



BUILD WITH CaRe

ENERGY SAVING BUILDINGS

Work Package 3 Planning & Policy Evaluation

April 2012



**The Interreg IVB
North Sea Region
Programme**



*Investing in the future by working together
for a sustainable and competitive region*

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1. Introduction

Legislation and the planning system play an essential role in mainstreaming energy efficient buildings. They have to date been identified as a barrier to progress therefore Workpackage 3 (WP3) focussed on influencing policy at EU, Regional and Local levels to ensure planners and policy makers facilitate mainstreaming energy efficient buildings by providing appropriate policy, planning and regulatory frameworks. The main aims and objectives of WP3 are as follows:

WP3 Aims

- To mainstream energy-efficient building design;
- Develop a transnational strategy for increasing energy efficiency in building;
- Engage with national and regional policy makers.

WP3 Objectives

- Supply input to discussions surrounding EU directive on buildings;
- Facilitate drafting of regional energy efficiency strategies;
- Ensure local planning policies and building regulations encourage low energy building design.



2. Key Deliverables

The major transnational activity for WP3 was to influence ongoing debate at the EU level for the forthcoming directives on energy and buildings and its implementation at regional and local levels, including drafting energy strategies to deliver energy efficiency targets.

A strategy for influence was developed through partner workshops which focussed on several key areas, which are detailed below.

- Transnational Benchmarking Exercise – a study was undertaken to gauge the level of energy policy and stage of implementation in each partner country;
- Policy Paper – a paper was developed to try to influence ongoing debate surrounding energy policy at an EU level;
- Project Ambassadors – high profile supporters of the project were recruited to raise awareness of the project aims;
- Policy Seminars – high level policy seminars were organised to raise the profile in the political sphere;
- Policy Input - policy was also influenced through the formal consultation process;
- Development of Energy Strategies – both local and regional strategies were developed to deliver energy efficient buildings.

Further details on these activities can be found in the sections that follow.



2.1 Baseline study

Robert Gordon University based in Aberdeen, UK was recruited to undertake a transnational benchmarking exercise in order to gauge the level of energy policy and stage of implementation in each partner country. The study gave the work package a solid baseline from which to build a work plan around.

A summary of the key findings is as follows:

- Variation currently exists between nation states, which stems from different histories of policy development, perceived needs and recent developments in technologies;
- There is also considerable variation in terms of the manner in which issues of carbon and energy use in construction are debated at the national level. Whilst this is understandable due to the manner in which national policies and building standards have developed, it is also important to consider how change can be enacted across Europe;
- The baseline study indicates that there is broad agreement regarding the need for the inclusion of climate change mitigation within policy;
- Whilst it may well be possible to develop a single strategy for the region, it is likely that implementation will vary depending on building type, condition, industry and economic factors and political will.

The paper is attached as Appendix A and can also be downloaded from the Build with CaRe webpage:

A Baseline Review of Standards, Professor Richard Laing, December 2009

<http://www.buildwithcare.net/downloads/func-startdown/191/>



2.2 Policy paper

It was quickly recognised that one of the greatest barriers to meeting EU climate & energy targets was the poor quality of the existing building stock. In fact existing buildings in 2010 will continue to dominate total emissions from the building sector in 2020 and are likely to represent nearly 80 per cent of the EU's building stock even by 2050¹. For this reason tackling emissions from existing buildings is key if overall emissions from the building sector are to be successfully reduced. Therefore a policy paper was developed which focussed on the existing building stock and the need for large scale refurbishments. The paper was presented to and endorsed by both the North Sea Commission and Conference of Peripheral Maritime Regions (CPMR).

The Energy Efficiency Directive is currently being debated at ministerial level in the EU and at present a majority of EU countries refuse a binding energy savings target which the Build with CaRe policy paper called for. However it has been reported that countries may be willing to accept binding "measures" as long as their implementation is "flexible".

Claude Turmes, a Green MEP from Luxembourg who is seeing the draft directive through Parliament, said he will "push for both binding targets and binding measures, and will look at ways of introducing specific instruments to finance energy efficiency"².

The paper is attached as Appendix B and can also be downloaded from the Build with CaRe webpage:

"The Challenge of mainstreaming energy efficient buildings in the North Sea region and the significance of the existing building stock"

http://www.buildwithcare.eu/images/pdfs/first_page_downloads/policy_statement.pdf

¹ The Challenge of mainstreaming energy efficient buildings in the North Sea region and the significance of the existing building stock"

http://www.buildwithcare.eu/images/pdfs/first_page_downloads/policy_statement.pdf

² Euractiv <http://www.euractiv.com/energy-efficiency/parliament-watches-ministers-debate-eu-energy-savings-bill-news-510762> {accessed 16.02.12}



2.3 Ambassadors

In order to raise the profile of the project and gain support on a wider level ambassadors for the project were recruited. Three Members of the European parliament (MEP) were approached who had an interest in energy efficiency, were influential and well known throughout Europe.

Jean Lambert, Green MEP for London; Andrew Duff, Liberal Democrat MEP for East of England; and Olle Ludvigsson Swedish S&D MEP were appointed as ambassadors for the project. They worked to promote the aims of Build with CaRe on a European level and influenced policy makers in the European Parliament through such organisations as the North Sea Commission, Conference of Peripheral Maritime Regions, ICLEI and Covenant of Mayors. They also represented the project at our annual conferences and our policy seminars in Brussels during 2011 & 2012.

Further efforts were made to recruit more ambassadors particularly to include heads of industry and academia however this never came to fruition.



Figure 1: Olle Ludvigsson, Jean Lambert & Andrew Duff; BwC project ambassadors at the Build with CaRe policy conference during EU Sustainable Energy Week 2011

2.4 Policy Seminars

Two high level policy focussed seminars were held during EU Sustainable Energy Week (EU SEW) 2011. These seminars were organised as EU SEW is a well established platform with over 4,000 participants from 50+ countries attending each year. The two seminars were well attended with representation from such organisations as the EU Commission, Directorate General for Regional Policy, The Buildings Performance Institute Europe & BUILD UP.

Partners have also hosted similar events on a local and regional scale. For example Aberdeen City Council hosted a planning and policy conference in conjunction with Robert Gordon University. The conference had several international speakers and was attended by planners, policy makers and local construction industry representatives.

Copies of the presentations and an audio recording from the EU SEW seminar can be downloaded from the Build with CaRe webpage:

<http://www.buildwithcare.net/articles/66-conferences/208-brussels-programmes-11-12-april>

Videos of the presentations from the Aberdeen seminar can be downloaded here:

<http://www.cicstart.org/content/buildwithcare/230,213/>



2.5 Formal policy input

Another approach to influencing policy makers is through the formal consultation process. Build with CaRe partners engaged with this process at all levels; European, national and local. The tables below detail the relevant responses submitted throughout the duration of the project.

Table 1: Policy input at European level

Level of input (EU, National, Local)	Consultation Name	Date	Web link (if possible) or short description
European	Towards a new Energy Strategy for Europe 2011-2020	June 2010	http://www.buildwithcare.eu/images/pdfs/first_page_downloads/respons_to_eu_consultation.pdf
	Input to EU Energy Efficiency Directive via the CPMR Energy Working Group	Oct 2011	Build with CaRe views represented in the consultation via the CPMR Energy Working Group
	North Sea Region Programme Papers	Dec 2011	Contribution to a publication about future priorities in NSR 2020, not yet published, will appear on NSRP website late 2011 according to JTS



Table 2: Policy input at National level

Level of input	Country / Region	Consultation Name	Date	Web link (if possible) or short description
National	UK	CLG Consultation on the Code for Sustainable Homes and the proposed Energy Efficiency Standard for Zero Carbon Homes	March 2010	East of England partner response (University of East Anglia and West Suffolk College) to the consultation on improving the energy performance of buildings regime
		DCLG consultation on a planning policy statement "Planning for a low carbon future in a changing climate"	May 2010	East of England partner response (Southend-on-Sea Borough Council, University of East Anglia and West Suffolk College) to the consultation on a Planning Policy Statement.
		DECC and CLG letter "Seeking your views on how to improve the energy performance of buildings regime"	Dec 2010	http://www.buildwithcare.eu/images/pdfs/first_page_downloads/respons_to_uk_decc_2.pdf
		Energy Efficiency Action Plan Conserve and Save, The Energy Efficiency Action Plan for Scotland	Dec 2009	Consultation on Scotland's energy efficiency action plan
		Call for Views on the Climate Change (Scotland) Bill	Feb 2009	Consultation on Scotland's Climate Change bill
		Adapting Our Ways – Climate Change Adaptation Strategy	Oct 2008	Consultation on Scotland's Climate Change Adaptation Strategy; how the country will adapt as a result of a changing climate.
		<u>Section 63: Energy Performance of existing non domestic buildings: Climate Change (Scotland) Act 2009</u>	Dec 2011	
		<u>Energy Performance of Buildings Directive - Recast (Scotland)</u>	Dec 2011	Consultation on how the EPBD recast will be implemented on a National level in Scotland.
	Sweden	Lågan	2010-2015	VGR is one of the founders and financers (represented in the board) of this national collaborative programme that provides support for demonstration and development (low energy buildings – new construction and refurb). http://www.laganbygg.se/



Table 3: Policy input at local level

Level of input	Country	Region	Consultation Name	Date	Web link (if possible) or short description
Local	UK	Aberdeen, Scotland	Main Issues Report for Aberdeen's Local Development Plan – sustainable construction	April 2009	http://www.aberdeencity.gov.uk/nmsruntime/saveasdialog.asp?IID=26258&SID=11123
			Supplementary Planning Guidance, Reducing Carbon Emissions in New Developments	May 2009	http://www.aberdeencity.gov.uk/web/files/LocalPlan/spg_reduce_carbon_emissions.pdf
			Aberdeen Local Development Plan – Climate Change (Scotland) Act Section 72	2010	http://www.aberdeencity.gov.uk/nmsruntime/saveasdialog.asp?IID=31978&SID=14413
			Alternative energy strategy for Council owned public buildings.	June 2011	Strategy aimed to encourage Council to install low / zero carbon technologies on public buildings.
	Sweden	Västra Götaland	National implementation of the EPBD	On-going	Passivhuscentrum (closely linked to Region Västra Götaland) is actively involved in lobbying efforts and cooperation with national authorities concerning the translation of the EPBD to national law.
	Germany	Schleswig-Holstein	Climate Pact - Negotiated agreement between government and five housing associations to reduce the energy consumption and CO2-emissions to well-defined objectives in 2020	Ongoing	http://www.schleswig-holstein.de/IM/DE/StaedteBauenWohnung/Wohnungswesen/Klimapakt/Klima_node.html
			Development of guidelines for insulation of facades	2011-2012	ISH/EKSH is involved in discussion of guidelines for insulation of facades and the influence on changing street architectures
			Development of new additional standards in support programmes	2011-2012	Because of the discussions about high energy standards in frame of BwC-project in Schleswig-Holstein new additional standards in support programmes will be developed

2.6 Energy Strategies

Another key deliverable for WP3 was to facilitate the development of local & regional strategies to deliver energy efficient buildings. This was done through knowledge exchange, study visits and researching best practice. The list below highlights some of the energy strategies developed.

