<th>Key Energy Efficiency drivers</th>
<th>No.</th>
<th>Projects (Self assessed)</th>
<th>(Reviewed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental</td>
<td>13</td>
<td>EnercitEE, RE-Green, SERPENTE, Green ITNet, IMAGINE, CO₂Free, RENERGY</td>
<td>CLUE, F:ACTS!, ClimactRegions, RegioClima, GRaBS, RSC</td>
</tr>
<tr>
<td>Economic</td>
<td>16</td>
<td>EnercitEE, IMEA, RENERGY, CO₂Free, Regree, SERPENTE, GreenGrowth, IMAGINE, Green ITNET, EU2020 Going Local, LoCaRe</td>
<td>CLUE, POWER, RSC, D:AIR, More4NRG</td>
</tr>
<tr>
<td>Political and Social</td>
<td>8</td>
<td>EnercitEE, Green ITNet, RENERGY, SERPENTE</td>
<td>CLUE, RSC, D:AIR</td>
</tr>
</tbody>
</table>
The following figure illustrates the share between the drivers and barriers that the projects feel they are addressing. The most commonly addressed barrier or driver relates to the information and awareness deficit. This reflects both the importance of this barrier and the suitability of the INTERREG IVC programme for sharing and promoting good practice. The driver of economic benefit is close behind. This confirms that saving money arguably remains the best way of interesting consumers in energy efficiency. The least common driver is the political desire to achieve progress in energy efficiency. This reflects the fact that this is an issue of much more interest to European and Member State level policymakers (given the presence of EU level targets), than to the local and regional project leaders or partners.

Figure 1: Drivers Promoted and Barriers Addressed by the 21 Energy Efficiency Projects

<table>
<thead>
<tr>
<th>Drivers Promoted</th>
<th>Number of Projects</th>
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</thead>
<tbody>
<tr>
<td>Environmental</td>
<td>15</td>
</tr>
<tr>
<td>Economic</td>
<td>15</td>
</tr>
<tr>
<td>Political</td>
<td>10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Barriers Addressed</th>
<th>Number of Projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial</td>
<td>5</td>
</tr>
<tr>
<td>Institutional and Administrative</td>
<td>5</td>
</tr>
<tr>
<td>Information and Awareness</td>
<td>10</td>
</tr>
<tr>
<td>Behavioural</td>
<td>4</td>
</tr>
</tbody>
</table>

Source: Ecorys / Triple E Consulting
To help gain additional insight into the focus of each project, table 3.3 shows our analysis of the strengths, weaknesses, threats and opportunities that all 21 of the projects focus on. Most of these issues listed have already been described in more detail in the introduction or policy context, but to help clarify the table, a basic explanation of each is provided below. Many of these issues are discussed in more detail in the next section:

| Strengths | Weaknesses | Opportunities
|-----------|------------|----------------
| Local knowledge | The technical, managerial and other knowledge that exists. | Local authorities pursuing green public procurement can inspire a similar approach in other purchasing bodies. |
| Local resources | Such as the presence of renewable energy resources, or particular energy users. | Buildings are large consumers of energy, and there is significant opportunity to improve their energy efficiency. |
| **Tailored local policy** | National or international policy that is not easy to adapt to local circumstances. | ESCOs are able to provide the capital and expertise for energy efficiency investments with the cost spread over time and subsidised by the energy savings. |
| **Multi governance level** | The problem caused by the need to involve and convince the management and staff of several levels of administration in order to make energy efficiency projects happen. | COM programme as described in section 2.1.2 |
| **Citizen involvement** | The difficulties faced in engaging and motivating individual citizens to pursue more energy efficient lifestyles. | Involving energy businesses to increase credibility and improve uptake. |
| **LA skills** | Local authority staff lack the skills required to recognise and implement projects or approaches to improve energy efficiency. | Improving energy efficiency can improve social cohesion and reduce the proportion of income spent on energy. |
| **Technology ‘trust’** | Many individuals and organisations are unwilling to try new technologies, because they do not have the experience (and trust) of them in comparison to existing technology. | Many local (and national) authorities have Sustainable Development (SD) strategies. Energy efficiency helps achieve SD goals. |
| **Policy maker awareness** | A lack of knowledge of the benefits of improved energy efficiency and of the techniques and technologies available to improve it. | CCS is a developing technology to capture CO₂ emissions and store them underground. It is seen by many as an important step to a low-carbon economy. |
| **Citizen awareness** | The lack of knowledge that many individual citizens have of the benefits of improved energy efficiency, and the ways in which it can be improved. | There are opportunities to use ICT to improve energy efficiency. |
| **Green Jobs** | The employment benefits of energy efficiency. | Many public authorities combine climate change adaptation and mitigation into one strategy. |
| **LA role models (GPP)** | Local authorities pursuing green public procurement can inspire a similar approach in other purchasing bodies. | Transport is a major energy user. |
| **Energy use of buildings** | Buildings are large consumers of energy, and there is significant opportunity to improve their energy efficiency. | E:

| Threats
<table>
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<tbody>
<tr>
<td><strong>CO₂ levels</strong></td>
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<tr>
<td><strong>Pollution</strong></td>
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<tr>
<td><strong>20/20/20 EE</strong></td>
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</table>
The table shows that:

- 15 of the 21 projects build on strengths related to the energy-related resources and skills in the region. This point reflects the common response of developing regional strategies.

- 20 projects aim to remediate the energy efficiency weaknesses of the partners, especially:
  - the need to adapt energy efficiency policies to the local level (19);
  - the need to engage local citizens in policy development and action (10);
  - the need to involve all levels of local governance in policies and decisions in this area (12);
  - the need to develop local authority skills and awareness (14);
  - the need to develop trust in new technologies (6). Indicating that this is not perceived to be the most common barrier.

- All but one (20) of the projects take advantage of new developments, market opportunities and technologies:
  - the opportunities of new technology (6);
  - funding opportunities (11);
  - policy synergies (18) – reflecting the cross-cutting nature of energy efficiency, including its overlap with transport and climate change adaptation.

- All (21) of the projects recognise the threat of CO\(_2\) and energy-related pollution. With eight of these also recognising (and including) the role of renewable energy.
Table 3.3. Overview of the issues focused on by the INTERREG IVC energy efficiency projects

<table>
<thead>
<tr>
<th>Strengths</th>
<th>EU2020</th>
<th>EnercitEE</th>
<th>CO2 Free</th>
<th>STEP</th>
<th>RENERGY</th>
<th>RE-GREEN</th>
<th>PLUS</th>
<th>LoCaRe</th>
<th>SERPENTE</th>
<th>IMEA</th>
<th>IMAGINE</th>
<th>GreenITNet</th>
<th>FACTS!</th>
<th>RegioClima</th>
<th>POWER</th>
<th>RSC</th>
<th>ClimactRegi</th>
<th>ons</th>
<th>GRaBS</th>
<th>CLUE</th>
<th>D:AIR</th>
<th>MoreNPG</th>
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<tbody>
<tr>
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Source: Ecorys / Triple E Consulting
3.2.1 Consolidating/analysing the innovative elements of the projects

We asked the projects to describe the innovative aspects of their projects and have also analysed the available project outputs and good practices so as to gain additional insights. We have summarised these innovative aspects under a number of themes as follows:

With regard to the focus / subject matter of the projects, the way the SERPENTE and CLUE projects aimed to link energy efficiency improvements to regeneration activities and social benefits was innovative. This focus was also mentioned by the IMAGINE, RENERGY and More4NRG projects, which aimed to integrate social and business expertise. The choice of partners is an area where projects can illustrate some innovation. For example, the RENERGY project included policymakers, businesses and research organisations. The focus on private home owners and the need to present them with a business case to support their investments in energy efficiency in the IMEA project was also an innovative element.

There are a number of examples of innovation in the content of the projects. The development and promotion of ESCO financial models for improving the energy efficiency of public buildings in the STEP project (as well as the RENERGY, IMEA, IMAGINE, RSC, ClimactRegions and CLUE projects) and the emphasis on public procurement options in the RE-GREEN project (and seven others) are in line with the current policy priorities of the EC. A number of projects, e.g. RENERGY and POWER, have placed emphasis on the need to promote behavioural change. The GreenITNet project has a strong combination of technologies and sectors in its activities related to providing information to public transport users via ICT – to improve the efficiency of use. This combination is a very good match with the recent SSC programme.

A degree of innovation can be seen in the tools and techniques developed by the projects. For example, the RENERGY project is using ‘energy labs’ to promote sharing of good practice between diverse stakeholders who might not otherwise interact. Linking together and utilising the skills of key players in energy efficiency can also be seen in IMEA where they are linking energy businesses to the delivery of a local authority programme, which helps to give credibility to the energy efficiency services offered by the businesses. IMEA also provides 1:1 follow up on the advice given to households, which both helps to ensure that the householders have understood the advice and allows verification of the savings to be achieved. The IMEA project has also made use of local ‘champions’ to promote action on energy efficiency. Local champions are known individuals within a community who adopt measures and can be used as real and known examples to persuade others to also take action. The individuals also act to promote the energy efficiency actions through their day-to-day interactions with other members of their community. This is similar to a good practice highlighted by the F:ACTS! project, where a small-scale competitive scheme to improve energy efficiency between 8-12 Belgian households expanded to become an IEE-funded project called ‘Energy Neighbourhoods’, which involved over 6 000 households.

