

Co<sub>2</sub>olBricks



# The Situation of Climate Protection and Cultural Heritage

Baseline study of  
Work Package 3 Policy Development

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# Dear Reader,



In your hand you are holding one of our first publications of Co<sub>2</sub>olBricks. After the first year of hard work we present the baseline study on “The Situation of Climate Protection and Cultural Heritage” in the partnering countries of Co<sub>2</sub>olBricks. It identifies the issues and topics that need to be brought forward in the partners’ stakeholder groups and in roundtable meetings in order to fulfill the main aim: advancing the political discussion on a national and transnational level about the political and administrative anchoring of the essential combination of climate protection and cultural heritage aspects.

This brochure is addressing experts working in the field of climate protection and of monuments protection, both in administrations and in the private sector. The new aspect is to create mutual understanding of the climate protection and monuments protection, two fields that up to now are seen difficult to combine and the representatives of the two fields rather opposing than supporting each other. We want to help to overcome these two conflicting approaches in order to eventually protect them both: Climate and cultural heritage.

The legislative and funding systems in the participating countries play an important role and represent as well to their most part two separate worlds that are difficult to combine. So starting from this baseline study during the project discussions and statements will take place on how to adjust the legal and funding systems in order match them with each other.

I hope the reading is help to your work and we appreciate every constructive discussion on implementable solutions

Yours sincerely

**Jan Prahm**

Project Coordinator of Co<sub>2</sub>olBricks



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# Summary

*Co2olBricks – Climate Change, Cultural Heritage and Energy-Efficient Monuments* is a project in the framework of the Baltic Sea Region Programme 2007 – 2013. The project consists of 18 partners from nine countries. One of the project's main objectives is to develop new methods and measures to implement refurbishment for the energy efficiency of historic brick buildings without destroying their cultural value. Co2olBricks will gather results until the end of 2013 in the work packages *Policy Development* (WP3), *Technical Innovations* (WP4) and *Education and Economic Promotion* (WP5). This means the project will declare a transnational common position concerning the energy efficiency of historic buildings, it will find new technical solutions for refurbishment and it will upgrade the knowledge of craftsmen, architects and engineers. Lead Partner is the Department for Heritage Preservation of the Ministry of Culture in Hamburg. Further information is accessible on the project website: <http://www.co2olbricks.eu/>

This paper presents the baseline study *Climate Protection and Cultural Heritage* which is the first result of Work Package 3, *Policy development*. The baseline study is an inventory of the administrative and legislative situation regarding management of cultural heritage and energy efficiency questions in each country as collected by the project partners in Work Package 3.

The aim of the baseline study is to identify issues and topics that need to be brought forward in the partners' stakeholder groups and in roundtable meetings in order to fulfil the main aim: advancing the political discussion on a national and transnational level about the political and administrative anchoring of the essential combination of climate protection and cultural heritage aspects.

The baseline study consists of a summary of each partner's national contribution, focused on energy and cultural heritage issues. The criteria of the baseline study were set by the project partners. The Work Package Leader (The Swedish National Heritage Board) created a questionnaire from the different criteria and each country filled it out. The five common criteria for the baseline study that the partners agreed upon were:

- 1. Basic information**, which is supposed to give a background and some comparable statistics about the partner countries: e.g. population, building stock and administrative bodies concerned with Cultural Heritage, Energy and Climate Protection.
- 2. Cultural Heritage:** The partners were asked for a description of monument protection laws and how to define cultural value in a building before refurbishment and, in addition, about the definition of historic buildings and eventual grading, for example of listed buildings.
- 3. Energy supply and laws on energy efficiency:** The partners were asked to give a description of national adaption to worldwide climate policy (the Kyoto Protocol) and the implementation of the directives of the European Parliament; 2002 / 91 / EC and 2010 / 31 / EU on the energy performance of buildings and a report of the national Energy Efficiency Action Plan that is based on the requirements of Directive 2006 / 32 / EC on energy end-use efficiency and energy services. In addition they were asked to give an illustration of the use and effects of energy audits in historic buildings.
- 4. Building regulations:** The partners were asked about the implementation of the EU directives and the impact of building regulations on historic buildings. Baseline values for heat transmission were brought up as a question during the first partner meeting among the countries.
- 5. Financial mechanisms:** The partners were asked for a description of the support or funding system for historic buildings and energy savings.

The answers were compiled by the Work Package Leader and the results – to which every partner contributed – have been discussed among the partners.

The baseline study points out some of the main problems and needs that are summarised in the conclusions below. The next step for the project is to forward the conclusions of the baseline study to the partners' stakeholder groups and roundtable meetings and further on into the political discussion.



## Conclusions of the baselinestudy

### **The connections between energy and cultural heritage could and should be further clarified**

None of the partner countries have specific national rules concerning energy supply and historic buildings, and none of the partner countries could specify the amount of energy historic buildings consume. The competent cultural heritage authorities do not have any influence on the legal process regarding energy efficiency in historic buildings. The cultural heritage regulations are used only to control the restoration and preservation of the cultural heritage objects, not for focusing on energy consumption.

### **There is a lack of knowledge and competence in dealing with energy efficiency in historic buildings**

There is a need for specific know-how for architects, energy consultants, engineers and craftsmen. Also, among policy makers, the connection between energy efficiency and historic buildings has not been clarified. Very few of the partner countries use energy audits in historic buildings. The system for energy audits has to be looked at more closely.

### **There is a need for a classification of methods about working with energy efficiency in historic buildings**

None of the partner countries have, as yet, specific national rules concerning energy supply and historic buildings. Due to the fact that there are no specific regulations on the energy-efficient refurbishment of historic buildings there is a need for guidelines, standards or policies for analysing, realising and monitoring of the energy-efficient refurbishment of historic buildings.

### **The effect of building regulations on historic buildings needs to be discussed**

Most of the partner countries' energy directives are implemented through building regulations. Building regulations impact on energy efficiency in listed and historic buildings and this subject needs to be discussed in the project.

### **There is a lack of communication within the national authorities regarding subsidies**

The financial mechanisms and legislation are not harmonised with legislation and the intentions of preservation. There is a need for specific public funding for energy efficiency in historic buildings.

# The Situation of Climate Protection and Cultural Heritage

Baseline study of  
Work Package 3 Policy Development

› One of the main objectives is to develop new methods and measures to implement energy efficiency refurbishment of historic brick buildings without destroying their cultural value. ‹

## A) Introduction

The baseline study is an inventory of administrative and legislative positions as regards the questions of management of cultural heritage sites and their energy efficiency in each country as collected by the project partners in Work Package 3 of Co2olBricks.

The baseline study is a milestone and the first result of the core activities performed within Work Package 3, *Policy Development* during the first two periods of the project.

At the first Work Package meeting, the criteria of the baseline study were set by the project partners in group discussions. In this document you will find the criteria in the headings numbered 1 – 5.

The Work Package Leader (The Swedish National Heritage Board) created a questionnaire from the different criteria and each country filled it out.

The answers were compiled by the Work Package Leader and the results have been discussed with the partners. A first draft of the study has been compiled and presented and all the partners have contributed their comments about it in discussions and other communication forums.

The final draft will be presented at the next Work Package meeting in December and the aim is to have it published by the end of this year.

The questionnaire that the inventory is based upon can be found at the end of this document.

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## Presentation of Co<sub>2</sub>olBricks

In the framework of the Baltic Sea Region Programme the project *Co<sub>2</sub>olBricks – Climate Change, Cultural Heritage and Energy-Efficient Monuments* was approved in September 2010 and work started at the beginning of 2011. The European Union's Baltic Sea Region Programme 2007 – 2013 promotes regional development through transnational cooperation. The strategic objective is to make the Baltic Sea region an attractive place to invest, work and live in. The Programme co-finances Co<sub>2</sub>olBricks, which is a project in Priority Area 1: *Fostering Innovation*. Innovation means successful production, assimilation and exploitation of novelty in the economic and social spheres. This priority supports innovation sources and facilitation of transnational transfer of technology and knowledge, in particular targeted at small and medium size enterprises (SMEs). Another objective is to strengthen the capacity of people to absorb new knowledge. The project consists of 18 partners from nine countries and has an overall budget of € 4.3 million. One of the main objectives is to develop new methods and measures to implement refurbishment for the energy efficiency of historic brick buildings without destroying their cultural value.

Co<sub>2</sub>olBricks will gather results until the end of 2013 in the Work Packages *Policy Development* (WP3), *Technical Innovations* (WP4) and *Education and Economic Promotion* (WP5). This means the project will declare a transnational common position concerning the energy efficiency of historic buildings, it will find new technical solutions for refurbishment and it will upgrade the knowledge of craftsmen, architects and engineers. Lead Partner is the Department for Heritage Preservation of the Ministry of Culture in Hamburg. Further information is accessible on the project website: <http://www.co2olbricks.eu/>





*Illustration shows Baltic Sea Region Programme countries  
(EU states, dark blue; non EU states, medium blue).*

*Red dots illustrate partners in all work packages*

## Partner structure in Work Package 3

Altogether 18 potential partners from the programme area Baltic Sea Region cooperate in Co2olBricks. Over 30 associated partners from all around the Baltic Sea support the activities and results of the project. Fifteen partners from eight countries are involved in Work Package 3, *Policy Development* which has the aim of advancing the political discussion on a national and transnational level about the political and administrative anchoring of the essential combination of climate protection and cultural heritage aspects. To integrate these aspects into future policy developments and to create the political and administrative basis for technical, educational and economic solutions, a common position has to be considered on different levels and in different sectors. With concerted action in mind, new cooperation models between administrative agencies, architects, engineers, housing companies, building companies and affected building owners have to be installed and public funding for the refurbishment of historic buildings has to be adjusted. To upgrade the knowledge background, various aspects have to be explored, evaluated and discussed. The results of WP4 and WP5 have to be implemented in the discussion. The aim is to integrate the conclusions into national and regional policy and legislation, the intention is to include the relevant aspects in concerted developments declared as a common transnational position.

These fifteen partners worked on the current edition of this publication:

<b>BELARUS</b>	Minsk	Republican Centre for Technology Transfer
<b>DENMARK</b>	Copenhagen	Danish Building Research Institute
<b>ESTONIA</b>	Kohtla-Järve	Kohtla-Järve Town Government
	Tallinn	Centre for Development Programs (EMI-ECO)
	Tallinn	Estonian Heritage Society
<b>FINLAND</b>	Helsinki	KIINKO Real Estate Education
<b>GERMANY</b>	Hamburg	Department for Heritage Preservation
	Kiel	Environment Department
	Hamburg	Development and Environment Department
<b>LATVIA</b>	Riga	City Development Department
<b>POLAND</b>	Gdansk	European Foundation of Monuments Protection
<b>SWEDEN</b>	Växjö	Energy Agency Southeast Sweden
	Malmö	Environment Department
	Visby	Swedish National Heritage Board
	Stockholm	City Museum

Almost every partner works in at least two work packages. The rest of the partners of Co<sub>2</sub>olBricks can be found below:

<b>GERMANY</b>	Hamburg	Vocational Training Centre
<b>LITHUANIA</b>	Vilnius	Gediminas Technical University
<b>LATVIA</b>	Riga	Technical University

## Objective and aims of the compilation

The objective of the baseline study is to provide an information base against which one is able to monitor and assess an activity's progress and effectiveness during implementation and after the activity is completed. It defines the status of the activity's situation before the project or shortly after implementation begins. When compared with the situation at some point during implementation (mid-term and final evaluation), the baseline study forms a basis before and after assessment.

The aim of the baseline study is to identify issues and topics that need to be advanced in the partners' stakeholder groups and in roundtable meetings in order to fulfil the main aim: advancing the political discussion on a national and transnational level about the political and administrative anchoring of the essential combination of climate protection and cultural heritage aspects.

## B) Climate change and energy policies and legislation

In the questionnaire, partners were asked to give a description of national adaption to worldwide climate policy (the Kyoto Protocol) and the implementation of the directives of the European Parliament, 2002/91/EC and 2010/31/EU, on the energy performance of buildings, and a report of the national Energy Efficiency Action Plan that is based on the requirements of Directive 2006/32/EC on energy end-use efficiency and energy services. In addition, they were asked to give an illustration of the use and effects of energy audits in historic buildings. A summary of the different directives and policies follows below.