Aberdeen City Council, UK

Alternative Energy Strategy for Council Owned Public Buildings

States that the Council will continue to undertake energy efficiency measures and install low/zero carbon technologies in/on Council owned assets in order to reduce overall energy consumption, reduce carbon emissions and save money.

<http://www.aberdeencity.gov.uk/nmsruntime/saveasdialog.asp?IID=42070&sID=904>

Aberdeen Local Development Plan - Supplementary Guidance: Low and Zero Carbon Buildings

Provides the methodology for developers to demonstrate compliance with Aberdeen Local Development Plan policy R7, which requires all new buildings to install low and zero carbon generating technology.

<http://www.aberdeencity.gov.uk/nmsruntime/saveasdialog.asp?IID=31832&sID=14394>

Västra Götaland, Sweden

Smart Energi

An agreement between Region Västra Götaland and 10 (until now) of its municipalities on how to radically diminish the energy use in public buildings (50 % of national standard for new built and a 50 % reduction in existing buildings until 2050). Also a collaborative process on how to achieve low energy buildings with municipal tools: procurement, planning documents, rules, initiatives etc.

www.vgregion.se/smartenergi

Regional agenda for low energy buildings 2.0

A regional three year program (2010-13) for energy efficient buildings with a budget of 18 million SEK. Key activities are demonstration projects, policy development and refurbishment. This programme builds on the experiences of the previous programme (2007-2010) and also on the experiences made within Build with CaRe. www.vgregion.se/energieffektivbyggnader

Kungälv

Energy wise Kungahälla is an active urban neighbourhood that produces more energy than it uses. A ten step programme has been developed in order to achieve a plus energy neighbourhood. In 2011 the pre-study was undertaken with the development due to be complete by 2015.

www.kungalv.se

Southend-On-Sea Borough Council, UK

The Strategic Planning team utilised the Build with CaRe partnership to develop a suite of planning policies and planning guidance on low carbon development and the efficient use of resources to form part of the Local Development Framework (LDF). Most prevalently, the involvement with the partnership has fed into the development of the Development Management Development Plan Document, which provides up to date planning policies by which all development in the Borough will be considered, once they are adopted.

Development Management Development Plan Document (DM DPD)

The Development Management Development Plan Document (DPD) has been brought forward by the strategic planning team, with our involvement in the Build with CaRe project being used to support policies relating to low carbon development. At the time of writing, the Development Management DPD has been through the statutory consultation processes and is awaiting submission in summer 2012, which will take it forward to Examination in Public (EiP) stage (expected autumn 2012), which should facilitate its adoption late 2012/early 2013. Once adopted it will provide the Council with a suite of policies with which they can support sustainable and energy efficient building design.

Policy DM2: Low Carbon Development and Efficient Use of Resources

Policy DM2 of the DM DPD provides the policy framework for ensuring development in the Borough incorporates energy and water conservation measures, meeting the highest possible environmental standards. The team is currently working on some minor amendments to the text of this policy, but the following is an extract from the proposed submission version policy:

The proposed submission of the Development Management DPD can be found here:

http://www.southend.gov.uk/downloads/download/422/development_management_document-proposed_submission_consultation



Policy DM2 – Low Carbon Development and Efficient Use of Resources

(1) All Development proposals will make the fullest contribution to minimising energy demand and carbon dioxide emissions in accordance with the following energy hierarchy: (i) Be lean: reduce the need for and use less energy; (ii) Be clean: supply and use energy efficiently; and (iii) Be green: supply energy from renewable sources.

(2) All development proposals will be energy and resource efficient by incorporating all of the following requirements:

- (i) Applying passive and energy efficient design measures; and
- (ii) Using sustainable sourced materials; and
- (iii) Adopting sustainable construction methods; and
- (iv) Achieving a minimum Code for Sustainable Homes Level 3 and move towards zero carbon by 2016 for all residential developments. Achieve a BREEAM 'very good' rating and move towards zero carbon by 2019 for all non-residential developments. Planning conditions will require submission of final Code certificates and post-construction BREEAM certificates, as appropriate; and
- (v) Incorporating water efficient design measures that limit internal water consumption to between 80 and 105 l/p/d. Such measures will include the use of water efficient fittings, appliances and water recycling systems such as grey water and rainwater harvesting; and
- (vi) Incorporating urban greening measures and promoting biodiversity from the beginning of the design process. Urban greening and design measures include, but are not limited to: provision of soft open space; tree planting; green roofs; living walls; nest boxes; and soft landscaping.

(3) High standards of energy and water efficiency in existing developments will be supported wherever possible through retrofitting. Conversions, extensions and/or alterations of existing buildings should meet EcoHomes 'very good'. Where this is not technically feasible or viable, appropriate sustainability measures will be incorporated.

As previously highlighted, it became apparent that even at DPD level it is difficult to establish a justification for energy efficiency standards to be higher than the UK government's national requirement without a strong evidence base required to support it, which regrettably does not exist. Therefore national requirements for carbon reduction in buildings will not be exceeded in Southend-on-Sea through the Development Management DPD at the level first proposed (Code for Sustainable Homes Level 4). Instead targets will be set at Code for Sustainable Homes Level 3, with a particular focus on water efficiency in buildings. It is proposed to develop the evidence base on energy efficiency and renewable energy generation for the Local Development Framework in order to progress planning policy in the future and we have recently received some data, collected at a regional level, indicating opportunities for renewable energy projects locally.

Victoria Avenue Development Brief, Supplementary Planning Document (SPD)

Victoria Avenue is the principal highway (A127) into Southend town centre, travelling south, leading towards the seafront. It is a dual carriageway along most of its length but several streets cross it to serve the adjacent hinterland of mainly commercial and residential uses. Towards the south and close to the town centre, Victoria Avenue passes through what was once the central business district and still contains important civic buildings.

The Victoria Avenue Development Brief once adopted will form part of the LDF and as such will be a material consideration in the assessment of planning applications within the area. The Brief sets out a series of planning and design principles, the primary aim of which is to establish a coherent and viable approach to the planning of the area that will encourage and guide future development principles. This is intended to be a roadmap for the comprehensive remodelling of an old office quarter located in the heart of



Southend focussing on the delivery of an exemplar mixed use scheme encompassing best practice with regard to energy efficient design and building sustainable mixed use communities. The Brief has been drafted and is currently being reviewed. It is anticipated that this will be consulted on later in 2012.



3. Policy in Practice

A key transnational component was to share examples of policy making amongst partners and beyond. This has been done through national expert exchanges, study trips, workshops, seminars and networking.

Two examples of good policy making which partners have studied during the course of the project are detailed below.

3.1 Northern Energy Norm, The Netherlands

Project Scope

On the 8th of October of 2007, the Dutch Ministry of Spatial Planning and Environment and the Ministry of Economic Affairs signed the Energy Agreement Northern Netherlands with the provinces of Noord-Holland, Fryslân, Drenthe and Groningen, also known as Energy Valley.

This Energy Agreement is about:

- Helping the Dutch government to meet the national goals on energy saving and CO₂ reduction;
- Strengthening the energy related activities for economic growth of Northern Netherlands.

Aim

The Northern Netherlands aimed for 5 strategic themes:

1. Energy savings in built surroundings and industry
2. Development of sustainable energy production
3. Biobased fuels and sustainable mobility
4. Clean fossil fuels and preparations on Carbon Capture and Storage (CCS)
5. Knowledge and Innovation

As part of the first theme mentioned the three provinces of Fryslân, Drenthe and Groningen started working on the “100.000 homes plan”, a plan to build 33.000 new low energy houses and to renovate 67.000 existing buildings to a low energy house.

As the project leader of the 100.000 homes plan, the province of Groningen joined the Interreg project Build with CaRe. The main Build with CaRe project of the Province of Groningen was the policy based “Northern Energy Norm”: a new building code for the Northern Netherlands which the 33.000 new low energy homes would be built to.

Motivating Factors

The northern provinces wanted to update the existing national building code because this code was old-fashioned (developed in 1996) and did not work well for building concepts of low energy houses. For example the old code did not value insulation as much as installation measures. Those who know something about passive house concepts know that designing low energy houses it is very much about insulation.

The only way to make a new building code possible across the northern Netherlands was to create a legally binding level playing field. Therefore the Northern Energy Norm (NEN) had to be allowed by law by the Minister of Spatial Planning and Environment.

This would only happen if the three Northern provinces could guarantee:

- Support of the NEN in the whole (Northern) building chain;
- The quality of the new energy calculation method of the NEN;



- The quality of enforcement of the NEN.

Support

For two and a half years a team from the three provinces supported by consultants, energy experts, architects, builders, housing associations and municipalities worked hard on the three goals. By installing a team of experts and a steering committee, in which the whole building chain was represented and was able to co-develop, support on the Northern Energy Norm was attained. A special project for informing and training municipal law enforcers was completed and very well received by all northern municipalities.

Project Barriers

Many steps were made to develop the new calculation method until, in spring 2010, the Ministry of spatial planning and environment announced their own new policy which the Northern provinces should adapt to in their development of the NEN.

Unfortunately the new national policy was not developed as far as the Ministry wanted us to believe which led to a two month period of insecurity regarding the Northern Energy Norm project. In times of upcoming financial crises this period of uncertainty was enough to brake down the support for the new northern policy. In addition lobbies of national parties against the northern ideas did not help the NEN case. All this together made the Minister of Spatial Planning and Environment to decide in June 2010, to not allow the special law for the Northern Energy Norm to be implemented.

At first this was a big disappointment for all of those who worked so hard on this matter. But now, almost two years later, there are many signs it wasn't all for nothing.