The specific needs of local authorities in defining and implementing an energy efficiency policy are recognised in a number of project tools, for example, in RE-GREEN they have developed an indicator system for local authorities to help them find their strengths and weaknesses; the STEP project aims to help each of their partner regions to fill in the gaps in their approach; and the RE-GREEN and More4NRG projects are focusing on developing integrated toolkits. The IMAGINE project is focused on creating ‘roadmaps’ for energy use in its partner cities by 2050 – to illustrate how quality of life, and economic success etc. (i.e. EU2020 goals) can be achieved. This is intended as an inspirational guide and uses a bottom-up approach with local citizens to develop the roadmap, matching citizen aspirations, priorities and understanding with policy development. Citizen involvement is partly enabled through the use of backcasting techniques in workshops. These help plot the route from the current situation to what the aspiration is, by looking at how the current situation was arrived at. The IMAGINE project is also developing a way for local authorities to review their relevant policies (e.g. transport, housing, spatial planning) in terms of how well they recognise energy efficiency issues and promote good practice. The development of local toolkits and strategies can be seen in a number of the projects, including More4NRG, RegioClima, RSC and ClimactRegions.
3.2.2 Consolidating/analysing the effectiveness of the projects

An interesting point that was raised in discussions with the projects regarding effectiveness (i.e. the extent to which the projects improved energy efficiency) and transferability concerned the fact that the majority of the projects concerned ‘soft’ issues as opposed to technology issues. The discussion on why this was the case indicated that in general the problem (in terms of low take-up of energy efficiency) is not lack of technology but much more the adaptation and application of technology, where ‘soft’ issues such as attitude, awareness and finance play a key role.

Points on the effectiveness of projects were made during the workshop presentations and subsequent discussions with projects, i.e. what each project thought was most effective about their approach and outputs in terms of sharing good practice on energy efficiency and overcoming the barriers to its uptake.

When these issues were discussed with the projects, there were some useful points raised on the importance of awareness and engagement. With regard to awareness among local politicians, it was agreed that energy efficiency is not a subject that they are usually interested in, but that their commitment is very useful (if not vital) to get projects implemented. Popular ways of stimulating their interest included linking energy efficiency with business opportunities and revenue savings. However the point was raised that while this may be true, the environmental reasons for pursuing energy efficiency should not be forgotten, even if some politicians may be sceptical. Many projects are difficult to approve if only financial grounds are considered.

The perception is that the level of interest among the public and politicians in environmental issues can drop when the state of the economy worsens. This makes motivating them to support energy efficiency solely because of its environmental benefits more difficult. The financial and economic motivations mentioned above help counter this, but it could also be argued that reminding the public and politicians of environmental issues becomes more important during less successful economic periods because, without this reminder, behaviours can either slip back or stagnate.

The importance of engaging local politicians was pointed out by a number of projects. Getting local politicians to participate in meetings and study visits was highlighted as an important part of the RE-GREEN project, as they get to personally see working examples of installations and approaches. In the EnercitEE project, the German region of Saxony and the Polish region of lower Silesia developed a partnership to help convince local politicians in Poland that energy efficiency has a place in their priorities. Once one Polish town was involved, it became much easier to engage neighbouring Polish localities, because they could see the approach working in their context. This partnership was also very helpful in generating potential investment ideas for the next round of structural funding.

It was also pointed out that, although involving and convincing local politicians is extremely useful for enabling change, there are potential risks associated with politicians losing elections and being replaced. If projects are overly associated with a certain politician, this can make them unpopular with opposing politicians. It was pointed out by projects with experience of this happening that the best way of overcoming this risk was to ensure that support for a project went beyond one politician, or political group to include other non-political support. This should give the project more momentum and profile enabling it to survive political changes.

Some issues on which the projects focused their efforts appear to have been more popular than others. This higher level of interest is a good indicator of their potential effectiveness. There were a number of examples of projects which made efforts to translate national and European level policies and targets to the local and regional level. The RENERGY project did this by providing examples on how building regulations could be translated to a local level (e.g. typical local building types). The STEP project also indicated that this issue was popular and described the importance of this issue to its local authority partners, and the key role that these partners play in making it happen. This issue was also mentioned by the RE-GREEN project, which stated the importance of the need to adopt action to fit / work with the local policy process and the importance of illustrating that there are diverse paths to a common goal. The tailoring of the format and style of the content developed by projects – to match the needs of the target audience - is also key to its effectiveness. The SERPENTE project stated the importance of developing and piloting country-specific implementation plans, and EnercitEE
also mentioned that it looked for good practice examples by region and sector that could be used to inform its region-specific energy efficiency and RES guide for buildings.

An effective project approach was when energy efficiency was **enabled in a cross-sectoral and innovative way**. For example, the GreenITNet project stated that ideas which may not originally be motivated by energy efficiency can provide good energy efficiency benefits, such as the travel cost app they have developed, which reduces travel time and helps promote modal shift (to public transport away from cars). This idea also brought some social inclusion benefits by enabling more people to make better use of public transport. Its development required the combination of data sources from multiple sources. The CO2Free project described a similar cross-sectoral example, involving ICT, buildings and sustainable transport with the promotion of a good practice on charging electric cars, which was the most popular good practice (in terms of downloads) they listed.

For energy efficiency issues which are best addressed by a **well-defined target group** it appears that **projects need to focus on producing and promoting outputs which are technically detailed and specific** enough to be of practical use. For example, the EnercitEE project mentioned the climate change planning tools it had developed and tested as well as the practical users guide for passive house schools (very low energy need building), which they felt recognised the day-to-day practical information users of such school buildings would need. The targeting of technically specific and detailed information is well illustrated by the PLUS project, which has a clear focus on public lighting and existing good practices in making this lighting more efficient. A number of the projects have used projects funded by other EC schemes (e.g. the Framework Programme, LIFE+) as good practice examples. This ensures a certain quality level in the examples (as to receive EC funding, the project must have passed quality criteria), and it is a good way of disseminating the results of these other funding streams.

Certain tools and approaches appear to be effective in promoting the awareness and take-up of energy efficiency. In an echo of the points made above, aspects which increase the effectiveness and popularity of tools include making them **locally and target group-specific as well as practical**. The IMEA project mentioned the importance of developing a business case / ‘change strategy’ to enable ideas to turn into actions. The EnercitEE project mentioned its involvement with a successful scheme to provide practical training (via student interns) in energy and climate issues to local authority policy and planning officers, and the IMAGINE project stressed the importance of finding what citizens and businesses want with regard to its whole approach of developing energy roadmaps.

The involvement of certain types of **partners** in a project was felt to be an important aspect in producing outputs that are likely to be effective. IMEA mentioned a number of partners whom they felt were helpful. They felt that having a **national focus point to collect Member State-specific expertise / experience** was important. This point was also made by the PLUS project as being important in collecting the national examples of innovative practice for a specific technology. IMEA also described the benefits that they felt had been brought through **involving energy efficiency equipment installation businesses**, as this promoted action by giving the project a ‘one stop shop’ ability (i.e. users could get credible advice and practical input on installation). IMEA also praised the effectiveness of the ‘local champions’ approach, which also brought extra positive impacts in terms of social cohesion. Involving **partners who are already well-networked** in terms of their knowledge on energy efficiency is clearly a good approach. For example, the RE-GREEN project felt that there were benefits from their partners’ existing links to CoM and Energeecities, which helped give the project a good head start.

There are a number of approaches and **links to existing policy levers** which can help a project be successful in promoting the uptake of energy efficiency. The RE-GREEN project mentioned a number of these approaches, including: encouraging **public authorities to lead by example** (e.g. green public procurement); including high standards of energy efficiency within regeneration projects – e.g. social housing, as this utilises existing spending plans and helps spread the knowledge further. In the EnercitEE project, the Emilio Romagna region of Italy reported that in order for the public authorities to address energy efficiency, there was a need for cultural change and a significant increase and improvement in inter-departmental working.

A policy initiative which was cited as being highly useful for enabling progress in energy efficiency was the CoM. There were a number of clear examples of overlap between INTERREG IVC projects and CoM activities. The political engagement that CoM signature brings was recognised as being very helpful. The fact that part of the CoM process is to research and define a regional baseline of energy
use and related opportunities and barriers is a clear overlap with the INTERREG IVC projects, for example the data collection focus of ClimactRegions, RSC and CLUE and the regional master plan outputs of LoCaRe and More4NRG. The importance of local / regional energy strategies is dealt with elsewhere in this report, but additional examples of its importance can be seen in the EnercitEE project, where the Danish city of Vaxjo highlighted the importance of its long standing political agreement (of commitment to low-carbon) for overcoming opposition to projects, such as a biomass-fuelled district heating system. Another EnercitEE participant region (Haute Savoie, FR) pointed out the positive link between the project goal and French national requirements (via the Grenelle programme) for local authorities to prepare a report on energy issues and pursue action via pilot projects. This political requirement helped engage local politicians, and in combination with the INTERREG IVC project, helped speed up action. The More4NRG project developed a toolkit for regional energy strategies (looking at renewable energy as well as energy efficiency), and included in-depth peer review of these strategies.

IMEA have estimated that the approach of local champions and business involvement which they promote can achieve a x10 multiplier between programme expenditure and final individual spending on energy efficiency. Another high profile policy concept which offers good leverage is the links between low-carbon and economic growth. The employment and company profitability benefits that energy efficiency investments can bring were raised as very important positive influences by RE-GREEN, LoCaRe, POWER and RSC.