### Kyoto Protocol on climate change

The Kyoto Protocol, which follows the United Nations Framework Convention on Climate Change, is one of the chief instruments for tackling climate change. It contains the undertakings entered into by the industrialised countries to reduce their emissions of certain greenhouse gases which are responsible for global warming. The total emissions of the developed countries are to be reduced by at least 5 % over the period 2008 – 2012 when compared with 1990 levels.

At the United Nations Climate Change Conference in Durban in 2011, the EU extended the Kyoto Protocol through 2017, but Canada and Japan pulled out. All countries, including the world's greatest polluters (the US, China and India), agreed on a *roadmap* towards a legally binding accord that will be signed by 2015 and come into force by 2020.

## Directive 2002/91/EC on the energy performance of buildings (EPBD)

The four key points of the Directive are:

- a common methodology for calculating the integrated energy performance of buildings;
- minimum standards on the energy performance of new buildings and existing buildings that are subject to major renovation;
- systems for the energy certification of new and existing buildings and, for public buildings, prominent display of this certification and other relevant information. Certificates must be less than five years old;
- regular inspection of boilers and central air-conditioning systems in buildings and, in addition, an assessment of heating installations in which the boilers are more than 15 years old.

The common method of calculation should include all the aspects which determine energy efficiency and not just the quality of the building's insulation. This integrated approach should take account of aspects such as heating and cooling installations, lighting installations, the position and orientation of the building, heat recovery, etc.

The minimum standards for buildings are calculated on the basis of the above methodology. The Member States are responsible for setting the minimum standards.

According to Article 4, *Setting of energy performance requirements*, paragraph 3:

Member States may decide to exclude the following categories of buildings from energy performance requirements:

- buildings and monuments officially protected as part of a designated environment or because of their special architectural or historic merit, where compliance with the requirements would unacceptably alter their character or appearance,
- buildings used as places of worship and for religious activities,
- temporary buildings with a planned time of use of two years or less, industrial sites, workshops and non-residential, agricultural buildings with low energy demand and nonresidential agricultural buildings which are in use by a sector covered by a national sectoral agreement on energy performance,

- residential buildings which are intended to be used less than four months of the year,
- stand-alone buildings with a total useful floor area of less than 50m<sup>2</sup>.

### **Directive 2006/32/EC on energy end-use efficiency and energy services and repealing Council Directive 93/76/EEC [See amending act(s)].**

The purpose of the Directive is to make the end use of energy more economic and efficient by:

- establishing indicative targets, incentives and the institutional, financial and legal frameworks needed to eliminate market barriers and imperfections which prevent efficient end use of energy;
- creating the conditions for the development and promotion of a market for energy services and for the delivery of energy-saving programmes and other measures aimed at improving end-use energy efficiency.

The Directive applies to the distribution and retail sale of energy, the delivery of measures to improve end-use energy efficiency, with the exception of activities included in the greenhouse gas emissions trading scheme, and, to a certain extent, the armed forces. It targets the retail sale, supply and distribution of extensive grid-based energy carriers, such as electricity and natural gas as well as other types of energy such as district heating, heating oil, coal and lignite, forestry and agricultural energy products and transport fuels.

### **Directive 2010/31/EU on EPBD**

This Directive is a recast of DIRECTIVE 2002/91/EC which seeks to clarify certain aspects of the 2002 Directive on the energy performance of buildings, extend its scope, strengthen certain provisions, and give the public sector a leading role in promoting energy efficiency. More facts can be found at ([http://europa.eu/legislation\\_summaries/other/l27042\\_en.htm](http://europa.eu/legislation_summaries/other/l27042_en.htm)).





› Current status of climate  
protection and cultural heritage  
regulations, 2011 ‹

## C) National summaries

The first draft of the baseline study was presented at Work Package meeting No. 3 in Helsinki, in October 2011. After the meeting the national coordinators were asked to make a summary of each partner's national contribution, focused on energy and cultural heritage issues. Here are the results sorted according to the partner's number in the project.

### Current status of climate protection and cultural heritage regulations, 2011:

#### Germany

The *preservation of historic buildings* in Germany is the exclusive responsibility of the federal states. Therefore there is no national law on heritage protection. Each of the 16 federal states has an individual preservation act. Although these acts vary in detail, the definition of built heritage is similar: Preservation due to public interest in the case of historic, academic, technical or artistic relevance or with the aim of preserving townscape characteristics. The main instruments of the heritage protection system in Germany are the heritage lists, with mostly no gradings (changes to regional grading systems are in discussion).

The *EPBD 2002/91/EC* is implemented in German law according to the Energy Saving Act (Energieeinsparungsgesetz – EnEG) and Energy Saving Regulation (Energieeinsparungsverordnung – EnEV) last reviewed and tightened in 2009, and currently updated for 2012 (implementation of EPBD recast 2010/31/EU). Both regulations are part of the national building laws in Germany. The EnEV considers insulation and installations (heating systems) in the buildings. Therefore limit values are defined for heat transmission as well as for the ultimate/primary energy demand. These limit values are valid for new buildings and – with an addition of 40 % – for existing buildings. In the case of refurbishments of more than 10 % of building components such as walls, windows, roofs, etc., the limits have to be respected. Listed built heritage and other buildings worthy of protection are excepted from the EnEV regulations. Energy audits are mandatory for all buildings, with an exception for listed heritage buildings.

In Germany a differentiated system of *financial support*, with tax reduction measures and direct subsidies for built heritage, exists for energy-saving measures, but there are no financial instruments that take the specific requirements for the refurbishment for the energy efficiency of built heritage (individual analysis of each building, alternative solutions, etc.) into account. Although the legal situation in Germany is pretty clear, with exceptions for buildings under heritage preservation, there are often economic circumstances that force owners / landlords to realise energy-saving activities: That could be the risk of substantial damage to the building (like moisture in the façade) or the fact that the heating costs of non-refurbished flats are too high in competition with new buildings, so that the landlord would not find any tenants.

Due to the fact that there are no specific regulations on refurbishment for the energy efficiency of built heritage *the following needs exist*:

- Standards for analysing, realising and monitoring of energy-efficient refurbishment of built heritage.
- Integration of these standards into laws for saving energy.
- Specific know-how for architects, energy consultants, engineers and craftsmen.
- Specific public funding.

## Sweden

In the national action plan, the Swedish Government states that energy efficiency should be assessed from a system perspective. This means that the benefits achieved in terms of reduced consumption of resources and less polluting emissions, and in consequence also lower costs, should be seen as the ultimate aim. Efficiency *per se* is not perceived as the actual objective even though it is stressed as an important factor.

The overall national aim is 9 % energy saving until 2016, as compared to final energy consumption in 2001 – 2005. The parliament also established the 6.5 % energy savings milestone to be attained by 2010. Translating percentage into total quantities, this means 24.0 TWh by the year 2010, and 33.2 TWh by the year 2016. Actual saving is calculated to be around 10 %, that is 33.1 TWh by the year 2010, and 53.8 TWh by the year 2016.

*Värtan Gaswork,  
architect Ferdinand Boberg,  
Stockholm.*

*Photo: Tomas Örn,  
Stockholm City Museum*



The energy saving requirements are described and regulated through building regulations and energy declaration systems. Local municipal governments have the possibility to set higher requirements than the new directive. They can set requirements for energy improvements for any changes to buildings.

The energy saving requirements have recently been tightened in order to implement the EU directive EPBD. Along with adjustment of building regulations, economic subsidies and spreading of information through energy advisors and energy agencies have been put in place to implement the EPBD.

Both energy requirements and built heritage are managed and administrated on national and local levels and through national and local regulations. Cultural heritage buildings are not a general exception from the new energy requirements. This means that when refurbishing an old building, the same requirements concerning energy performance as for new buildings are in place.

However, built heritage may be excluded from the mandatory demands of energy use in buildings if the alteration means a distortion of a building's cultural heritage value. In all other cases the alterations must be made cautiously, with regard to the building's characteristic features and with its structural, historical, cultural, environmental and artistic values.

## Denmark

In Denmark requirements regarding the thermal insulation of buildings are described and regulated through the Danish Building Regulations. The Danish Building Regulations are only compulsory for new buildings and the updating of existing buildings. Cultural heritage, covering listed buildings and buildings deemed to be worthy of preservation, are excluded or partly excluded.

Listed buildings are excluded. Listed buildings are excluded because listing protects the entire building. Buildings deemed to be worthy of preservation are partly excluded. These buildings are specially evaluated in each case and given dispensations from the building regulations according to their grading since only their exteriors are protected.

Historic buildings that give both architectural and cultural insights into various periods in the history of Denmark are protected. The best of these buildings are listed to ensure that they are changed as little as possible. The principles of the SAVE method (Survey of Architectural Values in the Environment) are used for buildings deemed to be worthy of preservation. Requirements for the thermal insulation of buildings have been significantly tightened over the last 30 years. Before the introduction of the first Danish Building Regulations, which came into force in 1961, no requirements for the thermal insulation of buildings existed. In fact, the first Danish Building Regulations did not focus on the energy consumption of buildings. The average heat transmission coefficient was given for primary building components such as exterior walls, ground slabs and for roof constructions that corresponded well with the existing building tradition. Requirements for the thermal insulation of buildings remained much less stringent up to 1977 compared with today's requirements.

The average heat transmission coefficient has been tightened several times in the run-up to 2010. In 2006, individual requirements for the average heat transmission coefficients and of building components were changed to requirements covering the overall energy consumption of buildings. The tightened energy provisions introduced in 2006 and 2010 were both estimated to result in an energy reduction of 25 % for new buildings compared with buildings constructed according to the former editions of the Danish Building Regulations. The tightened energy provisions paved the way for further tightening in 2015 and 2020. Each tightening is expected to result in a 25 % energy reduction.



The Danish Building Regulations implement the EU Directive on Energy Performance of Buildings, (EPBD) and stipulates that when major works are carried out on the building envelope, the insulation should be increased to a level comparable with the requirements governing new buildings, buildings with a changed use and extensions of buildings. The extra costs resulting from such improvement works must be economically profitable for the owner and the tenants in relation to service life and energy price. Moreover, degradation of the building from moisture must not be introduced by improving the thermal insulation. The issue of economic profitability significantly reduces the impact of the Danish Building Regulations in practice.

On a national level, listed buildings are administered by the Heritage Agency. The owners of a listed building must obtain permission from the Heritage Agency for any changes to the buildings, including all repairs and restoration. On a regional level, buildings deemed to be worthy of preservation are specially evaluated in each case and given dispensations from the building regulations on the basis of local politics providing municipal land-use plans and district planning. The municipalities are required to protect cultural heritage in their local planning. Physical planning is an important instrument in preserving, developing and promoting the tangible component of our cultural heritage.

Since 2007, the municipalities have been the main stewards of cultural heritage in Denmark. Thus local planning is very significant for cultural heritage in that municipal land-use plans are required to formulate guidelines and a statement of objectives to safeguard heritage assets. Those assets may be individual elements – from grand monuments to more humble vestiges – and the composite assets known as cultural environments.

## Estonia

Energy efficiency of both Estonia's new and reconstructed buildings is regulated by building law. In the case of built heritage objects, the requirement for alignment of a building's energy cost with modern norms does not apply.



*Heritage Conservation Administration in Estonia. Illustration: Anne Randmer (EMI-ECO)*

Preservation, conservation, renovation and restoration of monuments and buildings in heritage protection areas are regulated by the Heritage Conservation Act.

Owners of cultural heritage monuments are responsible for the preservation of the monuments.

The National Heritage Board and local governments in the regions supervise the preservation of monuments.

Research work and special conditions which provide the main guidelines are prepared before the conservation, restoration and renovation work on monuments.

Many built heritage objects are no longer used for the same function they were built for. The function of old buildings has been changed many times.