- The housing associations who were working together in the team of experts and the steering committee joined in a "speed up agenda" to speed up the follow through of energy saving measurements in their building stock;
- Frysian municipalities have their "1000 or 2000 houses plans" based on the Northern Energy Norm principles;
- In Drenthe there are examples of low energy or energy neutral houses.

Lessons learned

- Early participation of all stakeholders is vitally important to ensure a smooth development process;
- Although a lot of parties agree on the importance of energy saving for the long term, you will find a lot of barriers on the way by organisations not willing to change without short term benefits in sight;
- The technical side of this policy was hard to develop in co-production. However the co-production helped a lot in creating support and a well balanced policy for all parties involved, until national interests and politics got involved.

Repeatability

This specific project is not easily repeated in other countries because it is a real Dutch situation. However the broad cooperation of the building chain, to change the way of building, can be repeated everywhere.

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3.3 Renewable Wilhelmsburg, Germany

Project scope

In its “Renewable Wilhelmsburg Climate Protection Concept” the IBA Hamburg is setting new standards for the protection of resources and climate-neutral building. Optimised construction technology and the refurbishment of existing buildings reduce energy consumption, combined heat and power plants and regional and local energy alliances improve energy efficiency. The share of renewable energy will gradually be increased to 100 per cent. With the support of the local population and numerous other players, the IBA Hamburg illustrates how cities can become pioneers of climate protection and a post-fossil fuel, nuclear-free era.

Aim

To understand how a generalised renewable energy supply and maximum relief for the climate could be transposed into a realisable strategy for action? The “Renewable Wilhelmsburg Climate Protection Concept” represents a kind of road map with which the IBA Hamburg aims to transfer concepts for a fully renewable energy supply that were mostly developed for rural areas to the urban environment – initially on the Elbe islands Wilhelmsburg and Veddel and at the inland port of Harburg, as an example for the whole of Hamburg.

Motivating factors

More than two-thirds of all people in industrialised countries today live in cities. This trend is on the increase: according to the United Nations, forecast growth in the world population will occur primarily in the cities. In view of the growing threats presented by climate change, cities are both victims and culprits. Culprits, because they are responsible for the largest proportion of worldwide CO₂ emissions and victims, because the majority of all cities are situated close to the coast, where they are therefore to some extent fully exposed to rising sea levels.

There is also the considerable economic damage due to climate change. Researchers warn that Germany alone will face costs to its national economy of around 800 billion euros over the next fifty years due to climate change. Man’s ability to halt the rapid rise in global temperature therefore depends primarily on how the cities organise the future. The seismographs for successful cities are their future sustainability and the quality of life of the people living in them. Energy supplies play a key role in this not only for electricity and heating production but also for our mobility, both of which almost entirely dependent on the climate-damaging combustion of fossil fuel resources.

The question of how cities need to be reacting to these challenges is now being posed all over the world. How can they be converted to a sustainable energy system within a short period of time? How can the energy exploited be used more efficiently? How much mobility will be necessary in the future, or, be possibly improved? Asking ourselves these questions is no easy task; ultimately this is also about how we are to live and work in the future. New technologies, new land use planning concepts and new energy supply concepts are required, without forgetting the question of people. Climate protection, economic development, fair educational opportunities, integration and culture also need to be considered in the quest for sustainable urban development solutions.

Support

We gained support from the city of Hamburg through The Initiative Arbeit und Klimaschutz (Work and Climate Protection Initiative) a network established in 1998, now falling under the Urban Development and Environment Authority, and encompassing trade associations, housebuilders, tenants' associations, research institutions, and others involved with the energy sector.

The construction industry and trade associations have been involved in future-oriented training for the industry since 1985 with the founding of the Zentrum für Energie-, Wasser- und Umwelttechnik (ZEWU) (Centre for Energy, Water, and Environmental Technology) and the Ausbildungszentrum-Bau in Hamburg GmbH (AzB) (Construction Training Centre Hamburg), which have dedicated themselves to energetically ambitious construction; they are now incorporating existing buildings, through their Zentrum für zukunftsorientiertes Bauen e.V. (ZzB) (Centre for Future-Oriented Construction).

The involvement of the city and the federal government in the establishment of the Elbcampus, a trade skills training centre, shows that they have recognised the importance of this area of activity.

More recently, an important step has been the founding of Hamburg Energie GmbH (Hamburg Energy) as the core of a new public utilities company through which the city aims to gain more creative flexibility with regard to energy supplies. The establishment of the Hamburger EnergieAgentur (hamea) (Hamburg Energy Agency) is also a welcome development to get the proposed measures from the ENERGY ATLAS through.

Overall responsibility

IBA Hamburg

Project Barriers

The success or failure of the climate protection concept does not depend solely on the efforts of the IBA, but on the involvement of the other participants (such as the city's house builders, Hamburg Energie, and the local residents). The IBA's task is not an easy one. Its area of activity is characterised by a low-income population, and many residents harbour fears that an urban building upgrade will set in motion a displacement process once the housing market reaction starts to make itself felt. This is about the distribution of the costs and benefits from what is in itself a positive development. The IBA's attempt to direct the social benefits of innovative construction back into the local Wilhelmsburg economy is a requirement for project partners in terms of the quality agreements requiring that local youngsters be employed for the building work, thus providing them with training and qualifications.

The most important recommendation to the IBA and to the city of Hamburg as its sponsor is: find locally anchored instigators to continue to maintain and develop the impulses that the IBA has managed to set in motion during its period of existence. This could be achieved through the establishment of a project company, for example.

The energy supply transformation is underway. Cities are able to play a proactive and constructive role, even in areas where the overall political and legal parameters mean that not all of the state legislative and executive options are available to them. It is their inventiveness and their political will that are the main requirements in the first instance.

Lessons learned

The ENERGY ATLAS demonstrates that it is possible to use renewable and locally produced energy to meet the electricity demand of buildings by 2025 as well as almost the entire thermal energy requirement by 2050. The excellence scenarios allow us to accomplish a step by step conversion to 100 per cent renewable energy and ultimately to achieve climate-neutral Elbe Islands.

The major elements and success factors on the way to this goal are:

Climate protection excellence for existing and new buildings

The success of a comprehensive urban climate change mitigation strategy is largely determined by the condition of the existing building stock. However, this does not reduce the importance of excellence in the energy performance of new builds. Any new building that does not have excellent climate performance will be a climate hazard in the future.

- Renovating existing buildings

- Increase the rate of renovation, especially in the private, municipal and co-operative housing sectors
- Targeted support for the renovation of the large number of single-family homes
- Further develop Hamburg's climate change mitigation regulations with the aim of achieving an environmentally sound and socially acceptable renovation of existing buildings
- Retain and develop funding programmes
- Provide organisational support to help people find qualified tradesmen and energy consultants and to assist with funding applications
- Renovate public facilities to an exemplary standard
- Considerate energy improvements to landmark structures and building groups in the neighbourhood
- Promote climate awareness by creating objects of identification with relevance to everyday life, and by widely communicating exemplary renovation measures

- New Buildings

- Further develop Hamburg's climate protection regulations with an early introduction of passive house standards and the EU's 2020 standards
- Place the focus of urban planning on the concept of denser, mixed-use cities
- Rigorously use every opportunity for buildings to produce their own energy
- Utilise building surfaces for photovoltaic units, thereby adding to the efficiency gains from connecting to renewable heating networks

- Energy Systems

The prerequisite for achieving the goal of climate-neutrality for the Elbe Islands is the complete conversion of energy supplies to renewable energy.

- Renewable Heat Generation

- Obligation for new buildings to be connected to and utilise renewable heat networks; incremental connection of existing buildings
- Promotion and development of open heating networks. In this respect, generally binding regulations, comparable to the German Renewable Energy Act (EEG), should be developed for the power supply system on the basis of the IBA's pilot project ("Energieverbund Wilhelmsburg Mitte" / "Integrated EnergyNetwork Wilhelmsburg Central")
- Early securing of heating consumers to reduce the investment risk to energy companies. In this respect the municipalities should lead the way with their own buildings and municipal facilities
- Use heating networks as heat storage facilities and incorporate additional heat storage capacities

- Exploit urban biomass as a source of energy
- Municipal investment in deep geothermics.
 - Renewable Electricity Production
 - Safeguard land for wind energy at an early stage by means of urban land-use planning
 - Comprehensively involve and inform the citizens and public agencies
 - Use urban infrastructure and land for solar energy: the facades and roofs of buildings, (noise) barriers, landfill areas, roof canopies over parking areas, bus stops, public squares
 - No new buildings or energy renovation without consideration of photovoltaic technology
 - Link the gas, heat and electricity supply to enable common load management and the expansion of their respective storage capacities
 - Manage demand by means of “intelligent meters” and diversify electricity tariffs accordingly
 - Develop electrical mobility and use of batteries for interim electricity storage.
- Process–Involvement and economic participation
Investing in energy plants and buildings brings about a sustained reduction in the buildings’ energy-related operating costs, creates jobs and local employment, and leads to a marked reduction in energy import costs. What’s more, they produce benefits by avoiding environmental and climate damage.
 - Persuade the city’s key energy protagonists and disseminators to join alliances
 - Promote training and qualifications
 - Support local businesses
 - Provide low-threshold opportunities
 - Include tenants’ and property owners’ associations
 - Prompt and transparent information of the public and political bodies.

Repeatability

The analyses and illustrations in the ENERGY ATLAS concentrate on a specific location—the Elbe Islands of Wilhelmsburg and Veddel, and the Harburg inland harbour.

Here, they focus on the energy consumption across a range of sectors, but in terms of efficiency improvement the concentration is on building shells and technology, as well as the local generation potential of renewable energy.

These specific spatial and sectoral foci and the simultaneous linking of projects already planned and due for implementation by 2013 with forecasts and programme acceptances for the period after 2014 (“Post-IBA”) make the ENERGY ATLAS a precise guide for converting the Elbe Islands to climate-change responsive energy performance.

At the same time, it provides a role model for other city neighbourhoods and municipalities. The very linking of concepts and measures to the specific urban spatial conditions distinguishes this approach.