3.2.3 Analysing the transferability of the projects

A key issue for energy efficiency is the ability to transfer technologies, tools and techniques from one location to another. There are often fears that location-specific issues will limit transferability. These issues can be physical, e.g.: climate (what works in cold and wet countries might not work in hot and dry countries) or building techniques which vary between countries (so certain technologies or approaches won’t work). The issues which limit transferability can also be political and/or social. For example, the details of spatial planning procedures, such as the influence local politicians have on decisions, varies. The primary influences on decision-making related to energy efficiency, e.g. when and how to replace appliances, are also affected by social norms, which vary on a spatial basis.

During the discussions with projects, the following points were made about the transferability of the approaches, findings and results from the projects.

A number of projects made the point that there are certain energy efficiency technology issues which are very widely transferable. For example, SERPENTE mentioned that there are common building types across Europe, which have a number of common issues. For those projects which focused on specific technologies, such as the PLUS project with its focus on public lighting, the issue of transferability is central. PLUS addressed this issue through the use of the ‘deep dive’ peer review process, involving a detailed analysis of the technologies in use by particular partners. This helped clarify the issues that could cause problems of transferability and in some cases, illustrated that there can be problems, e.g. it became clear that LED lighting is not the universally best solution for public lighting.

Many of the approaches and techniques used by the projects to promote and facilitate the uptake of energy efficiency are widely transferable between countries and regions. A number of these focus on the process-related barriers which tend to have a high degree of commonality across Europe. For example, the IMEA project focused on the ways in which ideas can be turned into action, involving the need for finance and action plans, creating a common language between the participants (as opposed to each using their own specific terms and goals – accountants with numbers, engineers with technical issues, housing officers with social inclusion etc.) and encouraging local individual and community involvement. The transferability of community involvement was also mentioned by EnercitEE, with their use of local citizens as ‘climate idols’ being a successful and transferable model and by IMAGINE, with the bottom-up (i.e. community involvement) approach to policy-making. The LoCaRe project also raised this issue mentioning that leadership is a common need and involving citizens is a beneficial approach. They used the Asset-Based Community Development (ABCD) approach and also use the European sustainable citizen ambassador cascade system to raise awareness. This works via schools where the top level of information provision is by teachers, the next level pupils and the third layer the families of the pupils. The master plan concept, involving enterprises, the community and energy supply and demand side was another transferable
approach involving a multitude of actors. Another issue where there should be good potential for transferability is with projects which utilise data which is commonly held in many (particularly urban) locations. For example, the GreenITNet project mentioned the commonality of the transport flow and public service data which enables their journey planning app.

The way in which information is presented and tools are structured was another issue where the right choices can help transferability. The RE-GREEN project mentioned that the toolkits they have developed (with indicators on energy efficiency policy design for local authorities) include specific advice on how to tailor them to local needs. This issue is also central to the More4NRG and RSC projects. The use of innovative communication methods, particularly those which are more visual, such as videos, was mentioned as easing transferability by the EnercitEE project (and others).

Another interesting point raised on transferability was that the ease of transfer is affected by the nature of the potential recipient. The CO2-Free project felt that transfer works better into (and out of) those regions with a strategic energy / energy efficiency plan. They also felt that more advanced (in terms of take-up of energy efficiency) regions will export more than they import. The point was also made that there should be an acceptance that not everything will be transferable. GreenITNet mentioned that in their area a key issue that could limit transferability is the regulatory situation on data openness. Other projects commented that citizen willingness to act and participate in some approaches will be different. The RENERGY project mentioned that they have evaluated each of their good practices in terms of transferability, by considering issues such as links to EU level legislation (EPBD) and its relevance to typical / common building types (e.g. schools). The idea of transferring the general concept rather than the precise details of a good practice was raised by the CLUE project as they reported that differences in climate and energy markets had made the transfer of precise approaches between partners difficult, but the core of the conceptual approach could still be transferred.

3.2.4 Cooperation and information exchange between projects

We are aware that discussions have taken place between the SERPENTE and RE-GREEN projects which recognised clear similarities in subject matter (energy efficiency in public buildings) during the workshop that was part of this capitalisation process. There is also potential for the IMEA project to share their findings and approaches on this issue.

A number of additional examples of project cooperation can be noted, as follows:

- STEP signed an agreement with the PROFORBIOMED30 (Promotion of forest residual biomass in the Mediterranean basin, funded by the ETC MED transnational cooperation programme) to make use of overlapping pilot actions and feasibility studies.
- RE-GREEN has worked with the RENERGY, SERPENTE, IMAGINE, STEP and Regions4greengrowth INTERREG IVC projects and has also linked with GPPinfoNET project (Green Public Procurement Information Network), funded by LIFE+.
- The CLUE project expects to link with the FP7 funded Transform project31 (on implementation plans for urban districts to reduce CO2), the CO2OLBrick project32 (funded by the ETC Baltic Sea Region transnational cooperation programme) on modernising historical buildings, RE-GREEN and ReMAC33 (a follow-up initiative of the EUCO2 80/50 INTERREG IVC project) on planning for regional decarbonisation.
- The RENERGY project sees links with the RE-Seeties project (supported by the ETC South East Europe transnational cooperation programme), developing integrated waste and energy solutions; EnVision 2020 also supported by the ETC South East Europe transnational cooperation programme), optimal paths to reduce the energy intensity of the city in 2020; and REEEZ (Renewable Energy and Energy Efficiency Zealands): which is co-financed under the ELENA scheme, aimed at the renovation of municipal buildings.

Our analysis of the common target issues between the projects can also be used to indicate areas of potential mutual learning. We have reclassified the barriers and opportunities from this table in terms of project focus, project tools and target groups.

30 http://proforbiomed.eu/the-project
31 http://urbantransform.eu/
32 http://www.co2olbricks.eu/index.php?id=42
33 http://www.regenerative-energy.org/
A common way in which INTERREG IVC supports improvements in local and regional policies is by sharing good practice on how national / EC policies are implemented to fit local and regional priorities and circumstances. As discussed under transferability, this is of particular relevance for energy efficiency as the presence of a region-specific energy policy and baseline is a very important factor in how well best practices can be taken up and therefore how effectively a region can improve its energy efficiency. This issue reflects the findings and setup of other energy efficiency programmes. For example, signatories of the CoM are required to produce a Sustainable Energy Action Plan, which in effect sets out a region / city specific energy policy and plan.

Another mutual issue, where there is potential for the projects to learn from each other, is green public procurement. This is an effective way for local authorities to lead by example and help to create a market and demand for, in this case, energy efficient products and services. Green public procurement is an approach where there are many other sources of advice and inspiration34, and the recent Energy Efficiency Directive now requires central governments to pursue it. The projects which have an aspect of this (LoCaRe, SERPENTE, IMEA, IMAGINE, EnercitEE, RE-GREEN and More4NRG) could learn from each other.

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34 See [http://ec.europa.eu/environment/gpp/index_en.htm](http://ec.europa.eu/environment/gpp/index_en.htm) for a good summary and links
The promotion and use of ESCOs and other innovative finance models are looked upon by national and international policymakers as an important mechanism in enabling the installation of energy-efficient technologies, particularly now given the increasing constraints on the availability of public sector capital to fund these. The STEP project has produced a guide on 'Financing tools for sustainable energy investments' which is expected to inform the regional implementation plans that each regional participant in the project will produce. There are a number of programmes designed to promote the use of ESCOs. These have valuable case studies and information for the projects which include a consideration of ESCOs, most notably the ELENA programme35, which provides project development assistance. All four of the projects which target this issue (STEP, RENERGY, IMEA and IMAGINE) have time to learn from these good practices and, if the project activities are successful, could potentially go on to consider their own ELENA applications.

A number of the projects (EnercitEE, RENERGY, SERPENTE, IMEA, IMAGINE, F:ACTS!, POWER, ClimactRegions and GreenITNet) are interested in using tools to promote and enhance citizen involvement. This ranges from engaging citizens in policy development (e.g. IMAGINE) to the use of local individuals to promote the uptake / installation of technologies (e.g. EnercitEE). These projects can all learn from each other with regard to promoting citizen involvement in different stages and aspects of their projects. Related to citizen involvement are the synergies that exist between projects which seek to involve a wide range of energy stakeholders, politicians and local citizens in the development of local energy efficiency policies and actions. The now completed CO₂Free project had some interesting conclusions on the importance of involving local politicians and the importance of a well-researched regional energy baseline to this process that the other on-going projects could learn from. The efforts made to engage and involve energy businesses by projects such as IMEA also offer an interesting lesson to those projects seeking to maximise stakeholder involvement. Energy businesses can bring a lot in terms of commercial credibility and the desire to turn intentions into installations, but they are a group that often gets overlooked in public sector-led projects.

The importance of developing the skills and awareness of policy officers in local authorities is recognised by a number of projects. The interesting approach of the EnercitEE project in placing energy and climate student interns within local authority offices, to pass on their knowledge could be of interest to a number of other projects, such as STEP, RENERGY and SERPENTE.

The projects analysed under the sustainable transport theme are likely to provide useful pointers for the GreenITNet project – given that the use of traffic and travel electronic data is a key issue.