Often the heat preservation of buildings' external construction is not compliant with up-to-date demands for functionality and energy saving. Additional insulation of a building's external constructions could spoil the heritage object. The additional insulation of the inner structure of a building's walls could spoil the historical interior preserved so far.

In general, owners are not allowed to insulate the walls of built heritage objects. In exceptional cases the thermal insulation layers have been renewed while renovating wall decoration layers for wooden buildings. This achieves greater heat preservation for the building.

In single cases, hidden parts of a building's foundations under ground level have also been insulated.

During the last few decades more attention has been paid to insulation of windows and doors. Packet glass has been placed on the internal windows, which has made windows more heat-preserving. Packing has also been installed on historical windows. If windows do not have historical value or are completely deprecated, then, in exceptional cases, new windows have been allowed to be installed. The new windows are then made similar to the old ones, but modern warmth preservation demands have also been taken into account. In the case of external doors, additional doors have been installed, as well as packing to decrease heat loss.

More attention has been paid to the insulation of buildings' attics and ceilings in recent decades. Old filling materials with low heat preservation are being replaced with insulation material which is more effective and has the necessary thickness and minimises the heat loss through the roof. Sometimes additional insulation has also been installed at floor level.

During the last few decades, in the case of larger renovation and restoration work, modern ventilation systems have also been installed to considerably decrease the heat loss of buildings and ensure a healthy internal climate.

In heritage protection areas, the heritage value of each building is separately evaluated. Possible relief is allowed in the case of a building with lower heritage value, which allows for the insulation of external structures and therefore creates preconditions to decrease heat loss.

All town and municipality councils in Estonia have established cultural value areas in their administrative territory for the protection of cultural heritage. Town and municipality governments regulate protection and building activities of cultural value areas in accordance with the building regulations of the respective local government.

## Latvia

Cultural heritage protection covers listed buildings and buildings deemed to be worthy of preservation, thus giving coverage to buildings with architectural and cultural insights into various periods in the history of Latvia. The best of these buildings are listed to ensure that they are changed as little as possible. The decision of whether or not the building has to be included on the cultural heritage list is made by the State Inspection for Heritage Protection on the basis of an application. The same institution administers listed buildings on a national level. The owners of a listed building must obtain permission from the State Inspection for Heritage Protection for any changes to the buildings, including all repairs and restoration.

On a regional level, buildings deemed to be worthy of preservation are specially evaluated in each case and given dispensations from the building regulations on the basis of the provision of municipal land-use plans and district planning by local government. The municipalities are required to protect cultural heritage in their local planning.

Energy efficiency is covered by national legislation, including the Energy End-use Efficiency Law, the first and second National Energy Efficiency Action Plans and the Law on the Energy Performance of Buildings and corresponding Regulations of the Cabinet of Ministers on the energy certification of buildings, energy auditors and building energy efficiency calculation methodology.

The Law on the Energy Efficiency of Buildings implements the EU Directive on the Energy Performance of Buildings (EPBD). It includes the minimum requirements of the directive. This law and corresponding secondary legislation defines the procedures for issuing energy certificates, requirements to energy auditors, and a method for calculating the energy efficiency of buildings. Though legally this document has been prepared correctly, it does not reach the objective set in the EPBD and the building energy efficiency system does not function properly at national level. The requirements of Building Code LBN 002 – 01 must be fulfilled to get the building energy certificate. The requirements of the Law on the Energy Efficiency of Buildings applies to buildings and new buildings, except for the buildings which are cultural monuments or in which cultural monuments are located, if the fulfilment of the requirements of the law endangers the preservation of those cultural monuments or reduces the cultural and historical value thereof.

Requirements to the thermal insulation of buildings are described and regulated through the Latvian Building Code LBN 002 – 01 *Thermal Properties of Building Envelopes*. The Building Code sets requirements for maximum values of heat transmittance coefficients. Cultural heritage, covering listed buildings and buildings to be worthy of preservation, are excluded.

## Poland

In Poland, the Act of 23 July 2003 on Monument Protection and Preservation and the regulations of the Ministry of Cultural and National Heritage represent the law on monuments at national, regional and local level.

*Gdansk Library*

*Photo: A. Kocialkowska*



Built heritage is described, for the purposes of the Co2olBricks project, as an *immovable monument* which is protected by an entry in the register of monuments (through the decision of a Voivodeship Monument Conservator), by recognising an object to be a monument of history (from the decision of the President of the Republic of Poland), by creating a cultural park (from the decision of the community board (Rada Gminy)) and determining the protection in a local land use plan. Projects and changes to a Voivodeship land use plan or a local land use plan are to be made in consultation with a Voivodeship Monument Conservator as regards building and land development.

A decision to include a building in the register is taken based upon an application by the owners or *in officio* by the Voivodeship Monument Conservator *because of its historic, artistic or scientific value*.

The Act of 23 July 2003 mandates that all monuments receive their evidence card at a regional and national level. An owner or holder of built heritage who intends to refurbish an immovable monument has to have conservation documentation: a programme of conservation work to be done and a programme of development and the further utilisation of the monument. The Voivodeship Monument Conservator presents, in writing, the conservation recommendations that determine the method of using the monument, its protection and the performance of conservation work as well as the scope of acceptable modifications and the materials and technologies that have to be applied. Energy-use performance in built heritage is not accounted for.

The problem of energy-use performance in building (EPBD) is regulated by the Building Law, which was amended in 2007 in accordance with 2002/91/EC, and in the regulations of the Ministry of Infrastructure (from 21.11.2011 the Ministry of Transportation, Construction and Maritime Economy). The technical conditions (TW2008) concerning the energy-use performance in buildings and compulsory building energy certificates are enforced according to these regulations.

The Thermo-modernisation Act of 2008 supports refurbishment of buildings and offers financial support to the owners and the holders, but only for buildings for which an energy audit was carried out.

The built heritage protected by the Act of 23 July 2003 is excluded from these regulations.

In 2007, the Ministry of Economy prepared the Energy Efficiency Action Plan for Poland proposing 2 % energy saving by 2010, and 9 % by 2016.

Currently, the Ministry of Economy and Ministry of Environment are working collectively on a strategy plan “Energy Efficiency and Environment” for the year 2020.

In 2011, the Energy Efficiency Act was implemented in accordance with Directive 2006/32/EC and an energy efficiency audit was enforced.

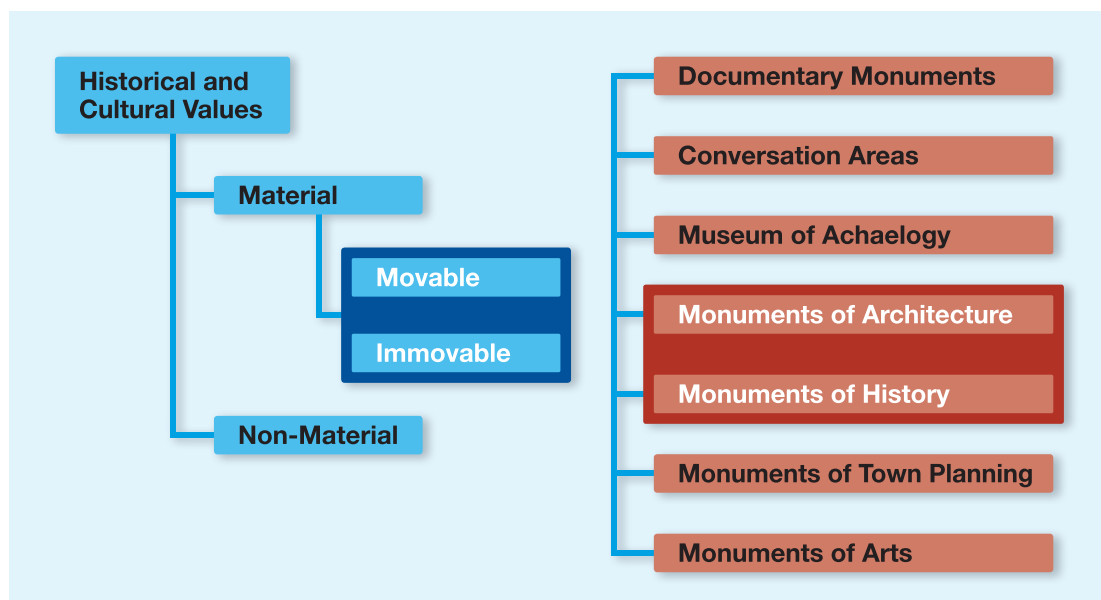
For the refurbishment of built heritage an energy audit, energy efficiency audit or energy certification are not required but an energy audit is crucial when applying for financing (funds) to improve the insulation system of a building. This applies to individual owners of built heritage, especially because work performed on these buildings is very cost-intensive.



Therefore, the energy efficiency for a built heritage object falls under the recommendation of an architect who prepares the list of refurbishment work to be done as well as the scope of acceptable modifications on behalf of the Voivodeship Monument Conservator.

## Belarus

In Belarus, the requirements for the thermal insulation of buildings are covered by Technical Codes of Standard Practice (TCP); TCP 45-2.04-43-2006 *Heating engineering of buildings. Construction norms for buildings* and TCP 45-2.04-206-2010 *Thermal protection of buildings. Heat-and-power characteristics. Identification rules*. These TCP are compulsory for new buildings and major renovations of existing buildings. Historic buildings are not mentioned in TCPs directly but fall under either “buildings built before 1993” or “buildings which have high quality décor on their façade”. Buildings that have the status of historical and cultural heritage are protected by the law “On the protection of historical and cultural heritage of the Republic of Belarus”.



*Definition of Built Heritage / Historic Building in Belarus*

*Illustration:*

*Republican Centre for Technology Transfer*

Any object that is perceived as having cultural value can be rewarded with the status of “historical and cultural value” when approved by the Council of Ministers, based on a decision made by the Scientific and Methodological Rada if any notable spiritual, artistic and (or) documentary value is present, which can be confirmed by its correspondence to one of the 25 particular criteria. Each proposed object is handled individually and is assigned to a category and an established protective zone. In the same way, the object can be deprived of its status or change its status. On a national level historical and cultural values are administered by the Ministry of Culture through the State Register.

Almost all heritage buildings are generally the property of state-owned and religious organisations. Restoration work on heritage monuments is mainly financed from the national and local budgets. Budget funds are not enough to maintain all historical and cultural objects properly. There are cases of handing over historic buildings to private investors (also foreign) under the condition that investors will perform the necessary restoration work under state supervision and maintain the objects according to the law. Violation of legislation in the sphere of heritage preservation is investigated by the General Prosecutor.

## Finland

### Building stock and heritage buildings

Finnish building stock in general is relatively young. Only 8 % of built area originates before 1939. About 2 % of all buildings are regarded as heritage buildings with a certain level of protection. Today, also a number of post-war buildings are included as heritage buildings.

Brick buildings do not dominate the stock, but about 20 % of all buildings have either bricks as a bearing construction or brick facades. It is estimated that about 25 % of the built heritage is made up of brick buildings.

Legislation on the protection of buildings consists of two main elements: the Land Use and Building Act and the Act on the Protection of Built Heritage. A major part of the protection – protection of valuable surroundings or areas, not only individual buildings – is achieved through the Land Use and

Building Act. The Ministry of the Environment has general responsibility in this area.

### Energy conservation of buildings

Buildings use about 40 % of the energy consumed in Finland. The share of greenhouse gas emissions is about the same. Measures to especially reduce heating energy of buildings have been successful, but electricity demand is still growing due to the increasing amount of electronic devices both at home and in business.

Regulations adhering to the Energy Performance of Buildings Directive have been tightened in two phases, but only for new construction. The first proposal for a new part of the Building Code concerning renovation of existing buildings will be issued by the summer of 2012. Heritage buildings will be mostly excluded from the regulations. The Ministry of the Environment is the responsible organisation.

Today, there are no significant subsidies for energy conservation measures in buildings in Finland and nothing for heritage buildings in particular.