For further information:

IBA Hamburg website:

<http://www.iba-hamburg.de/en/iba-in-english.html>

Renewable Willhelmsburg project:

<http://www.iba-hamburg.de/en/themes-projects/climate-concept/projekt/renewable-wilhelmsburg-climate-protection-concept.html>

Contact: Caroline König, caroline.koenig@iba-hamburg.de

4. Conclusions

At the beginning of the Build with CaRe project the main focus was to improve the energy efficiency of new build construction. However it was quickly realised that the renovation of existing buildings is more important than a very high standard for new buildings. Therefore it is recommended that future projects focus on the methodology and policy requirements for renovation to passiv haus standard or similar. Nevertheless high building standards for new builds are essential in order to progress the building industries.

As a work package it is felt that the appointment of project ambassadors was an effective tool for communicating on an EU platform, therefore this is recommended for future projects. However, the impact could be improved further by recruiting ambassadors on a National and Local level as well as from a range of sectors including academia and industry.

It is also important to highlight the importance of engaging with National Governments on policy issues. The structure of European funded projects tends to favour engagement with EU and Local Governments. However National Governments are important for setting national priorities. In saying that, the exchange between regional and local governments in the different states could also be improved.

5. Next Steps

The findings and lessons learnt from Build with CaRe will form part of the Low Carbon Regions in the North Sea (LOWCAP) cluster project. The LOWCAP project will exchange knowledge and experiences from four carbon reduction and energy efficiency projects (Build with CaRe, Care North, North Sea Sustainable Energy Planning and Carbon Capture & Storage) in the North Sea Region.

The project brings together key results and lessons learned from the partner projects and other related North Sea Region projects. The findings will be shared with stakeholders in the North Sea Region, including decision makers in the public sector and end users from business and communities.

Through a review of EU programmes and the most recent literature, LOWCAP will produce policy advice for the North Sea Region in regards to carbon reduction and energy efficiency.

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Build with CaRe

A baseline review of standards



**Professor Richard Laing
December 2009**

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Summary of key findings

This baseline study describes standards, findings and procedures that describe a current position across Europe regarding energy efficiency in buildings and current developments.

- The project requires to ensure that its external profile is maximized. This can be achieved through having a presence at events including the EU Energy Week, and through the establishment of a project ambassador.
- The work package team should specifically develop a position statement regarding aims for policy, practice and future development.
- The **EPBD** has been published and generally welcomed by professional bodies within construction and the built environment. Nevertheless, the manner in which its recommendations are realised requires guidance and continued pressure, and the position statement and follow up activities can help to do this.
- A final outcome from the work package should be to develop a strategy for influence at the EU and National levels. This baseline study has identified existing situations in constituent countries, and existing plans and agendas for change within construction. The work package strategy should reflect this, and tie in with opportunities to influence positive change.
- The importance of developing a coordinated approach to the issues of energy use and carbon emissions from buildings across Europe has been recognised as a key priority for the whole region.
- Addressing these needs will require action from all parties including those in industry and academia, as well as building users themselves.
- It is recommended that there should be an EU led policy as individual governments are hard to persuade to change.
- Variation currently exists between nation states, which stems from different histories of policy development, perceived needs and recent developments in the state of the art.
- There is also considerable variation in terms of the manner in which issues of carbon and energy use in construction are debated at the national level. Whilst this is understandable due to the manner in which national policies and building standards have developed, it is also important to consider how change can be enacted across Europe.
- The baseline study indicates that there is broad agreement regarding the need for inclusion of climate change mitigation within policy. The project consortium is well placed to influence policy and practice through instigation of best practice work in their countries, and through the championing of best practice.
- Whilst it may well be possible to develop a single strategy for the region, it is likely that implementation will vary depending on building type, condition, industry and economic factors and political will.
- The Build with CaRe project provides a strong forum within which Local Authorities from across NW Europe can help to establish a common approach.
- Such a strategy will require political support at both national and local level, but requires implementation quickly to help address targets for energy use and CO₂ emission reductions.



1. Introduction

This review is intended to support a number of aims. The review of literature in itself provides some detail of the policy, research and practice which has influenced European directions in buildings and energy to date. However, the main purpose of the document is to inform the Build with CaRe project regarding the development of their own strategy. To that end, the report places the current situation within a suitable context, and outlines various directions which can be planned for in the future. The current existence of 'roadmaps' to determine the future of European policy and support in the area of energy and buildings is suggested as a potentially fruitful starting point, as there is a clear link between participants from practice, academia and wider industry and policy.

Therefore, the report takes a structure from these themes, and deals with issues of wider EU policy, relevant research findings, standards across the EU, historical and cultural issues, and relevant case study material.

2. Policy

Current policy at the European level is embodied with in a number of plans and strategies, all of which relate to the current legislation and current research programmes. A relationship between economic performance, social sustainability and environmental conditions has been recognised and central to European commission policy since 2000. The Lisbon strategy (2000) identified what was termed an environmental "pillar", which specifically recognises the need for economic growth to not be at the expense of natural resources. The strategic energy technology plan (SET Plan¹), for example, has been introduced in an attempt to accelerate both the development of new technology and its deployment with in practice. Of particular relevance to the current study is the European economic recovery plan (November 2008²), which in addition to noting the importance of accelerating key construction projects to facilitate an economic recovery across the region, specifically identifies an improvement in the energy efficiency of buildings as being central to the economic recovery of Europe as a whole. The plan states that member state should, "*set demanding targets for ensuring that public buildings and both private and social housing meet the highest European energy efficiency standards and make them subject to energy certification on a regular basis*". The plan also suggests that member state should direct structural funds towards energy efficiency investments, and to work towards the development of innovative methods of supporting the finance was required to implement energy efficient technologies with both new and existing buildings.

Perhaps of most immediate relevance to the current study have been the recent further developments of a European energy efficient buildings initiative, which will support and promote green technologies and the development of energy efficient systems and materials in both new and existing buildings. The aim is to radically reduce energy consumption and CO₂ emissions. Part of this initiative has been the instigation of specific academic and industrial research programmes which will come out shortly. The overall budget for this initiative is €1bn, and it extends the existing energy performance of buildings directive³, which came into force in Europe in 2002.

¹ http://ec.europa.eu/energy/technology/set_plan/set_plan_en.htm

² http://ec.europa.eu/commission_barroso/president/pdf/Comm_20081126.pdf

³ <http://www.dfpni.gov.uk/index/law-and-regulation/energy-performance-of-buildings/epb-directive.htm>

That policy was introduced to help meet EU carbon emission reduction targets from the Kyoto protocol and the energy policy for Europe.

It is important the study recognises that the nature of research undertaken within Europe is typically driven by agendas which will be defined at both national (including local) and European levels. At the European level, which is arguably the most relevant to the current study, research work for many years has been funded through the framework programme. The current framework, framework seven, is arranged in such a way that issues pertaining to climate change, energy and sustainability are dealt with mainly through the environment theme.

Regarding European research, the influence of a range of technology platforms cannot be underestimated. Of most relevance to the study is the European construction technology platform, or the ECTP⁴. The ECTP was established by Europe to help coordinate research across the EU and to help develop future strategies for research and development work which should be funded by the commission. What is interesting about the ECTP is the interest of stakeholders from across industry academia and political spheres. One development which emerged directly from the ECTP was part of the energy efficiency and buildings initiative, or E to be. That initiative will be referred to later in this document, as one of their most prominent contributions to debate since being established has been the development of a series of roadmap documents. The contents and direction of the roadmaps are important to the study, as they signpost that building design moves away from mitigation of harm, towards the production of buildings which arguably and demonstrably make a positive contribution to the environment.

The primacy of industry in future funded research is clear, and it is vital that the strategy emerging from the Build with CaRe project take this into account. The strategy itself is likely to include methods and approaches which come together to transform the manner in which we build, including input from academic research, industry, applied case studies and other mechanisms. Perhaps what is more important in the current study is that the roadmap or strategy which eventually develops from the project is able to identify clear and measurable milestones and objectives.

For this current project it is clearly vital that the research team aims towards identifying a series of industrial and research challenges which can be pursued both within the current project and beyond through later activities. Key challenges which regularly appear across the European research agenda include the refurbishment of existing buildings, neutral and energy positive new buildings (including passive housing), the district level energy strategies and a range of technological and organisational challenges. The structure was certainly recognised by the JTI⁵ and it is interesting for the Build with CaRe project, perhaps, to consider how there can be a strategic match between a need for technological change and how this relates to social or managerial aspects of the subject area.

As stated and referenced elsewhere in this document there is a clear relationship which must be explored and recognised between the user of a building and the energy which that building will ultimately consume. That is, the building itself will tend to consume energy only when required to do so by its users. An associated aspect of the project which may be worth consideration by the team is that of the building life cycle. Life cycle costing and life cycle assessment have been developed as methods

⁴ <http://www.ectp.org/>

⁵ <http://www.e2b-ei.eu/>

to understand the costs, resources and demands of the built environment over the whole buildings life cycle, including the planning, design, construction and occupancy stages. Most life-cycle costing studies have tended to conclude that the vast majority of resources, perhaps as much as 90%, are likely to be consumed after construction has taken place. A useful deliverable from this project, or from following work, would be to track how the case studies explored with in the project have developed once the buildings have been occupied, and once the buildings have therefore been subject to an inevitable change over time. For example changes could include a change of occupant, a change of intended use, a change of use patterns, or a combination of these.

An aspect related to this of course refers to the issue of incentives for participants in the building and built environment and development processes to actively engage with the process of life cycle costing, and an attempt to make this out to the end user. Although a significant amount of work over many years (Gluch and Baumann 2004, Kishk *et al* 2003, Kneifel 2010, Laing *et al* 2006, Soronis 1992) has demonstrated the applicability of life cycle costing in construction, a failure to engage with life cycle costing across the construction sector has perhaps emerged as a result of a lack of awareness, a disconnection between the design and construction teams and the end user, and an over emphasis on original construction cost, as opposed to full life-cycle cost of the building. It is likely, across Europe in fact, that legislation and practice within the industry begins to reflect the need to address the demands of climate change, that end-users may in fact by necessity become far more aware of the implications of technical design decisions taken at the earliest stage. As an aside, the UK processes developed since the 1990s including PFI and PPP tended to place an emphasis on the management of the building and its fabric becoming part of a management contract, intrinsically linked to the original design and construction stages. Whilst such processes are quite rightly subject to regular debate regarding the actual value for money which can be demonstrated to have emerged from them, they have nevertheless set a precedent for a genuine incorporation of maintenance, running and energy costs, included as a central part of the technical and aesthetic design processes.