3.3 Links to Smart Specialisation Strategies

Smart Specialisation Strategies (SSS) are an important mechanism for regions to help direct research and innovation funding in future structural and cohesion funds. The regional baselines that many of the INTERREG IVC projects have produced are an ideal method to help regions identify energy efficiency-related opportunities which can feed directly into the SSS. The process of engagement, including sharing good practice and discussing options with a wide range of stakeholders and energy players, such as RENERGY ‘energy labs’, is another way in which the projects can help regions identify opportunities for the SSS. The promotion of delivery links between energy businesses and public programmes, as seen in the IMEA project, helps establish and promote the credibility of them both, and bringing together these groups also helps to formulate and achieve the SSS.

The local energy policy development tools, such as the indicator system to assess local authority policy strengths and weaknesses in RE-GREEN, More4NRG, RSC and IMAGINE, and the development of processes to help fill these gaps, as seen in STEP, RE-GREEN and others, such as the roadmap in the IMAGINE project developed with policymakers and citizens, are all relevant to the SSS development process. This relevance centres on the fact that many of the successful approaches used in the INTERREG IVC projects reviewed can help regions to shape the energy efficiency-related aspects of their SSS strategies.

3.4 Lessons from other European Territorial Cooperation (ETC) programmes and projects

INTERREG IVC is one of the ETC programmes. There is potential to learn from the projects supported by the other ETC programmes. The most relevant other ETC programmes for this theme are (with the descriptions from their programme websites):

**URBACT** – URBACT is a European exchange and learning programme promoting sustainable urban development. It enables cities to work together to develop solutions to major urban challenges, reaffirming the key role they play in facing increasingly complex societal changes. They help cities to develop pragmatic solutions that are new and sustainable, and that integrate economic, social and environmental dimensions. They enable cities to SHARE good practices and lessons learnt with all professionals involved in urban policy throughout Europe. URBACT participants include 500 cities, 29 countries and 7 000 individuals.

**ESPON** – ESPON is the European Observation Network for Territorial Development and Cohesion. Their mission is to: support policy development in relation to the aim of territorial cohesion and a harmonious development of the European territory by (1) providing comparable information, evidence, analyses and scenarios on territorial dynamics and (2) revealing territorial capital and potentials for development of regions and larger territories contributing to European competitiveness, territorial cooperation and a sustainable and balanced development. The programme supports the following types of interrelated operations:
1. Applied research on different themes of European territorial dynamics, conducted by transnational groups of researchers and experts.
2. Targeted analyses together with stakeholders and ESPON provided experts.
3. Scientific platform development - territorial indicators, monitoring and analysis tools.
4. Capitalisation of ESPON results - media activities, publication, seminars and workshops.
5. Technical assistance, analytical support and communication

**INTERACT** – INTERACT supports cooperation between EU regions. They promote cooperation as a tool for growth and change through policy development and strategic orientation, within territorial cooperation and beyond. INTERACT is the hub for exchanging information and good practices among cooperation programmes. Their services include seminars and advice to help streamline the work of cooperation programmes, allowing them to devote more time and energy to their projects.

There are a number of relevant projects that have been identified in other ETC programmes, such as:

- **URBACT** – e.g. Cities Action for Sustainable Housing (CASH)\(^{36}\), CASH is a network of 11 partners (10 cities and one region) led by Echirolles City (FR). As a contribution to Climate Change issues, the network seeks to reduce the energy consumption of buildings. It looks for new solutions to renovate social and affordable housing units, in order to improve their energy efficiency and to influence users’ behaviour through citizen involvement. This project has clear links with the building aspects of CO\(_2\)Free, RE-GREEN, SERPENTE andIMEA, with the citizen awareness and involvement focus of EnercitEE. LoCaRe, IMAGINE and IMEA. The 11 partners of CASH all produced local action plans in 2012, building on their baseline studies along with the good practices they had all transferred between each other. A review of these action plans demonstrates clear validation of the issues raised in many of the INTERREG IVC projects, key examples of which are the importance of political commitment, baselines and linking to sources of public and private funding.

- **ESPON** – e.g. ReRisk - Regions at Risk of Energy Poverty\(^{37}\), the 2010 final report of this project highlights the urgent need to act on the affordability of energy for domestic customers (known as fuel poverty), especially in eastern Member States. It also defined the factors that drive regional vulnerability to fuel poverty and produces a typology of regions based on this. This evidence-base on one of the main social impacts of energy use has a good match with the social benefits which are highlighted in a number of the INTERREG IVC projects, particularly RE-GREEN and PLUS. GREECO - Territorial Potential for a Greener Economy, this applied research project is due to finish in 2014. In its interim report\(^{38}\), there is discussion of the

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The work highlights the importance of the combination of pre-existing conditions and new policies in defining the move to a green economy. This finding is a clear validation of the importance of defining a baseline that many of the INTERREG IVC projects have pointed out. It also confirms our analysis of the need to accept that innovation is relative to the baseline conditions of a region.

- **INTERACT** – e.g. ‘ACCELERATING CHANGE - DELIVERING SUSTAINABLE ENERGY SOLUTIONS’ Good practices from Intelligent Energy Europe and European Territorial Co-operation projects. The publication showcases good practice IEE and ETC projects and originates from a networking meeting held in 2013 (supported by ManagEnergy). The publication presents innovative and inspirational projects grouped by theme – peer-learning, spatial planning, multi-level governance, and financing instruments in support of sustainable energy actions. Both the event and the publication addressed the following questions: • How have European Funds been used to facilitate knowledge transfer between local authorities? • What are the critical success factors in securing integrated energy/climate actions in urban and spatial planning? • How can we build the capacity of planners to that extent? • What role do regional authorities play in empowering local actions? • What good practice examples exist for sustainable energy planning at regional levels across Europe? • What financing mechanisms are suitable for the delivery of sustainable energy actions at local and regional levels?

### 3.5 Innovative approaches and links to policy objectives and mechanisms

The projects are required to list a variety of good practices of relevance to their activities. These are not necessarily activities undertaken within the project but they should be of direct relevance to the project and illustrate its objectives. We have selected a number of these good practices and linked them to relevant energy efficiency policy objectives and mechanisms. The logic is that these policy objectives and mechanisms originate from policymakers, who often have limited practical experience of project implementation, so they may appreciate some practical examples of what they are trying to achieve. In addition local and regional authorities may be able to build a stronger case for energy efficiency projects if they can be seen to align with high level policy objectives and demonstrate suggested mechanisms.

An important recent development in energy efficiency policy was the emergence of more detail and guidance on the implementation of the EED. There are a number of aspects of the directive where the outputs of the energy efficiency related INTERREG IVC projects are of clear relevance and interest. These are as follows:

**Article 5 – Exemplary role of central government buildings**, requiring that the central governments of Member States each year renovate 3% of the total floor area of the buildings they own and occupy that do not meet the minimum efficiency requirements set under the Energy Performance of Buildings Directive. Although central governments do not typically take part in INTERREG IVC projects, the building stock of the local and regional governments who do participate will be of a similar mix and type. This implies that central government can learn from the projects that identify and demonstrate good practice in the technical and financial approaches to improving the energy efficiency of buildings.

**Article 6 – Purchasing by public bodies**, which requires, under certain conditions, that central governments purchase products, services and buildings with high energy efficiency performance defined through EU legislation such as the Energy Labelling Directive, Eco Design Directive, Energy Star Programme etc. Central governments can learn from the green public procurement approaches developed and demonstrated by the local and regional governments in the energy efficiency related INTERREG IVC projects.

**Article 7 – Energy efficiency obligations and alternatives**, which requires Member States to set up schemes whereby energy distributors and/or retail energy sales companies are obliged to achieve annual energy savings equivalent to 1.5% of their annual retail sales. Although some Member States, e.g. the UK, have had equivalent national schemes in place for some time, this concept is new to many Member States, and there will be energy companies looking for cost-effective energy efficiency schemes to support. The diverse range of opportunities and approaches highlighted in the INTERREG IVC energy

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39 http://www.interact-eu.net/news/acCELERATING_CHANGE_DELIVERING_SUSTAINABLE_ENERGY_SOLUTIONS/7/15325
efficiency projects will be of interest to these suppliers and to whichever national bodies are tasked with setting up and implementing the Member State schemes.

Article 8 – Energy audits and energy management systems, which includes an obligation on Member States to promote the benefits of energy audits to SMEs and householders. There are a number of examples of good practices and project outputs that illustrate how householders can be convinced of the benefits of energy audits.

Article 12 – Consumer information and empowering, designed to promote and facilitate efficient use of energy by small energy customers. Most of the INTERREG IVC energy efficiency projects have included or highlighted methods of promoting behavioural change related to energy use, and all of them have highlighted exemplary projects on this issue.

Article 14 – Promotion of energy efficiency in heating and cooling, which obliges Member States to identify, and take measures to implement, the cost-effective potential for high efficiency cogeneration and efficient district heating and cooling. A number of the INTERREG projects have collected good practices in the refurbishment of district heating networks, some with cogeneration. The lessons learnt from these projects will be of use to the Member States in both identifying and implementing schemes.

Article 17 – Information and training, obliging Member States to ensure that information on available energy efficiency mechanisms and frameworks is transparent and widely disseminated to all relevant market players. The INTERREG IVC energy efficiency projects have demonstrated and tested a wide variety of ways of educating local authority officers, local politicians and consumers whose roles are of relevance to energy efficiency.

This section highlights specific policy mechanisms, mainly from the EED described above; and provides examples of INTERREG IVC project outputs and good practices that demonstrate how these mechanisms could be delivered. As described above, this is of potential use to policymakers who find practical examples of their policies in action useful. It is also of use to those at the local and regional level who wish to improve their energy efficiency and would benefit from being able to demonstrate links between their practical ‘on the ground’ solutions and high level policy.