## Lithuania

Lithuania has agreed to reduce the amount of greenhouse gases during the period 2008 – 2012 by 5 % compared to the 1990 amount. The European Union has established the European Union Emission Trading Scheme and over 100 of the biggest Lithuanian trade companies are taking part in it. The Lithuanian National Energy Efficiency Action Plan was created to conform with the EU energy end-use efficiency and energy services plan, the national energy efficiency control system, index system, index calculation methods and sources. According to the available data, energy efficiency is evaluated in different national economic sectors.

First usage audit methodology has been in force since 2008. Its purpose was to evaluate the condition of public buildings, to identify factors on energy and water usage, to combine effective means in order to reduce building energy and water consumption and to improve the standard of living. The Lithuanian Technical Regulation of Construction STR 2.01.09:2005 was formulated to conform with Directive 2002/91/EC on the energy performance of buildings. The goal of the regulation was rational and economical usage of energy sources. According to this document, all

buildings were divided into seven energy efficiency groups. Four of those groups correspond to EU law on energy efficiency. Buildings in the fifth and sixth categories have to be renovated so that they will attain EU energy efficiency standards. And the buildings in the last category are in such bad condition that it is very difficult to increase their energy efficiency.

Technical Regulation of Construction<sup>1</sup>:

STR 2.01.09:2005 *Energy Performance of Buildings. Certification of Energy Performance*. (Žin., 2005, No. 151 – 5568)

STR 2.01.03:2009 *Designed values of thermal-technical parameters of construction materials and products*.

STR 2.05.01:2005 *Thermal techniques of building enclosures*.

STR 1.01.01:2005 *Regulations on reconstruction work of a cultural heritage structure*.

The purpose of the Lithuanian cultural heritage law is to uphold Lithuania's built heritage and pass it on to future generations and create conditions for society to get to know it. The directives, policies and standards have some influence on the work of the responsible bodies, but the influence has to be much more effective in the field of construction. Special attention must be paid to the buildings in the built heritage category.

The competent cultural heritage authorities do not have any influence in the legal process regarding energy efficiency in built heritage. The cultural heritage regulations are used only to control the restoration and preservation of the cultural heritage objects and not to focus on energy consumption as we can see from the titles of the main built heritage regulation documents (PTR 3.05.01:2005 *Rules on admission if work on immovable cultural heritage object is manageable*, PTR 3.02.01:2005 *Rules for issuing design guidelines for work on heritage sites*, PTR 2.02.03:2007 *Heritage work on stone masonry and natural stone, brick masonry*, PTR 3.06.01:2007 *Rules for the preparation of cultural heritage projects*).

In regard to energy efficiency, Lithuania is behind most of the EU countries. This situation is caused by the previous economic structure. Currently, if energy prices are raised because of worldwide tendencies, energy efficiency is very important and cannot be underestimated.

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<sup>1</sup> See: *English version\_EDS\_BTS\_ open procedure\_terms and conditions.pdf* - available in Internet.

## D) Evaluation of the national contributions

### 1. Basic information

Following are the five common criteria for the baseline study that the partners agreed upon at our first Work Package meeting in Hamburg. The first section of the questionnaire and the study is supposed to give a background and some comparable statistics about the partner countries: e.g. population, building stock and administrative bodies concerned with Cultural Heritage, Energy and Climate Protection.

#### CO<sub>2</sub> emissions and energy

The subtitle of Co<sub>2</sub>olBricks project is *Climate Change, Cultural Heritage & Energy-Efficient Monuments*, focusing on reducing greenhouse gases with gentle, efficient energy solutions whilst preserving cultural heritage buildings. In this chapter (even though this study contains an energy chapter) we chose to compare one of the main subjects of the project in the partner countries – CO<sub>2</sub> emissions derived from energy – to set a baseline for that information. On the website of United Nations Framework Convention on Climate Change, UNFCCC, it is possible to collect data and illustrate the result on a global map. We have chosen to illustrate the changes in emissions over the period 1990 – 2009. As said before, the sector chosen is CO<sub>2</sub> emissions derived from energy, the main subject of the project.

The results are colour-coded, with a large reduction of emissions coloured dark green and then going to a large increase of emissions coloured dark blue. White areas contain no data.

The partner countries are highlighted in the list. All countries have succeeded in reducing emissions – some more than others. But that is because the base year is 1990, when there were large differences between countries in their efforts to reduce emissions. Another difference concerning the base year is due to some parties undergoing the process of transition to a market economy, so they may have chosen a year or period other than 1990. More information about the Kyoto Protocol data is to be found at:

[http://unfccc.int/ghg\\_data/kp\\_data\\_unfccc/items/4357.php](http://unfccc.int/ghg_data/kp_data_unfccc/items/4357.php)

## D) Evaluation of the national contributions

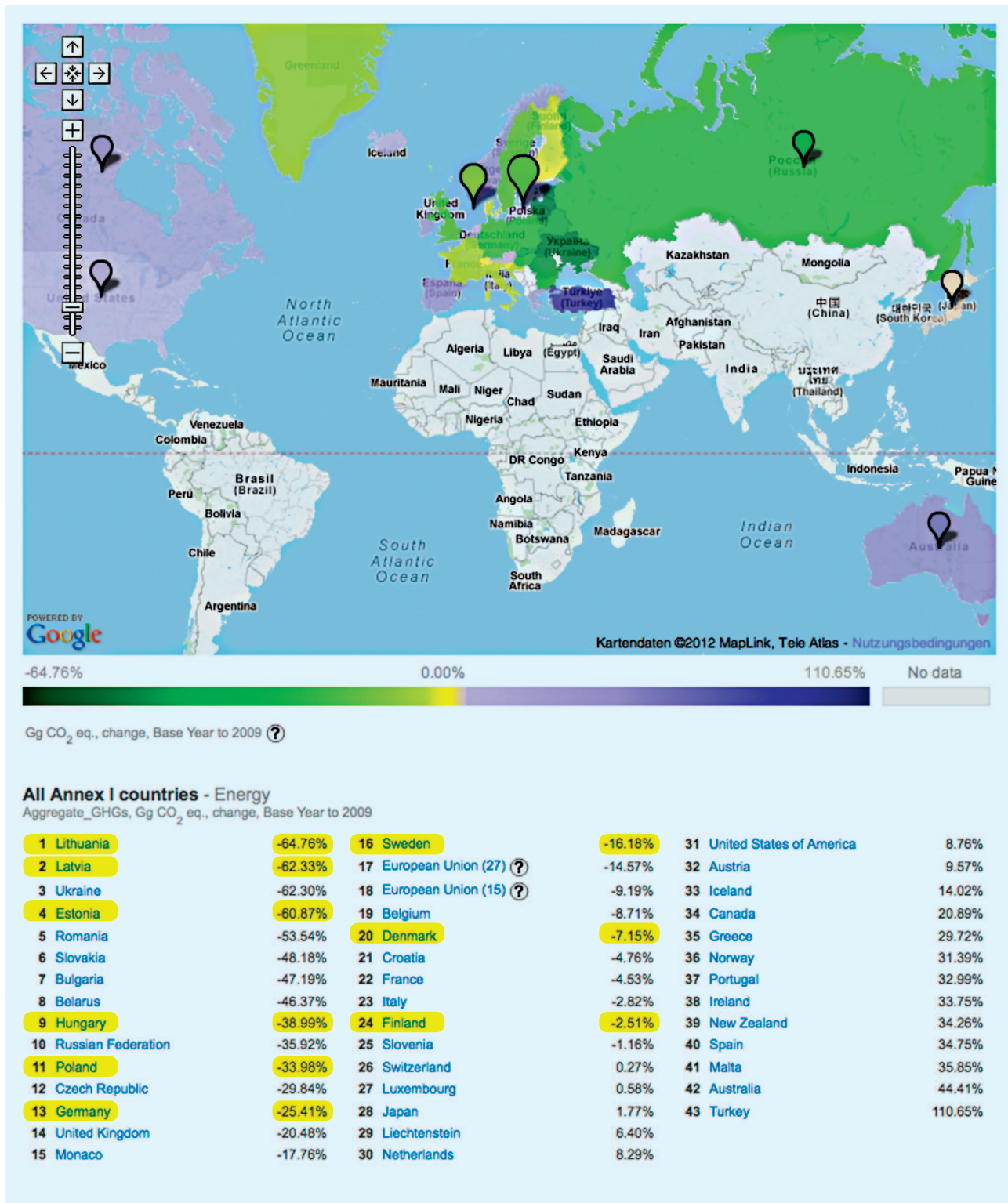


Illustration:

picture and chart from UNFCCC showing Energy sector, Greenhouse gas emissions, growth from Base year (1990) -2009, using <http://maps.unfccc.int/di/map/>. Illustration has been processed by Therese Sonehag



What is disturbing is that large continents like North America and Australia are actually increasing emissions. Hopefully we can collect data by the end of this project that shows larger reductions and therefore an even greener picture!

### Statistics: Building stock

In the compiled baseline study we define the building stock as living areas: multi-dwellings, e.g. apartment houses or residential buildings, and separate one or two-unit dwellings.

In the chart we have not taken premises like offices, public buildings, industrial buildings, etc., into account.

Naturally, because of its larger population, Germany also has the largest residential building stock which is greatly affected by the problems raised in this project.

Only half of the project partners were able to give an estimate of how large a part of the building stock consists of brick buildings. On the other hand, we are not sure if the calculation applies only to living areas or the total building stock because of the vague formulation of the question. However it was even harder to estimate the portion of historic buildings (except monuments or listed buildings) that are brick buildings.

In Denmark nearly all historic buildings are of brick, if half-timbered houses are included.

Poland also has a large number of brick historic buildings, 90 %.

Our Latvian partner is going to make a survey in the City of Riga during the project.

When it comes to definition and calculation of historic buildings there is a disparity among the partners. Germany has no valid data on heritage buildings in the country. The federal states work with their own lists and registrations and their own definitions.

The distinction between an entity (e.g. historic environment) or building can be hard to make if not defined in a national real property register or in a register of listed buildings.

Defined historic buildings and buildings of cultural value need their own system or registry. Often different administrative bodies are responsible

for heritage as opposed to buildings of cultural value and therefore different registers are used. Except for Denmark where both the state and municipalities use the same system, SAVE.

Project partners work with the following definitions as regards buildings: listed buildings; churches or places of worship; buildings of cultural value or worthy of preservation defined in local area planning; monuments – fixed and registered monuments; architectural and historical monuments; immovable cultural heritage; objects of cultural heritage.

### **Responsible bodies and their work – cultural heritage**

Cultural heritage management on a national level is under the Ministry of Culture in most partner states.

In Finland it is under the Ministry of Environment.

Germany has a different system as regards responsible bodies in cultural heritage questions than the other project partners. Germany has no nationally responsible body for cultural heritage.

Cultural heritage questions in Germany are supervised on a regional level in each state by the federal state government, usually in the Ministry of Culture – in exceptional circumstances, in other Ministries.

On a regional level, Sweden stands out as the only country with two different bodies; one at county level and one at municipal level.

### **Responsible bodies and their work – energy directives**

Implementing energy directives is spread among several ministries and responsible bodies at the national level in most partner states. Most common are the Ministry of Economics, or Building or Infrastructure ministries.

In Germany there is a differentiated system as regards climate protection and energy saving matters and cultural heritage. Climate protection and energy is of national concern; cultural heritage is a matter for the federal states.

In Denmark and Sweden the implementation of directives is delegated to national agencies. Only Sweden has a governmental agency solely for energy: the Energy Agency. Belarus has a Central Office for Energy Effectiveness, Science, and Public Supervision in the Ministry of Energy<sup>2</sup>.