One very positive aspect of the current project, Build with CaRe, is that it actively encourages the sharing of information across the constituent partners. Such an approach to knowledge transfer between organisations is however not necessarily the norm within the construction industry or the built environment generally, and this has certainly been identified by the JTI (2009) who state that, "*there is a need to encourage the transfer of good practices, technologies and methodologies, including cross-sectoral Cooperation, the setup of a communication infrastructure and the organisation of a number of coaching events*". Although it is certainly not the case that Build with CaRe should follow the specific activities suggested by the JTI, there would appear to be some value in attempting to prolong and develop the life of the group well beyond the initial funded period.

It is important that the Build with CaRe project properly recognises the existence of previously developed roadmaps and strategies, which were devised to take the entire construction industry towards a more environmentally responsible position. In particular, recent initiatives including those by the JTI have tried to identify how buildings can move from being in a position of being energy consumers to a position where they can be regarded as positive energy contributors within the next 10 to 15 years. Existing roadmaps such as that prepared by the EU recognise that there is a need for both vertical and horizontal change. That is, changing behaviour and design, but also a compatible change in the decision-making and policy-making structures which exist across Europe.

It appears clear that whatever strategies eventually adopted by the Build with CaRe project, there is a need to fit within existing European initiatives, and to recognise a number of real challenges which will face the construction industry in relation to energy efficiency and carbon emissions. The JTI, for example, have identified a large number of existing technology platforms (for example, construction, steel, electricity, wind energy, sustainable mineral resources, forestry) and other initiatives which together have contributed over 1700 outputs⁶ which are of relevance to the subject of energy efficiency in buildings. As will be explored in following sections of this report, it is clear that issues including energy efficiency in existing buildings, user behaviour and acceptability of technical solutions to users, and a willingness by the market to embrace new technology will become key factors in the success or otherwise of whatever strategy may emerge from the current project.

3. Current research and future directions

Existing buildings

A great deal of current emphasis, from industry and academia with regards to the energy performance of buildings, relates to that of buildings which already exist. It is recognised across Europe that the great majority of buildings which will exist in 20 years time have already been built. Therefore it is vital that methods were developed which allow us to address this issue and effectively either retrofit existing buildings so that they meet current and future standards for energy performance, and associated with this, a need to change the behaviour of occupants. It has been recognised for many years that there is a strong relationship between the technical design of buildings and the manner in which they will actually perform once built. Recent studies (Al-Mumin *et al* 2003, Hondo 2010, Lindén *et al* 2006) have shown that the behaviour of occupants and organisations can have a far greater impact on the actual energy utilised within a building than was perhaps envisaged at the design stage. Nevertheless, when dealing with existing buildings, particularly buildings which were constructed some time ago, there is a need for the development of new technical solutions which at least give the buildings the potential to perform at an acceptable environmental level.

To that end, many studies have been completed over the past 5 to 10 years, which together represent a fairly comprehensive series of technical guidelines, which can take the user and the owner of historic buildings through the process of being able to retrofit those buildings for better energy performance, without necessarily destroying the fabric which formed a basis for conservation taking place in the first instance. What is arguably true is numerous studies have been completed in recent years, including by bodies such as historic Scotland, English Heritage and troops extending across Europe. For example, work undertaken by the organisation Changeworks⁷ suggested specific and quite detailed technical solutions which can be applied to historic properties, including those which may lie within world Heritage sites. Current work ongoing as part of publicly funded research, both within countries and as part of the European framework programme, is considering how methods can be developed to allow energy ratings of highly decorated historic properties, as well as the retrofitting of areas of towns and cities, which require environmental upgrading on a large scale. Whilst it is appreciated that the current project is tending to focus on new construction and new buildings, this must be seen within the wider context of a built

⁶ http://www.e2b-ei.eu/documents/36D661v4_MIP.pdf

⁷ Report available via <http://www.changeworks.org.uk/content.php?linkid=424>

environment which consists largely of buildings which were designed and constructed many years ago.

Framework programme

Research funded by the European commission is supported under what has become known as the framework programme. The framework programme, currently in its seventh iteration (FP7) supports work to undertake a wide range of research activities, including large-scale research projects, research mobility funding and support for both emerging and established researchers working within Europe. A feature of the program over many years has been streaming of research underneath specified thematic areas. Of most relevance to the current project is that of the environment research area, which includes studies concerning climate change. The environment programme includes specific studies which deal with many aspects of the construction industry, including sustainable materials, existing buildings, construction and demolition waste, and associated projects which may also involve other themes including information and communication technologies. The commission define the main objective of the environment stream as being *“to promote sustainable management of both man-made and natural environment and its resources. To this end, increase knowledge on the interaction between the climate, biosphere, ecosystems and human activities assault and, new environmentally friendly technologies, tools and services are developed”*. Projects funded under the framework programme are required to involve partners from a number of European member states to ensure that research undertaken has a genuine value and is likely to be applied across a wide geographical area. Whilst it is arguable that having research undertaken in numerous countries does not necessarily lead to meeting this objective, it is certainly true that within construction the variability of construction tradition, materials and practice across Europe in itself almost dictates that research which deals with Europe regions within Europe is likely to be more representative of the wider situation than research which is very much focused on one particular member state. Projects funded under the framework programme typically have values in excess of €3M, and will normally take place across a duration of at least three years. Many corals also specify a requirement to have direct input from both industry and academia to the research, which would normally involve having industrial partners included as full partners on a project proposal (as opposed to simply being included as members of a steering group, for example).

Areas in which the commission has stated they would like to give preference for funding include studies dealing with macro level effects of climate change, conservation and sustainable management of man-made resources and the development of new environmental technologies (including those pertaining to the cultural heritage). It is suggested here that outcomes from the current project will almost certainly and by definition be of direct relevance to researchers engaged with the current framework programme. It is therefore suggested that the project team give thought to the manner in which they might be able to disseminate results, findings and best practice with a framework of events. It is also possible that recommendations from the current research can inform future calls and directions taken by the commission and its research programme in the future. It is therefore also suggested that the project team give consideration to how they might be able to interact with the European commission's framework team over the course of the coming years.

4. Standards

4.1 Overview

Partners in the Build with CaRe project are located in the UK, Sweden, Germany, Belgium and the Netherlands. The fact that there are likely to be regional variations due to the countries having different political, environmental, climatic and building traditions, it is useful to present and reflect on the commonalities and differences which exist at the present time. This of course needs to be read against the context of a stated desire to develop a common strategy or a roadmap towards the shared objective of meeting energy efficiency targets in building across the region.

This section, almost by necessity, is presented in two parts. The first part is intended to give a brief and digestible impression of data regarding the current situation across the region. This information has been gathered mainly through survey materials distributed to the project participants. A copy of the survey form itself is provided at the end of this current document, and every effort has been made to preserve references, web links and other resource information which was provided at the survey stage.

4.2 Summary of survey responses

Project partners were asked to provide information regarding existing carbon emission policies in their own country. They were also asked to identify whether an existing strategy was in place covering construction. Bearing in mind that the current study is very much focused on a potential need for a change in the future, project participants were also asked to provide information regarding whether the national strategy which are in the country had changed significantly during the past decade, or whether it was likely that strategy would change or be developed in the near future. Associated with this consideration of carbon emissions with construction was an associated interest in how this may extend and potentially influence the planning system or systems associated with public debate and public participation. All partners also provided data regarding best practice Case studies, although it is recognised fully that the existing project wide website has included such case studies for some time. It is suggested that this section of the report be used to stimulate discussion and debate within the project team, although it is likely that a common strategy across the entire consortium may rely as much on method, approach, available resources and tradition as on the provision of technical standards.

<p>Existing carbon emission strategy</p>	<p>Belgium</p> <p>The Belgian government has signed a local 'Kyoto' protocol. Sustainable building and construction has been taken up in the provincial policy.</p>	<p>Germany</p> <p>Germany has a national climate protection strategy, with further policy in place at the state level.</p> <p>Germany has an established process for the calculation of CO₂ emissions, details of which are provided in section 4.3.</p>	<p>Netherlands</p> <p>Detailed information regarding strategy and policy in the Netherlands at a national level can be found here: http://www.pbl.nl/en/index.html</p>	<p>Sweden</p> <p>Details of the Swedish energy and climate policy can be found in section 4.3. One of the main stated aims is to reduce energy consumption with reduction of 20% by 2020.</p> <p>Regarding participation in the development of such strategies, the Swedish government launched a commission for sustainable development which involved key participants from industry and academia.</p> <p>Such agendas are also typically mirrored at the local level, including the development of smart energy strategy which has led to agreements on renewable energy, energy efficient buildings and sustainable tendering.</p>	<p>UK</p> <p>Detailed strategies are in place to deal with climate change across all sectors of government. It is important to note that strategies vary between UK regions, and that mechanisms to realise change exist at the national and local levels.</p> <p>Policies are tied to economic growth, and involvement of the private sector is stressed in many practical demonstration projects.</p>
<p>Construction policy</p>	<p>The province has set itself as a goal to apply the principles of passive building into</p>	<p>Details of specific campaigns influencing construction with in Germany are</p>	<p>Construction and housing policy with regards to environmental impact is discussed within http://www.vrom.nl/pagina.html?id=37360</p>	<p>A new classification system for buildings is currently being developed within</p>	<p>Policies cover CO₂ emissions from new buildings, and (for example) the insulated</p>

	<p>buildings over the period 2007-2012.</p> <p>It is recognised of course that it may not be possible to upgrade or retro fit every existing building to meet ideal energy performance standards.</p> <p>It is recognised that passive construction may in some cases be more expensive to construct. Subsidies have been made available to support further development, however.</p>	<p>available, and links provided in section 4.3.</p>		<p>Sweden, which will label the energy efficiency of buildings.</p>	<p>performance of building elements has developed significantly.</p> <p>With regards to existing buildings, the introduction of energy evaluation within the property market, and initiatives to recognise the importance of historic properties and their unique characteristics, have led to extensive research and changes to heritage advice.</p>
<p>Developments</p>	<p>The past 10 years have seen great change with the problems, as the topic of energy efficiency and carbon emission has only recently become enshrined in policy.</p>	<p>Over the past 10 years, the topic of energy efficiency has become increasingly important in regulations, information campaigns and support programs at both the national and state levels.</p>	<ul style="list-style-type: none"> Northern Netherlands project (Northern Energy Norm) conflicts with national policy therefore they must convince policy makers that the current national policy instruments are not relevant anymore and need to be changed. This is a challenge as national policy is much more difficult to change than regional policy. 	<p>Sweden has a strong history of investment in renewable energy, although there is a stronger focus today on climate and energy issues.</p> <p>A further policy on climate and energy is being proposed within the Swedish parliament, suggesting a target of reducing greenhouse gases by 40%.</p>	<p>The publication of the <i>Low Carbon Transition Plan</i> is the most recent change to the National Strategy and aims to transform the country through a systematic reduction in carbon emissions. Also, building standards are to be raised at set stages over the next 10 years. The UK has the most demanding, mandatory CO₂ emissions reduction target within Europe.</p>

					Within Scotland, changes to the building standards have been suggested which would steadily increase the energy efficiency of new buildings across a period of 5-10 years.
Building standards and carbon				Building codes in Sweden changed during 2008, with specific effects for buildings heated using electricity.	Recognised in the building standards, and form the basis of current consultation/debate in the development of forthcoming changes.
Case studies	A series of case studies from each region are indicated in section 4.3.				