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<th>Energy Efficiency policy objective / mechanism</th>
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| Energy Efficiency Directive Article 5 – Exemplary role of central government buildings, requiring that the central governments of Member States renovate each year 3% of the total floor area of the buildings they own and occupy that do not meet the minimum efficiency requirements set by the EPBD. | Good Practice RE-GREEN[^40]: The Ireland Office of Public Works, is responsible for over 2 000 public buildings. They carried out a pilot study on energy efficiency potential in 200 buildings, which illustrated that 19% savings were possible. This was followed by a trial on 250 buildings, which achieved an average of 12% savings. The main actions were staff engagement to tackle the energy use they could control, particular lighting, and a focus on energy use data. The level of staff engagement in each building was found to be key to the level of savings. The scheme was delivered by an external contractor and is being expanded to cover more sites. Good Practice: SERPENTE. Cork. The city government set up a relatively small fund (€100k) to finance three energy saving projects in its building stock, these demonstrations were successful and the savings generated were put back into the fund to enable further savings. Good Practice: EnercitEE. Saxony Guide for Energy-efficient Refurbishment of Buildings of Historic Importance[^41]. A guide for public authorities, owners of historic buildings, architects and engineers. Old buildings account for the majority of Saxony’s building stock. The guide does not impose new or

[^41]: http://enercitee.eu/Documents/Good-Practice-Guide,780/Chapter 1 – Buildings
additional requirements for the energy-efficient refurbishment of historic buildings, but simply offers advice based on existing legislation and technology. The guide gives an overview of measures for increasing energy efficiency in historic buildings in the areas of building structure, HVAC and renewable energy sources and lists various risks with respect to possible building damage and prevention thereof. In general, the energy upgrading of historic buildings requires different phases of architectural intervention. Preservationists consider the resulting changes to the building to be critical. To avoid conflicts, solutions have to be found that are consistent with the character of the historic building and, at the same time, meet energy and economic requirements.

**Recommendations / implications for policymakers**

Energy efficiency improvements can often be low or no-cost (often related to behaviour change), and if the savings are clearly identified, measured and ring-fenced, they can be used to sustain a revolving fund. The energy efficiency of historic buildings, which may well be below EPBD minimums, can be difficult to improve, but it is possible to do something.

**Energy Efficiency policy objective / mechanism**

Energy Efficiency Directive Article 6 – Purchasing by public bodies, which requires, under certain conditions, that central governments purchase products, services and buildings with high energy efficiency performance defined through EU legislation.

**INTERREG IVC good practice or outputs of relevance**

**Good Practice RE-GREEN: Romanian city of Mizil.** As part of its commitment as a Covenant of Mayors signatory, Mizil has formulated legislation and guidance for green public procurement, which is now helping to develop a market for green products. As described earlier in the report, green public procurement such as this sets an example that other purchasers can follow and also helps expand the market for green (including energy efficient) goods.

*Good Practice, LoCaRe, Business Opportunities for Suppliers by enhancing Environmental friendly Production. Västra Götaland, Stockholm Sweden.* The Regional Council and Country Council have been working together to promote social responsibility in procurement. 31 municipalities and the region have made an agreement regarding the implementation of procurement practices that promote a low-carbon economy. The participating organisations have all made a commitment to use their purchasing power to put pressure on the region’s common suppliers to work actively to promote the environment and social responsibility with respect to the products they supply.

The steps in the process have been:
1. Make explicit low-carbon demands in the specifications for the products they wish to purchase.
2. Highlight the environmental benefits and results.
3. Involve the suppliers in discussions on continuous improvements.

Example actions include; Buying furniture from producers from a green list, using green electricity, making demands on vehicles and buying Ecological Food products.

**Recommendations / implications for policymakers**

Green public procurement is an effective way for local authorities to lead by example, as well as supporting the growth of the green economy. Grouping separate authorities together is an effective way of increasing the influence of this activity and better motivating companies to take part. The direct engagement of the suppliers is a helpful approach.

**Energy Efficiency policy objective / mechanism**

Structural Funds 2014-2020 – need for Energy Efficiency projects

**EED Article 7 – Energy efficiency obligations and alternatives, which requires Member States to set up schemes whereby energy distributors and/or retail energy sales companies are obliged to achieve annual energy savings equivalent to 1.5% of their annual retail sales – by supporting these schemes.**


| INTERREG IVC good practice or outputs of relevance | CO₂-Free – Cork, Ireland. The action plan resulting from the project in Cork identified a series of potential investments. Funding from these was pursued from a selection of national and EU sources, which resulted in obtaining over €4.3 million in funding. Such a list of potential investments could also be supported by energy companies looking for schemes to achieve their EED Article 7 obligation. RE-GREEN – Each of the partners will create a Local Implementation Plan focussed on energy efficiency opportunities, which should include ideas which are suitable for Structural Fund support, or article 7 EED support where Structural Funds are no longer available. EnercitEE – Upper Silesia, Poland. By working in close partnership with the German region of Saxony, Polish local authorities were convinced of the benefits of enforcing energy performance certificates for their buildings. This approach, along with additional project suggestions has helped create a potential project ‘pipeline’ for the region when the next round of Structural Funds becomes available. Good Practice, PLUS, LED Lighting Birmingham, UK. In 2010, the UK city of Birmingham signed a Private Finance Initiative (PFI) contract with public service provider Amey for the design, implementation, financing and operational maintenance of the street lighting actors the city. The contract lasts for 25 years and has a value of £2.7 billion, making it the largest local government highways sector contract in the UK. The project will see approximately 50% of Birmingham’s 90 000 street lighting points replaced with LEDs within 5 years. With the remainder being replaced during the contract’s lifetime. The contract includes a lighting control and management system which aims to connect every lighting point in the first 5 years of the project, to facilitate optimum management and maintenance of the lighting network with dynamic and flexible control of each lighting unit. The city will soon introduce dimming to vary light levels based on traffic and street activity levels. This approach will promote reduced energy consumption and help avoid over-lighting. |
| Recommendations / implications for policymakers | Most of the INTERREG projects produce action plans as an end result. These plans could be a good source of ready-made projects for energy companies to part fund in order to meet their obligation under the EED. |
| Energy Efficiency policy objective / mechanism | Energy Efficiency Directive Article 8 – Energy audits and energy management systems, which obliges non SMEs to carry out periodic energy audits and obliges MSs to promote the benefits of energy audits to SMEs and householders |
| INTERREG IVC good practice or outputs of relevance | Good Practice, CO₂-Free, Energy Targeting & Monitoring. Derry, UK. “You cannot save energy if you cannot measure it”. That simple motto prompted Derry City Council to install an IT system to monitor energy consumption in ten of its most energy-demanding buildings. By collecting data on energy use, Derry City Council can identify energy waste, reduce energy consumption and make the most efficient use of existing plant and equipment. The system also makes it possible to set both environmental and economic targets, and to verify actual savings after project implementation. The project involved the installation of a Smart Metering system, which allows management to monitor energy consumption on a real-time basis to assist with the elimination of waste and to improve the energy efficiency of the building and the installed mechanical and electrical equipment, combining the principles of energy usage and statistics. The most important stages in the project: - Convincing decision-makers and gaining their commitment. - Procurement of a system that met all demands. |
Benefits of the project were:
- Reduced energy consumption in public buildings.
- Reduced energy costs.
- Verification of environmental investments, both environmentally and economically.
- Reduced carbon footprint.
- Set targets to reduce annual energy consumption by 3% by identifying opportunities for improvement.

Success factors included:
- Support from decision-makers.
- Technological competence for developing and managing the IT system.
- Competence in interpreting the system’s data and reports.
- Real environmental & financial savings

**Recommendations / implications for policymakers**
The approach has been a fundamental part of energy efficiency for a long time, but it is often overlooked in favour of more capital intensive approaches. The political buy-in is also an innovative aspect – as it helped ensure a committed take-up. The approach is transferable to any building. The system installed is an internet/intranet-based software application which is easily transferable to other organisations.