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<sup>2</sup> <http://minenergo.gov.by/en/about/direction>





## D) Evaluation of the national contributions

Basic Information	Partner No		1—4	5—8	9	10—12	14—15	
			Germany	Sweden	Denmark	Estonia	Latvia	
	Popu- lation	Population (million)	82	9	5	1	2	
	Building Stock	Sum of buildings, housing	Residential buildings (number M/ Mm²)	18,029 M	2,475 M	—	—	—
			Dwellings (number M/ Mm²)	39,39 M	2,025 M	2,524 M	0,230 M	1,035 M
		Sum of built heritage	Built heritage number	No valid data	9500 listed buildings, 4000 churches, ca 20,000 build- ings of cultural value in 6 of 21 counties ("count q" project)	9000 listed buildings, 350000 buildings worthy of preservation	4700 buildings as monuments	3400
			Built heritage (% of housing)	no data (ca 3 %)	0,007 %	13 %	0,57 %	—
		Sum of brick buildings	Brick buildings (% of housing)	No data	No data	67 %	No data	No data
			Brick buildings (% of built heritage)	No data	No data	95 %	No data	To be specified in survey (Riga)
		Responsible Bodies	Cultural Heritage	National level	None	Ministry of culture, Swedish national heritage board	Heritage agency/ local authorities	Ministry of culture, National heritage advisory panel, national heritage board
	Regional level			Federal states, Ministry of culture and media	County adminis- trative boards, Municipalities	Heritage agency/ local authorities	Municipality	—
	Energy directives, climate protection		National level	German federal parliament	Ministry of the environment (climate), Ministry of enterprise energy and communications (energy effi- ciency). Energy agency.	National agency for enterprise and construction	Ministry of economic affairs and communica- tions	Ministry of economy, Department of energy, Depart- ment of buildings.
			Regional level	Federal states	County adminis- trative boards, Municipalities	local authorities	—	—

M = Million

Basic Information	Partner No		16	17	19	20		
			Poland	Belarus	Finland	Lithuania		
	Popu- lation	Population (million)	38	10	5	3		
	Building Stock	Sum of buildings, housing	Residential buildings (number M/ Mm²)	Total: 232,9 Mm2		430 Mm2	81 Mm2	
			Dwellings (number M/ Mm²)	13,150 M	min 2734 buildings	—	—	
		Sum of built heritage	Built heritage number	64673 immovable monuments~ 0.5 M protected in local plans.		30 000	—	
			Built heritage (% of housing)	4 %		2 %	7 – 8 %; 80 Mm2	
		Sum of brick buildings	Brick buildings (% of housing)	less than 50 %	34,3 %	ca 20 %	60 – 65 %	
			Brick buildings (% of built heritage)	90 %	95 %	25 %	60 %	
		Responsible Bodies	Cultural Heritage	National level	Ministry of Culture and National Heritage	Council of Ministers, Ministry of Culture, Scientific and Methodological Rada	Ministry of environment, National Board of Antiquities	
	Regional level			Voivodeship Monument Conservator	Oblast executive committee	Local building of supervision authorities	Immovable cultural heritage assessment councils	
	Energy directives, climate protection		National level	Ministry of the Environment, Ministry of Economy, Ministry of Transport, Construction and Maritime Economy.	National and regional level (energy effi- ciency): Depart- ment for energy efficiency of the State committee for standardiza- tion of the Republic of Belarus.	Ministry of natural resources and environmental protection (climate)	Ministry of employment and economy, Ministry of environment, Ministry of transport and communications	The Government, Ministry of economy, Ministry of the environ- ment
			Regional level	Municipalities		—	The centres for economic development, transport and the environment.	Municipalities

M = Million

## 2. Cultural heritage

### Summary

All countries except for Germany have a law for the protection of cultural heritage at a national level. The authority who defines monuments and listed buildings differs at the national, regional or local level in the various countries.

Most countries, except for Germany, have said that there is a national body responsible for listed buildings.

Most countries define historic buildings as listed buildings and monuments. There is a grading system for buildings in nearly every country.

National databases of listed buildings are used in Sweden and Denmark but they do not yet cover all historic buildings (except maybe for SAVE in Denmark which covers buildings worthy of preservation as well).

### Laws on protection of cultural heritage

All countries except Germany have a law for the protection of cultural heritage at a national level. Instead, in Germany each federal state has a Heritage Preservation Act. Most countries also have a law for the protection of cultural heritage at a regional level except for Estonia and Poland, since policy making as regards heritage issues is only a national level concern.

### Definition and selection of historic buildings

In the questionnaire, the partners were asked for descriptions of protection laws and how to define cultural value in a building before refurbishment as well as about the definition of built heritage and eventual grading, for example of listed buildings. In the questionnaire we used the term “built heritage”. The definition of built heritage varies but most of the countries have described the definition of built heritage as listed buildings and monuments with special architectural, historical and cultural values. Denmark seems to be the only partner country with a specified year for listed buildings, meaning that all buildings built before the Reformation in 1536 are automatically listed.

### The term historic building instead of built heritage

Later on in the project we decided to use the term historic building instead of built heritage.

For a clear and easy understanding among the project partners and project external stakeholders a definition is given here of the buildings Co<sub>2</sub>olBricks is dealing with. Co<sub>2</sub>olBricks is focusing on: architecturally, culturally or historically valuable buildings, which are referred to as “historic buildings” in the handbook and the following project work. This definition is independent from the national laws and regulations for heritage preservation which differ a lot between the member states.

A part of these buildings are what we in Co<sub>2</sub>olBricks call “listed” buildings. This encompasses all buildings that are architecturally, culturally or historically valuable buildings and have a legal status that exempts them from energy efficiency obligations and which, for example, cannot be torn down or altered without the permission of the authority responsible for heritage preservation in the respective country, state, county or municipality.

### Principles of selection

Most of the answers refer to listed buildings and which bodies are responsible for the selection. Most of the countries have a national body that defines the selection. In Germany and Finland decisions about heritage preservation can be made at a regional level. In Denmark there is a method called SAVE, *Survey of Architectural Values in the Environment* being used in the classification of buildings worthy of preservation.

#### Definition of cultural value

The answers differ because of different interpretations of the question, which makes it difficult to draw any conclusion, but most countries have answered that there is a national body responsible for listed buildings, except in Germany.

In Sweden, Denmark, Latvia and Finland the definition of cultural value is a national level concern as regards listed buildings. There are four countries (Germany, Sweden, Denmark, and Lithuania) that have a definition of cultural value at a regional level. The other countries don't have a definition of cultural value at a regional level or it is the same as at the national level.

## Grading system for buildings

“Listing helps us acknowledge and understand our shared history. It marks and celebrates a building’s special architectural and historic interest, and also brings it under the consideration of the planning system so that some thought will be taken about its future.”<sup>3</sup>

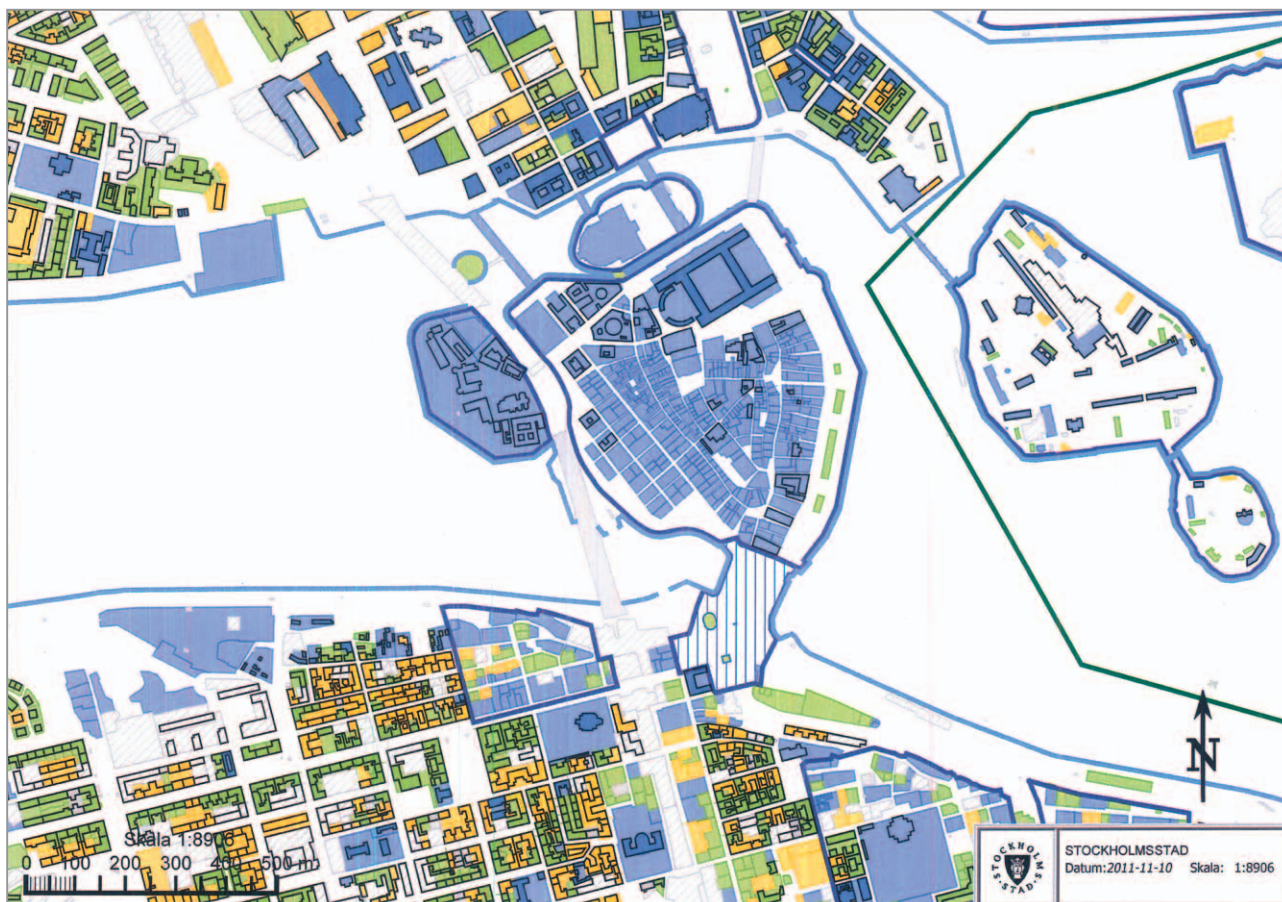
The categories or gradings of listed buildings are authorised by a state government or other authority. It might also be a shared responsibility between different administrative bodies at a national and regional level. And the categories or grading vary among the partner countries. There are different solutions as regards keeping records about the listed buildings, for instance databases or other planning instruments are used.

In the project, six countries out of nine have a grading system for buildings at a national level. At a regional level there are only Sweden (partly) and Denmark that have a grading or classification system. Latvia, Poland and Lithuania have the same grading system at the national and regional level. Finland and Germany do not have any grading system.

The illustration below shows an example of a classification made at municipal level in Sweden. It is part of a planning document, a cultural environment plan, made by the City Planning Office in Stockholm. It is an inventory of buildings taken into consideration when new detailed plans or building permits are made for new buildings or renovations.

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3 According to English Heritage, <http://www.english-heritage.org.uk/caring/listing/listed-buildings/>



#### *Index*

*Blue: listed buildings or buildings of same dignity as listed buildings in the Heritage Act;*

*Green: building of certain historic, environmental or artistic significance;*

*Yellow: building with positive significance for the cityscape and/or some cultural value.*

*Areas with a blue border are areas of national interest; green borders are of local and/or regional interest.*

*Illustration: Example of classification at regional level – classification of the built environment in the municipality of Stockholm, made by The Stockholm City Museum. The Stockholm City Museum does the inventories and the classification. The grading of buildings is executed by the Head of the Stockholm City Museum (Stadsantikvarien).*



Cultural Heritage		Partner No	1—4	5—8	9	10—12	14—15
			Germany	Sweden	Denmark	Estonia	Latvia
Built Heritage	Laws on protection of cultural heritage	National level	none	Heritage conservation act, Cultural Monuments Ordinance, State Cultural Heritage Buildings Ordinance, The Environmental Code, The Planning and Building Act.	The consolidated listed buildings and preservation of buildings and urban environments act, Museum act	Heritage conservation act	Law on protection of cultural heritage, Territories Planning Construction Law Law on Protective Zones Latvian Administrative Offence Code
		Regional level	Heritage Preservation Act, for each federal state	Municipal development plans and regulations area.	Danish building regulations	-	Riga Historical Centre Preservation and Protection Law
	Definition of built heritage		Different in each federal state	Protected heritage (by the laws listed before) and environment of cultural heritage value defined by in regional regulation plans by municipalities	Buildings before the reformation in 1536 are automatically listed. Buildings of special architectural or cultural heritage value. Buildings worthy of preservation.	Movable and immovable monuments could be both historical and architectural monuments	Cultural monuments and architectural monuments
		principles of Selection		Heritage preservation bodies decide on each case individually	Stately listed buildings and churches. Cultural heritage protected by planning and building act	Listed buildings giving insights in the history of Denmark.Principles of the SAVE method for buildings worthy of preservation.	Expert assessment of the National Heritage Board and a proposal from the Heritage conservation advisory panel. Directives by Ministry of culture. All legal and private persons can make proposals for designation of monuments.