4.3 Partnership existing standards

This section presents selected standards of relevance to the study.

Where appropriate, notes are included regarding standards in place, and also the manner in which these are applied or enforced, with brief descriptions of and links to best practice case studies and external documents. In addition, it is important that readers also refer to the annotated bibliography which provides further information available in the public domain.

Country	Summary of nationally imposed standards
<p>UK (England)</p>	<p>Reference should be made towards <i>The UK Low Carbon Transition Plan: National Strategy for Climate & Energy</i>. (15 July 2009). The document plots how the UK will meet the cut in emissions set out in the budget of 34% on 1990 levels by 2020. Chapter 4 deals specifically with transforming our homes and communities (construction). Low carbon construction is mentioned briefly on page 125.</p> <p>http://www.decc.gov.uk/en/content/cms/publications/lc_trans_plan/lc_trans_plan.aspx http://interactive.bis.gov.uk/lowcarbon/</p> <p>England: Planning Policy Statements (PPS) set out the Government's national policies on different aspects of spatial planning in England. PPS1 sets out the overarching planning policies on the delivery of sustainable development through the planning system. Planning Policy Statement: Planning and Climate Change (PPS1a), supplements PPS1 by setting out how planning should contribute to reducing emissions and stabilising climate change and take into account the unavoidable consequences. A link to the document can be found here:</p> <p>http://www.communities.gov.uk/publications/planningandbuilding/ppsc_limatechange</p> <p>England and Wales:</p> <p><i>Building a Greener Future – Towards Zero Carbon Development</i> is a consultation document which sought views on the Government's proposals to reduce the carbon footprint of new housing development. It set out the Government's views on the importance of moving towards zero carbon in new housing and explored the relationship between the planning system, Code for Sustainable Homes and Building Regulations in delivering our ambitions for zero carbon. It also proposed a timetable for revising the Building Regulations so as to reach zero carbon development in all new housing in England & Wales.</p> <p>http://www.communities.gov.uk/archived/publications/planningandbuilding/buildinggreener</p> <p>The climate Change Act 2008 aims to reduce CO₂ emissions by 80%</p>

	<p>below 1990 levels by 2050, with interim targets.</p> <ul style="list-style-type: none"> - 22% below by 2012 - 28% below by 2017 - 34% below by 2020 <p>The code for Sustainable Homes (CSH) dictates that all new homes built after 2016 must be Carbon Zero (meaning of Carbon Zero currently being defined)</p> <p>The CSH is a set of building design principles. It does not set minimum standards for construction – that is still the role of the building regulations. It provides an important framework as the levels of performance indicate the future direction of building regulations. Its methodology is an updated version of the BRE Eco-homes tool and since April 2007, CSH has taken over as the methodology for new homes in England. It is mandatory for social housing but currently, voluntary for private housing developments.</p> <p>Home Energy Efficiency Target – all existing roofs and cavity walls to be insulated to current standards by 2015. Building Regulations (Part L) place a cap on CO₂ emissions for all buildings, including renovations and extensions (historic buildings are currently immune).</p> <p>The building regulations define the minimum standard that a new home in England and Wales has to be built to and Part L is the section that deals with the energy efficiency. The major emphasis is on the fabric. The regulations were last revised in 2006 and will be upgraded in 2010, 2013 and 2016.</p> <p>Carbon Emissions Reduction Target (CERT) – requirement for energy supply companies to fund energy efficiency improvements in existing houses that will reduce CO₂ by 185 million tonnes (over the lifetime of the home) by 2012</p> <p>Energy Performance Certificates (it should be noted that different standards apply in Scotland and Northern Ireland).</p> <p>Scotland:</p> <p>Control of building standards and the development of a distinct carbon emission policy is controlled by the Scottish Government. The Government has published wide ranging policy statements, including those concerning carbon impact assessment, carbon emission targets, and aspirations to move towards carbon neutral development across the country.</p> <p>Specific examples include a policy to stimulate 50% of Scotland's energy to come from renewables by 2020, recognition of the need for carbon assessment, emissions trading and the establishment of community protection.</p> <p>Key documents can be found online:</p> <p>http://www.scotland.gov.uk/Topics/Environment/climatechange/scotlands-action</p>
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<p>Distinct 'construction' policy:</p> <p>Building Regulations (Part L) – escalating cap on CO₂ emissions for all buildings (all uses), including renovations and extensions (historic buildings are currently immune). Code for Sustainable Homes – all new homes built after 2016 must be Carbon Zero (meaning of Carbon Zero currently being defined).</p> <p>How has the national strategy developed over 10 years?</p> <p>All the above measures have either been enacted or enabled in the past 10 years. Previous National Strategy was contained within '<i>Our Energy Future: Creating a Low-Carbon Economy</i>' which defined a long-term strategic vision for energy policy combining environmental, security of supply, competitiveness and social goals. It built on the Performance and Innovation Unit's Energy review, published in February 2002, and on other reports which looked at major areas of energy policy. The main development since the publication of this strategy would seem to be the shift in emphasis from inaction to action, i.e. how carbon reductions can be <u>achieved</u>. '<i>Our Energy Future</i>' concentrated on what needs to change; '<i>The UK Low Carbon Transition Plan</i>' concentrates more on how these changes can be accomplished. This is evidenced in its chapter titles - Transforming our Power Sector, Transforming our Homes and Communities, Transforming our Workplaces and Jobs, Transforming Transport - but it remains to be seen whether this resolve can be transformed into tangible results.</p> <p>If your national strategy is about to change, how do you think this will happen, and what will it involve, and when will it happen?</p> <p>The publication of the <i>Low Carbon Transition Plan</i> is the most recent change to the National Strategy and aims to transform the country through a systematic reduction in carbon emissions. Also, building standards are to be raised at set stages over the next 10 years. The UK has the most demanding, mandatory CO₂ emissions reduction target within Europe. Within Scotland, changes to the building standards have been suggested which would steadily increase the energy efficiency of new buildings across a period of 5-10 years. The Sullivan report on this matter is available online: http://www.sbsa.gov.uk/pdfs/Low_Carbon_Building_Standards_Strategy_For_Scotland.pdf</p> <p>Do your national building standards/codes specifically address carbon emission?</p> <p>See number 1 above. The most relevant document is the <i>Code for Sustainable Homes</i>. A mandatory rating against the Code was implemented for new homes on 1 May 2008. The Code measures the sustainability of a new home against categories of sustainable design, rating the 'whole home' as a complete package. The Code uses a 1 to 6 star rating system to communicate the overall sustainability performance of a new home. The Code sets minimum standards for</p>
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	<p>energy and water use at each level and, within England, replaces the EcoHomes scheme, developed by the Building Research Establishment (BRE).</p> <p>Are there methods through which carbon emissions are discussed or debated in your country? For example, committees, public participation, industrial forums, and so on? The Environmental Audit Committee is the appropriate forum for debate and discussion regarding carbon emissions at a government level. The Committee considers to what extent the policies and programmes of government departments and non-departmental public bodies contribute to environmental protection and sustainable development. It audits their performance against such targets as may be set for them by Her Majesty's Ministers and reports thereon to the House. Information about the Committee can be found at:</p> <p>http://www.parliament.uk/parliamentary_committees/environmental_audit_committee.cfm</p> <p>However, organisations such as the Building Research Establishment, the Energy Saving Trust and the Carbon Trust are mandated to engage with communities on these issues and organise a wide variety of events and initiatives as a result.</p> <p>Useful case studies</p> <p>Crossway is a passive house in Kent designed by Passive House Solutions Ltd.: http://www.passivehouse.co.uk/content/view/18/91/.</p> <p>A green extension to Great Ormond Street Hospital http://www.sustainablebuild.co.uk/green-architect-extension-london-hospital-case-study.html</p>
<p>Sweden</p>	<p>Reference should be made to the new Energy and Climate Policy of the Swedish Government:</p> <p>http://www.sweden.gov.se/sb/d/2023/a/103384 http://www.sweden.gov.se/sb/d/2031/a/120088 http://www.sweden.gov.se/sb/d/5745/a/19594</p> <p>More information is available via the Swedish Energy Agency website:</p> <p>http://www.energimyndigheten.se/en/</p> <p>“A Good Built Environment” is one of Sweden’s environmental objectives. One of the main aims is to reduce energy consumption with a reduction of 20 % to 2020 and 50 % to 2050. More info is available at Environmental Objectives Portal website:</p> <p>http://www.miljomal.se/Environmental-Objectives-Portal/15-A-Good-Built-Environment</p> <p>Has the national strategy in your country has developed or</p>

	<p>changed significantly over the past 10 years?</p> <p>Sweden has historically invested a lot in renewable energy (such as district heating systems) but I think energy efficiency is growing more and more important.</p> <p>Compared to 10 years ago, there is a lot more focus today on climate and energy issues.</p> <p>Our buildings codes changed last year – if you have a house that is being heated by electricity there is a new maximum level.</p> <p>If your national strategy is about to change, how do you think this will happen, and what will it involve, and when will it happen?</p> <p>A new policy on climate and energy is being processed in our parliament. The new policy suggests a reduction target for greenhouse gases by 40%. This should be achieved by measures in the area of transport, energy reduction and renewable energy. A new energy classification system for buildings is currently being reviewed by experts. It is based on the EPBD (A+, A, B, C, D etc). We have not had such a labelling system for buildings in Sweden before. Hopefully it can inspire more people to aim for energy efficiency. The energy declarations (EPBD) will become more and more important.</p> <p>Swedish national building standards/codes do not specifically address carbon emissions?</p> <p>National debate</p> <p>Before suggesting the new Climate Policy the Government launched a “Commission for Sustainable Development”, involving key actors in the industry and at university level.</p> <p>Region Västra Götaland has its own regional process dealing with climate issues – Smart Energy. The process has involved hundreds of people from our municipalities, the industry, universities and research institutes. Smart Energy is now resulting in concrete action – politically signed agreements on for example solar energy, energy efficient buildings and sustainable tendering.</p> <p>Case studies</p> <p>At the Build with CaRe website you can find 35 best practise demonstration buildings, mostly from Sweden and Germany. You can also visit the website of The Swedish Passivehouse centre for Sweden’s development of Passive houses: http://www.passivhuscentrum.se/projekt.html?&L=1</p>
<p>Belgium</p>	<p>The Belgian government has signed a local ‘Kyoto’ protocol. Sustainable building and construction has been taken up in the provincial policy.</p>