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<tr>
<td>Energy Efficiency Directive, Article 12 – Consumer information and empowering, to promote and facilitate the efficient use of energy by small energy customers</td>
<td>Good Practice, EnercitEE – Advice to low income domestic energy consumers, Haute Savoie, France[^2]. There were three main actions: to raise awareness among households (via home visits, conference, group meetings, distribution of brochures and information tools), to train social workers on energy efficiency matters and to ensure participation in the local Energy Fund committee. A practical guide on energy saving at home was created in 2003; it contained practical advice on energy and water savings. Social workers can give it to families or ambassadors when they visit homes. The “Bill mask” was created in 2007 to help families to read their electricity bill. It was an A4 form folder, with ‘open windows’ (i.e. holes) cut in the paper which households can physically place over their paper bill. Important information on the bill can then be seen in the windows”.</td>
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| Recommendations / implications for policymakers | Tailored advice can help groups which might be regarded as ‘hard to reach’. |

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<td>Energy Efficiency Directive Article 14 - Promotion of energy efficiency in heating and cooling, which obliges Member States to identify, and take measures to implement, the cost-effective potential for high efficiency cogeneration and efficient district heating and cooling</td>
<td>Good practice: STEP. Extramadura Spain. Refurbishment of the administrative buildings of the regional ministry of Agriculture, Rural Development and Energy was delivered by an ESCO. This achieved a 410% reduction in the building’s energy us, with 13% of the savings being retained by the administration. The use of the ESCO model demonstrated its benefits and practicality to other local public bodies.</td>
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| Recommendations / implications for policymakers | When cost-effective savings are identified, the ESCO model can help achieve this without capital expenditure. |

| Energy Efficiency policy objective / mechanism | Smart Specialisation Strategies  
Structural Funds  
Links to Covenant of Mayors Signature |
|-----------------------------------------------|--------------------------------------------------------------------------------|
| INTERREG IVC good practice or outputs of relevance | LoCaRe – Zeeland Province, Netherlands. In defining a local energy strategy they carried out a wide engagement process with local stakeholders (e.g. including NGOs, universities, industry, politicians), with many ideas brought down to five focus areas. These match with the SSS.  
RENERGY – Good Practice, Durham, UK. The Durham partnership engaged in a broad community consultation in defining the key themes and priorities of its Climate Change Strategy. This consultation aims to encourage local ownership of policies, make them relevant, improve understanding of climate change and encourage behavioural change.  
ClimactRegions – The project produced detailed guidelines on how to define and populate an energy use baseline for a region. This is a key part of the CoM process and of clear relevance to SSS definition.  
EU2020 Going Local and IMAGINE: Development of local action plans for energy efficiency as their core. The EU2020 Going Local project uses the good practices it has collected from all of its partners, along with locally developed ideas and responses so as to develop region-specific action plans. The objective of the Action Plans is to feed the selected Good Practices into the Structural Funds programme. The IMAGINE project is using a similar approach but is looking towards developing an energy vision of the partner cities for the year 2050. IMAGINE the energy future of our cities was set up in 2006 by Energy Cities as an exchange platform to discuss the energy future of European cities. With the relationship between ‘Territory’ and ‘Energy’ at its core, the aim of this initiative is to provide a unique entry for the diversity of stakeholders that are directly or indirectly connected to energy consumption and supply at the local and urban level. |

**Recommendations / implications for policymakers**

The diverse stakeholder engagement required to baseline and develop a regional energy strategy, augments the quality and credibility of Smart Specialisation Strategies and is also a potentially effective way of identifying projects that could be supported by Structural Funds.

This chapter has discussed the individual energy efficiency projects in some detail covering their common features and innovative approaches. The final chapter of this report will now summarise these points and use them to form a number of conclusions and recommendations.
4. Policy messages, conclusions and recommendations

The preceding analysis of INTERREG IVC Energy Efficiency projects can teach us a number of useful things about top-down Energy Efficiency policy design and bottom-up implementation. The top-down lessons are aimed at policymakers at the regional, national and European levels. The bottom-up lessons are most useful for local and regional authorities and all those concerned with the practical improvement of energy efficiency.

- Top-down policy needs to be designed to reflect market realities and the motivations and barriers which are most important at the local level. There is very useful experience from the INTERREG IVC projects on what these motivations and barriers are.

- The national, local and regional implementation of Energy Efficiency policy can learn a lot from the bottom-up experience captured in the INTERREG IVC projects. These lessons can be grouped under two headings: who to engage (and how to engage them) and how to inspire action.

Lessons for Policymakers

Technology is usually not the problem – applying it in practice is the real issue. It is apparent that the majority of the projects are concerned with non-technological issues, such as awareness and finance. This reflects the continuing and increasing policy focus on these issues at European Commission and Member State level. All energy efficiency policies need to be designed with their final implementation clearly in mind.

Energy efficiency is a truly cross-cutting and cross-sectoral issue – so policies need to consider multiple barriers, drivers, stakeholders and sectoral players if they are going to have a positive effect on the uptake of energy efficiency. This is reflected in the broad scope of virtually all of the projects and the increasing desire in policies and programmes to consider multiple applications across a number of fields at once. For example, the GreenITNet project includes a clear example of an application which combines ICT, transport and energy efficiency, which is a very good match with the European Commission’s Smart Cities and Communities (SCC) initiative. The involvement of energy businesses and the focus on raising awareness and the desire to act among local politicians, which is evident in a number of the projects, is another example of the diversity of issues that are key to success.

Making European Commission energy policy regionally and locally relevant and applicable remains a genuine need – local energy strategies are a big help. Regional / local energy plans help focus and enable the implementation of energy efficiency policies. They also help the transfer and uptake of good practices. These plans need baselines, roadmaps, indicators and a realist approach in order to be effective. They also need to capture local strengths, weaknesses and opportunities. This experience is apparent in a number of projects, including RENERGY and RE-GREEN. There is clear overlap with the CoM approach here.

Policy and practice in many areas affects energy efficiency - and can be changed to help. For example, the GreenITNet project reported that in some partner countries it has not been possible to get public access to traffic data because of data security concerns. This means that the opportunity to use this data to optimise journeys (and make them more efficient) is lost. Another example of this issue comes from the PLUS project where health and safety guidance based on existing technologies was found to be a constraint on introducing new more energy efficient technology in street lighting.

Lessons for Local and Regional Authorities - Who to Engage and How to Engage Them

Community involvement is an effective way of bringing change. For example, the IMEA project has promoted local role models, involved local groups, and provided one to one individualised follow-up support for energy efficiency advice recipients. These actions help address the information deficit and user motivation barriers.

Involving a diverse range of sectoral players promotes credibility and uptake – but it requires work on creating a ‘common language’. An effective way of helping to deliver change is by involving the local energy efficiency supply side, e.g. builders in the IMEA project. This approach also brings credibility and dynamism to public sector-led schemes. Including people and organisations from the
whole supply chain also helps promote action. This can be effectively done via a bottom-up approach. Examples of such as approach include (a) citizen involvement, as promoted in the ‘Energy labs’ model of the RENERGY project and (b) local authority involvement in the PLUS project. Last but not least, an inclusive approach helps to create a common language across the supply chain, so everyone is clear on what the objectives are and why and how their interests are complementary.

Awareness among politicians and officers in regional and local public authorities often needs improving – the projects have reported that they are often willing and interested if the arguments are presented appropriately and practical tools are developed. The RE-GREEN and IMAGINE projects recognise and address the needs of regional and local authority policy officers in relation to designing and implementing energy efficiency-related policies.

Engaging local politicians helps speed up progress but if support is not wider it can put progress at risk after an election. Politicians can often most easily be engaged by stressing the money that can be saved and the employment created thanks to energy efficiency. Relying solely on political support to carry a project is unwise, as the political support can be lost if the politicians change following an election.

INTERREG IVC helps disseminate the results of other energy efficiency programmes. A number of INTERREG IVC projects use / promote examples funded by other European Commission schemes concerned with (inter alia) promoting energy efficiency, e.g. Intelligent Energy Europe and the Framework Programme and LIFE+. This approach should be viewed as positive as it produces good practice examples which should be of a certain quality (as they have received EC funding) and also helps spread the results and outputs of these projects to a wider audience.

Lessons for Local and Regional Authorities - Inspiring Action

Awareness raising and behaviour change needs to be location and target group-specific and practical. Employing a diversity of delivery methods helps achieve this. For example, the LoCaRe project uses schools as a way of cascading information on energy efficiency through a local community. The EnercitEE and IMAGINE projects, and others, use targeted communication tools (videos, web based information etc.) to appeal to specific audiences.

When seeking to transfer good practices from others, assessing the level of transferability is key. The projects have indicated that they need to evaluate the transferability of the techniques and approaches they investigate. Many of the projects have developed guidance on how to tailor these techniques and approaches to local needs. They must, for example, take into account time differences in policy planning and action timeframes (as in the IMAGINE project) as well as technical issues (as in the PLUS project).

Some sectors and applications are more transferable than others – energy use in public buildings appears to offer some good transferability. This issue is at the heart of the SERPENTE project.

Process-related approaches are often easier to transfer than technological solutions. Most projects are concerned with non-technological issues, such as awareness and finance. They reflect this by, for example, focusing on how to:

- turn plans into action (IMEA);
- involve the community (EnercitEE and LoCaRe);
- develop local authority toolkits for designing and testing policies (IMAGINE and RE-GREEN).

Transferability is affected by the nature of the recipient (their progress and if they have a regional energy policy). The CO₂Free project reported that the more advanced regions in terms of energy efficiency tended to be less receptive to receiving new ideas. The project also identified the importance of having local baseline data and an energy efficiency strategy in place in enabling a partner region to recognise which good practices are relevant to them to enable the region concerned to take them up.

Small-scale pilots are effective – but they must be resourced and the project partners must be ‘willing to fail’. Several projects (IMAGINE, IMEA and others) mentioned the benefits of testing technologies in place, even if only on a very small scale. This approach helps overcome information and institutional barriers. It was also pointed out that even a small trial is often not possible without some
political commitment – which demonstrates the need to address political buy-in and the fact that improving energy efficiency often requires the cooperation of multiple stakeholders.

**ESCOs are an important mechanism in enabling larger scale investment in energy efficiency, particularly in the public sector – some of the projects could consider post-project applications for assistance from sources such as ELENA, Convergence or national schemes.** ESCOs help address the barrier of lack of available finance and can also help in addressing technical and commercial knowledge gaps within the public sector as well as the separation of expenditure and benefit barrier – because the initial capital outlay is reduced. Their importance is recognised in projects such as STEP, RENERGY, IMEA and RE-GREEN and in policy mechanisms including the ELENA programme and others. There could be potential for post-project applications to project development assistance schemes such as ELENA and others.