		Partner No	16	17	19	20	
			Poland	Belarus	Finland	Lithuania	
Cultural Heritage	Built Heritage	Laws on protection of cultural heritage	National level	Act on Monument Protection and Preservation, Regulations of The Ministry of Culture and National Heritage.	Law On protection of historical and cultural heritage of the Republic of Belarus, other legislative acts, found in United Legal Classifier under Legislation on Culture and Arts	Land use and building act, act on the protection on the built heritage, antiquities act, Church act	Law on protection of immovable protection, law on construction in restoration of structure of cultural heritage.
			Regional level	None	Resolutions of local administrative bodies.	Land use and building act	Municipalities implement by the law of local self government
		Definition of built heritage		Immovable monuments – a real property, its part or a complex of real properties being the work of man or related to human activity and bearing testimony of previous epochs or events, whose preservation is in the social interest due to their historic, artistic or scientific value.	Monuments of architecture and monuments of history with historical and cultural values.	Built heritage that has significance for history of buildings, architecture, construction technology, environmental value or use related to the building.	Immovable cultural heritage, part of cultural heritage made of preserved or unpreserved material/ property created by passed generations or important by historical events.
				principles of Selection	Time, historic, artistic or scientific value.	Presence of any notable spiritual, artistic and (or) documentary worth, which shall be confirmed by correspondence to one of certain (25) criteria. Authentic or restored at least 40 years from the time of initial creation.	Owners, Municipalities, Centres for Economic Development, Transport and the Environment (ELY Centres), National Board of Antiquities can make motions for protection. Selections and decisions are made by the regional ELY Centres. Complaints are wielded by the Ministry of the Environment.

		Partner No	1—4	5—8	9	10—12	14—15	
			Germany	Sweden	Denmark	Estonia	Latvia	
Cultural Heritage	Protection and grading system	Definition of cultural value	National level	none	Listed by heritage agency for stately listed buildings. Private buildings listed by county administrative board.	Listed by heritage agency for both private and state-ly listed buildings.	Monuments are designated by a directive of ministry of culture based on proposal Board and from the Heritage conservation advisory panel. Monuments are established by a regulation of the government of the republic.	A cultural value is defined in the model supervised by the state inspection for heritage inspection, republic of Latvia. Architectonic heritage of state level, industrial heritage of state level, built heritage of local level, industrial heritage of local level.
			Regional level	Different definitions of built heritage in each federal state. Preservation due to public interest in case of historical, academically, technical or artistically relevance or with the preservation aim of townscape characteristics.	Defined by municipality administrations and decided by political city council.	Buildings worthy of preservation are administrated by the local authorities. Only exterior is protected.	-	No difference between state level and regional level
	Grading	National level	none	Listed buildings and churches protected by law, environments of national interest	Listed buildings must obtain permission from the Heritage Agency.	Movable and immovable monuments. Immovable can be both historical and architectural monuments	Building are graded as national and regional level heritage building	
		Regional level	none	Environments and buildings of local cultural historic value protected by planning and building act	Buildings worthy of preservation are graded 1-9. 1 is most strict and the level before listed.	-	Building are graded as national end regional level heritage building	

## D) Evaluation of the national contributions

		Partner No	16	17	19	20	
			Poland	Belarus	Finland	Lithuania	
Cultural Heritage	Protection and grading system	Definition of cultural value	National level	About monument of history considering of special value for culture President of the Republic of Poland makes the decision , pursuant to an application filed by The Minister of Culture and National Heritage	Consideration of Rada and resolution of Council of ministers on awarding the status of historical and cultural value.	In built heritage the authorities interpret the protection regulations and might require a building history survey.	No special procedure
			Regional level	An entry in register of monuments Voivodeship Monument Conservator makes the decision in officio or pursuant to an application filed by the owner of the property considering time, historic or scientific value.	-	Same as national level	The municipality give the conditions when making project for refurbishment. Buildings of cultural values are very strictly protected by municipalities.
	Grading	National level	Monument of history	Material historical and cultural values are divided into 4 categories from 0-3- From world heritage to regional heritage. Indicated in the state register of historical and cultural values of the Republic of Belarus.	none	Graded by describing buildings valuable properties	
		Regional level	An entry in register of monuments, a cultural park, the protection in a local use plan	-	none	Graded by describing buildings valuable properties	

### 3. Energy supply and laws on energy efficiency

#### Summary

Very few countries use energy audits in historic buildings, however some do so voluntarily when refurbishing existing buildings.

No country has specific national rules concerning energy supply and historic buildings as yet.

No country can specify the amount of energy consumption in historic buildings.

#### Worldwide climate policies and European Directives

In the questionnaire, partners were asked to give a description of national adaption to worldwide climate policy (the Kyoto Protocol) and the implementation of the directives of the European Parliament; 2002 / 91 / EC and 2010 / 31 / EU on the energy performance of buildings and a report of the national Energy Efficiency Action Plan that is based on the requirements of Directive 2006 / 32 / EC on energy end-use efficiency and energy services.

In addition they were asked to give an illustration of the use and effects of energy audits in historic buildings.

Estonia, Latvia and Poland stand out in the chart concerning the status of the targets in the Kyoto protocol because they are way over the target, meaning they have reduced more emissions than the target. Some countries are using the Kyoto flexible mechanisms like emission trading, among others. Germany is on track, but Sweden, Denmark and Finland are still below the targeted emission levels.

The EU directives have been implemented through building regulations in most countries except for Germany which has its own energy saving act and regulations which are part of the national building laws. In Poland changes in the national law are still being prepared. Belarus, which is a non-EU partner, has its own system.

Most countries except for Lithuania have created a national energy audit program. All countries have accepted the exclusion of historic buildings that is proposed in the directive. Sweden, Germany and Finland will have a new national law based on 2010 / 31 / EU in 2012.

In national energy efficiency action plans, three of the countries have described their national aims as 9 % energy savings by 2016. Only Sweden has specified a baseline which is the final energy consumption between 2001 – 2005. We presume the baseline is the same for the other countries.

### **National Legislation – laws on energy efficiency**

Germany, Sweden, Latvia and Belarus have national legislation concerning energy performance and audits for buildings. Only Germany, Sweden and Denmark have a regional level which functions through the application of building regulations.

### **National Legislation – Historic buildings**

All countries have excluded historic buildings from energy performance in buildings – meaning listed buildings and monuments.

No country could answer the question about the share of energy consumption by historic buildings in the building stock or CO<sub>2</sub> emissions. Germany works with limit values for existing buildings that is 40 % over new / reference buildings. In Sweden the new building regulations from autumn 2011 will set the same limit values for refurbished buildings as for new ones. Alterations must be cautiously made and the cultural value of the building is not allowed to be altered.

		Partner No	1—4	5—8	9	10—12	14—15	
			Germany	Sweden	Denmark	Estonia	Latvia	
Energy Supply & Efficiency	Worldwide Climate Policy	Kyoto protocol target	2008 – 2012/ 1990 GHG emission	– 21 %	– 21 %	– 21 %	– 8 %	8 %
			Status quo 2009/1990*	– 26,3 %	– 17,2 %	– 10,2 %	– 59,6 %. Estonia is using 2 out of 3 Kyoto flexible mecha- nism, joint implementation and international emissions trading	– 59,7 %
	European directives	2002/91/EC EPBD	Energy Saving Act (ENEG) and Energy Saving Regulations (ENEV) consider heating systems and insulation of buildings. Defines limit values for new and refur- bished buildings. Energy audit system defined.	Directive 2002/91/ EC is since beginning of 2006 a constitution in Sweden. In Sweden the directive is implemented through: – the introduction of the system of energy declara- tion for buildings – changes in the Swedish building code – spread of information through i. e. energy advisers and energy agencies	2006 heat transmission changed to requirements concerning energy consump- tion of buildings. Also an energy reduction of 25 %for new buildings compared to former regula- tions. 2008 insulation standard of existing buildings was introduced; insulation should increase to a level compared to the requirements of new buildings. 2010 energy reduction of 25 % for new buildings.	—	Law on Building Energy Perform- ance approved 2008 and adopted 2010. Issuing energy certificates, requirements energy auditors, methods calculating energy efficiency in buildings.	
		2010/31/EU EPBD	Work in progress in national law.	It is a part of the energy chapter in the building regulations.	Tightened energy provi- sions are planned in 2015 and 2020 each time 25 % energy reduc- tion.	In the frame work of EFS project manual was compiled 2010 to better meet the requirements of the government regulations because of considerable shortcomings	Regulations of Cabinet of Ministers on minimum energy effi- ciency require- ments. National building standards on energy effi- ciency incl. Low energy build- ings.	

\* according to United Nations Framework Convention on Climate Change, FCCC. GHG (green house gases) emissions excluding land-use change and forestry (LULUCF).

			Partner No	16	17	19	20
				Poland	Belarus	Finland	Lithuania
Energy Supply & Efficiency	Worldwide Climate Policy	Kyoto protocol target	2008 – 2012/ 1990 GHG emission	– 6 % 2012/1988	– 15 %	77 Mt ekv	– 5 %
			Status quo 2009/1990*	– 32,1 %	– 36,9 %	– 5,7 %	– 58,9 %
	European directives	2002/91/EC EPBD		In 2007 Building Law was amended, The regulations from the Ministry of Infrastructure was enforced technical conditions TW2008 and energy certificates	Not EU-Directives but technical codes of standard practice (TCP) TCP 45-2.04-196-2010 “Thermal protection of buildings. Heat-and-Power characteristics. Identification rules” and TCP 45-2.04-43-2006 “Heating engineering of buildings. Construction norms for buildings”.	New building codes requirements for new buildings tightens 30 % compared to 2003.	Technical regulations
			2010/31/EU EPBD	Changes in national law is being prepared.	Same as Directive 2002/92/EC	New regulations for new buildings 2012. Tightened minimum requirements 20 % compared with 2007.	Expand central heating; improve of heating and hot water supply

\* according to United Nations Framework Convention on Climate Change, FCCC. GHG (green house gases) emissions excluding land-use change and forestry (LULUCF).

Partner No		1 – 4	5 – 8	9	10 – 12	14 – 15
		Germany	Sweden	Denmark	Estonia	Latvia
Energy Supply & Efficiency	European directives					
	2006/32/EC Energy Efficiency Action Plan	Already implemented in Energy Saving Regulation. Benchmarks for national energy savings; Description of or further development of existing measures (e.g. CO <sub>2</sub> building refurbishment programme); Energy savings in the public sector (e.g. in public buildings; Controlling of energy consumption.«	National aim is 9 % energy saving until 2016 compared to final energy consumption in 2001 – 2005. Milestone 6.5 % energy savings until 2010 which is =24,0 TWh until 2010 and 33,2 TWh until 2016.	Calculations of energy consumption before and after construction of a building is required and must relate to the building regulations.	(2006/32/EC is implemented via government regulation “energy efficiency minimum requirements” influencing new and majorly reconstruction buildings.	Savings in residential-, tertiary-, Industry-, transport- and agriculture sectors. Within residential: energy audits and certificates; subsidies for measurements, information and develop secondary legislation.
	Energy Audits/Heritage buildings	Energy audits mandatory for all buildings except built heritage.	»In Sweden historical buildings such as listed buildings, churches, places of worship and buildings protected in a municipal development plan are excluded by the law of energy audits. But made voluntarily in built heritage – extent unknown.	Only on new buildings	—	Energy audits can be carried out if not endanger the preservation or reduce the cultural value in heritage.