	<p>http://www.oost-vlaanderen.be/public/wonen_milieu/energie/kyotoprotocol/index.cfm</p> <p>The province wants to raise awareness on sustainable and energy efficient construction to citizens, schools, enterprises and local governments.</p> <p>The province set itself as a goal to apply the principles of Passive Building in two buildings (including one school) over the period 2007-2012.</p> <p>Has the national strategy in your country has developed or changed significantly over the past 10 years? If so, how?</p> <p>The past ten years has seen great change, as the topic was hardly mentioned and certainly not part of policy at that time.</p> <p>If your national strategy is about to change, how do you think this will happen, and what will it involve, and when will it happen?</p> <p>Our buildings have to be increasingly energy-efficient. It will not be possible in renovation to make every building a passive building but we are doing our best to make it as energy efficient as possible.</p> <p>A passive building is more expensive than a low energy building by giving us the subsidy we got a boost to make it passive.</p> <p>Case studies</p> <p>http://www.passiefhuisplatform.be/index.php?col=/nieuws/nieuwsbrief&doc=nieuwsbrief_27</p>
<p>Germany</p>	<p>The national (Germany) climate protection strategy is publicly available: http://www.bmu.de/klimaschutz/nationale_klimapolitik/doc/5698.php Furthermore, information about the state level (Schleswig-Holstein) is described under: http://www.schleswig-holstein.de/UmweltLandwirtschaft/DE/ImmissionKlima/06_Klimaschutz/klimaschutz_node.html</p> <p>Germany has specific information campaigns which influence construction. A good example can be found here: http://www.zukunft-haus.info/ http://www.bmvbs.de/Bauwesen/Klimaschutz-und-Energiesparen_2823/CO2-Gebaeudesanierung.htm</p> <p>There a different measures in Schleswig-Holstein. One are information campaigns or co-operation in international projects dealing with energy efficiency in building stock: http://www.schleswig-holstein.de/MWV/DE/Energie/SchwerpunkteInitiativen/LandesinitiativeWaermeschutz/LandesinitiativeWaermeschutz_node.html</p>

<p>http://www.been-online.de/ http://www.urbenergy.eu/10.0.html The other measures are part of support programmes (energetic issues in social housing programmes or in urban development projects) or the negotiated agreement between government and five housing associations_ http://www.schleswig-holstein.de/IM/DE/PlanenBauenWohnen/StaedteBauenWohnung/Wohnraumfoerderung/Foerderung__node.html http://www.schleswig-holstein.de/IM/DE/PlanenBauenWohnen/StaedteBauenWohnung/Staedtebau/Staedtebau__node.html http://www.schleswig-holstein.de/IM/DE/PlanenBauenWohnen/StaedteBauenWohnung/Wohnungswesen/Klimapakt/Klima__node.html</p> <p>Has the national strategy in your country has developed or changed significantly over the past 10 years?</p> <p>The topic of energy efficiency is now more important in regulations, information campaigns or support programmes at national and state level than ten years ago.</p> <p>If the national strategy is about to change, how do you think this will happen, and what will it involve, and when will it happen?</p> <p>Germany has higher efficiency levels in the new national regulation valid from 1st of October 2009 (Energy Saving Ordinance). The next step is planned with 30% higher level to 2012. The integrated energy and climate protection programme was passed by the German government in August 2007. The action plan for climate protection of the state Schleswig-Holstein was passed by the state government in January 2008.</p> <p>Are there methods through which carbon emissions are discussed or debated in your country? For example, committees, public participation, industrial forums, and so on?</p> <p>Germany used the GEMIS method for CO₂ calculation. (http://www.gemis.de/en/index.htm)</p> <p>Case studies</p> <p>You can find information about CO₂-reduction for all sectors under: http://www2.bdi.eu/initiativen/klimaschutz/EN/climatestudy/Pages/climatestudy.aspx or for the building sector under: http://www.zukunft-haus.info/</p>

5. Historical and cultural issues

It is estimated that demolition of the existing building stock in Europe is at a rate of around 0.5%, with the rate of growth at only 2%. Therefore, in order to meet necessary targets for energy use and emissions, it is a fact that the existing building stock will require either replacement or retro-fitting with new materials and technologies. Whilst Europe continues to support research and development in these areas, with an increasing need for industrial involvement, it is also a fact that there is no such thing as a 'typical European building'. On that basis, it is likely that strategies for, and implementation of, and work will demand significant attention be given to detail at specific locations.

However, retrofitting on a large scale is an issue, and one which will require massive financial input and both technical and political drive. The Netherlands have some examples and some research has been done on this, and retrofitting historic buildings is an issue, where retaining character is often regarded as having a higher priority than energy efficiency. Recent practical cases from the like of passivhaus have, though, attempted to demonstrate how, with a recognition and assessment of the focus of heritage values, that it should be possible to marry heritage preservation with a consideration for energy use and energy need.

Review work that deals more with local industry, social issues, developing countries, remnants of eastern block, variability of building types across the member states.

6. Discussion

Build with CaRe can help to further raise awareness within the community and within organisations on how to lead on policies and action to combat climate change. Build with CaRe aims to mobilise all forces in order to make energy-efficient building design the mainstream. Key to this is the development of a transnational strategy for increasing energy efficiency in buildings.

At state level in Germany, the project team discussed the higher efficient energy standard with the responsible ministries and experts. So I think we will influence the next steps for energy efficiency in the building sector.

At the local level, it may also be possible to incorporate Build with CaRe strategy into policy. For example, PPS1a states that Local Development Documents need to assess an area's potential for renewable and low carbon technologies. A Development Plan Document which specifically deals with these issues e.g. Development Management Guidelines could state that supporting documents such as Build with CaRe's strategy would be materially considered when evaluating development proposals.

7. Closing remarks

This document has been prepared to provide both a context for how the current project sits with in existing research and development work, and also to provide a foundation from which the project may build a strategy. It is suggested that the strategy will have the greatest chance of success in terms of actual implementation if it can be easily related to other existing initiatives happening across Europe. The report has given some space to discussing for example the existing framework programme, which funds academic and industrial research across Europe, and to the associated activities of the technology platform and the joint technology initiative.

Again it is suggested that these activities have existing (admittedly in places far from concise) strategies and directions, and Build with CaRe should and can very easily tie in with these wider activities.

It is clear that the topics contained within Build with CaRe, which are being considered largely by and within the context of local and municipal authorities are genuine and very wide interest across the whole of Europe. Therefore, it is suggested that the project outputs in themselves will have a wide resonance and deserved to be disseminated as widely as is possible.



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- G. Soronis (1992) An approach to the selection of roofing materials for durability *Construction and Building Materials*, 6(1), March, pp 9-14.

9. Annotated bibliography

Selected national and local developed standards and guidance available online

Belgium

National planning system

<http://www.bondbeterleefmilieu.be/lokaalkyotoprotocol/index.php/>

http://www.oost-vlaanderen.be/public/wonen_milieu/energie/kyotoprotocol/index.cfm

Building standards

<http://www.energiesparen.be/epb/energieprestatieregelgeving>

Specific mention of carbon emissions

Germany

Hamburg climate action

"climate action in Hamburg" - framework conditions - fields of action - tools. It is the "update of the Hamburg Climate action policy 2007-2012" and includes an overview about the climate policy of the federal government (see Annex 1) and special information on the climate action in Hamburg (see Annex 2).

Support programmes by KfW.

Building:

http://www.kfw-foerderbank.de/DE_Home/Bauen_Wohnen_Energiesparen/index.jsp

Renewable energies:

http://www.bafa.de/bafa/de/energie/erneuerbare_energien/index.html

CHP:

http://www.bafa.de/bafa/de/energie/kraft_waerme_kopplung/index.html

The new building standard (EnEV, Energy Saving Ordinance)

<http://www.bmvbs.de/Bauwesen/Gesetze-und-Verordnungen->

[1537.7567/Energieeinsparverordnung-EnEV.htm?global.back=/Bauwesen-](http://www.bmvbs.de/Bauwesen/Gesetze-und-Verordnungen-1537.7567/Energieeinsparverordnung-EnEV.htm?global.back=/Bauwesen/)

[Verordnungen.htm%3flink%3dbmv_liste%26link.sKategorie%3d](http://www.bmvbs.de/Bauwesen/Gesetze-und-Verordnungen-1537.7567/Energieeinsparverordnung-EnEV.htm?global.back=/Bauwesen-%2c1537%2c0/Gesetze-und-Verordnungen.htm%3flink%3dbmv_liste%26link.sKategorie%3d)

[Verordnungen.htm%3flink%3dbmv_liste%26link.sKategorie%3d](http://www.bmvbs.de/Bauwesen/Gesetze-und-Verordnungen-1537.7567/Energieeinsparverordnung-EnEV.htm?global.back=/Bauwesen-%2c1537%2c0/Gesetze-und-Verordnungen.htm%3flink%3dbmv_liste%26link.sKategorie%3d)

Climate protection strategy

http://www.bmu.de/klimaschutz/nationale_klimapolitik/doc/5698.php

<http://www.bundesregierung.de/Webs/Breg/DE/iekp/iekp.html>

National building standard (EnEV)

http://www.bmvbs.de/Anlage/original_1088019/EnEV-2009-Lesefassung-nicht-amtliche-Fassung.pdf

Addresses primary energy demand

Sweden

Building regulations

<http://www.boverket.se/Om-Boverket/Webbokhandel/Publikationer/2008/Building-Regulations-BBR/>

http://www.boverket.se/Global/Webbokhandel/Dokument/2008/BBR_English/9_Energy_management.pdf

Provides information on allowed energy usage in new dwellings and non residential buildings, see "Building regulations/ Energy management"

UK

The Building Regulations Part L (2006)

http://www.building-regs.org.uk/part_l.html

Deals with "Conservation of Fuel and Power" and sets a minimum reduction in carbon emissions relative to 2002 levels (typically 20% for dwellings) Interestingly, PPS1a seeks greater integration between planning control and Part L. A consultation on the next revision of this regulation is due to begin this year.