**Technically focused projects need expert involvement and in-depth guidance.** For projects with a technologically advanced focus, the ‘deep dive’ visits, where technically knowledgeable officers from partners visit and review their peers in other partner countries, used in the PLUS project are beneficial. This approach allows less technically advanced participants to evaluate good practices and improve their knowledge by seeing ‘cutting-edge’ solutions. Another example of the benefits of technically specific, but also practical, advice is the guide for teachers in, and managers of, low energy school buildings promoted in the EnercitEE project. Both of these examples are concerned with addressing barriers on the credibility of energy efficiency technology.

**Links between energy efficiency and regeneration and social inclusion are real and bring social as well as energy benefits.** This is demonstrated in the SERPENTE and IMEA projects, with their inclusion of energy efficiency in social housing and the use of local citizens as role models to encourage their peers to consider and adopt energy efficiency lifestyles and choices. These benefits reflect the Commission’s decision to include energy efficiency projects in Structural Funding – with its desire to achieve social as well as economic and environmental benefits.

**Innovation can be relative, and INTERREG IVC has an important role to play in promoting transfer.** It is important to recognise that the level of progress and awareness on energy efficiency varies by region. It is a key strength of the INTERREG IVC programme that it is designed to engage and support all levels of take-up from cutting-edge energy efficiency technologies (e.g. in PLUS) to the replication of well-known building energy efficiency techniques. Recognising this diversity of progress is key to addressing the knowledge barriers.

**Green public procurement is an effective way for the public sector to lead by example and to help create a demand and market for energy-efficient products and services.** This approach helps address the lack of awareness and technology credibility barriers. It also illustrates the positive effects, such as the potential for creating green jobs. This approach is promoted in a number of the projects, including RE-GREEN, SERPENTE, IMEA, IMAGINE. The European Commission is also promoting green public procurement.
# 5. Annexes

Annexe 1: Energy efficiency projects overview

## 12 ‘Core’ Projects:

<table>
<thead>
<tr>
<th>Project acronym</th>
<th>Project name</th>
<th>Detailed topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO₂Free</td>
<td>Cooperating 2 Foster Renewables and Energy Efficiency</td>
<td>Use of ICT for energy efficiency and renewable energy</td>
</tr>
<tr>
<td>EnercitEE</td>
<td>European networks, experience and recommendations helping cities and citizens</td>
<td>Support to 20-20-20 EU-targets against Climate change</td>
</tr>
<tr>
<td>EU 2020 going local</td>
<td>From detached Lisbon and Gothenburg Strategies to a regionalised indigenous EU 2020</td>
<td>Energy efficiency and sustainable transport in densely populated regions</td>
</tr>
<tr>
<td>GreenITNet</td>
<td>Green IT Network Europe</td>
<td>Analysing policies and policy instruments to explore, develop and implement Green IT</td>
</tr>
<tr>
<td>IMAGINE</td>
<td>IMAGINE Low Energy Cities</td>
<td>Review and assessment of cities’ transition strategies and elaboration of Local Energy Roadmaps 2050</td>
</tr>
<tr>
<td>IMEA</td>
<td>Integrated Measures for an Energy Efficiency Approach</td>
<td>Supporting local and regional authorities in taking a proactive role in improving the energy efficiency of the built-up environment</td>
</tr>
<tr>
<td>LoCaRe</td>
<td>Low-carbon Economy Regions</td>
<td>Support to energy reduction: ‘New Climate’, ‘New Energy’, ‘New leadership’</td>
</tr>
<tr>
<td>PLUS</td>
<td>Public Lighting Strategies for Sustainable Urban Spaces</td>
<td>Reduction of energy consumption in public lighting</td>
</tr>
<tr>
<td>RE-GREEN</td>
<td>REgional policies towards GREEN buildings</td>
<td>Improving, developing and implementing green building policies as a means of contributing to the development of green regions</td>
</tr>
<tr>
<td>RENERGY</td>
<td>Regional Strategies for Energy Conscious Communities</td>
<td>Building efficient energy governance models supporting inclusive and sustainable energy policies and actions</td>
</tr>
<tr>
<td>SERPENTE</td>
<td>Surpassing Energy Targets through Efficient Public Buildings</td>
<td>Improving energy efficiency in publicly owned or managed buildings through improved public policies</td>
</tr>
<tr>
<td>STEP</td>
<td>Improving Communities’ Sustainable Energy Policy Tools</td>
<td>Improving local sustainable energy policies</td>
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</table>

<table>
<thead>
<tr>
<th>Project acronym</th>
<th>Number of partners(^{49})</th>
<th>Country of the LP(^{49})</th>
<th>ERDF funding (€)</th>
<th>Total budget (€)</th>
<th>Starting date</th>
<th>Ending date</th>
<th>Type of project</th>
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<td>1 254 386</td>
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<td>31/12/2012</td>
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<td>EnercitEE</td>
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<td>5 618 152</td>
<td>4 738 764</td>
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<td>1 652 888</td>
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<td>1 133 146</td>
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\(^{49}\) Representing 22 Member states + Norway
\(^{45}\) LP: Lead Partner
\(^{45}\) CAP: Capitalisation Project
\(^{46}\) RIP: Regional Initiative Project
Projects (RIP) do not always result in the transfer of good practices, but they always have to identify good practices with view to improving policies.

<table>
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<tr>
<th>Indicator</th>
<th>No. of regional / local policies and instruments addressed</th>
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<th>No. of regional / local policies improved or developed</th>
<th>No. of good practices successfully transferred within Regional Initiative Projects</th>
<th>No. of staff members with increased capacity (awareness / knowledge / skills) resulting from the exchange of experience at interregional events</th>
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<td>7</td>
<td>12***</td>
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<td>12**</td>
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<td>11***</td>
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<td>31</td>
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<td>PLUS</td>
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<td>0</td>
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<tr>
<td>STEP</td>
<td>31/12/2014</td>
<td>8</td>
<td>7</td>
<td>1</td>
<td>0</td>
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</tbody>
</table>

*Projects (RIP) do not always result in the transfer of good practices, but they always have to identify good practices with view to improving policies.

* * No. of good practices already identified and made available to regional and local actors involved in Capitalisation projects

** No. of action plans developed under Capitalisation projects

---

**Diagram 1:**
- **Partner legal status:**
  - Bodies governed by public law: 43%
  - Public Authorities: 57%

**Diagram 2:**
- **Public Authorities Governance level:**
  - Local Public Authority: 29%
  - Regional Public Authority: 4%
  - National Public Authority: 67%

**Diagram 3:**
- **Number of partners per country:**
  - Partners distribution across different countries.
Annexe 2: Energy efficiency project partners Map
Annexe 3: Energy efficiency projects factsheets

Use of ICT for energy efficiency and renewable energy:

CO2Free
Cooperating 2 Foster Renewables and Energy Efficiency

**PROJECT DETAILS**

Priority: Environment and risk prevention

Theme: Energy and sustainable transport

**TYPE OF INTERVENTION**

Type of intervention: Capitalisation Project

Fast track: Yes

Duration: 01/10/2010 - 31/12/2012

Website: www.co2free-project.eu

**BUDGET**

Total budget: €1 645 549

ERDF contribution: €1 254 385.51

**PARTNERSHIP**

<table>
<thead>
<tr>
<th>Country</th>
<th>Institution, Town</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ireland</td>
<td>European Regions Network for the Application of Communications Technology, Letterkenny, Co. Donegal</td>
</tr>
<tr>
<td>Ireland</td>
<td>Donegal County Council, Lifford, Co. Donegal</td>
</tr>
<tr>
<td>United kingdom</td>
<td>Derry City Council, Derry, Northern Ireland</td>
</tr>
<tr>
<td>Sweden</td>
<td>Association of Local Authorities in Västerbottens County, ALAV, Härnösand</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>Agency for regional development and innovations, Burgas</td>
</tr>
<tr>
<td>Spain</td>
<td>Fomento de San Sebastian, Donostia / San Sebastian</td>
</tr>
<tr>
<td>Finland</td>
<td>Regional Council of North Karelia, Joensuu</td>
</tr>
<tr>
<td>Austria</td>
<td>The Institute for Technology and Alternative Mobility, Klagenfurt am Wörthersee</td>
</tr>
<tr>
<td>Romania</td>
<td>Regional Development Agency West Region, Timisoara</td>
</tr>
<tr>
<td>Spain</td>
<td>European Affairs Area - APEA- / Avila County Council, AVILA</td>
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</table>

Lead partner:

European Regions Network for the Application of Communications Technology, Unit 150, CoLab, LYIT, Port Road n/a, Letterkenny, Co. Donegal, IRELAND
Support to 20-20-20 EU-targets against Climate change:

**EnercitEE**

European networks, experience and recommendations helping cities and citizens to become Energy Efficient

**PROJECT DETAILS**

**Priority:** Environment and risk prevention  
**Theme:** Energy and sustainable transport

**TYPE OF INTERVENTION**

**Type of intervention:** Regional Initiative Project  
**Mini-programme:** Yes  
**Duration:** 01/01/2010 - 31/12/2013  
**Website:** www.enercitee.eu