		Partner No	16	17	19	20
			Poland	Belarus	Finland	Lithuania
Energy Supply & Efficiency	European directives	2006/32/EC Energy Efficiency Action Plan	Plan from Ministry of Economy: Intermediate target 2 % until 2010. Final target according to directive – 9 % savings until 2016	National energy saving program 2011 – 2015 (action plan). Regional and Branch energy savings programs on yearly basis provide measures to implement the National program	Reduction of end use energy by 9 % 2016. Private and public sector program ERA 17 to speed up measures.	Energy end use efficiency, national energy sufficiency control system, index system, index calculation methods and sources.
	Energy Audits/Heritage buildings		Act of The Termomodernisation Does not apply on build heritage upon Act of Monument Protection and Preservation. Energy audits are crucial for financing and apply individually by the owners because of actions required are cost consuming	Not included in historical buildings.	Voluntarily for built heritage	No national energy audits program.

Partner No		1—4	5—8	9	10—12	14—15
		Germany	Sweden	Denmark	Estonia	Latvia
Energy Supply & Efficiency	National legislative	National level	Energy Saving Act (ENEG) and Energy Saving Regulation (ENEV)	Law of Energy Performance in Buildings, The new Planning & Building Act concerning energy and climate protection. Building Regulations concerning energy.	Building regulations	Building regulations
						Law on Building Energy Performance, Regulations of Cabinet of Ministers and Energy end-use efficiency law
	Built Heritage	Regional level	Hamburg Climate Protection Act and Hamburg Climate Protection Regulation	»City planning office implement national building regulations. Regulations makes it possibility for municipalities to set higher energy requirements than the national implemented directive. «	Municipal land use plans.	—
		Rules on energy supply and performance	Exceptions for built heritage and other buildings worthy of preservation considering energy certificates and climate protection measures.	When refurbishing an existing building (not listed, and cultural value is not allowed to be distorted) it is the same requirement as for new buildings.	No national rules	No national rules
		EPBD	Built heritage excluded	Built heritage excluded	Built heritage excluded	More attention is paid at the look of monuments and not to the energy efficiency concerning brick and stone buildings.
						Heritage excluded

			Partner No	16	17	19	20
				Poland	Belarus	Finland	Lithuania
Energy Supply & Efficiency	National legislative	Laws on energy efficiency	National level	In 2011Act of Energy Efficiency in accordance to directive 2006/32/EC	Law “On energy savng”. Directive of the President “Saving and frugality as major factors of the economic security of the state”.	Building regulations	Building regulations
			Regional level	No	No	No	No
	Built Heritage	Rules on energy supply and performance		Built heritage upon Act on Monument Protection and Preservation excluded	TCP 45-2.04-43-2006 “Heating engineering of buildings. Construction norms for buildings” and TCP 45-1.04-206-2010 “Repair, reconstruction and restoration of residential and public buildings and constructions. Basic design requirements”.	No national rules	Technical regulations and built heritage construction regulations.
			EPBD	Built heritage upon Act on Monument Protection and Preservation excluded	Excluded	Today no legislation but to be seen	First usage audit methodology in 2008.

			Partner No	1—4	5—8	9	10—12	14—15
				Germany	Sweden	Denmark	Estonia	Latvia
Energy Supply & Efficiency	National legislative	Built Heritage	Excluded buildings	Buildings on heritage list. Legal discussion if identified but not yet listed heritage buildings shall be excluded.	Any building with cultural heritage value can not be changed in a way that reduces the value.	Listed buildings whereas listing protects entire building. Buildings worthy of preservation are evaluated and can be given dispensations,	—	»cultural monuments or location of same excluded if the fulfilment of law endanger the preservation or reduce the cultural value; religious places;«
			Energy consumption (CO <sub>2</sub> emissions)	For existing buildings limit value is 40 % over new/ reference buildings.	No data	No data	—	No data

			Partner No	16	17	19	20
				Poland	Belarus	Finland	Lithuania
Energy Supply & Efficiency	National legislative	Built Heritage	Excluded buildings	Built heritage upon Act on Monument Protection and Preservation Churches and places of religious cult	—	—	All built heritage objects
			Energy consumption (CO <sub>2</sub> emissions)	No data	—	No data	No data

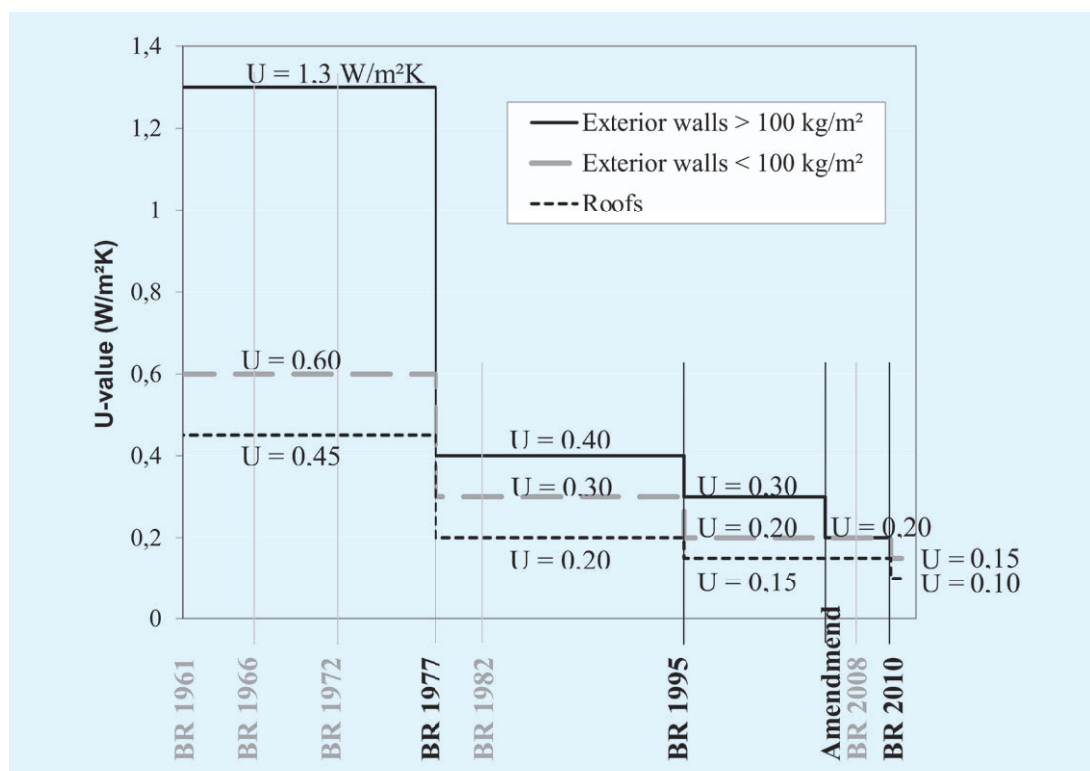
## 4. Building regulations

### Summary

As yet, no country has specific building regulations concerning energy supply and historic buildings (when defined as a building with cultural value), but energy saving matters might be considered when a building is refurbished and if the cultural value is not altered.

### Building regulations and energy efficiency

In the questionnaire, partners were asked about the implementation of the EU directives and the impact of building regulations on historic buildings. Baseline values for heat transmission were brought up as a question during the first partner meeting among countries.



*The development of requirements to U-values (W/m²K) in Denmark shown for exterior walls and roofs. Illustration: Danish Building Research Institute (SBI)*

In most countries, energy directives are implemented through building regulations.

Building regulations do not yet impact on energy efficiency in listed, historic buildings. However buildings of cultural value may be affected in new building regulations in Sweden if refurbished existing buildings must meet the same energy capacity as new ones when it comes to energy consumption. It depends on how municipalities will define “unaltered cultural value” in building permissions and land use plans. It is uncertain how historic buildings will be affected in the long term.

Most partner countries have limit values for heat transmission for new buildings. Some still use limit values for, for instance, structural parts and not the whole wall.

Sweden is divided into 3 climate zones with different value limits.

In Estonia they differentiate between types of buildings and in Belarus between stories and ventilation systems in the building as well.

Few countries except for Estonia have specific limit values for heat transmission for refurbished buildings. These limits are the same or higher as for new buildings.

Building Regulations	Energy efficiency	Partner No	1—4	5—8	9	10—12	14—15
			Germany	Sweden	Denmark	Estonia	Latvia
		<b>Building regulations affected by energy directives</b>	Yes, as part of the Federal Building Code in different sections.	Yes, separate chapter in building regulation (chapter 9 BBR) affecting new and refurbished existing buildings. Law of energy declarations.	Yes, separate section of the Danish Building Regulations (Section 7) affecting new and converted buildings	Yes, separate section in building regulations (section 7)	No
		<b>Building regulations impact on built heritage</b>	Not obligatory for built heritage but applied in refurbishments.	Refurbished, existing building has to meet same energy performance values as new buildings. Alterations made cautiously and cultural values of the building is not allowed to be distorted.	EPBD only compulsory for new and refurbished buildings. Listed buildings are excluded and buildings worthy of preservation are special evaluated.	No. Heritage is excluded.	No impact
		<b>Limit value for heating transmission W/m<sup>2</sup>K (U-value)</b>	Different U-value on different building constructions. Differs btw lowest roofs (0.20) to windows (1.3). Facades 0.28.	<b>For electricity heated dwellings and other heat source, from oct 2011:</b> heating transmission 0,40	Heating transmission exterior walls: 0,15	—	Different U-value on different building constructions. Differs btw lowest thermal bridges (0.25k) to windows (2.7k). Walls 0,3 – 0,4k depending on weight. k is temperature factor.
		<b>Limit value for energy consumption kWh/m<sup>2</sup>/A/year</b>	—	<b>Electricity heated dwellings (06/2011):</b> Climate zone I (north): 95 Climate zone 3 (south): 55 <b>Other heating source (10/2011):</b> Climate zone 1: 130 Climate zone 3: 90	Dwellings: 52.5; Premises: 71.3; Limit for hot water: 1650	<b>New buildings:</b> Dwellings: 150 – 180; Premises: 220 – 300; Health care/ Swimming pools: 400/800; <b>Refurbished buildings:</b> Dwellings: 200 – 250; Premises: 290 – 390; Health care/ Swimming pools: 520/1000	—

A = Atemp= heated area



		Partner No	16	17	19	20
			Poland	Belarus	Finland	Lithuania
Building Regulations	Energy efficiency	Building regulations affected by energy directives	Yes, affecting new buildings. Build heritage upon the Act of 23 July 2003 excluded.	None affected by EU directives	Yes, several parts of the Building Code. Act on energy certificate of buildings. Regulations on inspection of boilers and air conditioning.	Yes, included in law.
		Building regulations impact on built heritage	No application	Build heritage indirectly affected by TCP 45-1.04-206-2010 and TCP 45-2.04-43-2006	No direct impact.	Regulations divided buildings into 7 energy efficiency groups. 5 and 6th group will be refurbished to meet EU standards. The last group are buildings in bad condition and therefore no action taken.
		Limit value for heating transmission $W/m^2K$ (U-value)	Separate values for building elements: External wall: 0.30 Roof: 0.25 Floor: 0.45 Windows, depend of climate zone: 1.7 – 1.8 Doors: 2.6	R-Value is used in TCP	Wall: 0.17 calculated value. Max 0.6; Windows 1.0 calculated value. Max 1.8.	No limit value for new buildings.
		Limit value for energy consumption $kWh/m^2/A/$ year	No limit values	Specified in TCP 45-2.04-196-2010 for each building type. Example: 1 – 3 storey residential building with natural ventilation < 96	—	—

A = Atemp= heated area

## 5. Financial mechanisms

for energy efficiency measures since the implementation of EPBD (Energy Performance of Buildings Directive).