Communities and Local Government 'Green Commercial Buildings Task Group'

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

Commissioned the UK Green Building Council (UK-GBC) to investigate the costs and benefits of raising the energy performance standards in new non-domestic buildings above those currently set out in the Building Regulations all the way to zero carbon. The report prepared by UK-GBC investigates the opportunities for achieving zero carbon in new non domestic buildings. Following on from the targets set out in the Code for Sustainable Homes to achieve radical emissions reductions in new homes; this report aims to add to the understanding of whether similar targets in the commercial sector can be set and achieved and in what timescale.

Local Authority Performance Framework

<http://www.defra.gov.uk/environment/localgovindicators/index.htm>

With a reporting suite of 198 Defra National Indicator inc: NI185 (CO₂ from own estate); NI186 (CO₂ emissions from LA district); NI188 (CC Adaptation); NI 194 (Air Quality – NOx & PM10s).

PPS1: Delivering Sustainable Development

<http://www.communities.gov.uk/planningandbuilding/planning/planningpolicyguidance/planningpolicystatements/planningpolicystatements/pps1/>

PPS22: Renewable Energy

<http://www.communities.gov.uk/planningandbuilding/planning/planningpolicyguidance/planningpolicystatements/planningpolicystatements/pps22/>

A key Principle 13 [ii] of PPS1 seeks to ensure that development plan address the causes and potential impacts of climate change, while PPS22 sets regional and local targets to be met.

Planning Portal

<http://www.planningportal.gov.uk/england/genpub/en/1115315124405.html>

The initial port of call for information regarding the planning system in England. The guide available at this address looks at the main domestic microgeneration technologies and for the different ways to make more efficient use of energy in the home.

See also:

<http://www.defra.gov.uk/environment/climatechange/pubs/eac/pdf/cc-govres.pdf>
<http://www.defra.gov.uk/environment/climatechange/uk/ukccp/pdf/ukccp06-all.pdf>
http://www.opsi.gov.uk/acts/acts2008/pdf/ukpga_20080027_en.pdf
<http://www.defra.gov.uk/environment/climatechange/uk/legislation/provisions.htm>
<http://www.communities.gov.uk/documents/planningandbuilding/pdf/ppscclimatechange.pdf>
<http://www.communities.gov.uk/publications/planningandbuilding/building-a-greener>
<http://www.communities.gov.uk/publications/planningandbuilding/zerocarbondefinition>
<http://www.communities.gov.uk/statements/corporate/ecozerohomes>
<http://www.communities.gov.uk/publications/planningandbuilding/part12010consultation>
<http://www.communities.gov.uk/publications/planningandbuilding/codesustainabilitystandards>



Appendix B: The Challenge of mainstreaming energy efficient buildings in the North Sea region and the significance of the existing building stock



POLITICAL STATEMENT ADOPTED AT NSC ANNUAL BUSINESS MEETING 18.06.10;

“THE CHALLENGE OF MAINSTREAMING ENERGY EFFICIENT BUILDINGS IN THE NORTH SEA REGION AND THE SIGNIFICANCE OF THE EXISTING BUILDING STOCK.”

SUMMARY

Key to meeting energy and greenhouse gas targets is the buildings sector which accounts for 40 per cent of final energy consumption. However current EU policy largely focuses on energy efficiency in new building. Existing buildings in 2010 will continue to dominate total emissions from the building sector in 2020 and are likely to represent nearly 80 per cent of the EU’s building stock even by 2050. Hence tackling emissions from existing buildings is vital if overall emissions from the building sector are to be successfully reduced.

The Commission should ensure that relevant policies and Directives tackle the issue of energy efficiency in the existing building stock and lobby for the introduction of ambitious detailed measures to accelerate the refurbishment of existing buildings to low energy standards.

BUILD WITH CARE

Build with CaRe (Carbon Reduction <http://www.buildwithcare.net/>) is a European project which aims to mainstream energy-efficient building design and construction. Partners from local and regional authorities, universities and institutes from 10 regions in 5 countries in the North Sea Region are active in the Build with CaRe partnership. The project, which started in 2008 and concludes in 2011, is partly financed by the Interreg IV B North Sea Programme.

There are numerous environmental benefits of low energy buildings, however there are also significant non-environmental benefits including financial savings associated with reduced energy use, as well as improved indoor living quality. The benefits of low energy buildings encompass the three pillars of Sustainable Development (environmental, financial and social aspects) which is at the heart of European and National policy.

Build with CaRe (BwC) has identified many barriers to improving energy efficiency of both new buildings and in particular, the existing building stock. The lack of ambition of the recast Energy Performance of Buildings Directive (EPBD) in refurbishment, where responsibility for refurbishment targets is given to Member States (MS), is a reflection of these barriers – in awareness, financial incentives, planning, and in skills. Yet initiatives in Member States and regions have shown how these barriers can be addressed both for new build and for refurbishment.



EUROPE 2020

Europe 2020¹ calls for smart, sustainable, inclusive growth. However, energy and greenhouse gas targets are unchanged from 2009 with targets of 20 per cent cuts relative to 1990 levels. Yet greenhouse gas emissions for the EU-27 are already 10 per cent below 1990 levels. At Copenhagen the EU was prepared to (and remains prepared to) propose a 30 per cent cut in energy use and greenhouse gas emissions. Build with Care notes that a 30 per cent target is feasible and will help kick start the 2020 Vision.

Key to sustainable growth is the buildings sector which accounts for 40 per cent of final energy consumption. Ambitious targets to reduce energy consumption in existing buildings are essential if “Resource Efficient Europe” is to become a reality.

Only if energy consumption in buildings is ambitiously tackled can renewable energy and greenhouse gas targets be met. A campaign to reduce energy use in existing buildings in particular will create jobs, drive innovation and stimulate the smart, sustainable and inclusive growth envisaged in Europe 2020. Such a campaign will not only tackle the issue of energy efficiency but will encompass all three aspects of sustainable development – financial, social and environmental. Billions of Euros will be saved as a result of reduced imports of fossil fuels and a major improvement in public health will be seen as low-carbon buildings, both new and refurbished, provide higher air quality and comfort for children, adults and the elderly alike. This is particularly important when considering the issue of demographic change in Member States as forecasts (up to 2050) predict that the trend of a declining working age population will continue with a parallel increase in the number of retired people².

ENERGY PERFORMANCE OF BUILDINGS DIRECTIVE

Build with CaRe can see many benefits of the recast EPBD³ and view it as a significant step forward towards reducing carbon emissions from buildings. The agreement on a “nearly zero energy” definition is recognition of the vital role that buildings play in reducing carbon emissions in Europe. Additionally, removing the 1 000 square meter threshold and setting minimum energy performance requirements for components of renovations are also important features of the agreement.

However, it compromises on several aspects, especially in respect of refurbishment of existing buildings. Existing buildings in 2010 will continue to dominate total emissions from the building sector in 2020 and are likely to represent nearly 80 per cent of the EU’s building stock even by 2050. Hence tackling emissions from existing buildings is key if overall emissions from the building sector are to be successfully reduced.

¹ Europe 2020, A European strategy for smart, sustainable and inclusive growth, 3 March 2010. <http://ec.europa.eu/eu2020/pdf/COMPLET%20EN%20BARROSO%20%20%20007%20-%20Europe%202020%20-%20EN%20version.pdf>.

² Muenz, R (2007) http://www.monitoringris.org/documents/tools_reg/agingdemochange.pdf

³ Directive of the European Parliament and of the Council on the energy performance of buildings (recast) 25 November 2009, <http://register.consilium.europa.eu/pdf/en/09/st16/st16407.en09.pdf>



The recast EPBD does not effectively tackle the barriers that lead to the low levels of building refurbishment that is currently undertaken. These barriers are many but initiatives in Build with CaRe partner countries and regions show that they can be addressed.

Build with CaRe therefore urges local and regional authorities to continue to put pressure on the EU and on national legislation by Member States by taking a pro-active approach and leading by example both in the regulation of energy performance targets for new buildings and, in particular, in the refurbishment of existing buildings. This can be achieved by cooperating with business and by using a mix of both incentives and regulation. In this way local and regional authorities will contribute to reaching our climate goals on time.

Although it is disappointing that the revised EPBD does not include more stringent targets for refurbishment of existing buildings the forthcoming Energy Efficiency Action Plan brings opportunities to tackle this issue. This Action Plan presents the European Commission with a chance to propose further ambitious and detailed measures to accelerate the refurbishment of existing buildings to low energy standards. Energy efficient buildings represent a cost-effective way to achieve the required energy reductions⁴.

CONCLUSION

For the EU to reach its current and any future climate change targets reducing emissions from buildings is essential, key to this is reducing emissions from existing buildings.

Since the EPBD compromises on several aspects, especially in respect of refurbishment of existing buildings, it is noted that the forthcoming Energy Efficiency Action Plan presents the European Commission with a further chance to address these issues and propose ambitious detailed measures to accelerate the refurbishment of existing buildings to low energy standards.

Build with CaRe, therefore calls for:

- The introduction of policies and fiscal measures for all sectors to address the new build/refurbishment imbalance and to ensure that the latter domain receives the attention it must get;
- The introduction of national targets for energy efficiency in existing buildings; and
- Local and regional authorities to continue to put pressure on national legislation by taking a pro-active approach and leading by example.

The Build with CaRe partnership asks the North Sea Commission to support this paper and help persuade the European Commission to prioritise energy efficiency in existing buildings.

⁴ Energy efficiency in Buildings - Business realities and opportunities
http://www.buildwithcare.net/index.php?option=com_remository&Itemid=99&func=startdown&id=120 "It has already been proven that the energy requirement can be cut by an average of 80 percent through energy-saving design; and dena's standards show that energy-efficient refurbishments are not only technically feasible but also make sense in economic terms".

PARTNERS





 Build with CaRe is a project partly funded by European Regional Development Fund. Investing in the future by working together for a sustainable and competitive region. www.buildwithcare.eu