**BUDGET**

**Total budget:** EUR 4 738 764  
**ERDF contribution:** EUR 3 618 152.3

**PARTNERSHIP**

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<th>Country</th>
<th>Institution, Town</th>
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<td>1 Germany</td>
<td>Saxon State Ministry for the Environment and Agriculture, Dresden</td>
</tr>
<tr>
<td>2 Sweden</td>
<td>Energy Agency of Southeast Sweden, Växjö</td>
</tr>
<tr>
<td>3 Italy</td>
<td>ASTER joint stock consortium, Bologna</td>
</tr>
<tr>
<td>4 France</td>
<td>Haute-Savoie local authorities, ANNECY Cedex</td>
</tr>
<tr>
<td>5 Greece</td>
<td>Decentralized Administration Authority of Crete, Heraklion, Crete</td>
</tr>
<tr>
<td>6 Poland</td>
<td>Lower Silesian Voivodeship, Wroclaw</td>
</tr>
<tr>
<td>7 Italy</td>
<td>Emilia-Romagna Region - Council for Productive Activities - Energy Policy Dep., Bologna</td>
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</table>

**Lead partner:**

Saxon State Ministry for the Environment and Agriculture  
Wilhelm-Buck-Str.2  
1097, Dresden  
GERMANY
Energy efficiency and sustainable transport in densely populated regions:

**EU 2020 Going Local**
From detached Lisbon and Gothenburg Strategies to a regionalised indigenous EU 2020

**PROJECT DETAILS**
**Priority:** Environment and risk prevention  
**Theme:** Energy and sustainable transport

**TYPE OF INTERVENTION**
**Type of intervention:** Capitalisation Project  
**Duration:** 01/10/2010 - 31/12/2012  
**Website:** www.eu2020goinglocal.eu

**BUDGET**
**Total budget:** EUR 1,546,193  
**ERDF contribution:** EUR 1,203,457.36

**PARTNERSHIP**

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<td>Örebro Regional Development Council, Örebro</td>
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<td>Ministry of Economic Affairs, Energy, Building, Housing and Transport, NRW, Düsseldorf</td>
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<td>Germany</td>
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<td>Slovenia</td>
<td>Regional Development Agency of the Ljubljana Urban region, Ljubljana</td>
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<td>Latvia</td>
<td>Zemgale Planning region, Jelgava</td>
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<tr>
<td>Belgium</td>
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<td>United Kingdom</td>
<td>Local Government Yorkshire and Humber, Wakefield</td>
</tr>
<tr>
<td>Portugal</td>
<td>Cartaxo Municipality, Cartaxo</td>
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**Lead partner:**  
Sörmland Regional Council  
P.O. box 325  
611 27, Nyköping  
SWEDEN
Analysing policies and policy instruments to explore, develop and implement Green IT:

**GreenITNet**
Green IT Network Europe

**PROJECT DETAILS**
- **Priority**: Environment and risk prevention
- **Theme**: Energy and sustainable transport

**TYPE OF INTERVENTION**
- **Type of intervention**: Regional Initiative Project
- **Duration**: 01/01/2012 - 31/12/2014
- **Website**: [www.greenitnet.org](http://www.greenitnet.org)

**BUDGET**
- **Total budget**: EUR 1 777 098
- **ERDF contribution**: EUR 1 390 027.7

**PARTNERSHIP**

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<td>Latvia Riga City Council, Riga</td>
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<td>Sweden Lund University/Cluster 55, Lund</td>
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<td>3</td>
<td>Netherlands Green IT Amsterdam Region, Amsterdam</td>
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<td>4</td>
<td>Italy Municipality of Rome, Rome</td>
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<td>5</td>
<td>Spain Chamber of Commerce Barcelona, Barcelona</td>
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<td>6</td>
<td>United Kingdom Manchester City Council, Manchester</td>
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<td>Malta Malta Intelligent Energy Management Agency, Valletta</td>
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<td>Poland Regional Development Agency in Częstochowa, Częstochowa</td>
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**Lead partner:**
Riga City Council
Ratslaukums 1
LV-1539, Riga
LATVIA
Review and assessment of cities’ transition strategies and elaboration of Local Energy Roadmaps 2050:

IMAGINE
IMAGINE Low Energy Cities

**PROJECT DETAILS**

**Priority:** Environment and risk prevention

**Theme:** Energy and sustainable transport

**TYPE OF INTERVENTION**

**Type of intervention:** Regional Initiative Project

**Duration:** 01/01/2012 - 31/12/2014

**Website:** [www.imaginelowenergycities.eu](http://www.imaginelowenergycities.eu)

**BUDGET**

**Total budget:** EUR 1 357 039

**ERDF contribution:** EUR 1 026 576.01

**PARTNERSHIP**

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**Lead partner:**

Energy Cities
2 chemin de Palente
25000, Besançon
FRANCE
Supporting local and regional authorities in taking a pro-active role in improving the energy efficiency of the built-up environment:

**IMEA**
Integrated Measures for an Energy Efficiency Approach

**PROJECT DETAILS**

**Priority:** Environment and risk prevention  
**Theme:** Energy and sustainable transport

**TYPE OF INTERVENTION**

**Type of intervention:** Regional Initiative Project  
**Duration:** 01/01/2012 - 31/12/2014  
**Website:** [http://www.savingenergytogether.eu/savingenergytogether/](http://www.savingenergytogether.eu/savingenergytogether/)

**BUDGET**

**Total budget:** EUR 1 652 887  
**ERDF contribution:** EUR 1 322 432.14

**PARTNERSHIP**

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<td>Denmark, Danish Building Research Institute, Hørsholm</td>
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Support to energy reduction: New Climate, New Energy, New leadership:

LoCaRe
Low-Carbon Economy Regions

PROJECT DETAILS
Priority: Environment and risk prevention
Theme: Energy and sustainable transport

TYPE OF INTERVENTION
Type of intervention: Regional Initiative Project
Mini-programme: Yes
Duration: 01/01/2010 - 31/12/2013
Website: www.locareproject.eu

BUDGET
Total budget: EUR 4 216 114
ERDF contribution: EUR 3 227 502.87

PARTNERSHIP

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<td>Slovenia BSC, Business Support Centre L.t.d., Kranj, Kranj</td>
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Lead partner:
Region of Southern Denmark
Damhaven 12
7100, Vejle
DENMARK
Reduction of energy consumption in public lighting:

PLUS
Public Lighting Strategies for Sustainable Urban Spaces

PROJECT DETAILS
Priority: Environment and risk prevention
Theme: Energy and sustainable transport

TYPE OF INTERVENTION
Type of intervention: Capitalisation Project
Duration: 01/10/2010 - 31/12/2012
Website:
http://www.luciassociation.org/Home.html

BUDGET
Total budget: EUR 1 689 508
ERDF contribution: EUR 1 303 145.3

PARTNERSHIP

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Lead partner:
Eindhoven Municipality
Kennedyplein 200
P.O. box 90150 5600 RB, Eindhoven
NETHERLANDS
Improving, developing and implementing green building policies as a means of contributing to the development of green regions:

RE-GREEN
REgional policies towards GREEN buildings

PROJECT DETAILS
Priority: Environment and risk prevention
Theme: Energy and sustainable transport

TYPE OF INTERVENTION
Type of intervention: Regional Initiative Project
Duration: 01/01/2012 - 31/12/2014
Website: www.re-green.eu/en

BUDGET
Total budget: EUR 1,425,449
ERDF contribution: EUR 1,133,146.08

PARTNERSHIP

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</table>

Lead partner:
INTELI - Intelligence in Innovation, Innovation Centre, nº 11, 4ºAv. Conselheiro Fernando de Sousa, 1070-072, Lisbon PORTUGAL
Building efficient energy governance models supporting inclusive and sustainable energy policies and actions:

RENERGY
Regional Strategies for Energy Conscious Communities

PROJECT DETAILS
Priority: Environment and risk prevention
Theme: Energy and sustainable transport

TYPE OF INTERVENTION
Type of intervention: Regional Initiative Project
Duration: 01/01/2012 - 31/12/2014
Website: www.renergyproject.eu

BUDGET
Total budget: EUR 2 210 188
ERDF contribution: EUR 1 720 889.54

PARTNERSHIP

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Lead partner:
Province of Potenza
Piazza delle Regioni, 1
I-85100, POTENZA
ITALY
Improving energy efficiency in publicly owned or managed buildings through improved public policies:

SERPENTE
Surpassing Energy Targets through Efficient Public Buildings

PROJECT DETAILS
Priority: Environment and risk prevention
Theme: Energy and sustainable transport

TYPE OF INTERVENTION
Type of intervention: Regional Initiative Project
Duration: 01/01/2012 - 31/12/2014
Website: www.serpente-project.eu

BUDGET
Total budget: EUR 1 960 985
ERDF contribution: EUR 1 531 970.8

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Lead partner:
Florentine Energy Agency
Viale Belfiore 4
50144, Firenze
ITALY
**STEP**
Improving Communities' Sustainable Energy Policy Tools

### PROJECT DETAILS

**Priority:** Environment and risk prevention  
**Theme:** Energy and sustainable transport

### TYPE OF INTERVENTION

**Type of intervention:** Regional Initiative Project  
**Duration:** 01/01/2012 - 31/12/2014  
**Website:** [www.steproject.eu](http://www.steproject.eu)

### BUDGET

**Total budget:** EUR 1,576,530  
**ERDF contribution:** EUR 1,226,655.64

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### PARTNERSHIP

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**Lead partner:**  
STRIA’ South Transdanubian Regional Innovation Agency Non-for-profit Ltd.  
Király utca 23-25.  
7621, Pécs  
HUNGARY
INTERREG IVC Thematic Capitalisation

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