### Summary

Subsidies for cultural heritage are not connected to EPBD.

There are big differences between the countries as regards financial mechanisms: some countries have extended financial subsidies, loans, tax reductions, etc., some very little.

### Financial support and funding

In the questionnaire, partners were asked for a description of the support system for historic buildings and energy savings. We did not make a distinction between support and funding but support normally means (state) support that a person or a project can apply for and funding is more of an active investment in a specific issue or project.

Belarus has supports (tax reduction, financial support and funding) aimed at cultural heritage. VAT (value-added tax) is excluded for research, design and activities for the protection of monuments. There are funds both from owners and the republic for protective work.

In Denmark and Poland there is also VAT reduction for activities for the protection of cultural heritage. Germany uses a reduction of income tax.

Estonia, Poland and Lithuania have grants or other national financial support for renovation and management of cultural heritage.

In Sweden there is funding for additional costs incurred for the preservation of cultural heritage.

Of the partner countries, Germany, Sweden and Finland seem to have the most thorough support for energy-saving and efficiency activities. But no financial initiatives are specifically purposed for energy efficiency in historic buildings.



		Partner No	1–4	5–8	9	10–12	14–15
			Germany	Sweden	Denmark	Estonia	Latvia
Financial Mechanisms	Tax reductions/exemptions	Cultural Heritage	Tax reduction for costs for measures on built heritage.	ROT – tax reduction for service when refurbish or adding building to existing (not necessarily CH)	Tax exemptions for higher maintenance expenses are given for listed buildings.	—	No
		Energy saving	Direct subsidies for refurbishment	Miljö-ROT: Tax reduction for bio fuel and changing to energy efficient windows (2004 – 06); Conversion to renewable energy (2006 – 10); Solar energy (2009 – 2012).	Improvement of insulation.	—	No
	Financial support/subsidies	Cultural Heritage	—	—	—	Yes for evaluation of architectural, cultural value of the building and technical condition for making preliminary suggestions for renovation and maintenance.	
		Energy saving	Yes, on <b>energy</b> . Grants from public banks on national and federal level.	Subsidies to new energy technic (Energiteknik-fonden); Trading with certificates stimulates renewable energy.	No, only tax reduction.	Yes, for the renovation to increase the <b>energy efficiency, energy audits and expertise</b> .	Green Investment Scheme/Kyoto – AAUs sold invested in green project.
	Funding	Cultural Heritage	—	Funding for <b>additional cost</b> for concerning preservation of valuable cultural environments.	Yes, an option for building owners.	—	No
		Energy saving	Yes. Programs (e. g. reduced loans) from public bank on federal level.	Yes, energy efficient actions.	—	—	No

		Partner No	16	17	19	20
			Poland	Belarus	Finland	Lithuania
Financial Mechanisms	Tax reductions/exemptions	Cultural Heritage	No	Yes. VAT excluded on research, design and production actions on ancient monuments.	—	No
		Energy saving	No		Yes, tax reduction for households for energy saving and efficient actions.	No
	Financial support/subsidies	Cultural Heritage	Grants from Ministry of Culture and National Heritage, National, regional and local direct subsidies for refurbishment and conservators works.	Some protective work is financed by the funds of owners or from the funds of the national budget.	—	Fixed interest for mortgage; 100 % governmental support for preparation and management of the renovation project; 100 % governmental support for socially disadvantaged people or families.
		Energy saving	Co-financing of thermo-modernization costs up to 20 % of credit. Fund for Environmental Protection and Water Management. Partial cancellation of credits by the National Economy Bank, special credit lines in the Environmental Protection Bank.		Subsidies for housing companies for energy saving and efficient actions.	The government covers part of investment spent for renovation depending on the energy efficiency of the project.
	Funding	Cultural Heritage	European Structural Funds, ENPI, Norwegian Financial Mechanism	Funds of the Republic's and local budgets; Owners and (or) holders of historical and cultural values	—	—
		Energy saving	European Structural Funds, ENPI, Norwegian Financial Mechanism, Swiss Funds.		Energy efficiency, CO <sub>2</sub> investments and renewable heating source for residential buildings.	Governmental program for modernisation, municipality funds, residential building owners contributes minimum 10 % of the sum needed for the renovation.



## E) Conclusions of the baseline study

The baseline study points out some of the main problems and needs that are summarised in the conclusions below. The next step in the project is to forward the conclusions of the baseline study to the partners' stakeholder groups and roundtable meetings and further on into the political discussion.

### **The connection between energy and cultural heritage could and should be clarified more**

None of the partner countries has specific national rules concerning energy supply and historic buildings, also, none of the partner countries could specify the amount of energy consumption of historic buildings. For example, the environmental action plans usually fail to consider the cultural heritage aspects in a relevant way. The same can be said of the action plans and strategic documents concerning cultural heritage, they seldom consider climate protection. The competent cultural heritage authorities do not have any influence in the legal process regarding energy efficiency in historic buildings. The cultural heritage regulations are used only to control the restoration and preservation of the cultural heritage objects, not to focus on energy consumption.

### **There is a lack of knowledge and competence in dealing with energy efficiency in historic buildings**

There is a need for specific know-how for architects, energy consultants, engineers and craftsmen. Among policy makers as well, the connection between energy efficiency and historic buildings is not clear.

Very few of the partner countries use energy audits in historic buildings. The energy audits system has to be looked at more closely because energy audits could perhaps be of use for heritage buildings as well if there were greater recognition of their competence. Then, for instance, the audits and proposals resulting from them could be carried out in conjunction with a building conservator, or the proposals could be evaluated or examined by different professionals.

There is a need for methods of working with energy efficiency in cultural heritage buildings.

As yet, none of the partner countries have specific national rules concerning energy supply and historic buildings. Due to the fact that there are no specific regulations on the energy-efficient refurbishment of historic buildings, there is a need for guidelines, standards or policies in order to analyse, realise and monitor the energy-efficient refurbishment of historic buildings.

### **The effect of building regulations on cultural heritage needs to be discussed**

Most of the partner countries' energy directives are implemented through building regulations. Building regulations impact on energy efficiency in listed and historic buildings and need to be discussed in the project. In the building regulations in some of the countries the requirements for thermal insulation are regulated. The limiting value is one for all types of buildings. This leads to the situation that heritage buildings are in a less favourable situation compared to other types of buildings. Because of technical limits due to thermal properties and dew point, the insulation thickness of internal insulation cannot exceed a certain value and therefore cannot achieve savings as high as for non-heritage buildings.

### **There is a lack of internal communication in the national authorities regarding subsidies**

The financial mechanisms and legislation are not harmonised with the legislation and intentions of preservation. There is a need for specific public funding for energy efficiency in historic buildings.





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# Annex

## Section 1: Survey questions

The survey questions attempt to achieve an analysis on the status of climate protection and cultural heritage and were part of the questionnaire sent out after the first Work Package meeting. The answers are to be found in the national contributions, a separate document for each partner country. The questions are included.

### Questions

The survey questions asked in the questionnaire were the following:

- Make an analysis on the status of climate protection and cultural heritage in your country:
- How do the directives, policies, standards, etc., influence the work of the responsible bodies? That is: How do the directives influence their decisions and work concerning the status/ integration of climate protection and cultural heritage?
- Do you know if the competent cultural heritage authorities have any real influence in the legal process regarding energy efficiency in historic buildings?
- How do the rules and standards influence practice? What are the major consequences on cultural heritage of their implementation?
- In your opinion, do the rules and standards (EPBD) represent constraints or opportunities for heritage conservation and climate protection? Please elaborate.
- In your opinion, do the financial mechanisms of your country represent constraints or opportunities for heritage conservation and climate protection?

## Section 2: Facts and Data-Questionnaire

### 1. Basic information

- 1.1 Project partner number:
- 1.2 Country:
- 1.3 Population in your country – December 2010 if possible:
- 1.4 Do you know the Carbon Footprint of your country (the “ecological footprint” of a country with regard to greenhouse gas emissions)?
- 1.5 Total number of buildings (*gross floor area, m<sup>2</sup> or specific number*) in your country:
- 1.6 How many (% / number) of the built total are brick buildings?
- 1.7 How many (% / number) of the existing buildings in your country are defined as historic buildings?
- 1.8 How many (% / number) of the historic buildings are brick buildings?  
Presentation of each country’s governmental structure and administrative bodies and how they work.
- 1.9 Which body is responsible for implementing the law on the energy directives?
  - 1.9.1 Responsible body (bodies) on a national level:
  - 1.9.2 Responsible body (bodies) on a regional level:
- 1.10 How does the relationship between authorities work?

### 2. Cultural heritage

- 2.1 List laws on the protection of historic buildings at
  - 2.1.1 national level:
  - 2.1.2 regional level:
- 2.2 Definition of historic buildings?
- 2.3 What are the principles for the selection of historic buildings?
- 2.4 How is the heritage protection system and designation of buildings defined in your country? Meaning: Is there a model or structure in your country about how to define cultural value in a building before refurbishment?
  - 2.4.1 Defined at national level:
  - 2.4.2 Defined at regional level:
- 2.5 Does your country have a grading system for buildings? For example, for listed buildings.
  - 2.5.1 Graded at national level:
  - 2.5.2 Graded at regional level:

### 3. Energy supply and laws on energy efficiency

Please describe the laws on energy efficiency at a national level and regional level in your country.

- 3.1 Worldwide climate policy, the Kyoto Protocol
  - 3.1.1 Please specify the Kyoto protocol target for your country:
  - 3.1.2 What is the current status as regards reaching the Kyoto target?
- 3.2 Directives of the European parliament on the energy performance of buildings (EPBD).
  - 3.2.1 Please describe how Directive 2002 / 91 / EC on the energy performance of buildings is implemented in your country and indicate the legal reference:
  - 3.2.2 Please describe how Directive 2010 / 31 / EU on the energy performance of buildings (recast) will be implemented in your country (if the information is available):
  - 3.2.3 Please describe national Energy Efficiency Action Plan that is based on the requirements of Directive 2006 / 32 / EC on energy end-use efficiency and energy services:
- 3.3 How is an energy audit used? Is it used for historic buildings and if so, what are the consequences?
- 3.4 Laws on energy efficiency in your country;
  - 3.4.1 at a national level:
  - 3.4.2 at regional level:
- 3.5 Are there specific national rules (exclusive EU directives) concerning the energy supply and performance in historic buildings?
- 3.6 Is the EPBD (Energy Performance of Buildings Directive) compulsory for all existing buildings or does it exclude certain categories of buildings?
- 3.7 Which historic buildings are covered and / or excluded by these rules?
- 3.8 If you know the number of the historic buildings (compare 1.7), do you know the energy consumption (CO<sub>2</sub> emission) of the historic buildings?

### 4. Building regulations

- 4.1 Please describe the building regulations affected by energy directives in your country:
- 4.2 Please describe the impact of building regulations on energy efficiency in historic buildings in your country:
- 4.3 The limit values for heat transmission vary among countries. Which value is the limit for new buildings (optionally for historic buildings) in your country? Please specify unit:

**5. Financial mechanisms, since implementation of EPBD**

- 5.1 What are the financial mechanisms used in your country? For example, tax reduction for changing windows or undertaking other refurbishments. That is: financial activities with consequences for cultural heritage.
- 5.2 Tax reduction and / or exemptions?
- 5.3 Financial support and / or subsidies?
- 5.4 Funding?



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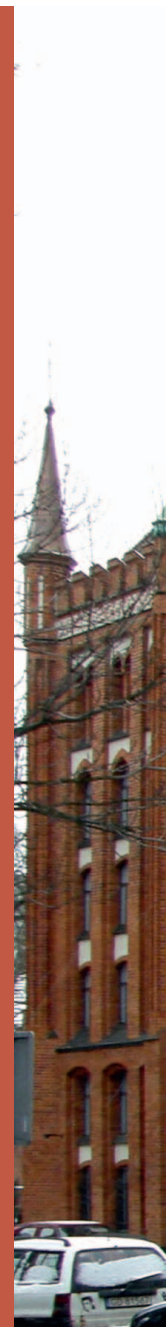
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